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FILED

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PUBLIC UTILITIES  
COMMISSION

The Honorable Chair and Members  
of the Hawai'i Public Utilities Commission  
Kekuanao'a Building, First Floor  
465 South King Street  
Honolulu, Hawai'i 96813

Subject: Docket No. 2017-0352 – To Institute a Proceeding Relating to a Competitive Bidding Process to Acquire Dispatchable and Renewable Generation Submission of Revisions to the Proposed Final Draft Requests for Proposals

Dear Commissioners:

On July 10, 2019, the Hawaiian Electric Companies<sup>1</sup> submitted their proposed final Stage 2 Request for Proposals for Variable Renewable Dispatchable Generation and Energy Storage for O'ahu, Maui and Hawai'i Island ("Proposed Final Renewable RFPs"), proposed final Request for Proposals for Delivery of Grid Services from Customer-Sited Distributed Energy Resources on O'ahu, Maui and Hawai'i Island ("Proposed Final Grid Services RFP"), and supporting documentation in accordance with Order No. 36356 *Providing Guidance on the Hawaiian Electric Companies' Phase 2 Draft Requests for Proposals for Dispatchable and Renewable Generation* issued by the Commission on June 10, 2019 in the subject proceeding ("Order 36356") and Order No. 36406 *Addressing the Hawaiian Electric Companies' Motion for Clarification of Order No. 36356* issued by the Commission on July 5, 2019 in the subject proceeding ("Order 36406") ("July 10<sup>th</sup> Filing").

In the July 10<sup>th</sup> Filing, the Companies explained that, after reviewing the further guidance in Order 36406, the Companies revised the Proposed Final Renewable RFP for Hawai'i Island to allow for generation projects paired with storage to provide contingency storage if certain parameters are met. However, given the short timeframe between receiving Order 36406 and the July 10<sup>th</sup> Filing, the Companies did not have sufficient time to fully develop the required updates to incorporate this concept. In addition, the July 10<sup>th</sup> Filing explained that the Proposed Final Grid Services RFP update delineated the Fast Frequency Response ("FFR") grid service requirements for the different islands by creating two different types of response: FFR-1 and FFR-2. However, the July 10<sup>th</sup> Filing indicated that the Companies would further define FFR-1 in the Proposed Final Grid Services RFP. Finally, the July 10<sup>th</sup> Filing noted that on July 9, 2019, the Companies received Decision and Order 36410 in Docket No. 2018-0102 denying without

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<sup>1</sup> The "Hawaiian Electric Companies" or "Companies" are Hawaiian Electric Company, Inc. ("Hawaiian Electric"), Hawai'i Electric Light Company, Inc. ("Hawai'i Electric Light"), and Maui Electric Company, Limited ("Maui Electric").

prejudice Hawaiian Electric's request to commit approximately \$104 million for a Contingency and Regulating Reserve Battery Energy Storage System issued on July 8, 2019 ("CRR BESS Order"). The July 10<sup>th</sup> Filing indicated that the Companies were reviewing the CRR BESS Order and evaluating whether changes to the Proposed Final RFPs would need to be made to address the CRR BESS Order or in order to leverage the Proposed Final Renewable RFP for O'ahu and the Proposed Final Grid Services RFP to seek contingency and regulating reserve for O'ahu. The Companies have completed the above-explained reviews and made revisions to the Proposed Final RFPs and supporting documents to: (1) seek FFR in the Proposed Final Renewable RFP for O'ahu; (2) seek FFR-1, in addition to FFR-2, in the Proposed Final Grid Services RFP for O'ahu; (3) include performance standards defining the requirements for FFR-1 for each of O'ahu and Hawai'i Island; and (4) further incorporate the ability for FFR to be provided by paired resources in the Proposed Final Renewable RFPs for O'ahu and Hawai'i Island. The need for these revisions is explained in further detail below. In addition, the Companies have found other cleanup edits and corrections that were necessary, for example, typographical errors, incorrect section references, and needed clarifications to the Proposed Final RFPs and supporting documentation. The Companies have provided tables summarizing the changes that will be made to the Proposed Final RFPs and supporting documents in regards to these needed changes, including those related to the inclusion of the request for FFR.

Based on the foregoing, the Companies respectfully submit the following documents highlighting the changes noted above for the Commission's review:<sup>2</sup>

- Exhibit 1 – Blackline of Proposed Final Renewable RFP for the Island of O'ahu (body only);
- Exhibit 2 – Blackline of Proposed Final Renewable RFP for the Island of Hawai'i (body only);
- Exhibit 3 – Blackline of Proposed Final Grid Services RFP (body and Attachment B only);
- Exhibit 4 – Blackline of Proposed Final Draft of the Model Renewable Dispatchable Generation Power Purchase Agreement ("RDG PPA") for Photovoltaic ("PV") for the Island of O'ahu (Article 2, Attachment B, Attachment O, and Attachment T only);
- Exhibit 5 – Blackline of Proposed Final Draft of the Model RDG PPA for Wind for the Island of O'ahu (Article 2, Attachment B, Attachment O, and Attachment T only);

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<sup>2</sup> For ease of review, the Companies have provided changes to the Proposed Final RFPs and model contract documents in blackline, allowing for the revisions made to be easily identifiable.

- Exhibit 6 – Blackline of Proposed Final Draft of the Model Energy Storage Power Purchase Agreement (“ESPPA”) for the Island of O’ahu (Article 4, Attachment B, Attachment O, and Attachment S only);
- Exhibit 7 – Blackline of Proposed Final Draft of the Model RDG PPA for PV for the Island of Hawai’i (Article 2, Attachment B, and Attachment T only);
- Exhibit 8 – Blackline of Proposed Final Draft of the Model RDG PPA for Wind for the Island of Hawai’I (Article 2, Attachment B, and Attachment T only);
- Exhibit 9 – Blackline of Proposed Final Draft of the Model ESPPA for the Island of Hawai’i (Article 4 and Attachment B only);
- Exhibit 10 – Blackline of Proposed Final Draft of the Grid Services Purchase Agreement (“GSPA”) (Attachment A Only);
- Exhibit 11 – Table of Differences from July 10, 2019 Filing;
- Exhibit 12 – Confidential Table of Differences from July 10, 2019 Filing;
- Exhibit 13 – Confidential Contingency Energy Storage Update, Hawai’i Electric Light Company, April 22, 2019 (body, Appendix A, and Appendix C only)<sup>3</sup>; and
- Exhibit 14 – Confidentiality Justification Table.

*Explanation of Revisions related to FFR*

As noted above, subsequent to the Commission’s issuance of the CRR BESS Order, the Companies reviewed the Commission’s findings and believe the Companies have substantially addressed the Commission’s concerns through the following revisions to the Proposed Final Renewable RFP for the Island of O’ahu and the Proposed Final Grid Services RFP:

- Revised solicitation to seek 50 MW of 30-minute duration FFR-1 through standalone storage or paired resources for O’ahu.<sup>4</sup>
- The performance requirements for FFR-1 defined in the O’ahu RDG PPAs and ESPPA are consistent with the Companies’ *PSIP Update Report: December 2016* (“PSIP”).<sup>5</sup>

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<sup>3</sup> The body of the Report and Appendices A and C are provided as Exhibit 13. Appendix B is voluminous and can be provided if necessary upon request.

<sup>4</sup> The amount of FFR-1 sought by the Companies through the Proposed Renewable RFP for the Island of O’ahu is a target and will be adjusted (up or down) based upon the completion of studies indicating the contributions to frequency response from the projects selected in the Companies’ Stage 1 procurement and their cost-effectiveness to provide the service, the quantity of FFR procured through the Grid Services RFP, and the attributes of the expected portfolio awarded through these RFPs.

<sup>5</sup> See Docket No. 2014-0183, The Hawaiian Electric Companies’ Power Supply Improvement Plan Update Report, filed December 23, 2016 at O-15.

- The Companies will not increase the Capacity or Energy procurement targets for the Proposed Final Renewable RFP for the Island of O'ahu and will instead allow the market to propose solutions to contribute to meeting those targets set forth in the July 10<sup>th</sup> Filing, and also provide FFR-1 services.
- Proposers will be required to identify any additional cost for the FFR-1 service, similar to the Proposed Final Renewable RFP for the Island of Hawai'i.
- The Proposed Final Grid Services RFP for the Island of O'ahu will seek the same FFR-2 targets the Companies already proposed to seek. In addition, the Companies will seek up to 50 MW of FFR-1 if grid service providers can meet the same FFR-1 requirements being sought in the Proposed Final Renewable RFP for the Island of O'ahu.
- The resulting FFR portfolio could result in a mix of FFR-1 resources based on price (paired storage, standalone storage, grid services), provided such resources can meet the Hawaiian Electric's technical requirements.

System security in an electric power system is the attribute of the system, or its components, to regain a state of operating equilibrium after being subjected to disturbing forces (transient events), such that the majority of the system remains intact to maintain electric service to our customers, or to restore service more quickly should it be interrupted. Traditional, synchronous generators have traditionally been relied upon to provide many of the services required for system security (e.g., inertia, contingency reserves, regulating reserves, and system short-circuit current), but are now being displaced by variable renewable generation resources that do not provide the same level of security. As the Companies turn down conventional synchronous generators (running them at low loads operation) and cycling them offline to integrate more renewables means the grid is not as secure as it used to be.

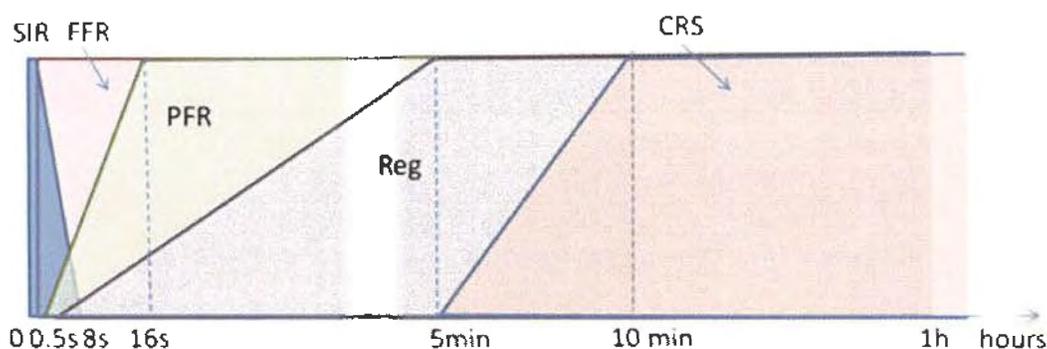
Additionally, since approximately 60 MW of distributed generation PV on the O'ahu grid cannot ride through a low frequency event below 59.3 Hertz, there has been an increasing need for system security services in the form of contingency reserves over the last several years. These changes to the O'ahu grid have resulted in a system that does not have the necessary levels of contingency reserves it needs to meet the level of reliability it has traditionally had and should continue to have.

The FFR services sought for O'ahu in the Proposed Final RFPs will help improve reliability and system security by providing 50 MW of contingency reserves; specifically, it will provide FFR-1 that can be deployed within 12 cycles (200 milliseconds). In conjunction with anticipated grid services resources, which will provide FFR-2 resources that can react within 30 cycles or 500 milliseconds, the O'ahu grid will again be able to adequately stabilize system frequency after the loss of a fully loaded 140 MW generating unit (i.e., Kahe Unit 5 and Kahe Unit 6) without having to disconnect customers from the grid (i.e., load shedding). When Hawaiian Electric's Kahe 5 or 6 generating units are eventually deactivated or retired, the FFR service will continue to be useful in the event other generating resources (e.g., energy storage, PV, or conventional generation), up to 140 MW, unexpectedly disconnect from the grid. Maintaining the single point of failure for a generating resource at this level will continue to allow customers to benefit from resources that take advantage of the "economies of scale."

Currently, without the envisioned FFR-1 and FFR-2 resources, the loss of one of these large generating units can result in under-frequency load shedding (“UFLS”) of customers to stabilize system frequency.

FFR is not only needed during periods of high solar generation. A contingency event can cause frequency instability during the evening peak hours and will become increasingly pronounced when conventional generators are turned down or cycled off, as the predominant supply shifts towards inverter-based energy storage resources in the near future.

As stated in Hawaiian Electric’s response to PUC-IR-109 in Docket No. 2018-0102, Primary Frequency Response (“PFR”) and FFR are two distinct frequency control services. FFR is not a traditional frequency responsive service, as traditional bulk power systems will rely upon the inertial response of synchronous generators to resist frequency degradation following a contingency event. However, FFR, while not a substitute for the inherent physical attributes of inertia, can help to reduce the rate at which frequency decays such that PFR can respond to, halt, or arrest the frequency decay. Both FFR and PFR services are needed in a low inertia grid to mitigate adverse impacts to bulk system reliability and customers. ERCOT illustrates this concept as shown in the figure below.<sup>6</sup>



The FFR procurement plan set forth will allow the Companies to assess the market value for FFR and the least cost, best fit solutions to provide frequency response services. The Companies intend to evaluate the Proposed Final Renewable RFP and the Proposed Final Grid Services RFP Proposals, to identify the ideal quantities of both FFR and PFR with consideration for cost, technical capabilities, and limitations such as grid charging and the as-available (i.e., cloudy days) nature of PFR services from the Stage 1<sup>7</sup> RDG PPAs.

<sup>6</sup> Available at, <https://www.ferc.gov/CalendarFiles/20140421084800-ERCOT-ConceptPaper.pdf> at 13. FFR and PFR refer to fast frequency response and primary frequency response. SIR, Reg, and CRS are other services proposed for ERCOT and can be found in the link referenced here.

<sup>7</sup> The initial (“Stage 1”) procurement of renewable dispatchable generation completed by the Companies in Docket No. 2017-0352, issued February 2, 2018. This second procurement of renewable dispatchable generation and energy storage in Docket No. 2017-0352, is sometimes herein referred to as “Stage 2.”

The Companies also note that because the Stage 1 projects' interconnection requirement studies ("IRSs") including fully validated models of the Stage 1 facilities are on-going, the Companies will conduct a technical re-assessment of FFR and PFR requirements following the completion of the Stage 1 IRSs and prior to selection of the Stage 2 projects to determine the frequency response needs.

To provide the Companies additional flexibility in fulfilling the total frequency response needs of the system, especially in light of the impact an additional 1,300,000 MWhs will have on system security, the Proposed Final Renewable RFP for the Island of O'ahu will allow Proposers to submit Proposals that include the specific provision of FFR that is always available and has the ability to be immediately restored following the depletion of the FFR service.

The performance requirements of FFR-1 for the Proposed Final Grid Services RFP for the Island of O'ahu and the Proposed Final Renewable RFP for the Island of O'ahu are consistent with the PSIP.<sup>8</sup> FFR-1 requires a full-response within 200 milliseconds of the disturbance initiation.

In the PSIP, the two mechanisms explored for activation of FFR-1 were a direct-transfer mechanism ("DTM") and rate-of-change of frequency ("df/dt") triggering. These two methods were found to meet the 200 milliseconds full-response requirement.

DTM was envisioned at a time when it was thought the Companies would only have a few contingencies and only one FFR-1 resource. With this version of FFR-1, it would be somewhat practical to install direct high-speed communications between the few contingencies and the one FFR-1 resource. But today, if FFR-1 were to be acquired through the Proposed Final RFPs, Hawaiian Electric could end up with multiple resources. Further, if Hawaiian Electric wanted to cover more contingencies, each new contingency would require direct high-speed communications to all the FFR-1 resources. Many contingencies to many FFR-1 resources today would render DTM no longer practical or cost effective.

The alternative to DTM was to trigger off df/dt, which would be measured locally at the FFR-1 site. One of the benefits of monitoring df/dt compared with monitoring frequency to trigger FFR-1, is that the system df/dt changes instantly upon the disturbance initiation so the controller knows immediately (within 3-4 cycles of monitoring and computation time) that a disturbance has occurred so it can also respond immediately. Frequency is the accumulation of df/dt over time, which means it could take frequency some time to reach the problematic levels where FFR would be triggered.

Additionally, df/dt triggering is directly proportional to the disturbance, the percent mismatch between generation and load, and inversely proportional to the system inertial time constant. Accordingly, if the controller knows what the pre-disturbance system load and the amount of inertia on the system, the FFR-1 response can be determined to a good level of accuracy. Such information to the controller can be periodically updated from Hawaiian

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<sup>8</sup> See PSIP at O-16.

Electric's Energy Management System to keep the FFR-1 response "right-sized" throughout the day and as the system evolves over time.

#### *Hawai'i Electric Light FFR Requirements*

Through its response to PUC-HECO-IR-5 and the July 10<sup>th</sup> Filing, Hawai'i Island will require fast frequency response services to address current and future system security needs. These needs are based on the result of a Contingency Energy Storage Update study completed by the Companies in April 2019. This study is attached as a confidential Exhibit 13 to this filing.<sup>9</sup> As indicated in the July 10<sup>th</sup> Filing, the Companies have worked to define the FFR-1 services for the Proposed Final Grid Services RFP. The FFR-1 service that has been defined is consistent with the modifications made to the Proposed Final Draft of the Hawai'i Island RDG PPAs and ESPPA for the provision of FFR services.

The requirements for O'ahu and Hawai'i Island are similar. However, the method of "how" FFR is delivered varies. Hawai'i Island's Proposed Final RDG PPAs and ESPPA require FFR-1 to be delivered with a traditional droop setting with an aggressive 1% slope with allowances to adjust both the deadband and droop slope – this is a form of proportional response. The O'ahu FFR-1 requirements allow for a proportional response or dynamically adjustable discrete response triggered by  $df/dt$ . The intent is to allow potential bidders the ability to propose a control methodology that best suits their technology.

Hawai'i Island's FFR requirement requires proportional response, which is driven by its grid's electrical characteristics compared to O'ahu. Hawai'i Island requires a more precise FFR control (i.e., proportional droop). The Hawai'i Island system has a much greater sensitivity to imbalance – a smaller imbalance results in a greater frequency error, and, unlike O'ahu, does allow for UFLS to occur for certain events. Therefore, the amount of response required to restore frequency must be very accurate and coordinate with the UFLS, to avoid having the response worsen the disturbance. The proportional response ensures that the response is helpful to the system. As stated in the PSIP, "[t]he Hawai'i transmission system covers a very large territory and has approximately 640 miles of 69 kV transmission lines. In addition, most of the generation is on the east side of the island while the load center is in the west. This makes the Hawai'i Electric Light system more susceptible to steady state and transient voltage instability."<sup>10</sup> The Hawai'i Electric Light transmission system has a history of electrical transmission faults that illustrates the increased exposure to multi-phase faults that trigger loss of load.<sup>11</sup> The PSIP System Security analysis illustrates the frequency sensitivities (and volatility) that the Hawai'i Electric Light grid can experience during a transmission fault, resulting in large over- and under- frequency swings.<sup>12</sup> Until the FFR services are available, the system will

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<sup>9</sup> Exhibit 13 is being filed confidentially as public disclosure of the confidential information could increase risk to Hawai'i Electric Light's facilities, jeopardize its emergency and disaster preparedness plans, and/or adversely impact its ability to respond to potential terrorist threats. More information regarding the confidentiality of Exhibit 13, can be found in the Confidentiality Justification Table attached hereto as Exhibit 14.

<sup>10</sup> See PSIP at O-480.

<sup>11</sup> See *id.* at O-481.

<sup>12</sup> See *id.* starting on Page O-487.

continue to experience larger customer impacts than were historically experienced for single contingencies, and be vulnerable to possible system failure for certain faults and contingencies. Certain generator contingencies in 2019 have resulted in UFLS of greater than 15%, which validate previous modeling analyses.

For both Hawai'i Island and O'ahu, the complexity of achieving beneficial FFR controls will require a close and collaborative relationship with the Proposers to develop, commission, and tune the controls to best meet the needs of each island's grid.

### *Conclusion*

In summary, FFR is a critical component of our plans to accelerate achievement of 100% renewable portfolio standard. Through the significant renewable energy achievements to date, the Companies' grids have seen a degradation of traditional levels of reliability. To address current and future reliability concerns, FFR will contribute to shoring up system security for a range of credible contingency events. Importantly, FFR will help to maintain electric service to our customers, or to restore service more quickly should it be interrupted.

The Companies appreciate this opportunity to provide revisions to the Proposed Final RFPs and supporting documents. The Companies also take this opportunity to inform the Commission that, as promised in Exhibit 1 to the July 10<sup>th</sup> Filing, the Companies have arranged site visits for the Company-owned sites being offered in the Proposed Final Renewable RFPs and such information has been posted to the Companies' competitive bidding webpages.<sup>13</sup> As indicated in the July 10<sup>th</sup> Filing, the Companies look forward to continuing to work with the Independent Observers and Commission to finalize the RFPs towards the successful execution of this phase of the competitive bidding process.

Sincerely,



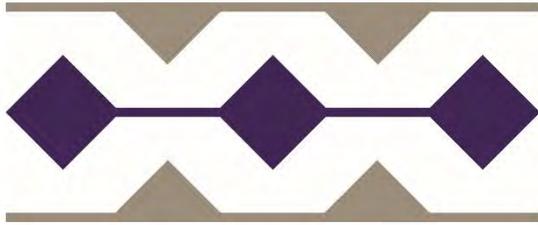
Jim Alberts  
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### Attachments

cc: Division of Consumer Advocacy (with Attachments)

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<sup>13</sup> See [www.hawaiielectric.com/competitivebidding](http://www.hawaiielectric.com/competitivebidding); [www.mauielectric.com/competitivebidding](http://www.mauielectric.com/competitivebidding); and [www.hawaiielectriclight.com/competitivebidding](http://www.hawaiielectriclight.com/competitivebidding).



**Hawaiian  
Electric**

**DRAFT REQUEST FOR PROPOSALS**

**FOR**

**VARIABLE RENEWABLE DISPATCHABLE GENERATION**

**AND**

**ENERGY STORAGE**

**ISLAND OF O‘AHU**

JULY ~~10~~26, 2019

Docket No. 2017-0352

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## **Chapter 1: Introduction and General Information**

Hawaiian Electric Company, Inc. (“Hawaiian Electric” or the “Company”) seeks proposals for the supply of qualified variable renewable dispatchable generation and energy storage for the Hawaiian Electric System in accordance with this Request for Proposals (“RFP”).<sup>1</sup> The total amount of variable renewable dispatchable generation being solicited in this RFP is the capability to provide 1,300,000 megawatt hours (“MWh”) annually. The total amount of energy storage being solicited in this RFP is the capability to store and discharge at least 438,000 MWh annually (equivalent to at least 1,200 MWh daily) via a total nameplate capacity of 200 megawatts (“MW”). In addition, up to 50 MW for 30 minutes of Fast Frequency Response (as defined in Appendix J, K, and L) is being solicited which may either be fulfilled through standalone storage projects or generation projects paired with storage proposed in response to this RFP, or through Fast Frequency Response 1 (“FFR-1”) capability on O’ahu bid into the Companies’ RFP for Delivery of Grid Services from Customer-Sited Distributed Energy Resources (“Grid Services RFP”).

The Company or its Affiliate may submit a Proposal in response to this RFP subject to the requirements of this RFP.

The Company seeks variable renewable dispatchable generation projects (with or without storage systems) and standalone energy storage projects in this RFP. The Company intends to contract for variable renewable dispatchable generation projects through this RFP using its Model Renewable Dispatchable Generation Power Purchase Agreement (“RDG PPA”), which treats variable generation facilities as fully dispatchable. The Company has created a photovoltaic (“PV”) version (the “PV RDG PPA”) and a wind version (the “Wind RDG PPA”) of its RDG PPA attached as Appendix J and Appendix L respectively.<sup>2</sup> If the proposed Project utilizes a technology other than PV or wind and/or contains components that are not encompassed by the RDG PPA, then the terms of the RDG PPA will be modified to address the specific technology and/or component.

The Company intends to contract for standalone energy storage projects through this RFP using its Model Energy Storage Power Purchase Agreement (“ESPPA”), pursuant to which Hawaiian Electric will purchase energy storage services (i.e., capacity, Fast Frequency Response, and ancillary services). The ESPPA is attached as Appendix K.<sup>2</sup>

Each successful Proposer will provide variable renewable dispatchable generation and/or energy storage to the Company pursuant to the terms of an RDG PPA or ESPPA, which will be subject to PUC review and approval by the State of Hawai‘i Public Utilities Commission (“PUC”).

The Company will evaluate Proposals using the evaluation and selection process described in Chapter 4. The Company will evaluate and select Proposals based on both price and non-price factors that impact the Company, its customers, and communities affected by the proposed Projects. The amount of generation and storage that the Company may acquire from this RFP

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<sup>1</sup> The Company is soliciting proposals for renewable dispatchable generation and energy storage in stages. The “Stage 1” RFPs were conducted in 2018. This is part of the “Stage 2” RFPs to be conducted in 2019.

<sup>2</sup> The RDG PPA for PV and Wind, and ESPPA for standalone energy storage, are available on the Company’s RFP website and through the PowerAdvocate platform for the RFP.

depends on, among other things, the quality and cost-effectiveness of bids received in response to this RFP; economic comparison to other RFP responses; updates to the Company's forecasts; transmission availability; and changes to regulatory or legal requirements. If attractive Proposals are received that will provide energy and energy storage in excess of the targeted amounts, the Company will consider selecting such Proposal(s) if benefits to customers are demonstrated.

All requirements necessary to submit a Proposal(s) are stated in this RFP. A description of the technical requirements for Proposers is included in the body of this RFP, Appendix B, and in the RDG PPA and ESPPA attached as Appendix J, K, and L.

All capitalized terms used in this RFP shall have the meaning set forth in the glossary of defined terms attached as Appendix A. Capitalized terms that are not included in Appendix A shall have the meaning ascribed in this RFP.

## 1.1 Authority and Purpose of the Request for Proposals

- 1.1.1 This RFP is issued in response to Order No. 36356 issued on June 10, 2019 in Docket No. 2017-0352 as part of a procurement process established by the PUC.
- 1.1.2 This RFP is subject to Decision and Order ("D&O") No. 23121 in Docket No. 03-0372 (To Investigate Competitive Bidding for New Generating Capacity in Hawai'i), which sets forth the PUC's Framework for Competitive Bidding ("Framework" or "Competitive Bidding Framework").
- 1.1.3 All Proposals with a generation component submitted in response to this RFP must utilize qualified renewable energy resource(s) as defined under the Hawai'i Renewable Portfolio Standards ("RPS") law.<sup>3</sup> By statute, "Renewable Energy" means energy generated or produced using the following sources: (1) wind; (2) the sun; (3) falling water; (4) biogas, including landfill and sewage-based digester gas; (5) geothermal; (6) ocean water, currents, and waves, including ocean thermal energy conversion; (7) biomass, including biomass crops, agricultural and animal residues and wastes, and municipal solid waste and other solid waste; (8) biofuels; and (9) hydrogen produced from renewable energy sources.<sup>4</sup>
- 1.1.4 Proposers should review the Hawaiian Electric Companies' Power Supply Improvement Plans, filed in Docket No. 2014-0183 on December 23, 2016 ("PSIP Update Report: December 2016" or "PSIP"). Consistent with the PSIP, the primary purpose of this RFP is to obtain variable renewable energy and energy storage so that the Company can continue to transform O'ahu's power supply portfolio from fossil fuel-based generation to renewable-based generation towards Hawai'i's 100% RPS requirement.

## 1.2 Scope of the RFP

- 1.2.1 The Company does not have a predetermined preference for a particular renewable energy generation or storage technology.

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<sup>3</sup> RPS requirements in Hawai'i are codified in Hawai'i Revised Statutes ("HRS") §§ 269-91 through 269-95.

<sup>4</sup> See HRS § 269-91.

- 1.2.2 Each Proposal submitted in response to this RFP must represent a Project that is capable of meeting the requirements of this RFP without having to rely on the completion or implementation of any other Project.
- 1.2.3 Proposals that will require system upgrades and the construction of which, in the reasonable judgment of the Company (in consultation with the Independent Observer), creates a significant risk that their Project's Guaranteed Commercial Operations Date ("GCOD") will not be met will not be considered in this RFP.
- 1.2.4 Projects submitted in response to this RFP must be located on the Island of O'ahu.
- 1.2.5 Proposers will determine their Project Site. Proposers have the option of submitting a Proposal using potential Sites offered and described in Section 3.11. Proposers must locate all Project infrastructure within areas of their Site that are outside the 3.2 feet sea level rise exposure area (SLR-XA) as described in the Hawai'i Sea Level Rise Vulnerability and Adaptation Report (2017)<sup>5</sup> and are not located within a Tsunami Evacuation Zone.<sup>6</sup>
- 1.2.6 Projects must interconnect to the Company's System at the 46 kV or 138 kV level.<sup>7</sup>
- 1.2.7 Projects must be greater than 5 MW. No single point of failure from the Facility shall result in a decrease in net electrical output greater than 135 MW.
- 1.2.8 Contracts for projects that include a generation component selected through this RFP shall use the RDG PPA, as described in Section 3.8. Under the RDG PPA, the Company will maintain exclusive rights to fully direct dispatch of the Facility, subject to availability of the resource and Section 1.2.11 below.
- 1.2.9 Contracts for standalone energy storage projects selected through this RFP shall use the ESPPA, as described in Section 3.8. Under the ESPPA, the Company will maintain exclusive rights to fully direct the charging and discharging of the Facility. Additionally, due to the critical nature and usage of this to support the grid, the ability to control and tune the facility's response to certain grid events and conditions is an important aspect that will be required of these facilities.
- 1.2.10 Generation proposals may be submitted either with or without an energy storage component. The energy storage component can be charged during periods when full potential export of the generation Facility is not being dispatched by the Company, and

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<sup>5</sup> Hawai'i Climate Change Mitigation and Adaptation Commission. 2017. Hawai'i Sea Level Rise Vulnerability and Adaptation Report. Prepared by Tetra Tech, Inc. and the State of Hawai'i Department of Land and Natural Resources, Office of Conservation and Coastal Lands, under the State of Hawai'i Department of Land and Natural Resources Contract No: 64064. This report is available at: [https://climateadaptation.hawaii.gov/wp-content/uploads/2017/12/SLR-Report\\_Dec2017.pdf](https://climateadaptation.hawaii.gov/wp-content/uploads/2017/12/SLR-Report_Dec2017.pdf)

<sup>6</sup> See Hawai'i Sea Level Rise Viewer at <https://www.pacioos.hawaii.edu/shoreline/slr-hawaii/>, and National Oceanic and Atmospheric Administration (NOAA) interactive map in partnership with the State of Hawai'i at <https://tsunami.coast.noaa.gov/#/>.

<sup>7</sup> In this RFP, "transmission-level" circuits will refer to both 46 kV sub-transmission circuits and 138 kV transmission circuits on O'ahu.

the storage component can be used to provide energy to the Company during other times that are beneficial to the system. Generation proposals paired with an energy storage component may propose an additional contingency storage component to provide the Fast Frequency Response (“Contingency Storage”) whose amount is to be specified by Proposer. An energy storage component that is paired with a generating Facility must be sized to support the Facility’s Allowed Capacity (in MW) for a minimum of four (4) continuous hours throughout the term of the ~~PPA~~-RDG PPA. The Contingency Storage component must be at least 5 MW and sized to provide a minimum of 30 continuous minutes at the proposed MW amount throughout the term of the RDG PPA.

For example, for a 10 MW facility, the energy storage component must be able to store and discharge at least 40 MWh of energy in a cycle throughout the term of the ~~PPA~~-RDG PPA. If a project proposes an additional 5 MW of Contingency Storage this component must be able to store and discharge at least 2.5 MWh of energy in a cycle throughout the term of the RDG PPA.

- 1.2.11 Energy storage components that are ~~coupled~~paired with a generation Facility must also be able to be charged from the grid at the direction of the Company as described in this section. To be eligible to meet this RFP’s MW storage requirement as specified in Section 4.7, energy storage components must be grid-chargeable to the amount specified by Proposer from the ~~guaranteed commercial operation date (“GCOD”).~~ Energy storage components eligible to meet this RFP’s Fast Frequency Response need must be capable of being 100% charged from the grid from the GCOD.

For energy storage components that are ~~coupled~~paired with generating facilities, during the period that allows the Project to maximize and capture the benefits of the federal Investment Tax Credit (“ITC”) for the energy storage system, the Proposer can design and specify the amount, if any, of grid charging for the energy storage system. However, after the 5-year ITC recapture period has lapsed, any energy storage component ~~coupled~~paired with generation must be capable of being 100% charged from the grid at the direction of the Company.

Energy storage components that are ~~coupled~~paired with ~~generation Projects~~generating facilities that are incapable of claiming the ITC must be capable of being 100% charged from the grid from the GCOD.

For example, during the 5-year ITC recapture period, a Proposer coupling an energy storage component with a solar facility can specify that its Facility can be charged from the grid (at the direction of the Company) up to 20% of its annual total energy input. After the 5-year ITC recapture period has lapsed, the energy storage component must be capable of being charged up to 100% of its total energy input from the grid at the direction of the Company.

- 1.2.12 Proposals for standalone energy storage will provide MW ~~capability and energy capacity~~and/or Contingency Storage to the Company during times that are deemed by the Company to be beneficial to the system. These facilities must be connected to the grid at all times, with the exception of allowed maintenance periods, ~~and~~. Proposals for MW

capacity must be sized to support the Facility’s Allowed Capacity (in MW) for a minimum of six (6) continuous hours throughout the term of the ESPPA. Any Contingency Storage component must be at least 5 MW and sized to provide a minimum of 30 continuous minutes at the proposed MW amount throughout the term of the ESPPA.

For example, for a 10 MW facility, the energy storage component must be able to store and discharge at least 60 MWh of energy in a cycle throughout the term of the ESPPA. If a project proposes an additional 5 MW of Contingency Storage this component must be able to store and discharge at least 2.5 MWh of energy in a cycle throughout the term of the ESPPA.

1.2.13 The amount of energy discharged from any energy storage component (standalone or one ~~coupled~~paired with a generation component) in a year will be limited to the energy storage contract capacity (in MWh) multiplied by the number of Days in that year.

1.2.14 The following GCOD shall apply:

1.2.14.1 Proposals for standalone energy storage or generation ~~coupled~~paired with energy storage that intend such storage to meet the Company’s 438,000 MWh energy storage need must specify a GCOD no later than June 1, 2022.

1.2.14.2 Proposals for generation only or generation ~~coupled~~paired with energy storage not intended to meet the Company’s 438,000 MWh energy storage need must specify a GCOD no later than December 31, 2025. However, Proposals with earlier GCODs will be given preference in scoring.

<b>Project Technology</b>	<b>Generation Only</b>	<b>Generation Paired w/ Storage (not intended to meet energy storage need)</b>	<b>Generation Paired w/ Storage (intended to meet energy storage need)</b>	<b>Standalone Storage</b>
<b>GCOD</b>	12/31/25	12/31/25	06/01/22	06/01/22
<b>Grid Charging</b>	N/A	As-bid during ITC period; 100% after ITC period	As-bid during ITC period; 100% after ITC period	100% at GCOD

1.2.15 A Proposer’s GCOD set forth in its Proposal will be the GCOD in any resulting PPA<sup>8</sup> if such Proposal is selected to the Final Award Group. Proposers will not be able to request a change in the GCOD set forth in their Proposals.

1.2.16 If selected, Proposers will be responsible for all costs throughout the term of the PPA, including but not limited to Project development, completion of an Interconnection

<sup>8</sup> PPA throughout this RFP refers to either/both the RDG PPA or ESPPA.

Requirements Study (“IRS”), the cost of conducting a greenhouse gas analysis, land acquisition, permitting, financing, construction of the Facility and all Interconnection Facilities, and operations and maintenance (“O&M”).

- 1.2.17 If selected, Proposers will be solely responsible for the decommissioning of the Project and the restoration of the Site upon the expiration of the PPA, as described in Attachment G, Section 7 of the RDG PPA or ESPPA.
- 1.2.18 If selected, Proposers shall pursue all available applicable federal and state tax credits. Proposal pricing must be set to incorporate the benefit of such available federal tax credits. However, to mitigate the risk on Proposers due solely to potential changes to the state’s tax credit law before a selected project reaches commercial operations, Proposal pricing shall be set without including any state tax credits. If a Proposal is selected, the PPA for the project will require the Proposer to pursue the maximum available state tax credit and remit tax credit proceeds to the Company for customers’ benefit as described in Attachment J of the RDG PPA or ESPPA. The PPA will also provide that the Proposer will be responsible for payment of liquidated damages for failure to pursue the state tax credit.
- 1.2.19 Each Proposal submitted in response to this RFP must represent a Project that is capable of meeting the requirements of this RFP without having to rely on a proposed change in law, rule, or regulation.

### 1.3 **Competitive Bidding Framework**

Consistent with the Framework, this RFP outlines the Company’s requirements in relation to the resources being solicited and the procedures for conducting the RFP process. It also includes information and instructions to prospective Proposers participating in and responding to this RFP.

### 1.4 **Role of the Independent Observer**

- 1.4.1 Part III.C.1 of the Framework sets forth the circumstances under which an Independent Observer is required in a competitive bidding process. The PUC has retained an Independent Observer both to advise and monitor the process for this RFP. All phases of the RFP process will be subject to the Independent Observer’s oversight, and the Independent Observer will coordinate with PUC staff throughout the RFP process to ensure that the RFP is undertaken in a fair and unbiased manner. In particular, the Company will review and discuss with the Independent Observer decisions regarding the evaluation, disqualification, non-selection, and selection of Proposals.
- 1.4.2 The role of the Independent Observer, as described in the Framework, will include but is not limited to:
  - Monitor all steps in the competitive bidding process
  - Monitor communications (and communications protocols) with Proposers
  - Monitor adherence to the Company’s Code of Conduct
  - Submit comments and recommendations, if any, to the PUC concerning the RFP

- Review the Company’s Proposal evaluation methodology, models, criteria, and assumptions
- Review the Company’s evaluation of Proposals
- Advise the Company on its decision-making
- Participate in dispute resolution as set forth in Section 1.10
- Monitor contract negotiations with Proposers
- Report to the PUC on monitoring results during each stage of the competitive bidding process
- Provide an overall assessment of whether the goals of the RFP were achieved

1.4.3 The Independent Observer for this RFP is **Bates White, LLC**.

**1.5 Communications Between the Company and Proposers – Code of Conduct Procedures Manual**

1.5.1 Communications and other procedures under this RFP are governed by the “Code of Conduct Procedures Manual,” (also referred to as the “Procedures Manual”) developed by the Company as required by the Framework, and attached as Appendix C.

1.5.2 All pre-Proposal communication with prospective Proposers will be conducted via the Company’s RFP website, Electronic Procurement Platform and/or electronic mail (“Email”) through the address specified in Section 1.6 (the “RFP Email Address”). Frequently asked questions submitted by prospective Proposers and the answers to those questions may be posted on the Company’s RFP website, or sent through either Email or the Electronic Procurement Platform to registered individuals. The Company reserves the right to respond only to comments and questions it deems are appropriate and relevant to the RFP. Proposers are advised to submit questions no later than fifteen Days before the Proposal Due Date (RFP Schedule in Section 3.1, Items 7 and 8). The Company will endeavor to respond to all questions no later than five Days before the Proposal Due Date.

1.5.3 After Proposals have been submitted, the Company may contact individual Proposers for purposes of clarifying their Proposal(s).

1.5.4 Any confidential information deemed by the Company, in its sole discretion, to be appropriate to share, will only be transmitted to the requesting party after receipt of a fully executed Stage 2 Mutual Confidentiality and Non-Disclosure Agreement (“NDA”). See Appendix E.

1.5.5 Except as expressly permitted and in the manner prescribed in the Procedures Manual, any unsolicited contact by a Proposer or prospective Proposer with personnel of the Company pertaining to this RFP is prohibited.

## 1.6 **Company Contact for Proposals**

The primary contact for this RFP is:

Ken Horita  
Energy Contract Manager  
Hawaiian Electric Company, Inc.  
Central Pacific Plaza Building, Suite 2100  
220 South King Street  
Honolulu, Hawai'i 96813

RFP Email Address: [oahuvariablefp@hawaiianelectric.com](mailto:oahuvariablefp@hawaiianelectric.com)

## 1.7 **Proposal Submission Requirements**

- 1.7.1 All Proposals must be prepared and submitted in accordance with the procedures and format specified in the RFP. Proposers are required to respond to all questions and provide all information requested in the RFP, as applicable, and only via the communication methods specified in the RFP.
- 1.7.2 Detailed requirements regarding the form, submission, organization and information for the Proposal are set forth in Chapter 3 and Appendix B.
- 1.7.3 In submitting a Proposal in response to this RFP, each Proposer certifies that the Proposal has been submitted in good faith and without fraud or collusion with any other unaffiliated person or entity. The Proposer shall acknowledge this in the Response Package submitted with its Proposal.

Without limiting the foregoing, unaffiliated Proposers are prohibited from using shared legal counsel to prepare their Proposals or for contract negotiations with the Company where counsel is an individual person. If counsel is a law firm with multiple attorneys, unaffiliated Proposers may use the same firm only if (1) such firm assigns separate attorney(s) to each Proposer, (2) the attorney(s) are prohibited from (i) sharing a Proposer's confidential information or the Company's confidential information associated with such Proposer with others, or (ii) accessing another Proposer's confidential information or Company's confidential information associated with such Proposer from another attorney in the firm, (3) the law firm has appropriate procedures, safeguards and policies in place to ensure that separations exist so that the attorney(s) assigned to a Proposer do not share or have access to confidential information of another Proposer or of the Company which was obtained through another attorney's representation of a Proposer, and (4) an authorized signatory of the law firm shall provide Company with a written certification in the form attached as Appendix B Attachment 1. Furthermore, in executing the NDA provided as Appendix E, the Proposer agrees on behalf of its Representatives (as defined in the NDA) that the Company's negotiating positions will not be shared with other Proposers or their respective Representatives.

1.7.4 Proposals must be submitted via the Electronic Procurement Platform by 2:00 pm Hawai'i Standard Time (HST) on the Proposal Due Date shown in the RFP Schedule in Section 3.1. No hard copies of the Proposals will be accepted.<sup>9</sup> It is the Proposer's sole responsibility to ensure that complete and accurate information has been submitted on time and within the instructions of this RFP. With this assurance, Company shall be entitled to rely upon the completeness and accuracy of every Proposal. Any errors identified by the Proposer or Company after the Proposal Due Date has passed may jeopardize further consideration and success of the Proposal. If an error or errors are later identified, Company, in consultation with the Independent Observer, may permit the error(s) to be corrected without further revision to the Proposal, or may require Proposer to adhere to terms of the Proposal as submitted without correction. Additionally, and in Company's sole discretion, if such error(s) would materially affect the Priority List or Final Award Group, Company reserves the right, in consultation with the Independent Observer, to remove or disqualify a Proposal upon discovery of the material error(s). The Proposer of such Proposal shall bear the full responsibility for such error(s) and shall have no recourse against Company's decision to address Proposal error(s), including removal or disqualification. The Energy Contract Manager, in consultation with the Independent Observer, will confirm that the Self-Build and Affiliate Proposals are timestamped by milestone (7) Self-Build and Affiliate Proposal Due Date in Section 3.1 Table 1. The PowerAdvocate Platform automatically closes further submissions after milestone (8) IPP Proposal Due Date in Table 1.

## 1.8 Proposal Fee

1.8.1 IPP and Affiliate proposers are required to tender a non-refundable Proposal Fee of \$10,000 for each Proposal submitted. IPP and Affiliate proposers who propose projects located at the Company-owned site identified in Section 3.11.2 will have their Proposal Fee waived.

1.8.2 Proposers may submit multiple Proposal variations for a Project- for a single Proposal Fee. If such Proposals are on different Sites or for different generation technologies, a separate Proposal Fee must be paid for each Proposal. The method of submitting multiple Proposals within this RFP is described in Appendix B.

1.8.3 Proposers may also submit up to ~~three (3) minor~~ a total of four (4) variations (e.g., of their Proposal, one variation of which is the original Proposal. In addition, for each of the 4 variations the Proposer may propose an additional variation with Contingency Storage, where the only change is the addition of a Contingency Storage component and any needed changes to account for the addition of the Contingency Storage.<sup>10</sup> Variations of pricing terms, Facility size, with/without storage, with/without or differing levels of grid-charging or level of grid-charging capability) capabilities can be offered. All variations within a Proposal must be proposed on the same Site and using the same generation

<sup>9</sup> Proposals for the SBO(s) and Affiliate Proposals have additional submission requirements to the PUC specified in Section 1.9 below.

<sup>10</sup> For each variation that includes Contingency Storage, it is to the Proposer's advantage to offer an identical variation without Contingency Storage as Proposals with Contingency Storage must be selected through both evaluation processes (energy/capacity and Contingency Storage) in order to advance to the Final Award Group.

technology ~~without having to pay~~ avoid paying a separate Proposal Fee ~~for these three (3) variations~~. Whether or not a separate Proposal Fee is required, all unique information for each variation of a Proposal, no matter how minor such variation is, must be clearly identified and separated by following the instructions in Appendix B Section 3.

- 1.8.4 The Proposal Fee must be in the form of a cashier's check or equivalent from a U.S.-chartered bank made payable to "Hawaiian Electric Company, Inc." and must be delivered and received by the Company by 2:00 pm (HST) on the Proposal Due Date shown in the RFP Schedule in Section 3.1. The check should include a reference to the Proposal(s) for which the Proposal Fee is being provided. Proposers are strongly encouraged to utilize a delivery service method that provides proof of delivery to validate delivery date and time.

If the Proposal Fee is delivered by U.S. Postal Service (with registered, certified, receipt verification), the Proposer shall address it to:

Ken Horita  
Energy Contract Manager  
Hawaiian Electric Company, Inc.  
Mail Code CP21-IU  
PO Box 2750  
Honolulu, Hawai'i 96840

If the Proposal Fee is delivered in person, or via an alternative registered, certified delivery service, the Proposer shall use the address specified in Section 1.6.

## 1.9 **Procedures for the Self-Build or Affiliate Proposals**

The Competitive Bidding Framework allows the Company the option to offer a Proposal(s) in response to this RFP ("Self-Build Option" or "SBO"). Accordingly, the Company must follow certain requirements and procedures designed to safeguard against and address concerns associated with: (1) preferential treatment of the SBO or members, agents or consultants of the Company formulating the SBO (the "Self-Build Team"); and (2) preferential access to proprietary information of the Self-Build Team. These requirements are specified in the Code of Conduct required under the Framework and implemented by certain rules and procedures found in the Procedures Manual submitted to the PUC in Docket No. 2017-0352 on April 1, 2019. A copy of the Procedures Manual is attached as Appendix C.

The Competitive Bidding Framework also allows Affiliates of the Company to submit Proposals to RFPs issued by the Company. All Self-Build and Affiliate Proposals are subject to the Company's Code of Conduct and the Procedures Manual. Affiliate Proposals are also subject to any applicable Affiliate Transaction Requirements issued by the PUC in Decision and Order No. 35962 on December 19, 2018, and subsequently modified by Order No. 36112, issued on January 24, 2019, in Docket No. 2018-0065. Affiliate Proposals will be treated identically to an IPP Proposal, except that they are due at the same time as any Self-Build Proposal(s).

The Independent Observer will monitor adherence to the Company's Code of Conduct and the Procedures Manual. Pursuant to the Framework and as set forth in the RFP Schedule, the Company will require that the Proposal for the SBO(s) and Affiliate Proposals be submitted electronically through the Electronic Procurement Platform and filed with the PUC in hard copy a minimum of one (1) Day before other Proposals are due. (A Proposal for the SBO or Affiliate will be uploaded into the Electronic Procurement Platform in the same manner Proposals from other Proposers are uploaded. The Energy Contract Manager, in consultation with the Independent Observer, will confirm that the Self-Build and Affiliate Proposals are timestamped by Milestone (7) Self-Build and Affiliate Proposal Due Date in RFP Table 1.)

Detailed requirements for an SBO Proposal can be found in Appendix G. These requirements are intended to provide a level playing field between SBO Proposals and third-party Proposals. Except where specifically noted, an SBO Proposal must adhere to the same price and non-price Proposal requirements as required of all Proposers, as well as certain PPA requirements, such as -milestones and liquidated damages, as described in Appendix G. In addition to its Proposal, the Self-Build Team will be required to submit Appendix G Attachment 1, Self-Build Option Team Certification Form, acknowledging it has followed the rules and requirements of the RFP to the best of its ability and has not engaged in any collusive actions or received any preferential treatment or information providing an impermissible competitive advantage to the Self-Build Team over other proposers responding to this RFP, as well as adherence to PPA terms and milestones required of all proposers and the SBO's proposed cost protection measures.

The cost recovery methods between a regulated utility SBO Proposal and IPP Proposals are fundamentally different due to the business environments they operate in. As a result, the ~~Companies have instated~~Company has instituted a process to compare the two types of proposals for the initial evaluation of the price related criteria on a 'like' basis through comparative analysis.

At the core of an SBO Proposal are its total project capital cost and any associated annual operations and maintenance ("O&M") costs. During the RFP's initial pricing evaluation step, these capital costs<sup>11</sup> and O&M costs will be used in a revenue requirement calculation to determine the estimated revenues needed from customers which would allow the Company to recover the total cost of the project. The SBO revenue requirements are then used in a levelized price calculation to determine a Levelized Energy Price ("LEP") (\$/MWh), if for energy needs, or to determine an Energy Storage Only Levelized Price (\$/MWh), if for storage only ~~needs-~~or for Contingency Storage. These price calculations will then be used for comparison to IPP Proposals.

The Company, in conjunction with the Independent Observer, may also conduct a risk assessment of the SBO Proposal to ensure an appropriate level of customer cost protection measures are included in such Proposal.

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<sup>11</sup> Self-Build Proposals will be required to provide a table identifying project costs by year. These capital costs should be all inclusive, including but not limited to costs associated with equipment, Engineering, Procurement, and Construction ("EPC"), interconnection, overhead, and Allowance for Funds Used During Construction ("AFUDC").

In response to the 200 MW capacity ~~need~~ and Fast Frequency Response needs, the Self-Build Team will only be permitted to submit a Proposal or group of Proposals (with up to ~~3~~ a total of 4 variations for each Proposal) which collectively address this need, and no more. These ~~proposals for the capacity needs~~ Proposals are intended to serve as the Company's Parallel Plan, as described in the PUC's Framework for Competitive Bidding.<sup>12</sup> The Self-Build team will be allowed to submit one (1) additional Proposal (with up to ~~3~~ a total of 4 variations) in response to the energy need.

The SBO will be permitted to submit a shared savings mechanism with its Proposal to share in any cost savings between the amount of cost bid in the SBO Proposal and the actual cost to construct the Project. If the SBO Proposal is selected to the Final Award Group, the proposed shared savings mechanism will need to be approved by the PUC. Submission of a shared savings mechanism is not required and will not be considered in the evaluation of the SBO Proposal.

## 1.10 Dispute Resolution Process

- 1.10.1 If disputes arise under the RFP, the provisions of Section 1.10 and the dispute resolution process established in the Framework will control. See Part V of the Framework.
- 1.10.2 Proposers who challenge or contest any aspect of the RFP process must first attempt to resolve their concerns with the Company and the Independent Observer ("Initial Meeting"). The Independent Observer will seek to work cooperatively with the parties to resolve any disputes or pending issues and may offer to mediate the Initial Meeting to resolve disputes prior to such issues being presented to the PUC.
- 1.10.3 Any and all disputes arising out of or relating to the RFP which remain unresolved for a period of twenty (20) Days after the Initial Meeting takes place may, upon the agreement of the Proposer and the Company, be submitted to confidential Mediation in Honolulu, Hawai'i, pursuant to and in accordance with the Mediation Rules, Procedures, and Protocols of Dispute Prevention Resolution, Inc. ("DPR") (or its successor) or, in its absence, the American Arbitration Association then in effect ("Mediation"). The Mediation will be administered by DPR. If the parties agree to submit the dispute to Mediation, the Proposer and the Company shall each pay fifty percent (50%) of the cost of the Mediation (i.e., the fees and expenses charged by the mediator and DPR) and shall otherwise each bear their own Mediation costs and attorney's fees.
- 1.10.4 If settlement of the dispute is not reached within sixty (60) Days after commencement of the Mediation, or if after the Initial Meeting, the parties do not agree to submit any unresolved disputes to Mediation, then as provided in the Framework, the Proposer may submit the dispute to the PUC in accordance with the Framework.
- 1.10.5 In accordance with the Framework, the PUC will serve as the arbiter of last resort for any disputes relating to this RFP involving Proposers. The PUC will use an informal

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<sup>12</sup> See Decision and Order No. 23121, filed December 8, 2006, in Docket No. 03-0372.

expedited dispute resolution process to resolve the dispute within thirty (30) Days, as described in Parts III.B.8 and V of the Framework.<sup>13</sup> There will be no right to hearing or appeal from this informal expedited dispute resolution process.

1.10.6 If any Proposer initiates a dispute resolution process for any dispute or claim arising under or relating to this RFP, other than that permitted by the Framework and Section 1.10 (e.g., a court proceeding), then such Proposer shall be responsible for any and all attorneys' fees and costs that may be incurred by the Company or the PUC in order to resolve such claim.

#### 1.11 **No Protest or Appeal**

Subject to Section 1.10, no Proposer or other person will have the right to protest or appeal any award of a Project made by the Company.

By submitting a Proposal in response to the RFP, the Proposer expressly agrees to the terms and conditions set forth in this RFP.

#### 1.12 **Modification or Cancellation of the Solicitation Process**

1.12.1 Unless otherwise expressly prohibited, the Company may, at any time up to the final execution of an RDG PPA or ESPPA, as may be applicable, in consultation with the Independent Observer, postpone, withdraw and/or cancel any requirement, term or condition of this RFP, including deferral of the award or negotiation of any contract, and/or cancellation of the award all together, all of which will be without any liability to the Company.

1.12.2 The Company may modify this RFP subject to requirements of the Framework, whereby the modified RFP will be reviewed by the Independent Observer and submitted to the PUC thirty (30) Days prior to its issuance, unless the PUC directs otherwise. See Framework Part IV.B.10. The Company will follow the same procedure with regard to any potential postponement, withdrawal or cancellation of the RFP or any portion thereof.

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<sup>13</sup> The informal expedited dispute resolution process does not apply to PUC review of contracts that result from the RFP. See Decision and Order No. 23121 at 34-35. Further, the informal expedited dispute resolution process does not apply to the Framework's process relating to issuance of a draft and final RFP, and/or to the PUC approval of the RFP because: (1) the Framework (and the RFP) set forth specific processes whereby interested parties may provide input through the submission of comments; and (2) the Framework's dispute resolution process applies to "Bidders" and there are no "Bidders" at this stage in the RFP process.

## **Chapter 2: Resource Needs and Requirements**

### **2.1 Performance Standards**

Proposals must meet the attributes set forth in this RFP and the requirements of the RDG PPA for proposals that include a generation component or the ESPPA for standalone energy storage proposals. This RFP and the RDG PPA or ESPPA set forth the minimum requirements that all Proposals must satisfy to be eligible for consideration in this RFP. Additional Performance Standards may be required based on the results of the IRS.

Facilities must be able to operate in grid-forming mode when directed by the Company as defined in the RDG PPA or ESPPA.

Black start capability is preferred for standalone energy storage or energy storage ~~coupled~~paired with generation facilities. Proposals will need to identify<sup>14</sup> any incremental costs to enable their facility to be black start capable, if not already enabled.

For standalone energy storage or energy storage ~~coupled~~paired with generation facilities, the functionality and characteristics of the storage must be maintained throughout the term of the PPA. To be clear, Proposers may not propose any degradation ~~in storage for~~either capacity or ~~storage~~ efficiency in their Proposals.

### **2.2 Transmission System Information**

2.2.1 Company information regarding an initial assessment of potential MW capacity of 46 kV and 138 kV transmission-level circuits providing possible points of interconnection has been developed for Sites included in the Land Request for Information (“Land RFI”) as described in Section 3.11 and will be made available to Proposers only after execution of the Stage 2 NDA.<sup>15</sup> Proposers should perform their own evaluation of project locations, and the Company does not guarantee any project output or ability to connect based on such information. Prior to submitting a proposal, Proposers are encouraged to inquire about the viability of interconnecting a proposed Project at a specific location. For example, a Project must interconnect through a minimum of two transmission lines and no single point of failure resulting in a loss of more than 135 MW; however, depending on but not limited to, factors such as location of the Point of Interconnection, system load, generating unit dispatch, and transmission line contingencies, the Project may require more than two transmission line terminations. Please direct questions to the RFP Email Address in Section 1.6.

2.2.2 While the Land RFI provides information regarding an initial assessment of potential MW capacity and possible points of interconnection for transmission-level circuits, Projects interconnecting to 138 kV circuits require additional analyses. The available capacity of a transmission line is dependent on many factors including location of the

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<sup>14</sup> If black start is not already enabled for the Proposal, any additional costs necessary to enable black start will be identified in the submission instructions defined in Appendix B.

<sup>15</sup> Appendix E contains the Mutual Confidentiality and Non-Disclosure Agreement for this RFP.

Point of Interconnection, system load, generating unit dispatch, and transmission line contingencies. As a result, load flow analyses are required to confirm the available line capacities for various scenarios. Detailed load flow analyses will be performed as part of the project selection process. Prior to the RFP, developers may inquire as to viability of proposed real project locations for interconnection as well as specific requirements of that proposed 138 kV interconnection.

- 2.2.3 For Projects interconnecting to 46 kV circuits, the proposed Project output cannot exceed the available hosting capacity limit during the daytime hours of 8am to 5pm.<sup>16</sup> The proposed Project output at all other hours (5pm to 8am) cannot exceed the identified conductor limit (less any existing or expected generation sources available during those hours prior to the GCOD). For example, a solar resource paired with storage may interconnect to a circuit with a stated hosting capacity of zero provided that no energy is exported during the hours of 8am and 5pm and the export of power does not exceed the conductor limit after 5pm. Specifically, as it pertains to interconnection to the 46 kV system, Proposers may inquire regarding the viability of upgrading 46 kV conductors to increase available capacity based on a specific location (direct questions to the RFP Email Address in [Section 1.6](#)). Prior to the RFP, developers may inquire as to viability of proposed real project locations for interconnection.
- 2.2.4 A detailed IRS, when performed, may reveal other adverse system impacts that may further limit a Project's ability to interconnect and/or further limit the net output of the Facility without upgrades.

### 2.3 **Interconnection to the Company System**

- 2.3.1 The Interconnection Facilities includes both: (1) Seller-Owned Interconnection Facilities; and (2) Company-Owned Interconnection Facilities.
- 2.3.2 All Proposals must include a description of the Proposer's plan to transmit power from the Facility to the Company System. The proposed Interconnection Facilities must be compatible with the Company System. In the design, Projects must adequately consider Company requirements to address impacts on the performance and reliability of the Company System.
- 2.3.2.1 In addition to the Performance Standards and findings of the IRS, the design of the Interconnection Facilities, including power rating, Point(s) of Interconnection with the Company System, and scheme of interconnection, must meet Company standards. The Company will provide its construction standards and procedures to the Proposer (Engineer, Procure, Construct Specifications for Hawaiian Electric Power Lines and Substations) if requested via the RFP Email Address in [Section 1.6](#) and upon the execution of a Stage 2 NDA as specified in [Section 3.12.1](#). These specifications are

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<sup>16</sup> The available hosting capacity is not a final determination whether it is feasible to interconnect a Proposed Facility. The available hosting capacity provided in either the Land RFI or in response to inquiries to the Company represent the power system's conditions at the time the analysis was conducted. This analysis examined steady-state thermal capacity and voltage issues during daytime minimum loading conditions only.

intended to illustrate the scope of work typically required to administer and perform the design and construction of a Hawaiian Electric substation and power line.

- 2.3.2.2 Interconnection Facilities must be designed such that, with the addition of the Facility, the Company System can meet all relevant Transmission Planning Criteria<sup>17</sup> and any amendments thereto- considering the Allowed Capacity and any Contingency Storage.
- 2.3.3 Tariff Rule No. 19, a copy of which is attached as Appendix I, establishes provisions for Interconnection and Transmission Upgrades. The tariff provisions are intended to simplify the rules regarding who pays for, installs, owns, and operates interconnection facilities in the context of competitive bidding. Proposers will be required to build the Company-Owned Interconnection Facilities, including the switching station and line work, except for any work in the Company's existing energized facilities and the final tap. Construction of Company-Owned Interconnection Facilities by the Proposer must comply with industry standards, laws, rules and licensing requirements, as well as the Company's specific construction standards and procedures that the Company will provide upon request. (See Section 2.3.1.) The Company uses the breaker-and-a-half scheme for its transmission switching station as shown in Attachment A of Appendix I – Rule 19 Tariff. Proposers should follow this scheme for purposes of their estimates.
- 2.3.4 The Proposer shall be responsible for all costs required to interconnect a Project to the Company System, including all Seller-Owned Interconnection Facilities and Company-Owned Interconnection Facilities.
- 2.3.5 Proposers are required to include in their pricing proposal all costs for interconnection and transmission equipment or, if applicable, 46 kV circuit conductor upgrades expected to be required between their Facility and their proposed Point of Interconnection. Appendix H includes information related to Company-Owned Interconnection Facilities and costs that may be helpful to Proposers. Selected Proposers shall be responsible for the actual final costs of all Seller-Owned Interconnection Facilities and Company-Owned Interconnection Facilities, whether or not such costs exceed the costs set forth in a Proposer's Proposal. No adjustments will be allowed to the proposed price in a Proposal if actual costs for Interconnection Facilities exceed the amounts proposed.
- 2.3.6 Proposers are required to include in their pricing proposal all costs for distribution-level service interconnection for station power.
- 2.3.7 All Projects will be screened for general readiness to comply with the requirements for interconnection. Proposals selected to the Final Award Group will be subject to further study in the form of an IRS. The IRS process is further described in Section 5.1. The results of the completed IRS, as well as any mitigation measures identified, will be incorporated into the terms and conditions of a final executed PPA.

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<sup>17</sup> Transmission Planning Criteria are further described in the PSIP beginning on page O-11 of Appendix O.

**Chapter 3: Instructions to Proposers**

**3.1 Schedule for the Proposal Process**

Table 1 sets forth the proposed schedule for the proposal process (the “RFP Schedule”). The RFP Schedule is subject to PUC approval. The Company reserves the right to revise the RFP Schedule as necessary. Changes to the RFP Schedule prior to the RFP Proposal Due Date will be posted to the RFP website. Changes to the RFP Schedule after the Proposal Due Date will be communicated via Email or via the Electronic Procurement Platform to the Proposers.

**Table 1  
Proposed RFP Schedule**

<b>Milestone</b>	<b>Schedule Dates</b>
(1) Status Conference held	February 7, 2019
(2) Draft RFP filed	April 1, 2019
(3) Status Conferences held	April 18, 2019 May 2, 2019
(4) Commission solicited Stakeholder and Company Comments by	May 20, 2019
(5) Proposed Final RFP filed	July 10, 2019
(6) Final RFP is Issued	August 9, 2019 <sup>18</sup>
(7) Self-Build and Affiliate Proposal Due Date	October 21, 2019 at 2:00 pm HST <sup>19</sup>
(8) IPP Proposal Due Date	October 22, 2019 at 2:00 pm HST
(9) Selection of Priority List	January 3, 2020
(10) BAFOs Due	January 10, 2020
(11) Selection of Final Award Group	April 24, 2020
(12) Contract Negotiations Start	May 1, 2020

**3.2 Company RFP Website/Electronic Procurement Platform**

3.2.1 The Company has established a website for general information to share with potential Proposers. The RFP website is located at the following link:

[www.hawaiianelectric.com/competitivebidding](http://www.hawaiianelectric.com/competitivebidding)

The Company will provide general notices, updates, schedules and other information on

<sup>18</sup> Per Section IV.B.6.e.ii of the Competitive Bidding Framework “[t]he utility shall have the right to issue the RFP if the Commission does not direct the utility to do otherwise within thirty (30) days after the Commission receives the proposed RFP and the Independent Observer’s comments and recommendations.” August 9, 2019 is based on this thirty (30) day timeline. However, this date and all subsequent dates in the proposed schedule are dependent on any further guidance provided by the PUC.

<sup>19</sup> An SBO or Affiliate Proposal must also be filed in hard copy form with the PUC a minimum of one (1) Day before other Proposals are due.

the RFP website throughout the process. Proposers should check the website frequently to stay abreast of any new developments. This website will also contain the link to the Electronic Procurement Platform employed by the Company for the receipt of Proposals.

“Sourcing Intelligence” developed by Power Advocate is the Electronic Procurement Platform that the Company has licensed and will utilize for this RFP. Proposers who do not already have an existing account with PowerAdvocate and who intend to submit a Proposal for this RFP will need to register as a “Supplier” with PowerAdvocate.

- 3.2.2 There are no license fees, costs, or usage fees to Proposers for the use of the Electronic Procurement Platform.

See [Appendix D](#) for user information on and screenshots of PowerAdvocate’s Sourcing Intelligence procurement platform.

### 3.3 **Information Conferences**

The Commission held three status conferences on February 7, 2019, April 18, 2019, and May 2, 2019 to allow the Companies to propose plans for their Stage 2 RFPs and to respond to questions from the Commission, the Consumer Advocate and stakeholders. The Companies’ presentations were made available on the Companies’ RFP Website. The Commission also solicited comments from stakeholders on the Companies’ Stage 2 Draft RFPs on May 6, 2019 before releasing its Order No. 36356 providing guidance on the draft RFPs for dispatchable and renewable generation on June 10, 2019. On July 5, 2019, the Commission issued Order No. 36406 providing further clarification of Order No. 36356.

Prospective Proposers may continue submitting written questions regarding the RFP to the RFP Email Address set forth in [Section 1.6](#). The Company will endeavor to address all questions that will be helpful to prospective Proposers via a Q&A section on the RFP website.

Prospective Proposers should review the RFP Website’s Q&A section prior to submission of their Proposal. Duplicate questions will not be answered.

### 3.4 **Preparation of Proposals**

- 3.4.1 Each Proposer shall be solely responsible for reviewing the RFP (including all attachments and links) and for thoroughly investigating and informing itself with respect to all matters pertinent to this RFP, the Proposer’s Proposal, and the Proposer’s anticipated performance under the RDG PPA or ESPPA. It is the Proposer’s responsibility to ensure it understands all requirements of the RFP, to seek clarification if the RFP’s requirements or Company’s request is not clear, and to ask for any confirmation of receipt of submission of information. Under Section 1.7.4, the Proposer is solely responsible for all errors in its Proposal(s). The Company will not accept any explanation by a Proposer that it was incumbent on the Company to catch any error.

- 3.4.2 Proposers shall rely only on official information provided by the Company in this RFP when preparing their Proposal. The Company will rely only on the information included in the Proposals and additional information solicited by the Company to Proposers in the format requested, to evaluate the Proposals received. Evaluation will be based on the stated information in this RFP and on information submitted by Proposers in response to this RFP. Proposal submissions should not reference previous RFP submissions for support. Proposers also should not assume that any previous RFP decisions/preferences will also pertain to this RFP.
- 3.4.3 Each Proposer shall be solely responsible for, and shall bear all of its costs incurred in the preparation of its Proposal and/or its participation in this RFP, including, but not limited to, all costs incurred with respect to the following: (1) review of the RFP documents; (2) meetings with the Company; (3) Site visits; (4) third-party consultant consultation; and (5) investigation and research relating to its Proposal and this RFP. The Company will not reimburse any Proposer for any such costs, including the selected Proposer(s).
- 3.4.4 Each Proposal must contain the full name and business address of the Proposer and must be signed by an authorized officer or agent<sup>20</sup> of the Proposer.

### 3.5 **Organization of the Proposal**

The Proposal must be organized as specified in Appendix B. It is the Proposer's responsibility to ensure the information requested in this RFP is submitted and contained within the defined Proposal sections as specified in Appendix B.

### 3.6 **Proposal Limitations**

Proposers expressly acknowledge that Proposals are submitted subject to the following limitations:

The RFP does not commit or require the Company to award a contract, pay any costs incurred by a Proposer in the preparation of a Proposal, or procure or contract for products or services of any kind whatsoever. The Company reserves the right, in consultation with the Independent Observer, to accept or reject, in whole or in part, any or all Proposals submitted in response to this RFP, to negotiate with any or all Proposers eligible to be selected for award, or to withdraw or modify this RFP in whole or in part at any time.

- The Company reserves the right, in consultation with the Independent Observer, to request additional information from any or all Proposers relating to their Proposals or to request that Proposers clarify the contents of their Proposals. Proposers who

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<sup>20</sup> Proposer's officer or agent must be authorized to sign the Proposal. Such authorization must be in writing and may be granted via Proposer's organizational documents (i.e., Articles of Incorporation, Articles of Organization, By-laws, etc.), resolution, or similar documentation.

are not responsive to such information requests may be eliminated from further consideration upon consultation with the Independent Observer.

- The Company reserves the right, in consultation with the Independent Observer, to solicit additional Proposals from Proposers after reviewing the initial Proposals. Other than as provided in this RFP, no Proposer will be allowed to alter its Proposal or add new information to a Proposal after the Proposal Due Date.
- All material submitted in response to this RFP will become the sole property of the Company, subject to the terms of the Stage 2 NDA.

### 3.7 **Proposal Compliance and Bases for Disqualification**

Proposers may be deemed non-responsive and/or Proposals may not be considered for reasons including, but not limited to, the following:

- Any unsolicited contact by a Proposer or prospective Proposer with personnel of the Company pertaining to this RFP as described in Section 1.5.5.
- Any illegal or undue attempts by or on behalf of the Proposer or others to influence the Proposal Review process.
- The Proposal does not meet one or more of the Eligibility Requirements specified in Section 4.2.
- The Proposal does not meet one or more of the Threshold Requirements specified in Section 4.3.
- The Proposal is deemed to be unacceptable through a fatal flaws analysis as described in Section 4.4.2.
- The Proposer does not respond to a Company request for additional information to clarify the contents of its Proposal within the timelines specified by the Company.
- The Proposal contains misrepresentations or errors.

### 3.8 **Power Purchase Agreement**

- 3.8.1 The Power Purchase Agreement for proposals selected under this RFP that include a generation component will be in the form of the RDG PPA, attached as Appendix J and Appendix L.
- 3.8.2 The Power Purchase Agreement for standalone energy storage proposals selected under this RFP will be in the form of the Company's ESPPA, attached as Appendix K.
- 3.8.3 If selected, any Affiliate Proposers will be required to enter into the RDG PPA or ESPPA with the Company.

- 3.8.4 If selected, a Self-Build Proposer will not be required to enter into a PPA or ESPPA with the Company. However, the SBO will be held to the same performance metrics and milestones set forth in the RDG PPA and/or ESPPA to the same extent as all Proposers, as attested to in the SBO's Appendix G Attachment 1, Self-Build Option Certification submittal. If liquidated damages are assessed, they will be paid from shareholder funds and returned to customers through the Purchased Power Adjustment Clause ("PPAC") or other appropriate rate adjustment mechanisms.

To retain the benefits of operational flexibility for a Company-owned facility, the SBO will be permitted to adjust operational requirements and performance metrics with the approval of the PUC. The process for adjustment would be similar to a negotiated amendment to a PPA with PUC approval.

- 3.8.5 In general, under the RDG PPA, payment to the Seller contains two parts: a Lump Sum Payment component to cover the fixed costs of the Project and a Price for Purchase of Electric Energy component (\$/MWh component) to cover variable operations and maintenance costs (if applicable, depending on the resource). In return, the Seller shall guarantee minimum performance and availability metrics to ensure that the Facility is maintained and available for energy storage (if applicable) and dispatch, as well as provide an indication of the available energy in near real-time for the Company's dispatch. Company shall not be obligated to accept nor shall it be required to pay for test energy generated by the Facility during acceptance testing or other test conditions.
- 3.8.6 In general, under the ESPPA, payment to the Seller consists of a Lump Sum Payment to cover dispatchability and availability of the Facility. In return, the Seller shall guarantee minimum performance and availability metrics to ensure that the Facility is maintained and available for energy storage and dispatch, as well as provide an indication of the available energy in near real-time for the Company's dispatch.
- 3.8.7 As described in Section 2.1, the Performance Standards identified in the applicable RDG PPAs or the ESPPA establish the minimum requirements a Proposal must satisfy to be eligible for consideration in this RFP. A proposed Facility's ability to meet these Performance Standards is both a Threshold Requirement and a Non-Price Related Criteria under Sections 4.3 and 4.4.2, respectively. As such, the Performance Standards included in the RDG PPAs or ESPPA are non-negotiable. Proposers may propose modifications to other sections of the RDG PPA or ESPPA but are encouraged to accept such terms as written in order to expedite the overall RFP process and potential contract negotiations. As a component of their Proposals, Proposers who elect to propose modifications shall provide a Microsoft Word red-line version of the relevant document identifying specific proposed modifications to the model language that the Proposer is agreeable to, as well as a detailed explanation and supporting rationale for each modification.
- 3.8.7.1 General comments, drafting notes and footnotes such as "parties to discuss" are unacceptable and will be considered non-responsive. Proposed modifications to the RDG PPA and ESPPA will be evaluated as a non-price evaluation criterion as further described in Section 4.4.2. In order to facilitate this process, the Company will make available

electronic versions of the model agreements on the RFP website and through the PowerAdvocate platform for the RFP. Any proposed modifications to the RDG PPA or ESPPA will be subject to negotiation between the Company and the Final Award Group. As stated above, since general comments, drafting notes, and footnotes without accompanying specific proposed language modifications are unacceptable and non-responsive, the Company will not negotiate provisions simply marked by such general comments, drafting notes and footnotes.

3.8.7.2 The Company has an interest in maintaining consistency for certain provisions of the RDG PPAs and ESPPA, such as the calculation of availability and payment terms. Therefore, for such provisions, the Company will endeavor to negotiate similar and consistent language across PPAs for the Final Award Group.

3.8.8 Proposals that do not include specific proposed modifications to the attached RDG PPAs or ESPPA will be deemed to have accepted the RDG PPA or ESPPA in its entirety.

### 3.9 Pricing Requirements

3.9.1 Proposers must submit pricing for each of their variations associated with each Proposal (if variations as described in Section 1.8.2 and 1.8.3 are submitted). Proposers are responsible for understanding the terms of the RDG PPA or ESPPA. Pricing cannot be specified as contingent upon other factors (e.g., changes to federal tax policy or receiving all Investment Tax Credits assumed).

3.9.2 Escalation in pricing over the term of the RDG PPA or the term of the ESPPA is prohibited.

3.9.3 Pricing information must only be identified within specified sections of the Proposal instructed by this RFP's Appendix B Proposer's Response Package (i.e., Proposal pricing information must be contained within defined Proposal sections of the Proposal submission). Pricing information contained anywhere else in a Proposal will not be considered during the evaluation process.

3.9.4 For projects that include a generation component, the Proposer's Response Package must include the following prices for each Proposal (and variation):

For IPP or Affiliate proposals:

- **Lump Sum Payment (\$/year):** Payment amount for full dispatchability of the Facility. Payment will be made in monthly increments.
- **Price for Purchase of Electric Energy (\$/MWh):** Payment for delivery of net energy sourced from the variable generation resource, if applicable. No Energy Payment will be provided for any energy delivery that is sourced originally from the grid (Company's System).



- **Total Project Capital Costs ~~(\$):(\$/year)~~:** Total capital costs for the project (identified by year).
- **Annual O&M Costs (\$/year):** Initial year operations and maintenance costs, annual escalation rate.
- **Annual Revenue Requirement (\$/year):** Annual revenue requirements (ARR) calculated for each year.
- **Black Start (\$):** If the Facility is not already black start enabled, the incremental cost required to enable black start.
- **Contingency Storage (\$/year):** For standalone energy storage projects that include Contingency Storage, the portion of the total project cost attributable to the Contingency Storage component.

See Appendix G for descriptions and detail on the Total Project Capital Costs, Annual O&M Costs and Annual Revenue Requirement for the Self-Build Proposals.

3.9.6 As identified in the Schedule of Defined Terms in the PPA under “BESS Allocated Portion of the Lump Sum Payment”, the allocated portion of the Lump Sum Payment specified for energy storage for the Facility is 50% and shall be a non-negotiable percentage in the PPA.

### 3.10 Project Description

- 3.10.1 Proposals that include a generation component are required to provide a NEP RFP Projection for the Project. The NEP RFP Projection associated with the proposed Project represents the estimated annual net energy (in MWh) that could be produced by the Facility and delivered to the Point of Interconnection over a ten-year period with a probability of exceedance of 95%. If the proposed Project includes an energy storage component, it should not be factored into the NEP RFP Projection. Any losses that may be incurred from energy being stored and then discharged from the energy storage component or any energy that may be diverted to the energy storage component due to generation in excess of the Facility’s Allowed Capacity should not be factored into the NEP RFP Projection. The NEP RFP Projection should assume that all energy is being directly exported to the Hawaiian Electric System. The NEP RFP Projection will be used

in the RFP evaluation process and therefore Proposers will be held to their provided value.<sup>21</sup>

- 3.10.2 Proposers must provide all information pertaining to the design, development, and construction of the Interconnection Facilities as specified in Appendix B.
- 3.10.3 Each Proposer must also agree to provide Project financial information, including proposed Project finance structure information specified in Appendix B. Such information will be used to evaluate Threshold Requirements and non-price criteria (e.g., Financial Viability of Proposer, Financial Strength and Financing Plan, State of Project Development and Schedule) set forth in Sections 4.3 and 4.4.2. Upon selection, the Final Award Group may be requested to provide further detailed cost information if requested by the PUC or the Consumer Advocate as part of the PPA approval process. If requested, such information would be provided to the PUC, Consumer Advocate and Company pursuant to a protective order in the docket.
- 3.10.4 The Proposer agrees that no material changes or additions to the Facility from what is submitted in its Proposal will be made without the Proposer first having obtained prior written consent from the Company. Evaluation of all Proposals in this RFP is based on the information submitted in each Proposal at the Proposal Due Date. If any Proposer requests any Proposal information to be changed after that date, the Company, in consultation with the Independent Observer, and in consideration of whether the evaluation is affected, will determine whether the change is permitted.
- 3.11 **Sites Identified by the Company**
- 3.11.1 As an alternative to a Site identified by the Proposer, the Company has identified potential Sites where landowners have expressed a willingness to negotiate a lease or purchase of the land to support a renewable energy project. These Sites were identified through a Land RFI. Proposers will be responsible for working directly with the land owner and must secure Site Control with such land owner prior to submitting a Proposal. Land RFI information is available to interested parties who sign the Stage 2 NDA. The Land RFI is further described in Appendix F.

Proposers are not required to select a Site identified in the Land RFI and as noted above may propose any Site for a Project. A Proposer may ask the Company questions as set forth in Section 2.2.1 if it would like to obtain similar information about the viability of interconnection at its proposed Site as identified for the Land RFI parcels.

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<sup>21</sup> If a Proposal is selected to the Final Award Group and a PPA is executed between the Company and the Proposer, the NEP RFP Projection will be further evaluated at several steps throughout the process as set forth in the RDG PPA, and adjustments to the Lump Sum Payment will be made accordingly. Additionally, because the Company will rely on an accurate representation of the NEP RFP Projection in the RFP evaluation, a one-time liquidated damage as described in the RDG PPA will be assessed if the First NEP benchmark is less than the Proposer's NEP RFP Projection. After the Facility has achieved commercial operations, the performance of the Facility will be assessed on a continuing basis against key metrics identified in the RDG PPA. See Article 2 and Attachment U of the RDG PPA.

3.11.2 Additionally, a Company-owned Site is being offered to Proposers of standalone energy storage Projects for their consideration. An approximately 9.5 acre area within the Kahe Generating Station property on the west side of ~~Oahu~~O'ahu, referred to as the Kahe Site, is further described in Appendix F.

Proposers proposing to use the Kahe Site shall be required to agree to specific terms and conditions for such use as provided for in an attachment to the PPA. Provisions providing for access to the site during construction and thereafter, during commercial operations, will be subject to current Company security policies and procedures. Physical, communication and internet security will be required consistent with Company policy. Additional measures may be required to limit/eliminate interference between Seller and Company facilities and infrastructure. Such policies, procedures and requirements may change as necessary during the term of the ESPPA to reflect changes in Company policies or to remain in compliance with current applicable laws, rules or regulations. A draft copy of the proposed form of the Terms and Conditions for Use is attached as Attachment X to the model ESPPA. Limited sections (Section 4 Seller's Investigations of the Company-Owned Site, Section 5 Construction and Maintenance, Section 7 Hazardous Substances, and Section 8 Archeological and Historic Items) of the TCU shall be negotiable.

The Company plans to offer potential Proposers the opportunity to visit the Kahe Site. The date, time, and requirements for this site visit will be posted to the Company's RFP website.

3.11.3 To maintain the integrity of the transmission system, standalone energy storage Proposals or Proposals ~~coupled~~paired with energy storage that intend to meet the needs of the Company's 438,000 MWh energy storage should either be sited on land near or adjacent to one the following 138 kV substations available for interconnection. If the Proposer chooses a different site, the Proposer may be required to build a new substation that meets the Company transmission planning criteria for firm generation resources.

Substation	Address	Zip Code	TMK	Space Available
AES Substation	91-174A Hanua St	96707	9-1-026-018	Space for expansion
CEIP Substation	91-0550 Kalaeloa Blvd	96707	9-1-015-016	Open bay
Ewa Nui Substation	91-1440A Farrington Hwy	96707	9-1-018-001	Space for expansion
Halawa Substation	99-760 Moanalua Rd	96701	9-9-010-044	Space for expansion
Ko'olau Substation	45-580 Kionaole Rd	96744	4-5-042-007	Open bay

These 138 kV substations have the necessary infrastructure to meet the transmission planning criteria for firm generation resources. To maximize utilization of the Company Facilities, the Company prefers that Proposals that intend to interconnect to these 138 kV substations be sized to maximize utilization of the substation (e.g., projects sized in the range of 100 MW). Additional information regarding interconnection at these substations are provided in Appendix F.

Proposers must include the costs for use of the land and site preparation for a new Company substation as specified in Appendix H. The evaluation of these Projects is

specified in Section 4.4. Proposers should contact the Company for additional information regarding the estimated interconnection facilities needed to satisfy the transmission planning criteria for firm generation resources.

### 3.12 **Confidentiality**

- 3.12.1 Each prospective Proposer must submit an executed Stage 2 NDA (specific to the O‘ahu Variable Renewable Dispatchable Generation and Energy Storage RFP) in the form attached as Appendix E by the Proposal Due Date specified in the RFP Schedule in Section 3.1. The form of the Stage 2 NDA is not negotiable. Information designated as confidential by the Company will be provided on a limited basis, and only those prospective Proposers who have submitted an executed Stage 2 NDA will be considered. NDAs that were fully executed for Stage 1 will not be accepted for Stage 2. Proposers must clearly identify all confidential information in their Proposals. However, Proposers should- designate as confidential only those portions of their Proposals that genuinely warrant confidential treatment. The Company discourages the practice of marking every page of a Proposal as confidential. The Company will make reasonable efforts to protect any such information that is clearly marked as confidential. Consistent with the terms of the Stage 2 NDA, the Company reserves the right to share any information, even if marked confidential, to its agents, contractors, or the Independent Observer for the purpose of evaluating the Proposal and facilitating potential contract negotiations.
- 3.12.2 Proposers, in submitting any Proposal(s) to Company in response to this RFP, certify that such Proposer has not shared its Proposal(s), or any part thereof, with any other Proposer of a Proposal(s) responsive to this RFP.
- 3.12.3 The Company will request that the PUC issue a Protective Order to protect confidential information provided by Proposers to the Company and to be filed in a proceeding before the PUC. A copy of the Protective Order, once issued by the PUC, will be provided to Proposers. Proposers should be aware that the Company may be required to share certain confidential information contained in Proposals with the PUC, the State of Hawai‘i Department of Commerce and Consumer Affairs, Division of Consumer Advocacy, and the parties to any docket instituted by the PUC, provided that recipients of confidential information have first agreed in writing to abide by the terms of the Protective Order. Notwithstanding the foregoing, no Proposer will be provided with Proposals from any other Proposer, nor will Proposers be provided with any other information contained in such Proposals or provided by or with respect to any other Proposer.

### 3.13 **Credit Requirements Under the PPA**

- 3.13.1 Proposers with whom the Company concludes PPA contract negotiations must post Development Period Security and Operating Period Security in the form of an irrevocable standby letter of credit from a bank chartered in the United States as required and set forth in Article 14 of the RDG PPA or the ESPPA.

- 3.13.2 The Development Period Security and Operating Period Security identified in the RDG PPAs or the ESPPA are minimum requirements. Proposers shall not propose an amount lower than that set forth in the RDG PPAs or the ESPPA.
- 3.13.3 Each Proposer shall be required to provide a satisfactory irrevocable standby letter of credit in favor of the Company from a bank chartered in the United States to guarantee Proposer's payment of interconnection costs for all Company-Owned Interconnection Facilities in excess of the Total Estimated Interconnection Costs and/or all relocations costs in excess of Total Estimated Relocation Costs that are payable to Company as required and set forth in Attachment G to the RDG PPAs or the ESPPA.
- 3.13.4 Proposers may be required to provide an irrevocable standby letter of credit in favor of the Company from a bank chartered in the United States in lieu of the required Source Code Escrow in an amount and as required and set forth in Attachment B to the RDG PPAs or ESPPA.

#### **Chapter 4: Evaluation Process and Evaluation Criteria**

##### **4.1 Proposal Evaluation and Selection Process**

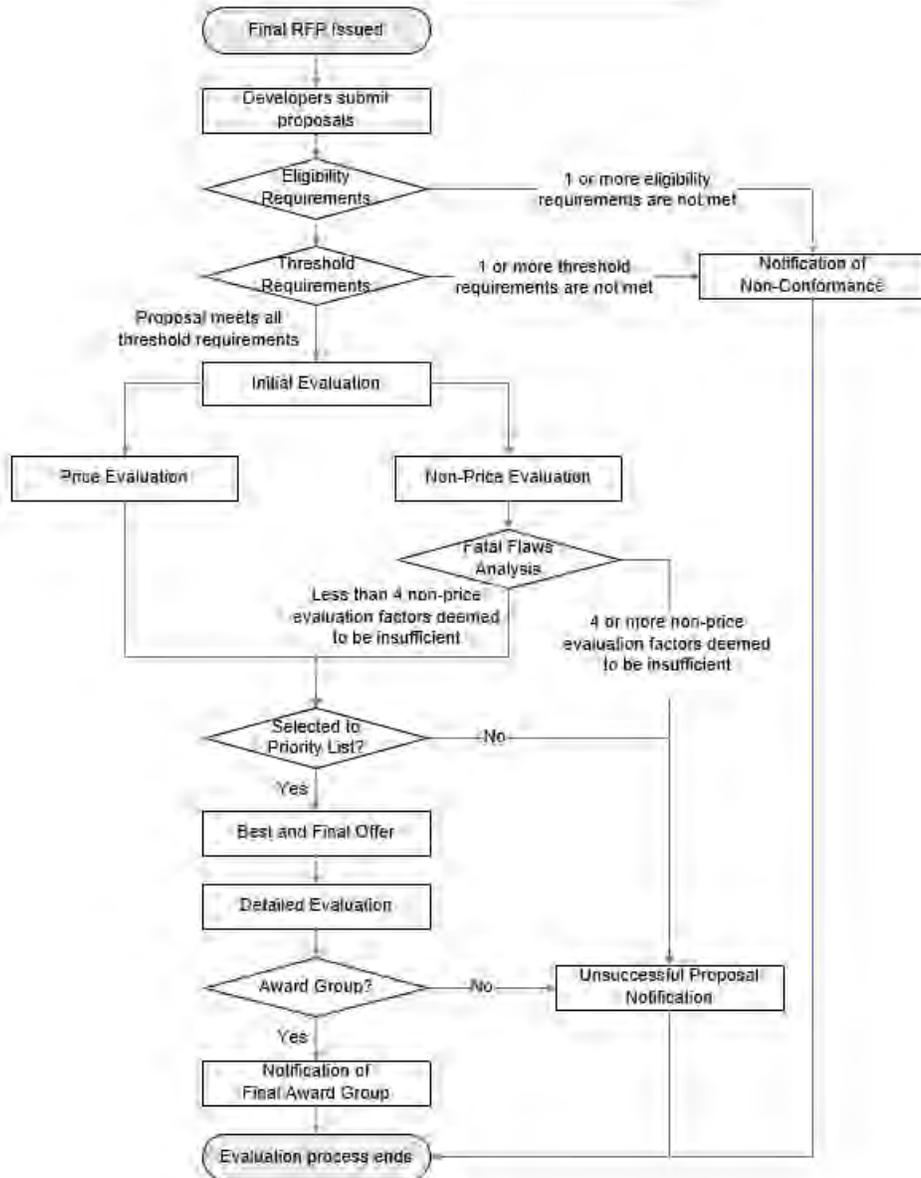
The Company will employ a multi-step evaluation process. Once the Proposals are received, the Proposals will be subject to a consistent and defined review, evaluation, and selection process. This Chapter provides a description of each step of the process, along with the requirements of Proposers at each step. Figure 1 and Figure 2 sets forth the flowchart for the proposal evaluation and selection process.

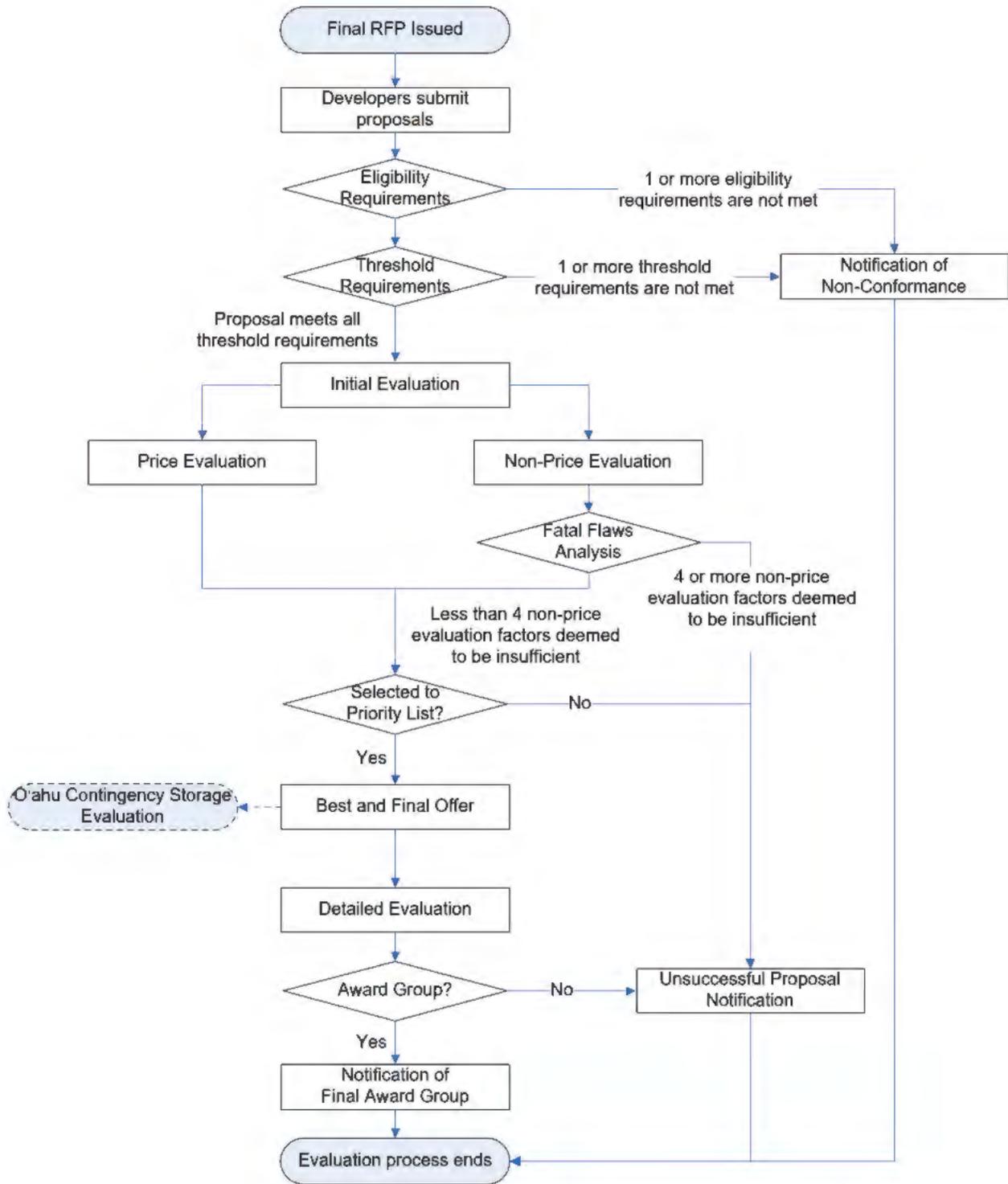
Upon receipt of the Proposals, the Company will ensure that the Proposals meet the Eligibility Requirements, and if so, will review the Proposals to ensure that the Threshold Requirements have been met. The Company, in coordination with the Independent Observer will determine if a Proposer is allowed to cure any aspect of its Proposal or whether the Proposal would be eliminated based on failure to meet either Eligibility or Threshold Requirements.<sup>22</sup> If a Proposer is provided the opportunity to cure any aspect of its Proposal, the Proposer shall be given three (3) business Days to cure from the date of notification to cure. Proposals that have successfully met the Eligibility and Threshold Requirements will then enter a two-phase process for Proposal evaluation, which includes the Initial Evaluation resulting in the development of a Priority List, followed by the opportunity for Priority List Proposals to provide Best and Final Offers, and then a Detailed Evaluation process to arrive at a Final Award Group.

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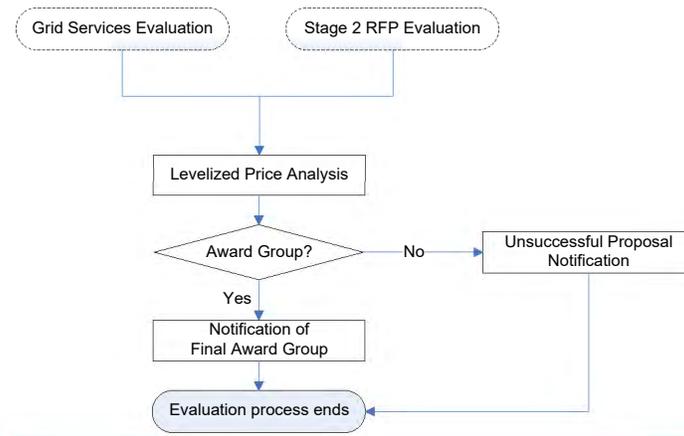
<sup>22</sup> As a general rule, if a Proposer does not include a requested document, inadvertently excludes minor information or provides inconsistencies in its information, it may be given a chance to cure such deficiency. If a Proposer fails to provide material required information in its Proposal and providing the Proposer an opportunity to cure is deemed by the Company, in consultation with the Independent Observer, as an unfair advantage to such Proposer, the Proposal could be classified as non-conforming and eliminated for failure to meet the Eligibility Requirements.

**Figure 1 – Evaluation Workflow**





**Figure 2 – O‘ahu Contingency Storage Evaluation Workflow**



#### 4.2 Eligibility Requirements Assessment

Upon receipt of the Proposals, each Proposal will be reviewed to ensure that it meets the following Eligibility Requirements.

- The Proposal including required uploaded files must be received on time via the PowerAdvocate Platform.
- The Proposal Fee must be received on or before the Proposal Due Date.<sup>23</sup>
- The Proposal must not contain material omissions.
- The Proposal must be signed and certified by an officer or other authorized person of the Proposer.
- The Proposer must fully execute the agreements or other documents required pursuant to this RFP.
- The Proposer must provide a certificate of good standing from the State of Hawai‘i Department of Commerce and Consumer Affairs.
- The Proposer must provide federal and state tax clearance certificates for the Proposer.
- The Proposal must not be contingent upon changes to existing county, state, or federal laws or regulations.
- The proposed Project must be located on the island of O‘ahu.
- Project must be greater than 5 MW.
- No single point of failure from the Facility shall result in a decrease in net electrical output greater than 135 MW.
- Projects that interconnect to an existing Company substation (as identified in Section 3.11.3) must be a standalone energy storage Proposal or a Proposal ~~coupled~~paired with energy storage intending to meet the Company’s identified energy storage needs.

<sup>23</sup> Proposal Fees will not be required for SBO Proposals or Proposals utilizing Company offered and owned sites.

- Project infrastructure and point of interconnection must be located outside the 3.2 feet sea level rise exposure area (SLR-XA) as described in the Hawai‘i Sea Level Rise Vulnerability and Adaptation Report (2017), and not located within a Tsunami Evacuation Zone.
- Proposals must meet the grid-charging requirements of Section 1.2.11.
- Standalone energy storage Proposals or Proposals for generation ~~coupled~~paired with energy storage that intend such storage to meet the Company’s energy storage need must specify a GCOD no later than required in Section 1.2.~~15~~14.
- Generation only Proposals or generation ~~coupled~~paired with energy storage Proposals that are not intended to meet the Company’s energy storage need must specify a GCOD no later than required in Section 1.2.~~15~~14.

#### 4.3 Threshold Requirement Assessment

Proposals that meet all the Eligibility Requirements will then be evaluated to determine compliance with the Threshold Requirements, which have been designed to screen out Proposals that are insufficiently developed, lack demonstrated technology, or will impose unacceptable execution risk for the Company. Proposers are responsible to provide explanations and supporting information demonstrating how and why they believe the Project they are proposing meets each of the Threshold Requirements. Proposals that fail to provide this information or meet a Threshold Requirement will be eliminated from further consideration upon concurrence with the Independent Observer. The Threshold Requirements for this RFP are the following:

- **Site Control:** The Proposal must demonstrate that the Proposer has Site Control for all real property required for the successful implementation of a specific Proposal at a Site not controlled by the Company, including any Interconnection Facilities for which the Proposer is responsible. The need for a firm commitment is necessary to ensure that Proposals are indeed realistic and can be relied upon as the Company moves through the remainder of the RFP process. In addition, developmental requirements and restrictions such as zoning of the Site and the status of easements must be identified and will be considered in determining whether the Proposal meets the Site Control threshold.

To meet this Site Control requirement, Proposers must do one of the following:

- Provide documentation confirming (1) that the Proposer has an existing legally enforceable right to use and control the Site, either in fee simple or under leasehold for a term at least equal to the term of the PPA or ESPPA (“Site Control”) as specified in the Proposer’s Proposal (taking into account the timelines set forth in this RFP for selection, negotiation, and execution of a PPA or ESPPA and PUC approval), and (2) the applicable zoning for the Site and that such zoning does not prohibit the development of the Site consistent with the Proposal; or
- Provide documentation confirming, at a minimum, (1) that the Proposer has an executed binding letter of intent, memorandum of understanding, option agreement, or similar document with the land owner (a “binding commitment”) which sets forth the general terms of a transaction that would

grant the Proposer the required Site Control, and (2) the applicable zoning for the Site and that such zoning does not prohibit the development of the Site consistent with the Proposal. The binding commitment does not need to be exclusive to the Proposer at the time the Proposal is submitted and may be contingent upon selection of the Proposal to the Final Award Group. If multiple Projects are provided a binding commitment for the same Site, the documents granting the binding commitments must not prevent the Company from choosing the Proposal that otherwise would have been selected.

- **Government/Public Lands Only:** The above two bullet points may not be feasible where government or publicly-owned lands are part of the Site or are required for the successful implementation of the Proposal. In such a case, at a minimum the Proposer must provide a credible and viable plan, including evidence of any steps taken to date, to secure ~~the~~all necessary Site Control for the Proposal, including but not limited to evidence of sufficient progress toward approval by the government agency or other body vested with the authority to grant such approval (as demonstrated by records of the agency). The Proposer will still be required, however, to demonstrate Site Control as required in the applicable RDG PPA or ESPPA should the Proposal be selected to the Final Award Group.
- **Performance Standards:** The proposed Facility must be able to meet the performance attributes identified in this RFP and the Performance Standards identified in the applicable RDG PPAs or the ESPPA. Proposals should include sufficient documentation to support the stated claim that the Facility will be able to meet the Performance Standards- (including the Project's ability to provide Fast Frequency Response if the Proposal includes a Contingency Storage component). The Proposal should include information required to make such a determination in an organized manner to ensure this evaluation can be completed within the evaluation review period.
- **Proven Technology:** This criterion is intended as a check to ensure that the technology proposed is viable and can reasonably be relied upon to meet the objectives of this RFP. The Company will only consider Proposals utilizing technologies that have successfully reached commercial operations in commercial applications (i.e., a PPA) at the scale being proposed. Proposals should include any supporting information for the Company to assess the commercial and financial maturity of the technology being proposed.
- **Experience of the Proposer:** The Proposer, its affiliated companies, partners, and/or contractors and consultants on the Proposer's Project team must have experience in financing, designing, constructing, interconnecting, owning, operating, and maintaining at least one (1) electricity generation project, including all components of the project (i.e., storage or other attributes), similar in size, scope, technology, and structure to the Project being proposed by Proposer. The Company will consider a Proposer to have reasonably met this Threshold Requirement if the Proposer can provide sufficient information in its Proposal's RFP Appendix B

Section 2.13 tables demonstrating that at least one member of the Proposer's team (identified in the Proposal) has specific experience in each of the following categories: financing, designing, constructing, interconnecting, owning, operating, and maintaining projects similar to the Project being proposed.

- **Credit/Collateral Requirements:** Proposers shall agree to post Development Period Security and Operating Period Security as described in Section 3.13.
- **Available Circuit Capacity:** The output capacity of the proposed Project (including Contingency Storage as applicable) must not exceed the available capacity of the 46 kV circuit to which it will interconnect except in cases where the Proposer will bear the cost of 46 kV transmission conductor upgrade as noted in Section 2.2.3. If a 138 kV transmission interconnection is proposed, the output capacity of the proposed Project must not exceed the thermal limit of that 138 kV-level circuit. (see Section 2.2.2).
- **Viability of Proposer's Financial Plan:** Proposers must provide a basic financial plan for the Project with details on the sources of debt and equity, capital structure, etc. Evidence must be provided of general support for Project financing.
- **Financial Compliance:** The proposed Project must not cause the Company to be subject to consolidation, as set forth in Financial Accounting Standards Board ("FASB") Accounting Standards Codification Topic 810, Consolidation ("ASC 810"), as issued and amended from time to time by FASB. Proposers are required to state to the best of their knowledge, with supporting information to allow the Company to verify such conclusion, that the Proposal will not result in the Seller under the PPA being a Variable Interest Entity ("VIE") and result in the Company being the primary beneficiary of the Seller that would trigger consolidation of the Seller's finances on to the Company's financial statements under FASB ASC 810. The Company will perform a preliminary consolidation assessment based on the Proposals received. The Company reserves the right to allow a Proposal to proceed through the evaluation process through selection of the Priority List and work with the Proposer on this issue prior to or during PPA negotiations.
- **Community Outreach:** Gaining community support is an important part of a Project's viability and success. A comprehensive community outreach and communications plan ("Community Outreach Plan") is an essential roadmap that guides a developer as they work with various communities and stakeholders to gain their support for a Project. Proposers must include a Community Outreach Plan that describes the Proposer's commitment to work with the neighboring community and stakeholders and to provide them timely Project information during all phases of the Project. The Community Outreach Plan shall include but not be limited to the following information: Project description, community scoping (including stakeholders and community concerns), Project benefits, government approvals, development process (including Project schedule), and a comprehensive communications plan.

Proposers need to also be mindful of the Projects' potential impacts to historical and cultural resources. At a minimum, Proposers should identify: (1) any valued cultural, historical, or natural resources in the area in question, including the extent to which traditional and customary native Hawaiian rights are exercised in the area; (2) the extent to which those resources – including traditional and customary native Hawaiian rights – will be affected or impaired by the proposed action; and (3) the feasible action, if any, to be taken to reasonably protect native Hawaiian rights if they are found to exist. Also, at a minimum, Proposers should have already contracted with a consultant with expertise in this field to begin a cultural impact assessment for the Project.

#### 4.4 Initial Evaluation – Price and Non-Price Analysis

Proposals that meet both the Eligibility and Threshold Requirements are Eligible Proposals which will then be subject to a price and non-price assessment. Two teams have been established to undertake the Proposal evaluation process: a Price Evaluation Team and Non-Price Evaluation Team. The results of the price and non-price analysis will be a relative ranking and scoring of all Eligible Proposals. Price-related criteria will account for sixty percent (60%) of the total score and non-price-related criteria will account for forty percent (40%) of the total score. The non-price criteria and methodology for applying the criteria are explained in [Section 4.4.2](#).

The Company will employ a closed-bidding process for this solicitation in accordance with [Part IV.H.3](#) of the Framework where the price and non-price evaluation models to be used will not be provided to Proposers. However, the Company will provide the Independent Observer with all necessary information to allow the Independent Observer to understand the evaluation models and to enable the Independent Observer to observe the entire analysis to ensure a fair process. The evaluation models will be finalized prior to the receipt of Proposals.

##### 4.4.1 Initial Evaluation of the Price Related Criteria

For the initial price analysis, an equivalent energy price (Levelized \$/MWh) will be calculated for each renewable generation and renewable generation with energy storage proposal based on information provided in the Proposal including the Lump Sum Payment (\$/year), Price for Purchase of Electric Energy (\$/MWh), and the Net Energy Potential (“NEP”) RFP Projection (MWh) information defined in RFP Sections 3.9 and 3.10.

For energy storage only proposals, a levelized energy price (Levelized \$/MWh) will be calculated for each energy storage Proposal based on information provided in the Proposal including the Lump Sum Payment (\$/year), and the facilities' energy arbitrage capability.

For standalone Contingency Storage Proposals, and for the Contingency Storage portion of a renewable energy project paired with storage, a levelized energy price (Levelized \$/MWh) will be calculated for each Proposal based on information provided in the Proposal including the Lump Sum Payment (\$/year), and the facility's Contingency Storage energy capability.

In order to fairly evaluate Proposals with different technologies and characteristics while using an equivalent energy price in Levelized \$/MWh at this stage in the evaluation, the Company will group Proposals into technology-based evaluation categories, as applicable. For example:<sup>24</sup> (1) Wind generation (MWh) only; (2) Wind generation (MWh) and Energy storage; (3) Solar generation (MWh) only; (4) Solar generation (MWh) and Energy storage; (5) Energy storage only; (6) Contingency storage only; (7) Energy storage and Contingency storage; (8) Wind generation (MWh), Energy Storage, and Contingency Storage; and (9) Solar generation (MWh), Energy storage, and Contingency Storage

The Eligible Proposal with the lowest LEP in each evaluation category will receive 600 points. All other Eligible Proposals in that evaluation category will receive points based on a proportionate reduction using the percentage by which the Eligible Proposal's LEP exceeds the lowest LEP in that evaluation category. For example, if a Proposal's LEP is ten percent (10%) higher than the lowest LEP in that evaluation category, the Proposal will be awarded 540 points (that is, 600 points less 10%). The result of this assessment will be a ranking and scoring of each Proposal within each evaluation category.

#### 4.4.2 Initial Evaluation of the Non-Price Related Criteria

For the non-price analysis, each Proposal will be evaluated ~~based~~ on each of the eight (8) non-price criteria categories set forth below:

- Community Outreach and Cultural Resource Impacts
- State of Project Development and Schedule
- Performance Standards
- Environmental Compliance and Permitting Plan
- Experience and Qualifications
- Financial Strength and Financing Plan
- RDG PPA or ESPPA Contract Exceptions
- Guaranteed Commercial Operations Date

Each of the first three criteria – Community Outreach and Cultural Resource Impacts, State of Project Development and Schedule, Performance Standards – will be weighted twice as heavily as the others to reflect the impact these categories have to achieve a successful and timely procurement. The non-price criteria are generally scored on a scale of 1 (poor) to 5 (highly preferable).

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<sup>24</sup> There may be other technologies that are offered in this RFP. This list is illustrative of how technology-based evaluation categories will be established for the Initial Evaluation.

The total non-price score will be the sum of the scores for each of the individual non-price criteria. The Company will then award non-price evaluation points in accordance with the relative ranking of scores within each evaluation category. The Proposal in each evaluation category with the highest total non-price score will receive 400 points, and all other Proposals will receive points equal to the Proposal's score divided by the top score, multiplied by 400.

During the non-price criteria evaluation, a fatal flaws analysis will also be conducted such that any Proposal that is deemed not to meet the minimum standards level<sup>25</sup> for four (4) or more non-price criteria will be disqualified given that the Proposal has failed to meet a majority of non-price factors that are indicative as to the general feasibility and operational viability of a proposed Project.

The Companies' evaluation of the non-price criteria will be based on the materials provided by a Proposer in its Proposal. Acceptance of any Proposal into the Final Award Group shall not be assumed or construed to be an endorsement or approval that the materials provided by Proposer are complete, accurate or in compliance with applicable law. The Companies assume no obligation to correct, confirm or further research any of the materials submitted by Proposers. Proposers retain sole responsibility to ensure their Proposals are accurate and in compliance with all laws.

The non-price criteria are:

- **Community Outreach and Cultural Resource Impacts** – Gaining community support is an important part of a Project's viability and success. An effective Community Outreach Plan will call for early meaningful communications with stakeholders and will reflect a deep understanding and respect for the community's desire for information to enable them to make informed decisions about future projects in their communities. Therefore, Proposals will be evaluated on the quality of the Community -Outreach Plan to inform the Project's impacted communities. Proposers need to also be mindful of the Project's potential impacts to historical and cultural resources. Proposers should at least identify (1) valued cultural, historical, or natural resources in the area in question, including the extent to which traditional and customary native Hawaiian rights are exercised in the area; (2) the extent to which those resources – including traditional and customary native Hawaiian rights – will be affected or impaired by the proposed action; and (3) the feasible action, if any, to be taken to reasonably protect native Hawaiian rights if they are found to exist.

At a minimum, Proposals should include a Community Outreach Plan that describes the Proposer's commitment to work with the neighboring community and stakeholders and to provide timely Project information during project development, construction and operation. The Community Outreach Plan shall include, but not be limited to the following:

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<sup>25</sup> A score of 3 is the "meets minimum standards" level that a Proposal must achieve in at least five (5) criteria.

- 1) Project description. A thorough description including a map of the location of the Project. This information will help the community understand the impact that the Project may have on the community.
- 2) Community scoping. Identify stakeholders (individuals, community leaders, organizations), community issues and concerns, and community sentiment.
- 3) Project benefits. An explanation of the need for the Project. This will help the community to understand how the Project might benefit their community.
- 4) Government approvals. Required government permits and approvals, public hearings and other opportunities for public comment. This information will help the community to understand the level of public scrutiny and participation that might occur for the Project and the opportunities to provide public comments.
- 5) Development process. A Project schedule that identifies key milestones will facilitate the community's understanding of the development process.
- 6) Communications Plan. A communications plan including a detailed community outreach schedule that will keep the affected communities and stakeholders informed about the Project's outreach efforts during early Project development period through construction and operations.

Preference will be given to Proposers who have already identified established contacts to work with the local community, have used community input to incorporate changes to the final design of the Project and mitigate community concerns, have proposed a community benefits package (including details of the community recipients and benefits package), or have community consultants as part of the Project team doing business in Hawai'i that have successfully worked with communities in Hawai'i on the development of two or more energy projects or projects with similar community issues. These criteria are aligned with the Companies' community engagement expectation whereby all developers will be required to engage in community outreach prior to signing a PPA with the Companies. This process is also outlined in RFP Section 5.3.

Also, at a minimum, Proposers should have already contracted with a consultant with expertise in such field to begin a cultural impact assessment for the Project. Preference will be given to Proposals that are further along in the assessment process and are able to provide a mitigation/action plan or are able to provide a date for when a mitigation/action plan will be available that addresses any identified cultural resource issues.

- **State of Project Development and Schedule** – Projects that are further along in development generally have lower project execution risk and a greater probability of being able to be successfully placed into service prior to the GCOD (specifically identified in each Proposal). At a minimum, Projects should demonstrate how they plan to capture any ITC safe harbor and reach their GCOD specified, including identification of risks and schedule assumptions. (Schedules must identify the IRS completion date and PUC approval dates assumed.) Proposals should also demonstrate, via a detailed critical path schedule, that there is a high likelihood that the Project will be able to reach commercial operations as

specified. Proposals shall include a Gantt chart that clearly illustrates the overall schedule and demonstrates achievement of any ITC safe harbor, if applicable, and commercial operations by their specified GCOD. The Gantt chart shall include task durations and dependencies, identify tasks that will be fast tracked, and identifies slack time and contingencies. This criterion will also look at the high-level Project costs set forth in the Proposal including: costs for equipment, construction, engineering, Seller-Owned Interconnection Facilities, Company-Owned Interconnection Facilities, land, annual O&M, the reasonableness of such costs and the assumptions used for such costs. Project costs that do not appear reasonable for a project of the size proposed may result in a lower ranking for this criterion if the Company reasonably determines that the cost information is unrealistic based on prior experience in the market which may result in a risk that the Project can be built on time and for the price proposed by the Proposer. The Company reserves the right to discuss any cost and financial information with a Proposer to ensure the information provided is accurate and correct.

- **Performance Standards:** The proposed Facility must be able to meet the performance attributes identified in this RFP and the Performance Standards identified in the RDG PPA or the ESPPA. The Company will review the Proposal information received, including design documents and operating procedures materials provided in the Proposal, and evaluate whether the Project as designed is able to meet the Performance Standards identified in the RDG PPA or ESPPA ~~and in this RFP.~~ (including the Project's ability to provide Fast Frequency Response if the Proposal includes a Contingency Storage component) and in this RFP. At a minimum, in addition to meeting the Performance Standards, the Proposals should include sufficient documentation, provided in an organized manner, to support the stated claim that the Facility will be able to meet the Performance Standards. The Proposal should include information required to make such a determination in an organized manner to ensure this evaluation can be completed on a timely basis. Preference will be given to Proposals that provide detailed technical and design information showing how each standard can be met by the proposed Facility. Preference will also be provided to proposed Projects that offer additional capabilities (e.g., Black-Start, Grid-Forming).
- **Environmental Compliance and Permitting Plan** – This criterion relates to the potential (short- and long-term) environmental impacts associated with each project, the quality of the plan offered by the Proposer to mitigate and manage any environmental impacts (including any pre-existing environmental conditions), and the plan of Proposers to remain in environmental compliance over the term of the contract. These impacts are reflected on a technology-specific basis. Completing any necessary environmental review and obtaining the required permitting in a timely manner is also important and Proposals will be evaluated on their plan to identify, apply for, and secure the required permits for the Project, any permitting activity that has been completed to date, including having initial discussions with U.S. Fish and Wildlife and the State of Hawai'i Department of Land and Natural Resources' Division of Forestry and Wildlife, to the extent applicable, prior to submitting a Proposal, and the degree of certainty offered by

the Proposer in securing the necessary permits.

At a minimum, proposed Projects should be expected to have minimal environmental impact for most areas and Proposals should provide a comprehensive plan to mitigate the identified potential or actual significant environmental impacts to remain in environmental compliance. The proposed mitigation plans should be included in the Project timeline. Preference will be given to Proposals that provide a more detailed plan as well as those that have proactively taken steps to mitigate potential environmental impacts.

Also, this criterion requires that, at a minimum, Proposers should have identified all major permits, approvals, appurtenances and entitlements (including applicable access, rights of way and/or easements) (collectively, the “permits”) required and have a preliminary plan for securing such permits. Preference will be given to Proposals that are able to provide a greater degree of certainty that its plan to secure the required permits is realistic and achievable, or have already received all or a majority of the required permits. The Proposer must provide a credible and viable plan, including evidence of any steps taken to date, to secure all necessary and appropriate permits necessary for the project. For example, if the project is located within an agricultural district, the Proposer shall provide evidence of Proposer’s verification with the appropriate government agency that the project complies with HRS Section 205-2 and Section 205-4.5, relating to solar energy facilities placed on agricultural land, provided, however that reliance upon an exemption to the requirements of HRS Section 205-2 and/or Section 205-4.5 available under HRS Section 205-6, shall not satisfy this requirement unless the exemption has already been granted for the desired use and Proposer is in possession of a valid, unexpired and nonappealable special use permit issued under such section at the time Proposer’s Proposal(s) is/are submitted in response to this RFP, and provided further, that reliance upon an amendment to land use district boundary lines available under HRS Section 205-4 shall also not satisfy this requirement unless such amendment has already been granted for the desired use and Proposer is in possession of a valid, unexpired and nonappealable order amending such land use district boundary or boundaries to permit Proposer’s desired use at the time Proposer’s Proposal(s) is/are submitted in response to this RFP.

- **Experience and Qualifications** –Proposals will be evaluated based on the experience of the Proposer in financing, designing, constructing, interconnecting, owning, operating, and maintaining projects (including all components of the project) of similar size, scope and technology. At a minimum, Proposals must show via the table format specified in RFP Appendix B Section 2.13 that at least one (1) member must have specific experience in each of the following categories: financing, designing, constructing, interconnecting, owning, operating, and maintaining at least one electricity generation project including all components of the project similar to the Project being proposed. Preference will be given to Proposers with experience in successfully developing multiple projects that are similar to the one being proposed and/or that have prior

experience successfully developing and interconnecting a utility scale project to the Company's System.

- **Financial Strength and Financing Plan** – This criterion addresses the comprehensiveness and reasonableness of the financial plan for the Project as well as assesses the financial strength and capability of the Proposer to develop the Project. A complete financial plan addresses the following issues: Project ownership, capital cost and capital structure, sources of debt and equity, and evidence that credit-worthy entities are interested in financing the Project. The financial strength of Proposers or their credit support providers will be considered, including their credit ratings. The financing participants are expected to be reasonably strong financially. Developers and their sources of capital that have investment grade credit ratings from a reputable credit rating agency (S&P, Moody's, Fitch) will also be given preference, with those that have higher credit ratings ranked higher.
- **RDG PPA or ESPPA Contract Proposed Modifications** –Proposers are encouraged to accept the contract terms identified in the model agreements in their entirety in order to expedite the overall RFP process and potential contract negotiations. Proposers who accept the model agreements without edits will receive a higher score and will be the only proposals that can achieve the highest scoring for this non-price evaluation. Technology-specific or operating characteristic-required modifications, with adequate explanation as to the necessity of such modifications, will not jeopardize a project's ability to achieve the highest score. Proposers who elect to propose modifications to the model agreements shall provide a Microsoft Word red-line version of the applicable document identifying specific proposed modifications to the model agreement language, as well as a detailed explanation and supporting rationale for each modification. General comments without proposed alternate language, drafting notes without explanation or alternate language, footnotes such as "parties to discuss," or a reservation of rights to make additional modifications to the model agreements at a later time are unacceptable, will be considered unresponsive, and will result in a lower score. The Company and Independent Observer will evaluate the impact that the proposed modifications will have on the overall risk assessment associated with the evaluation of each Proposal.
- **Guaranteed Commercial Operations Date:** The Company is procuring resources and incorporating projects onto its System in Stages as part of its long-term plan to meet RPS goals. Proposers will be held to the Guaranteed Commercial Operations Date identified in their Proposal. The GCOD will be a Guaranteed Milestone and will be inserted without amendment into the RDG PPAs or ESPPA, as applicable. Proposers that are able to design for and commit to an earlier GCOD will be given more favorable scoring. Proposers must have met the GCOD requirements of RFP Section 1.2.14 prior to being evaluated in this non-price criterion.

#### 4.5 Selection of a Priority List

At the conclusion of both the price and non-price analysis, a total score will be calculated for each Proposal using the 60% price-related criteria / 40% non-price-related criteria weighting outlined above. The price and non-price analysis, and the summation of both price and non-price scores described above, will result in a ranking of proposals within each technology-based evaluation category.

The Company will determine a Priority List from the highest scoring Proposals for each technology-based evaluation category. Each Priority List will include a sufficient number of projects, but not less than two (2) Proposals per technology-based evaluation category, such that the Company can assemble portfolio combinations that meet or exceed the ~~Renewable Energy~~renewable energy MWh and ~~Storage~~storage MW and MWh targets for comparison in the Detailed Evaluation. The Companies will develop the Priority Lists in consultation with the Independent Observer. The Companies reserve the right, in consultation with the Independent Observer, to limit the projects allowed for further consideration in the initial evaluation to projects that fall within 15% of the lowest price proposed per technology-based evaluation category. Selection to the Priority List does not assure an eligible Project's inclusion in the selection of the Final Award Group.

#### 4.6 Best and Final Offer (BAFO)

4.6.1 The Company will solicit a Best and Final Offer from Proposers selected to a Priority List in a technology-based evaluation category. If the SBO is selected to a Priority List, the SBO will not be eligible to provide a Best and Final Offer and the original pricing submitted in its Self-Build Proposal will be used in the Detailed Evaluation. All other Proposers selected to a Priority List will have the opportunity to update (downward only)<sup>26</sup> the pricing elements in their Proposal to improve the competitiveness of their Proposal prior to being further assessed in the Detailed Evaluation phase. At this time, updates may only be made to the following pricing elements:

- Lump Sum Payment (\$/year) amount
- Price for Purchase of Electric Energy (\$/MWh) amount. Payment for delivery of net energy sourced from the variable generation resource, if applicable. No Energy Payment will be provided for any energy delivery that is sourced originally from the grid (Company's System).

Proposers will not be allowed to increase their price<sup>27</sup> but may elect to maintain the same pricing submitted in their original Proposal. Proposers will not be allowed to make any other changes to their Proposal during the Best and Final Offer.

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<sup>26</sup> Proposers will only be allowed to adjust pricing elements downward. No upward adjustment to the pricing elements will be permitted or considered. All other characteristics of the Proposal and Facility capabilities must remain valid and unchanged (e.g., NEP, GCOD, etc.)

<sup>27</sup> Proposers will not be allowed to increase the pricing in their Proposals to address interconnection and/or system upgrade costs or for any other reason.

- 4.6.2 If a Proposer does not propose improvements to their pricing elements during the Best and Final Offer solicitation, the original Proposal pricing elements will be deemed its Best and Final Offer.<sup>28</sup>

#### 4.7 Detailed Evaluation

The Best and Final Offers of the Priority List Proposals, from this RFP, the Best and Final Offers of the Short List Proposals for contingency storage from the Grid Services RFP, as well as original Self-Build Proposals if advanced to the Priority Listed Proposals, will be further assessed in the Detailed Evaluation to identify the Priority List Proposals that meet the variable renewable dispatchable generation MWh ~~and~~, energy storage MW and MWh targets, and contingency storage MW targets to determine the Proposals selected to the Final Award Group.

The Initial Evaluation for the Grid Services RFP and this RFP will occur in parallel. A combined evaluation for Grid Services FFR-1 and this RFP's Contingency Storage Proposals will take place after the completion of the BAFO rounds for each RFP, which will ensure that the proposals being considered have met eligibility and threshold requirements, represent the highest overall ranked projects based on price and non-price criteria, and have incorporated Best and Final pricing. If possible based on the number and quality of Proposals received, the Company will attempt to include in the joint evaluation Projects totaling 50 MW of Contingency Storage on the Priority List for Contingency Storage for the Renewable RFP and 50 MW of FFR-1 on the Short List for the Grid Services RFP. An Energy Storage Only Levelized Price (\$ / MWh) will be calculated for each FFR-1 proposal and proposed Contingency Storage, including both standalone storage projects as well as storage projects paired with renewable generation. The Company will evaluate all FFR-1 and Contingency Storage proposals and rank them by lowest Energy Storage Only Levelized Price. The top-rated proposals (lowest cost) summing to 50 MW will be selected as Contingency Storage Proposal awardees. For renewable energy projects paired with storage which include a Contingency Storage option: a) if the project is selected as a Contingency Storage Proposal awardee, in order for the project to be confirmed to the Final Award Group (such confirmation is subject to the further considerations described below), it must also be included in the portfolio of projects selected to meet the energy requirements of this RFP; and b) if the project is not selected as a Contingency Storage Proposal awardee, a variation of the project without contingency storage may still continue to be considered in this RFP as a renewable energy project paired with storage that meets the energy requirements of this RFP.

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<sup>28</sup> The Company reserves the right, in consultation with the Independent Observer, to adjust the parameters of the BAFO, in the unlikely event that system needs have evolved in a way that the Proposals received do not fully address.

The Company will build Portfolios for evaluation that meet both the energy MWh target ~~and~~, the storage MW and MWh target. ~~Both, and the Contingency Storage target of this RFP.~~

In order to satisfy the storage MW and MWh target, both Projects that provide energy storage only as well as Projects that provide both variable renewable dispatchable generation MWh and energy storage can satisfy the storage requirement, in the manner described herein. The Company expects that for Projects that provide energy storage only, such storage facilities will be charged by available grid resources. Such standalone storage projects that have a GCOD of June 1, 2022 or sooner and meet the interconnection requirements in Section 1.2.14 will be evaluated as meeting the storage MW and MWh requirements of this RFP based on 100% of their respective proposed MW and MWh quantities. Energy storage projects that are paired with variable renewable dispatchable generation facilities that have a GCOD of June 1, 2022 or sooner and meet the interconnection requirements in Section 1.2.14<sup>29</sup> will be evaluated as meeting the storage MW and MWh requirements of this RFP based on a percentage of their respective proposed MW and MWh quantities, based on the maximum percentage of charging from the grid proposed to be allowed for the paired storage facility, as determined by the table below:<sup>30</sup>

Paired Project Battery Allowed Percentage Grid Charging	Percentage of Paired Battery Rating towards Storage Requirements
0%	10%
5%	20%
10%	40%
15%	60%
20%	80%
25%	100%

The detailed evaluation process will consist of assessment of combinations of Proposals from the Priority Lists that meet the energy ~~and~~, storage, and Contingency Storage targets of this RFP (“Portfolios”). A production simulation iteration will be created for each Portfolio to evaluate the Total Net Cost (Cost and Benefits) of integrating the Portfolio onto the Company’s System. Each Portfolio’s Total Net Cost will be compared against the Base Case, described further below.

<sup>29</sup> Standalone storage projects or storage projects paired with variable renewable dispatchable generation facilities that have a GCOD of June 1, 2022 or later, or that do not meet the interconnection requirements of Section 1.2.14 will not have any percentage of their paired battery MW rating counted towards storage MW requirements.

<sup>30</sup> The Company acknowledges that the pricing proposed for a variable renewable dispatchable generation facility that is paired with a storage facility will vary depending on the amount of grid charging of the storage permitted in the proposal.

The Company intends to use a computer model for this analysis. The evaluation will be based on the Total Net Cost (Costs and Benefits) to the Company of integrating the combination of Priority List Proposals onto the Company's System which includes:

1. The cost to dispatch the combination of Projects and the energy and storage purchased;
2. The fuel cost savings (benefits) and any other direct savings (IPP savings from dispatchable fossil fuel savings) resulting from the displacement of generation by the Priority List Proposals, including consideration of round-trip efficiencies for facilities with storage;
3. The estimated increase (or decrease) in operating cost, if any, incurred by the Company to maintain system reliability; and
4. The cost of imputed debt, if applicable.

As noted, the Company will take into account the cost of rebalancing its capital structure resulting from any debt or imputed debt impacts associated with each Proposal (including any costs to be incurred by the Company, as described above, that are necessary in implementing the Proposal). The Company proposes to use the imputed debt methodology published by S&P that is applicable to the Proposal being evaluated. S&P views long-term PPAs as creating fixed, debt-like financial obligations that represent substitutes for debt-financed capital investments in generation capacity. By adjusting financial measures to incorporate PPA-fixed obligations, greater comparability of utilities that finance and build generation capacity and those that purchase capacity to satisfy new load are achieved.

During the Detailed Evaluation and before the Proposals advance to the Final Award Group, the Company will perform load flow analyses to determine if certain Project combinations introduce transmission circuit constraints that will factor into the selection process. This is to address the possibility that even though sufficient line capacity was identified for an individual Project, large Projects on separate transmission circuits that are in close proximity with each other could introduce additional transmission circuit constraints. The Projects selected must not have any additional constraints imposed based on the load flow analysis to advance to the Final Award Group. However, the Company reserves the right, in consultation with the Independent Observer, to allow minor modifications to a Proposal to avoid such additional constraints. If such modification resulted in a reduced size of the Facility, the pricing proposed would also need to be revised. Under no circumstances would a Proposer be allowed to increase their price as a result of such minor modification.

Also in the Detailed Evaluation, other factors will be validated to ensure that the final combination of Projects provides the contemplated benefits that the Company seeks. The Company will evaluate the collateral consequences of the implementation of a combination of Projects, including consideration of the geographic diversity, resource diversity, interconnection complexity, and flexibility and latitude of operation control of the Projects.

The Company may assess additional combinations of Projects if requested by the Independent Observer and if the time and capability exist to perform such analyses.

#### 4.8 Selection of the Final Award Group

Based on the results of the Detailed Evaluation and review of the results with the Independent Observer, the Company will select a Final Award Group from which to begin contract negotiations. The Company intends to select projects that meet the targeted needs and provide customer benefits. All Proposers will be notified at this stage of the evaluation process whether their Proposal is included in the Final Award Group.

Selection to the Final Award Group and/or entering into contract negotiations does not guarantee execution of a PPA.

Further, if at any time during the evaluation process it is discovered that a Proposer's Proposal contains incorrect or misrepresented information that have a material effect on any of the evaluation processes, including selection of the Priority List or the Final Award Group, the Company reserves the right, at any time prior to submission of the PPA Application with the PUC application, in consultation with the Independent Observer, to disqualify the Proposer from the RFP. If discovery of the incorrect or misrepresented information is made after the Company has filed its PUC application for approval of the PPA with the Proposer, the Company will disclose the incorrect or misrepresented information to the PUC for evaluation and decision as to whether such Proposer should be disqualified and the Company's application dismissed.

Following any removal of a proposal from the Final Award Group, either by disqualification noted immediately above, or via any other removal or withdrawal of a proposal, including failure to reach agreement to the PPA, the Company, taking into consideration the timing of such removal and the current status of the Company's needs under the RFP, in consultation with and concurrence from the Independent Observer, will review the Priority List to determine (1) if another proposal should be added to the Final Award Group; (2) if either of the Contingency Plan or Parallel Plan should be pursued; or (3) if the remaining proposals in the Final Award Group should remain unchanged.

Order No. 36536 "directs the Companies to work with the [Independent Observers] to increase bid transparency within the RFP process, while maintaining an appropriate level of confidentiality regarding bids and bidders." The Companies agree that it is desirable for the RFP process to be as transparent as possible while maintaining the confidentiality of Proposer and Proposal information. The type and quantity of information that can be disclosed will not be known until the Companies and the Independent Observer have a better understanding of the number and types of proposals received and whether such information can be easily anonymized. The Companies will work with the Independent Observers to determine an appropriate level of disclosure after Proposals are received with a goal of disclosing more information than was disclosed in Stage 1.

## **Chapter 5: Post Evaluation Process**

### **5.1 Interconnection Requirements Study Process**

A complete package of IRS Data Request worksheets and project single line diagram(s) shall be submitted with each Proposal. For Projects with a proposed GCOD in 2022, the models for equipment and controls, list(s) to clearly identify the components and respective files (for inverters and power plant controller), and complete documentation with instructions, shall be submitted within 60 days thereafter. See Section 2.11.1 of Appendix B. For all other Projects, the same complete submittal shall be due within 60 days after selection to the Final Award Group. PSSE Generic models, PSSE User models, and ASPEN models shall be configured to represent all of the functional equipment with settings in place to comply with the Company's PPA performance requirements. These must be checked for functionality by the bidder or its vendors and consultants prior to submission to the Company. Similar and fully accurate PSCAD models shall be submitted in a condition that complies with the PSCAD modeling guidelines provided by the Company. PSSE generic models shall be provided promptly after the PSSE user models have been approved by the Company.

After proposals and models are submitted, the Company will inspect the data packages for general completeness. For any incomplete submissions, a list of missing or non-functional items will be provided. Proposers will be given 15 Days to resolve data and modeling deficiencies. The Company, in consultation with the Independent Observer, may remove Proposals from the Priority List or Final Award Group, or may terminate PPA negotiations or executed PPAs if their submission requirements are deemed incomplete for the lack of requested models. Proposals that are complete will be considered for further evaluation. A formal, technical model checkout will be deferred until a later date when IRS Agreements and deposits are in place, so that the expert subject matter work can be provided by the Company's IRS consultant(s).

Upon notification of selection to the Final Award Group, the Company will provide a draft IRS Agreement for each selected project, with a statement of required deposit for individual and prorated work as part of an IRS Scope for a System Impact Study that will involve (a) technical model checkout for each project, (b) any considerations that are specific to a particular project and location, and (c) system impact analyses of the projects as a group. Interconnection cost and schedule, including cost of any required system upgrades, will be determined in a subsequent Facilities Study.

The technical model checkouts will be conducted first. Upon identification of any functional problems or deficiencies, corrective action shall be taken immediately and on an interactive basis so that the problems or deficiencies can be resolved within 15 Days, including re-submission of data and updated models, or the Project shall be deemed withdrawn. At the discretion of the Company and provided that there is a demonstration of good faith action to minimize delay that would affect the schedule for IRS analyses, a second round of model checkout and problem solving may proceed. Thereafter, any notice that a Project is deemed withdrawn for lack of completeness shall be final. Subject to consultation with the Independent Observer, failure to provide all requested material

within the time(s) specified, or changes to the data provided after the due date(s), shall result in elimination from the Final Award Group.

Proposers shall be responsible for the cost of the IRS, under separate agreements for the System Impact Study and the Facilities Study. The overall IRS will provide information including, but not limited to, an estimated cost and schedule for the required Interconnection Facilities for a particular Project and any required mitigation measures. Proposers will be responsible for the actual final costs of all Seller-Owned Interconnection Facilities and Company-Owned Interconnection Facilities. Upon reviewing the results of the IRS, Proposers will have the opportunity to declare the PPA null and void in the event that the estimated interconnection costs and schedule for the Project are higher than what was estimated in the Project Proposal. See Section 12.4 of the RDG PPA or Section 2.3(b) of the ESPPA.

## 5.2 Contract Negotiation Process

Within five (5) business Days of being notified by the Company of its intent to enter into contract negotiations, Proposers selected for the Final Award Group will be required to indicate, in writing to the Company's primary contact for this RFP, whether they intend to proceed with their Proposals. Proposers who elect to remain in the Final Award Group will be required to keep their Proposal valid through the award period. Contract negotiations will take place in parallel with the IRS process. Given the significant scope of the RFP, and depending on the number of Projects selected to the Final Award Group, the Company will prioritize which Projects to negotiate with first. The Company will first prioritize Projects intending to meet the identified 200 MW ~~energy storage capacity~~ need. Prioritization will take into consideration the GCOD of the Project, the benefits to and the needs of the Company's System, and extensiveness of the exceptions to the model PPA. While PPA negotiations and submission of executed PPAs for approval will take place on a rolling basis, the Company's goal is to begin to complete this process for the first projects -within six (6) months of notification of intent to enter contract negotiations. The IRS may not be completed at such time. The Company intends to execute and file the PPA with the PUC for approval and later amend the PPA to include the results of the IRS.

## 5.3 Community Outreach and Engagement

The public meeting and comment solicitation process described in this Section and Section 29.21 of the PPA (Community Outreach Plan) do not represent the only community outreach and engagement activities that can or should be performed by a Proposer. Within 30 Days of the start of PPA negotiations, Proposers shall have provided the Company with an updated comprehensive Community Outreach Plan to work with and inform neighboring communities and stakeholders and to provide them timely information during all phases of the Project. The Community Outreach Plan shall include but not be limited to the following information: Project description, Project stakeholders, community concerns and Proposer's efforts to address such concerns, Project benefits, government approvals, Project schedule, and a comprehensive communications plan. Upon selection to the Final Award Group, a Proposer's Community Outreach Plan shall

be a public document available to the public on the Proposer's website and upon request. The Proposer shall also provide the Company with links to their Project website and Community Outreach Plan, which the Company will post on the Company's website. Prior to the execution date of the PPA, Proposers shall also host a public meeting in the community where the proposed Project is to be located for community and neighborhood groups in and around the vicinity of the Project Site that provided the neighboring community, stakeholders and the general public with: (i) a reasonable opportunity to learn about the proposed Project; (ii) an opportunity to engage in a dialogue about concerns, mitigation measures, and potential community benefits of the proposed Project; and (iii) information concerning the process and/or intent for the public's input and engagement, including advising attendees that they will have thirty (30) calendar days from the date of said public meeting to submit written comments to Company and/or Proposer for inclusion in the Company's submission to the PUC of its application for a satisfactory PUC Approval Order. The Proposer shall collect all public comments, and then provide the Company copies of all comments received in their original, unedited form, along with copies of all comments with personal information redacted and ready for filing. If a PPA is executed by the Proposer and the Company, the Company may submit any and all public comments (presented in its original, unedited form) as part of its PUC application for this Project. Proposers shall notify the public at least three weeks in advance of the meeting. The Company shall be informed of the meeting. The Company will provide Proposers with detailed instructions regarding the community meeting requirement after the selection of the Final Award Group. (For example, notice will be published in county or regional newspapers/media, as well as media with statewide distribution. The Proposer will be directed to notify certain individuals and organizations. The Proposer will be provided templates to use for the public meeting notices, agenda, and presentation.) Proposers must also comply with any other requirement set forth in the PPA relating to Community Outreach.

Following the submission of the PUC application for the Project, and prior to the date when the Parties' statements of position are to be filed in the docketed PUC proceeding for the Project, the Proposer shall provide another opportunity for the public to comment on the proposed Project. The Proposer's statement of position filed in the docket associated with the Project will contain an attachment including those comments.

The Proposer shall be responsible for community outreach and engagement for the Project, and that the public meeting and comment solicitation process described in this section do not represent the only community outreach and engagement activities that can or should be performed.

#### **5.4 Greenhouse Gas Emissions Analysis**

Proposers whose Proposal(s) are selected for the Final Award Group shall cooperate with and promptly provide to the Company and/or Company's consultant(s) upon request all information necessary, in the Company's sole and exclusive discretion, for such consultant to prepare a greenhouse gas ("GHG") emissions analysis and report in support of a PUC application for approval of the PPA for the project (the "GHG Review"). Proposers shall be responsible for the full cost of the GHG Review associated with their

project under a separate agreement between the Proposer and the Company. The GHG Review is anticipated to address whether the GHG emissions that would result from approval of the PPA and subsequent to addition of the Project to the Company's system are greater than the GHG emissions that would result from the operations of the Company's System without the addition of the Project, whether the cost for renewable, dispatchable generation, and/or energy storage services as applicable under the PPA is reasonable in light of the potential for GHG emissions, and whether the terms of the PPA are prudent and in the public interest in light of its potential hidden and long-term consequences.

#### 5.5 **PUC Approval of PPA**

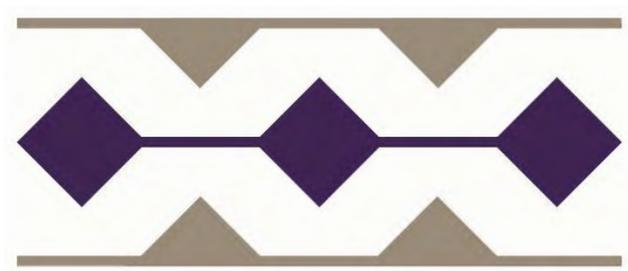
Any signed PPA resulting from this RFP is subject to PUC approval as described in the RDG PPA, including Article 12 and Section 29.20 thereof, or Article 24 of the ESPPA.

#### 5.6 **Facility In-Service**

In order to facilitate the timely commissioning of the numerous projects required to meet the MW and MWh targets of this RFP, the Company requires the following be included with the 60% design drawings: relay settings and protection coordination study, including fuse selection and ac/dc schematic trip scheme.

For the Company to test the Facility, coordination between the Company and Project is required. Drawings must be approved by the Company prior to testing. The entire Facility must be ready for testing to commence. Piecemeal testing will not be allowed. Communication infrastructure and equipment must be tested by the IPP and ready for operation prior to Company testing.

If approved drawings are not available, or if the Facility is otherwise not test ready as scheduled, the Project will be moved to the end of the Company's testing queue. If tests are not completed within the allotted scheduled testing time, the Project will be moved to the end of the Company's testing queue. The IPP will be allowed to cure if successful testing is completed within the allotted scheduled time. No adjustments will be made to PPA milestones if tests are not completed within the original allotted time. Liquidated damages for missed milestones will be assessed pursuant to the PPA.



**Hawai'i  
Electric  
Light**

**DRAFT REQUEST FOR PROPOSALS**

**FOR**

**VARIABLE RENEWABLE DISPATCHABLE GENERATION**

**AND**

**ENERGY STORAGE**

**ISLAND OF HAWAI'I**

JULY ~~10~~26, 2019

Docket No. 2017-0352

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## Chapter 1: Introduction and General Information

Hawai'i Electric Light Company, Inc. ("Hawai'i Electric Light" or the "Company") seeks proposals for the supply of qualified variable renewable dispatchable generation and energy storage for the Hawai'i Electric Light System in accordance with this Request for Proposals ("RFP").<sup>1</sup> The total amount of variable renewable dispatchable generation being solicited in this RFP is the capability to provide up to 444,000 megawatt hours ("MWh") annually. Additionally a total of 18 megawatts ("MW") of ~~contingency reserve~~ Fast Frequency Response (as defined in Appendix J, K, and L) is being solicited which may either be fulfilled through standalone contingency reserve storage projects or generation projects paired with storage proposed in response to this RFP or through Fast Frequency Response (~~1 ("FFR")-1~~) capability on Hawai'i island bid into the Companies' RFP for Delivery of Grid Services from Customer-Sited Distributed Energy Resources ("Grid Services RFP").

The Company or its Affiliate may submit a Proposal in response to this RFP subject to the requirements of this RFP.

The Company seeks variable renewable dispatchable generation projects (with or without storage systems) and standalone energy storage projects in this RFP. However any photovoltaic ("PV") projects must be paired with a storage component. The Company intends to contract for variable renewable dispatchable generation projects through this RFP using its Model Renewable Dispatchable Generation Power Purchase Agreement ("RDG PPA"), which treats variable generation facilities as fully dispatchable. The Company has created a photovoltaic ("PV") version (the "PV RDG PPA") and a wind version (the "Wind RDG PPA") of its RDG PPA attached as Appendix J and Appendix L respectively.<sup>2</sup> If the proposed Project utilizes a technology other than PV or wind and/or contains components that are not encompassed by the RDG PPA, then the terms of the RDG PPA will be modified to address the specific technology and/or component.

The Company intends to contract for standalone energy storage projects through this RFP using its Model Energy Storage Power Purchase Agreement ("ESPPA"), pursuant to which Hawai'i Electric Light will purchase energy storage services (i.e., ~~contingency reserve~~ Fast Frequency Response and ancillary services). The ESPPA is attached as Appendix K.<sup>2</sup>

Each successful Proposer will provide variable renewable dispatchable generation and/or energy storage to the Company pursuant to the terms of an RDG PPA or ESPPA, which will be subject to PUC review and approval by the State of Hawai'i Public Utilities Commission ("PUC").

The Company will evaluate Proposals using the evaluation and selection process described in Chapter 4. The Company will evaluate and select Proposals based on both price and non-price factors that impact the Company, its customers, and communities affected by the proposed Projects. The amount of generation and storage that the Company may acquire from this RFP depends on, among other things, the quality and cost-effectiveness of bids received in response

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<sup>1</sup> The Company is soliciting proposals for renewable dispatchable generation and energy storage in stages. The "Stage 1" RFPs were conducted in 2018. This is part of the "Stage 2" RFPs to be conducted in 2019.

<sup>2</sup> The RDG PPA for PV and Wind, and ESPPA for standalone energy storage, are available on the Company's RFP website and through the PowerAdvocate platform for the RFP.

to this RFP; economic comparison to other RFP responses; updates to the Company's forecasts; transmission availability; and changes to regulatory or legal requirements. If attractive Proposals are received that will provide energy and energy storage in excess of the targeted amounts, the Company will consider selecting such Proposal(s) if benefits to customers are demonstrated.

All requirements necessary to submit a Proposal(s) are stated in this RFP. A description of the technical requirements for Proposers is included in the body of this RFP, Appendix B, and in the RDG PPA and ESPPA attached as Appendix J, K, and L.

All capitalized terms used in this RFP shall have the meaning set forth in the glossary of defined terms attached as Appendix A. Capitalized terms that are not included in Appendix A shall have the meaning ascribed in this RFP.

## **1.1 Authority and Purpose of the Request for Proposals**

- 1.1.1 This RFP is issued in response to Order No. 36356 issued on June 10, 2019 in Docket No. 2017-0352 as part of a procurement process established by the PUC.
- 1.1.2 This RFP is subject to Decision and Order ("D&O") No. 23121 in Docket No. 03-0372 (To Investigate Competitive Bidding for New Generating Capacity in Hawai'i), which sets forth the PUC's Framework for Competitive Bidding ("Framework" or "Competitive Bidding Framework").
- 1.1.3 All Proposals with a generation component submitted in response to this RFP must utilize qualified renewable energy resource(s) as defined under the Hawai'i Renewable Portfolio Standards ("RPS") law.<sup>3</sup> By statute, "Renewable Energy" means energy generated or produced using the following sources: (1) wind; (2) the sun; (3) falling water; (4) biogas, including landfill and sewage-based digester gas; (5) geothermal; (6) ocean water, currents, and waves, including ocean thermal energy conversion; (7) biomass, including biomass crops, agricultural and animal residues and wastes, and municipal solid waste and other solid waste; (8) biofuels; and (9) hydrogen produced from renewable energy sources.<sup>4</sup>
- 1.1.4 Proposers should review the Hawaiian Electric Companies' Power Supply Improvement Plans, filed in Docket No. 2014-0183 on December 23, 2016 ("PSIP Update Report: December 2016" or "PSIP"). Consistent with the PSIP, the primary purpose of this RFP is to obtain variable renewable energy and energy storage so that the Company can continue to transform Hawai'i's power supply portfolio from fossil fuel-based generation to renewable-based generation towards Hawai'i's 100% RPS requirement.

## **1.2 Scope of the RFP**

- 1.2.1 Proposers should note and will be required to expressly acknowledge in their Proposals that the Company reserves the right, per PUC Order 36536, to select less than the full

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<sup>3</sup> RPS requirements in Hawai'i are codified in Hawai'i Revised Statutes ("HRS") §§ 269-91 through 269-95.

<sup>4</sup> See HRS § 269-91.

amount of generation solicited in this RFP in the event that specific HELCO system needs (e.g. as a result of the availability of either or both of the Puna Geothermal Ventures (“PGV”) and Hu Honua Bioenergy (“Hu Honua”) facilities) are revised during the course of the RFP process.

- 1.2.2 The Company does not have a predetermined preference for a particular renewable energy generation or storage technology.
- 1.2.3 Each Proposal submitted in response to this RFP must represent a Project that is capable of meeting the requirements of this RFP without having to rely on the completion or implementation of any other Project.
- 1.2.4 Proposals that will require system upgrades and the construction of which, in the reasonable judgment of the Company (in consultation with the Independent Observer), creates a significant risk that their Project’s Guaranteed Commercial Operations Date (“GCOD”) will not be met will not be considered in this RFP.
- 1.2.5 Projects submitted in response to this RFP must be located on the Island of Hawai‘i.
- 1.2.6 Proposers will determine their Project Site. Proposers have the option of submitting a Proposal using potential Sites offered and described in Section 3.11. Proposers must locate all Project infrastructure within areas of their Site that are outside the 3.2 feet sea level rise exposure area (SLR-XA) as described in the Hawai‘i Sea Level Rise Vulnerability and Adaptation Report (2017)<sup>5</sup> and are not located within a Tsunami Evacuation Zone.<sup>6</sup>
- 1.2.7 Projects must interconnect to the Company’s System at the 69 kV level, with the exception of standalone storage projects proposed at the Company-owned Puna Site which may interconnect to the Company system at the 13.8 kV level as described in Appendix F.
- 1.2.8 Projects must be greater than the threshold for a waiver from the Competitive Bidding Framework applicable to Hawai‘i island. No single point of failure from the Facility shall result in a decrease in net electrical output greater than 30 MW.
- 1.2.9 Standalone contingency reserve energy storage projects must be 3 MW, 6 MW, 9 MW, or 12 MW in size.

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<sup>5</sup> Hawai‘i Climate Change Mitigation and Adaptation Commission. 2017. Hawai‘i Sea Level Rise Vulnerability and Adaptation Report. Prepared by Tetra Tech, Inc. and the State of Hawai‘i Department of Land and Natural Resources, Office of Conservation and Coastal Lands, under the State of Hawai‘i Department of Land and Natural Resources Contract No: 64064. This report is available at: [https://climateadaptation.hawaii.gov/wp-content/uploads/2017/12/SLR-Report\\_Dec2017.pdf](https://climateadaptation.hawaii.gov/wp-content/uploads/2017/12/SLR-Report_Dec2017.pdf)

<sup>6</sup> See Hawai‘i Sea Level Rise Viewer at <https://www.pacioos.hawaii.edu/shoreline/slr-hawaii/>, and National Oceanic and Atmospheric Administration (NOAA) interactive map in partnership with the State of Hawai‘i at <https://tsunami.coast.noaa.gov/#/>.

- 1.2.10 Standalone contingency reserve energy storage projects must also support a switchable mode of operation to allow it to also be used for energy.
- 1.2.11 Contracts for projects that include a generation component selected through this RFP shall use the RDG PPA, as described in Section 3.8. Under the RDG PPA, the Company will maintain exclusive rights to fully direct dispatch of the Facility, subject to availability of the resource and Section 1.2.13 below.
- 1.2.12 Contracts for standalone contingency reserve energy storage projects selected through this RFP shall use the ESPPA, as described in Section 3.8. Under the ESPPA, the Company will maintain exclusive rights to fully direct the charging and discharging of the Facility. Additionally, due to the critical nature and usage of this to support the grid, the ability to control and tune the facility's response to certain grid events and conditions is an important aspect that will be required of these facilities.
- 1.2.13 Generation proposals may be submitted either with or without an energy storage component. However PV projects must be paired with an energy storage component. The energy storage component can be charged during periods when full potential export of the generation Facility is not being dispatched by the Company, and the storage component can be used to provide energy to the Company during other times that are beneficial to the system. Generation proposals paired with an energy storage component may propose an additional ~~allowed~~ contingency storage ~~capacity component to provide the Fast Frequency Response~~ ("Contingency Storage") ~~component (whose amount is to be specified by Proposer)~~.<sup>7</sup> The amount of Contingency Storage must be 3 MW, 6 MW, 9 MW, or 12 MW in size. The energy storage component must be sized to support the Facility's Allowed Capacity (in MW) for a minimum of four (4) continuous hours throughout the term of the PPA.<sup>7</sup> The Contingency Storage component must be sized to provide a minimum of one (1) continuous hour at the proposed MW amount throughout the term of the PPA.

For example, for a 10 MW facility, the energy storage component must be able to store and discharge at least 40 MWh of energy in a cycle throughout the term of the PPA. If a project proposes an additional 3 MW of Contingency Storage this component must be able to store and discharge at least 3 MWh of energy in a cycle throughout the term of the PPA.

- 1.2.14 Generation proposals that include Contingency Storage must be segregated such that the contingency capacity (FFR mode) is held separate from the load shifting capacity as set forth in Appendix B to the RDG PPA.
- 1.2.15 Generation proposals with Contingency Storage will require a separate interface to control and separately manage the ~~contingency response~~ Fast Frequency Response portion to be charged and held in reserve.

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<sup>7</sup> PPA throughout this RFP refers to either/both the RDG PPA or ESPPA.

- 1.2.16 Energy storage components that are ~~coupled~~paired with a generation Facility must also be able to be charged from the grid at the direction of the Company as described in this section. To be eligible to meet this RFP's ~~contingency response~~Fast Frequency Response need the Contingency Storage must be grid-chargeable from the guaranteed commercial operation date ("GCOD").

For energy storage components that are ~~coupled~~paired with generating facilities, during the period that allows the Project to maximize and capture the benefits of the federal Investment Tax Credit ("ITC") for the energy storage system, the Proposer can design and specify the amount, if any, of grid charging for the energy storage system. However, after the 5-year ITC recapture period has lapsed, any energy storage component coupled with generation must be capable of being 100% charged from the grid at the direction of the Company.

Energy storage components that are ~~coupled~~paired with ~~generation Projects~~generating facilities that are incapable of claiming the ITC must be capable of being 100% charged from the grid from the GCOD.

For example, during the 5-year ITC recapture period, a Proposer coupling an energy storage component with a solar facility can specify that its Facility can be charged from the grid (at the direction of the Company) up to 20% of its annual total energy input. After the 5-year ITC recapture period has lapsed, the energy storage component must be capable of being charged up to 100% of its total energy input from the grid at the direction of the Company.

- 1.2.17 Proposals for standalone energy storage will provide contingency reserve and energy to the Company during times that are deemed by the Company to be beneficial to the system. These facilities must be connected to the grid at all times, with the exception of allowed maintenance periods, and must be sized to support the Facility's Allowed Capacity (in MW) for a minimum of one (1) continuous hour throughout the term of the ESPPA.

For example, for a 10 MW facility, the energy storage component must be able to store and discharge at least 10 MWh of energy in a cycle throughout the term of the ESPPA.

- 1.2.18 The amount of energy discharged in a year from an energy storage component paired with a generation component will be limited to the energy storage contract capacity (in MWh) multiplied by the number of Days in that year.
- 1.2.19 For standalone contingency reserve storage or Contingency Storage, the storage technology will be selected based on the required charging/discharging duty for the provision of disturbance frequency response. This response will require fast response outside of a specified frequency deadband (setable between .1-.5 Hz), in accordance with specified droop and time parameters. Historical frequency data for 2 second data resolution samples will be provided to bidders and is summarized in Attachment 1 of the Companies' Reliability Standards Working Group Monthly Report in Docket 2011-0206. Additionally, Proposers with an executed Non-Disclosure Agreement with the Company

in the form of RFP Appendix E may request the raw data used to create the summary plots included in the monthly reports. Proposers should carefully review such data to ensure their Proposal meets the needs of the Company System. The proposed Facility’s ability to meet the Company’s ~~contingency response~~Fast Frequency Response need ~~with~~will be evaluated as a part of the Performance Standards non-price criterion.

- 1.2.20 Proposals for standalone contingency reserve energy storage and generation projects with Contingency Storage must specify a GCOD no later than December 31, 2022.
- 1.2.21 Proposals for generation only or generation ~~coupled~~paired with energy storage must specify a GCOD no later than December 31, 2025. However, Proposals with earlier GCODs will be given preference in scoring.

Project Technology	Generation Only	Generation Paired w/ Storage	Generation Paired w/ Contingency Storage	Standalone Contingency Reserve Storage
GCOD	December 31, 2025	December 31, 2025	December 31, 2022	December 31, 2022
Grid Charging	N/A	<del>As bid during ITC period;</del> 100% after ITC period	100% at GCOD for Contingency Storage  <del>As bid during ITC period;</del> 100% after ITC period for energy storage	100% at GCOD

- 1.2.22 A Proposer’s GCOD set forth in its Proposal will be the GCOD in any resulting PPA if such Proposal is selected to the Final Award Group. Proposers will not be able to request a change in the GCOD set forth in their Proposals.
- 1.2.23 If selected, Proposers will be responsible for all costs throughout the term of the PPA, including but not limited to Project development, completion of an Interconnection Requirements Study (“IRS”), the cost of conducting a greenhouse gas analysis, land acquisition, permitting, financing, construction of the Facility and all Interconnection Facilities, and operations and maintenance (“O&M”).
- 1.2.24 If selected, Proposers will be solely responsible for the decommissioning of the Project and the restoration of the Site upon the expiration of the PPA, as described in Attachment G, Section 7 of the RDG PPA or ESPPA.
- 1.2.25 If selected, Proposers shall pursue all available applicable federal and state tax credits. Proposal pricing must be set to incorporate the benefit of such available federal tax credits. However, to mitigate the risk on Proposers due solely to potential changes to the state’s tax credit law before a selected project reaches commercial operations, Proposal pricing shall be set without including any state tax credits. If a Proposal is

selected, the PPA for the project will require the Proposer to pursue the maximum available state tax credit and remit tax credit proceeds to the Company for customers' benefit as described in Attachment J of the RDG PPA or ESPPA. The PPA will also provide that the Proposer will be responsible for payment of liquidated damages for failure to pursue the state tax credit.

- 1.2.26 Each Proposal submitted in response to this RFP must represent a Project that is capable of meeting the requirements of this RFP without having to rely on a proposed change in law, rule, or regulation.

### 1.3 Competitive Bidding Framework

Consistent with the Framework, this RFP outlines the Company's requirements in relation to the resources being solicited and the procedures for conducting the RFP process. It also includes information and instructions to prospective Proposers participating in and responding to this RFP.

### 1.4 Role of the Independent Observer

- 1.4.1 Part III.C.1 of the Framework sets forth the circumstances under which an Independent Observer is required in a competitive bidding process. The PUC has retained an Independent Observer both to advise and monitor the process for this RFP. All phases of the RFP process will be subject to the Independent Observer's oversight, and the Independent Observer will coordinate with PUC staff throughout the RFP process to ensure that the RFP is undertaken in a fair and unbiased manner. In particular, the Company will review and discuss with the Independent Observer decisions regarding the evaluation, disqualification, non-selection, and selection of Proposals.
- 1.4.2 The role of the Independent Observer, as described in the Framework, will include but is not limited to:
- Monitor all steps in the competitive bidding process
  - Monitor communications (and communications protocols) with Proposers
  - Monitor adherence to the Company's Code of Conduct
  - Submit comments and recommendations, if any, to the PUC concerning the RFP
  - Review the Company's Proposal evaluation methodology, models, criteria, and assumptions
  - Review the Company's evaluation of Proposals
  - Advise the Company on its decision-making
  - Participate in dispute resolution as set forth in Section 1.10
  - Monitor contract negotiations with Proposers
  - Report to the PUC on monitoring results during each stage of the competitive bidding process
  - Provide an overall assessment of whether the goals of the RFP were achieved
- 1.4.3 The Independent Observer for this RFP is **Bates White, LLC**.

## **1.5 Communications Between the Company and Proposers – Code of Conduct Procedures Manual**

- 1.5.1 Communications and other procedures under this RFP are governed by the “Code of Conduct Procedures Manual,” (also referred to as the “Procedures Manual”) developed by the Company as required by the Framework, and attached as Appendix C.
- 1.5.2 All pre-Proposal communication with prospective Proposers will be conducted via the Company’s RFP website, Electronic Procurement Platform and/or electronic mail (“Email”) through the address specified in Section 1.6 (the “RFP Email Address”). Frequently asked questions submitted by prospective Proposers and the answers to those questions may be posted on the Company’s RFP website, or sent through either Email or the Electronic Procurement Platform to registered individuals. The Company reserves the right to respond only to comments and questions it deems are appropriate and relevant to the RFP. Proposers are advised to submit questions no later than fifteen Days before the Proposal Due Date (RFP Schedule in Section 3.1, Items 7 and 8). The Company will endeavor to respond to all questions no later than five Days before the Proposal Due Date.
- 1.5.3 After Proposals have been submitted, the Company may contact individual Proposers for purposes of clarifying their Proposal(s).
- 1.5.4 Any confidential information deemed by the Company, in its sole discretion, to be appropriate to share, will only be transmitted to the requesting party after receipt of a fully executed Stage 2 Mutual Confidentiality and Non-Disclosure Agreement (“NDA”). See Appendix E.
- 1.5.5 Except as expressly permitted and in the manner prescribed in the Procedures Manual, any unsolicited contact by a Proposer or prospective Proposer with personnel of the Company pertaining to this RFP is prohibited.

## **1.6 Company Contact for Proposals**

The primary contact for this RFP is:

Reese Yorimoto  
Energy Contract Manager  
Hawaiian Electric Company, Inc.  
Central Pacific Plaza Building, Suite 2100  
220 South King Street  
Honolulu, Hawai‘i 96813

RFP Email Address: [hawaiivariablyrfp@hawaiianelectric.com](mailto:hawaiivariablyrfp@hawaiianelectric.com)

## **1.7 Proposal Submission Requirements**

- 1.7.1 All Proposals must be prepared and submitted in accordance with the procedures and format specified in the RFP. Proposers are required to respond to all questions and

provide all information requested in the RFP, as applicable, and only via the communication methods specified in the RFP.

- 1.7.2 Detailed requirements regarding the form, submission, organization and information for the Proposal are set forth in Chapter 3 and Appendix B.
- 1.7.3 In submitting a Proposal in response to this RFP, each Proposer certifies that the Proposal has been submitted in good faith and without fraud or collusion with any other unaffiliated person or entity. The Proposer shall acknowledge this in the Response Package submitted with its Proposal.

Without limiting the foregoing, unaffiliated Proposers are prohibited from using shared legal counsel to prepare their Proposals or for contract negotiations with the Company where counsel is an individual person. If counsel is a law firm with multiple attorneys, unaffiliated Proposers may use the same firm only if (1) such firm assigns separate attorney(s) to each Proposer, (2) the attorney(s) are prohibited from (i) sharing a Proposer's confidential information or the Company's confidential information associated with such Proposer with others, or (ii) accessing another Proposer's confidential information or Company's confidential information associated with such Proposer from another attorney in the firm, (3) the law firm has appropriate procedures, safeguards and policies in place to ensure that separations exist so that the attorney(s) assigned to a Proposer do not share or have access to confidential information of another Proposer or of the Company which was obtained through another attorney's representation of a Proposer, and (4) an authorized signatory of the law firm shall provide Company with a written certification in the form attached as Appendix B Attachment 1. Furthermore, in executing the NDA provided as Appendix E, the Proposer agrees on behalf of its Representatives (as defined in the NDA) that the Company's negotiating positions will not be shared with other Proposers or their respective Representatives.

- 1.7.4 Proposals must be submitted via the Electronic Procurement Platform by 2:00 pm Hawai'i Standard Time (HST) on the Proposal Due Date shown in the RFP Schedule in Section 3.1. No hard copies of the Proposals will be accepted.<sup>8</sup> It is the Proposer's sole responsibility to ensure that complete and accurate information has been submitted on time and within the instructions of this RFP. With this assurance, Company shall be entitled to rely upon the completeness and accuracy of every Proposal. Any errors identified by the Proposer or Company after the Proposal Due Date has passed may jeopardize further consideration and success of the Proposal. If an error or errors are later identified, Company, in consultation with the Independent Observer, may permit the error(s) to be corrected without further revision to the Proposal, or may require Proposer to adhere to terms of the Proposal as submitted without correction. Additionally, and in Company's sole discretion, if such error(s) would materially affect the Priority List or Final Award Group, Company reserves the right, in consultation with the Independent Observer, to remove or disqualify a Proposal upon discovery of the material error(s). The

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<sup>8</sup> Proposals for the SBO(s) and Affiliate Proposals have additional submission requirements to the PUC specified in Section 1.9 below.

Proposer of such Proposal shall bear the full responsibility for such error(s) and shall have no recourse against Company's decision to address Proposal error(s), including removal or disqualification. The Energy Contract Manager, in consultation with the Independent Observer, will confirm that the Self-Build and Affiliate Proposals are timestamped by milestone (7) Self-Build and Affiliate Proposal Due Date in Section 3.1 Table 1. The PowerAdvocate Platform automatically closes further submissions after milestone (8) IPP Proposal Due Date in Table 1.

## 1.8 Proposal Fee

- 1.8.1 IPP and Affiliate proposers are required to tender a non-refundable Proposal Fee of \$10,000 for each Proposal submitted. IPP and Affiliate proposers who propose projects located at the Company-owned site identified in Section 3.11.2 will have their Proposal Fee waived.
- 1.8.2 Proposers may submit multiple Proposal variations for a Project. for a single Proposal Fee. If such Proposals are on different Sites or for different generation technologies, a separate Proposal Fee must be paid for each Proposal. The method of submitting multiple Proposals within this RFP is described in Appendix B.
- 1.8.3 Proposers may also submit up to ~~three (3) minor~~ a total of four (4) variations (e.g., of their Proposal, one variation of which is the original Proposal. In addition, for each of the 4 variations the Proposer may propose an additional variation with Contingency Storage, where the only change is the addition of a Contingency Storage component and any needed changes to account for the addition of the Contingency Storage.<sup>9</sup> Variations of pricing terms, Facility size, or with/without storage, with/without grid charging or level of grid charging capability, with/without contingency response, or level of contingency response) can be offered. All variations within a Proposal must be proposed on the same Site and using the same generation or storage technology without having to pay avoid paying a separate Proposal Fee for these three (3) variations. Whether or not a separate Proposal Fee is required, all unique information for each variation of a Proposal, no matter how minor such variation is, must be clearly identified and separated by following the instructions in Appendix B Section 3.
- 1.8.4 The Proposal Fee must be in the form of a cashier's check or equivalent from a U.S.-chartered bank made payable to "Hawai'i Electric Light Company, Inc." and must be delivered and received by the Company by 2:00 pm (HST) on the Proposal Due Date shown in the RFP Schedule in Section 3.1. The check should include a reference to the Proposal(s) for which the Proposal Fee is being provided. Proposers are strongly encouraged to utilize a delivery service method that provides proof of delivery to validate delivery date and time.

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<sup>9</sup> For each variation that includes Contingency Storage, it is to the Proposer's advantage to offer an identical variation without Contingency Storage as Proposals with Contingency Storage must be selected through both evaluation processes (energy and Contingency Storage) in order to advance to the Final Award Group.

If the Proposal Fee is delivered by U.S. Postal Service (with registered, certified, receipt verification), the Proposer shall address it to:

Reese Yorimoto  
Energy Contract Manager  
Hawaiian Electric Company, Inc.  
Mail Code CP21-IU  
PO Box 2750  
Honolulu, Hawai'i 96840

If the Proposal Fee is delivered in person, or via an alternative registered, certified delivery service, the Proposer shall use the address specified in Section 1.6.

### **1.9 Procedures for the Self-Build or Affiliate Proposals**

The Competitive Bidding Framework allows the Company the option to offer a Proposal(s) in response to this RFP (“Self-Build Option” or “SBO”). Accordingly, the Company must follow certain requirements and procedures designed to safeguard against and address concerns associated with: (1) preferential treatment of the SBO or members, agents or consultants of the Company formulating the SBO (the “Self-Build Team”); and (2) preferential access to proprietary information of the Self-Build Team. These requirements are specified in the Code of Conduct required under the Framework and implemented by certain rules and procedures found in the Procedures Manual submitted to the PUC in Docket No. 2017-0352 on April 1, 2019. A copy of the Procedures Manual is attached as Appendix C.

The Competitive Bidding Framework also allows Affiliates of the Company to submit Proposals to RFPs issued by the Company. All Self-Build and Affiliate Proposals are subject to the Company’s Code of Conduct and the Procedures Manual. Affiliate Proposals are also subject to any applicable Affiliate Transaction Requirements issued by the PUC in Decision and Order No. 35962 on December 19, 2018, and subsequently modified by Order No. 36112, issued on January 24, 2019, in Docket No. 2018-0065. Affiliate Proposals will be treated identically to an IPP proposal, except that they are due at the same time as any Self-Build Proposal(s).

The Independent Observer will monitor adherence to the Company’s Code of Conduct and the Procedures Manual. Pursuant to the Framework and as set forth in the RFP Schedule, the Company will require that the Proposal for the SBO(s) and Affiliate Proposals be submitted electronically through the Electronic Procurement Platform and filed with the PUC in hard copy a minimum of one (1) Day before other Proposals are due. (A Proposal for the SBO or Affiliate will be uploaded into the Electronic Procurement Platform in the same manner Proposals from other Proposers are uploaded. The Energy Contract Manager, in consultation with the Independent Observer, will confirm that the Self-Build and Affiliate Proposals are timestamped by Milestone (7) Self-Build and Affiliate Proposal Due Date in RFP Table 1.)

Detailed requirements for an SBO Proposal can be found in Appendix G. These requirements are intended to provide a level playing field between SBO Proposals and third-party Proposals. Except where specifically noted, an SBO Proposal must adhere to the same price and non-price Proposal requirements as required of all Proposers, as well as certain PPA requirements, such as milestones and liquidated damages, as described in Appendix G. In addition to its Proposal, the Self-Build Team will be required to submit Appendix G Attachment 1, Self-Build Option Team Certification Form, acknowledging it has followed the rules and requirements of the RFP to the best of its ability and has not engaged in any collusive actions or received any preferential treatment or information providing an impermissible competitive advantage to the Self-Build Team over other proposers responding to this RFP, as well as adherence to PPA terms and milestones required of all proposers and the SBO's proposed cost protection measures.

The cost recovery methods between a regulated utility SBO Proposal and IPP Proposals are fundamentally different due to the business environments they operate in. As a result, the Company has instituted a process to compare the two types of proposals for the initial evaluation of the price related criteria on a 'like' basis through comparative analysis.

At the core of an SBO Proposal are its total project capital cost and any associated annual operations and maintenance ("O&M") costs. During the RFP's initial pricing evaluation step, these capital costs<sup>10</sup> and O&M costs will be used in a revenue requirement calculation to determine the estimated revenues needed from customers which would allow the Company to recover the total cost of the project. The SBO revenue requirements are then used in a levelized price calculation to determine a Levelized Energy Price ("LEP") (\$/MWh), if for energy needs, or to determine an Energy Storage Only Levelized Price (\$/MWh), if for ~~contingency response~~ Fast Frequency Response needs. These price calculations will then be used for comparison to IPP Proposals.

The Company, in conjunction with the Independent Observer, may also conduct a risk assessment of the SBO Proposal to ensure an appropriate level of customer cost protection measures are included in such Proposal.

In response to the 18 MW ~~contingency response~~ Fast Frequency Response need, the Self-Build Team will only be permitted to submit a Proposal or group of Proposals (with up to ~~3 variations each~~ a total of 4 variations for each Proposal) which collectively address this need, and no more. These Proposals are intended to serve as the Company's Parallel Plan, as described in the PUC's Framework for Competitive Bidding.<sup>11</sup> The Self-Build team will be allowed to submit one (1) additional Proposal (with up to ~~3~~ a total of 4 variations) in response to the energy need.

The SBO will be permitted to submit a shared savings mechanism with its Proposal to share in any cost savings between the amount of cost bid in the SBO Proposal and the

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<sup>10</sup> Self-Build Proposals will be required to provide a table identifying project costs by year. These capital costs should be all inclusive, including but not limited to costs associated with equipment, Engineering, Procurement, and Construction (EPC), interconnection, overhead, and Allowance for Funds Used During Construction (AFUDC).

<sup>11</sup> See Decision and Order No. 23121, filed December 8, 2006, in Docket No. 03-0372.

actual cost to construct the Project. If the SBO Proposal is selected to the Final Award Group, the proposed shared savings mechanism will need to be approved by the PUC. Submission of a shared savings mechanism is not required and will not be considered in the evaluation of the SBO Proposal.

## **1.10 Dispute Resolution Process**

- 1.10.1 If disputes arise under the RFP, the provisions of Section 1.10 and the dispute resolution process established in the Framework will control. See Part V of the Framework.
- 1.10.2 Proposers who challenge or contest any aspect of the RFP process must first attempt to resolve their concerns with the Company and the Independent Observer (“Initial Meeting”). The Independent Observer will seek to work cooperatively with the parties to resolve any disputes or pending issues and may offer to mediate the Initial Meeting to resolve disputes prior to such issues being presented to the PUC.
- 1.10.3 Any and all disputes arising out of or relating to the RFP which remain unresolved for a period of twenty (20) Days after the Initial Meeting takes place may, upon the agreement of the Proposer and the Company, be submitted to confidential Mediation in Honolulu, Hawai‘i, pursuant to and in accordance with the Mediation Rules, Procedures, and Protocols of Dispute Prevention Resolution, Inc. (“DPR”) (or its successor) or, in its absence, the American Arbitration Association then in effect (“Mediation”). The Mediation will be administered by DPR. If the parties agree to submit the dispute to Mediation, the Proposer and the Company shall each pay fifty percent (50%) of the cost of the Mediation (i.e., the fees and expenses charged by the mediator and DPR) and shall otherwise each bear their own Mediation costs and attorney’s fees.
- 1.10.4 If settlement of the dispute is not reached within sixty (60) Days after commencement of the Mediation, or if after the Initial Meeting, the parties do not agree to submit any unresolved disputes to Mediation, then as provided in the Framework, the Proposer may submit the dispute to the PUC in accordance with the Framework.
- 1.10.5 In accordance with the Framework, the PUC will serve as the arbiter of last resort for any disputes relating to this RFP involving Proposers. The PUC will use an informal expedited dispute resolution process to resolve the dispute within thirty (30) Days, as described in Parts III.B.8 and V of the Framework.<sup>12</sup> There will be no right to hearing or appeal from this informal expedited dispute resolution process.
- 1.10.6 If any Proposer initiates a dispute resolution process for any dispute or claim arising under or relating to this RFP, other than that permitted by the Framework and Section

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<sup>12</sup> The informal expedited dispute resolution process does not apply to PUC review of contracts that result from the RFP. See Decision and Order No. 23121 at 34-35. Further, the informal expedited dispute resolution process does not apply to the Framework’s process relating to issuance of a draft and final RFP, and/or to the PUC approval of the RFP because: (1) the Framework (and the RFP) set forth specific processes whereby interested parties may provide input through the submission of comments; and (2) the Framework’s dispute resolution process applies to “Bidders” and there are no “Bidders” at this stage in the RFP process.

1.10 (e.g., a court proceeding), then such Proposer shall be responsible for any and all attorneys' fees and costs that may be incurred by the Company or the PUC in order to resolve such claim.

### **1.11 No Protest or Appeal**

Subject to Section 1.10, no Proposer or other person will have the right to protest or appeal any award of a Project made by the Company.

By submitting a Proposal in response to the RFP, the Proposer expressly agrees to the terms and conditions set forth in this RFP.

### **1.12 Modification or Cancellation of the Solicitation Process**

1.12.1 Unless otherwise expressly prohibited, the Company may, at any time up to the final execution of an RDG PPA or ESPPA, as may be applicable, in consultation with the Independent Observer, postpone, withdraw and/or cancel any requirement, term or condition of this RFP, including deferral of the award or negotiation of any contract, and/or cancellation of the award all together, all of which will be without any liability to the Company.

1.12.2 The Company may modify this RFP subject to requirements of the Framework, whereby the modified RFP will be reviewed by the Independent Observer and submitted to the PUC thirty (30) Days prior to its issuance, unless the PUC directs otherwise. See Framework Part IV.B.10. The Company will follow the same procedure with regard to any potential postponement, withdrawal or cancellation of the RFP or any portion thereof.

## **Chapter 2: Resource Needs and Requirements**

### **2.1 Performance Standards**

Proposals must meet the attributes set forth in this RFP and the requirements of the RDG PPA for proposals that include a generation component or the ESPPA for standalone energy storage proposals. This RFP and the RDG PPA or ESPPA set forth the minimum requirements that all Proposals must satisfy to be eligible for consideration in this RFP. Additional Performance Standards may be required based on the results of the IRS.

Facilities must be able to operate in grid-forming mode when directed by the Company as defined in the RDG PPA or ESPPA.

Black start capability is preferred for standalone energy contingency reserve storage or energy storage ~~coupled~~paired with generation facilities. Proposals will need to identify<sup>13</sup>

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<sup>13</sup> If black start is not already enabled for the Proposal, any additional costs necessary to enable black start will be identified in the submission instructions defined in Appendix B.

any incremental costs to enable their facility to be black start capable, if not already enabled.

For standalone energy storage or energy storage ~~coupled~~paired with generation facilities, the functionality and characteristics of the storage must be maintained throughout the term of the PPA. To be clear Proposers may not propose any degradation for either capacity or efficiency in their Proposals.

## **2.2 Transmission System Information**

- 2.2.1 Company information regarding an initial assessment of potential MW capacity of 69 kV transmission-level circuits providing possible points of interconnection has been developed for Sites included in the Land Request for Information (“Land RFI”) as described in Section 3.11 and will be made available to Proposers only after execution of the Stage 2 NDA.<sup>14</sup> This initial assessment was performed using the assumption that both the PGV and Hu Honua facilities would be placed into service and the potential capacity information indicated may be different in the case that either or both of the PGV and Hu Honua facilities are not placed into service. Proposers should perform their own evaluation of project locations, and the Company does not guarantee any project output or ability to connect based on such information. Prior to submitting a proposal, Proposers are encouraged to inquire about the viability of interconnecting a proposed Project at a specific location. For example, a Project must interconnect through a minimum of two transmission lines and no single point of failure resulting in a loss of more than 30 MW; however depending on but not limited to, factors such as location of the Point of Interconnection, system load, generating unit dispatch, and transmission line contingencies, the Project may require more than two transmission line terminations. Please direct questions to the RFP Email Address in Section 1.6.
- 2.2.2 A detailed IRS, when performed, may reveal other adverse system impacts that may further limit a Project’s ability to interconnect and/or further limit the net output of the Facility without upgrades.

## **2.3 Interconnection to the Company System**

- 2.3.1 The Interconnection Facilities includes both: (1) Seller-Owned Interconnection Facilities; and (2) Company-Owned Interconnection Facilities.
- 2.3.2 All Proposals must include a description of the Proposer’s plan to transmit power from the Facility to the Company System. The proposed Interconnection Facilities must be compatible with the Company System. In the design, Projects must adequately consider Company requirements to address impacts on the performance and reliability of the Company System.

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<sup>14</sup> Appendix E contains the Mutual Confidentiality and Non-Disclosure Agreement for this RFP.

- 2.3.2.1 In addition to the Performance Standards and findings of the IRS, the design of the Interconnection Facilities, including power rating, Point(s) of Interconnection with the Company System, and scheme of interconnection, must meet Company standards. The Company will provide its construction standards and procedures to the Proposer (Engineer, Procure, Construct Specifications for Hawai'i Electric Light Power Lines and Substations) if requested via the RFP Email Address in Section 1.6 and upon the execution of a Stage 2 NDA as specified in Section 3.12.1. These specifications are intended to illustrate the scope of work typically required to administer and perform the design and construction of a Hawaiian Electric substation and power line.
- 2.3.2.2 Interconnection Facilities must be designed such that, with the addition of the Facility, the Company System can meet all relevant Transmission Planning Criteria<sup>15</sup> and any amendments thereto considering the Allowed Capacity and any Contingency Storage.
- 2.3.3 Tariff Rule No. 19, a copy of which is attached as Appendix I, establishes provisions for Interconnection and Transmission Upgrades. The tariff provisions are intended to simplify the rules regarding who pays for, installs, owns, and operates interconnection facilities in the context of competitive bidding. Proposers will be required to build the Company-Owned Interconnection Facilities, including the switching station and line work, except for any work in the Company's existing energized facilities and the final tap. Construction of Company-Owned Interconnection Facilities by the Proposer must comply with industry standards, laws, rules and licensing requirements, as well as the Company's specific construction standards and procedures that the Company will provide upon request. (See Section 2.3.1.) The Company uses the breaker-and-a-half scheme for its transmission switching station as shown in Attachment A of Appendix I – Rule 19 Tariff. Proposers should follow this scheme for purposes of their estimates.
- 2.3.4 The Proposer shall be responsible for all costs required to interconnect a Project to the Company System, including all Seller-Owned Interconnection Facilities and Company-Owned Interconnection Facilities.
- 2.3.5 Proposers are required to include in their pricing proposal all costs for interconnection and transmission equipment expected to be required between their Facility and their proposed Point of Interconnection. Appendix H includes information related to Company-Owned Interconnection Facilities and costs that may be helpful to Proposers.
- Selected Proposers shall be responsible for the actual final costs of all Seller-Owned Interconnection Facilities and Company-Owned Interconnection Facilities, whether or not such costs exceed the costs set forth in a Proposer's Proposal. No adjustments will be allowed to the proposed price in a Proposal if actual costs for Interconnection Facilities exceed the amounts proposed.
- 2.3.6 Proposers are required to include in their pricing proposal all costs for distribution-level service interconnection for station power.

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<sup>15</sup> Transmission Planning Criteria are further described in the PSIP beginning on page O-11 of Appendix O.

2.3.7 All Projects will be screened for general readiness to comply with the requirements for interconnection. Proposals selected to the Final Award Group will be subject to further study in the form of an IRS. The IRS process is further described in Section 5.1. The results of the completed IRS, as well as any mitigation measures identified, will be incorporated into the terms and conditions of a final executed PPA.

**Chapter 3: Instructions to Proposers**

**3.1 Schedule for the Proposal Process**

Table 1 sets forth the proposed schedule for the proposal process (the “RFP Schedule”). The RFP Schedule is subject to PUC approval. The Company reserves the right to revise the RFP Schedule as necessary. Changes to the RFP Schedule prior to the RFP Proposal Due Date will be posted to the RFP website. Changes to the RFP Schedule after the Proposal Due Date will be communicated via email or via the Electronic Procurement Platform to the Proposers.

**Table 1  
Proposed RFP Schedule**

<b>Milestone</b>	<b>Schedule Dates</b>
(1) Status Conference held	February 7, 2019
(2) Draft RFP filed	April 1, 2019
(3) Status Conferences held	April 18, 2019 May 2, 2019
(4) Commission solicited Stakeholder and Company Comments by	May 20, 2019
(5) Proposed Final RFP filed	July 10, 2019
(6) Final RFP is Issued	August 9, 2019 <sup>16</sup>
(7) Self-Build or Affiliate Proposal Due Date	October 21, 2019 at 2:00 pm HST <sup>17</sup>
(8) IPP Proposal Due Date	October 22, 2019 at 2:00 pm HST
(9) Selection of Priority List	January 3, 2020
(10) BAFOs Due	January 10, 2020
(11) Selection of Final Award Group	April 24, 2020
(12) Contract Negotiations Start	May 1, 2020

<sup>16</sup> Per Section IV.B.6.e.ii of the Competitive Bidding Framework “[t]he utility shall have the right to issue the RFP if the Commission does not direct the utility to do otherwise within thirty (30) days after the Commission receives the proposed RFP and the Independent Observer's comments and recommendations.” August 9, 2019 is based on this thirty (30) day timelines. However, this date and all subsequent dates in the proposed schedule are dependent on any further guidance provided by the PUC.

<sup>17</sup> An SBO or Affiliate Proposal must also be filed in hard copy form with the PUC a minimum of one (1) Day before other Proposals are due.

### **3.2 Company RFP Website/Electronic Procurement Platform**

- 3.2.1 The Company has established a website for general information to share with potential Proposers. The RFP website is located at the following link:

[www.hawaiielectriclight.com/competitivebidding](http://www.hawaiielectriclight.com/competitivebidding)

The Company will provide general notices, updates, schedules and other information on the RFP website throughout the process. Proposers should check the website frequently to stay abreast of any new developments. This website will also contain the link to the Electronic Procurement Platform employed by the Company for the receipt of Proposals.

“Sourcing Intelligence” developed by Power Advocate is the Electronic Procurement Platform that the Company has licensed and will utilize for this RFP. Proposers who do not already have an existing account with PowerAdvocate and who intend to submit a Proposal for this RFP will need to register as a “Supplier” with PowerAdvocate.

- 3.2.2 There are no license fees, costs, or usage fees to Proposers for the use of the Electronic Procurement Platform.

See [Appendix D](#) for user information on and screenshots of PowerAdvocate’s Sourcing Intelligence procurement platform.

### **3.3 Information Conferences**

The Commission held three status conferences on February 7, 2019, April 18, 2019, and May 2, 2019 to allow the Companies to propose plans for their Stage 2 RFPs and respond to questions from the Commission, the Consumer Advocate and stakeholders. The Companies’ presentations were made available on the Companies’ RFP Website. The Commission also solicited comments from stakeholders on the Companies’ Stage 2 Draft RFPs on May 6, 2019 before releasing its Order No. 36356 providing guidance on the draft RFPs for dispatchable and renewable generation on June 10, 2019. On July 5, 2019, the Commission issued Order No. 36406 providing further clarification of Order No. 36356.

Prospective Proposers may continue submitting written questions regarding the RFP to the RFP Email Address set forth in [Section 1.6](#). The Company will endeavor to address all questions that will be helpful to prospective Proposers via a Q&A section on the RFP website.

Prospective Proposers should review the RFP Website’s Q&A section prior to submission of their Proposal. Duplicate questions will not be answered.

### **3.4 Preparation of Proposals**

- 3.4.1 Each Proposer shall be solely responsible for reviewing the RFP (including all attachments and links) and for thoroughly investigating and informing itself with respect to all matters pertinent to this RFP, the Proposer’s Proposal, and the Proposer’s

anticipated performance under the RDG PPA or ESPPA. It is the Proposer's responsibility to ensure it understands all requirements of the RFP, to seek clarification if the RFP's requirements or Company's request is not clear, and to ask for any confirmation of receipt of submission of information. Under Section 1.7.4, the Proposer is solely responsible for all errors in its Proposal(s). The Company will not accept any explanation by a Proposer that it was incumbent on the Company to catch any error.

- 3.4.2 Proposers shall rely only on official information provided by the Company in this RFP when preparing their Proposal. The Company will rely only on the information included in the Proposals and additional information solicited by the Company to Proposers in the format requested, to evaluate the Proposals received. Evaluation will be based on the stated information in this RFP and on information submitted by Proposers in response to this RFP. Proposal submissions should not reference previous RFP submissions for support. Proposers also should not assume that any previous RFP decisions/preferences will also pertain to this RFP.
- 3.4.3 Each Proposer shall be solely responsible for, and shall bear all of its costs incurred in the preparation of its Proposal and/or its participation in this RFP, including, but not limited to, all costs incurred with respect to the following: (1) review of the RFP documents; (2) meetings with the Company; (3) Site visits; (4) third-party consultant consultation; and (5) investigation and research relating to its Proposal and this RFP. The Company will not reimburse any Proposer for any such costs, including the selected Proposer(s).
- 3.4.4 Each Proposal must contain the full name and business address of the Proposer and must be signed by an authorized officer or agent<sup>18</sup> of the Proposer.

### **3.5 Organization of the Proposal**

The Proposal must be organized as specified in Appendix B. It is the Proposer's responsibility to ensure the information requested in this RFP is submitted and contained within the defined Proposal sections as specified in Appendix B.

### **3.6 Proposal Limitations**

Proposers expressly acknowledge that Proposals are submitted subject to the following limitations:

The RFP does not commit or require the Company to award a contract, pay any costs incurred by a Proposer in the preparation of a Proposal, or procure or contract for products or services of any kind whatsoever. The Company reserves the right, in consultation with the Independent Observer, to accept or reject, in whole or in part, any or all Proposals submitted in response to this RFP, to negotiate with any or all Proposers

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<sup>18</sup> Proposer's officer or agent must be authorized to sign the Proposal. Such authorization must be in writing and may be granted via Proposer's organizational documents (i.e., Articles of Incorporation, Articles of Organization, By-laws, etc.), resolution, or similar documentation.

eligible to be selected for award, or to withdraw or modify this RFP in whole or in part at any time.

- The Company reserves the right, in consultation with the Independent Observer, to request additional information from any or all Proposers relating to their Proposals or to request that Proposers clarify the contents of their Proposals. Proposers who are not responsive to such information requests may be eliminated from further consideration upon consultation with the Independent Observer.
- The Company reserves the right, in consultation with the Independent Observer, to solicit additional Proposals from Proposers after reviewing the initial Proposals. Other than as provided in this RFP, no Proposer will be allowed to alter its Proposal or add new information to a Proposal after the Proposal Due Date.
- All material submitted in response to this RFP will become the sole property of the Company, subject to the terms of the Stage 2 NDA.

### **3.7 Proposal Compliance and Bases for Disqualification**

Proposers may be deemed non-responsive and/or Proposals may not be considered for reasons including, but not limited to, the following:

- Any unsolicited contact by a Proposer or prospective Proposer with personnel of the Company pertaining to this RFP as described in Section 1.5.5.
- Any illegal or undue attempts by or on behalf of the Proposer or others to influence the Proposal Review process.
- The Proposal does not meet one or more of the Eligibility Requirements specified in Section 4.2.
- The Proposal does not meet one or more of the Threshold Requirements specified in Section 4.3.
- The Proposal is deemed to be unacceptable through a fatal flaws analysis as described in Section 4.4.2.
- The Proposer does not respond to a Company request for additional information to clarify the contents of its Proposal within the timelines specified by the Company.
- The Proposal contains misrepresentations or errors.

### **3.8 Power Purchase Agreement**

- 3.8.1 The Power Purchase Agreement for proposals selected under this RFP that include a generation component will be in the form of the RDG PPA, attached as Appendix J and Appendix L.

- 3.8.2 The Power Purchase Agreement for standalone energy storage proposals selected under this RFP will be in the form of the Company's ESPPA, attached as Appendix K.
- 3.8.3 If selected, any Affiliate Proposers will be required to enter into the RDG PPA or ESPPA with the Company.
- 3.8.4 If selected, a Self-Build Proposer will not be required to enter into a PPA with the Company. However, the SBO will be held to the same performance metrics and milestones set forth in the RDG PPA and/or ESPPA to the same extent as all Proposers, as attested to in the SBO's Appendix G, Attachment 1, Self Build Option Certification submittal. If liquidated damages are assessed, they will be paid from shareholder funds and returned to customers through the Purchased Power Adjustment Clause ("PPAC") or other appropriate rate adjustment ~~mechanism~~mechanisms.

To retain the benefits of operational flexibility for a Company-owned facility, the SBO will be permitted to adjust operational requirements and performance metrics with the approval of the PUC. The process for adjustment would be similar to a negotiated amendment to a PPA with PUC approval.

- 3.8.5 In general, under the RDG PPA, payment to the Seller contains two parts: a Lump Sum Payment component to cover the fixed costs of the Project and a Price for Purchase of Electric Energy component (\$/MWh component) to cover variable operations and maintenance costs (if applicable, depending on the resource). In return, the Seller shall guarantee minimum performance and availability metrics to ensure that the Facility is maintained and available for energy storage (if applicable) and dispatch, as well as provide an indication of the available energy in near real-time for the Company's dispatch. Company shall not be obligated to accept nor shall it be required to pay for test energy generated by the Facility during acceptance testing or other test conditions.
- 3.8.6 In general, under the ESPPA, payment to the Seller consists of a Lump Sum Payment to cover dispatchability and availability of the Facility. In return, the Seller shall guarantee minimum performance and availability metrics to ensure that the Facility is maintained and available for energy storage and dispatch, as well as provide an indication of the available energy in near real-time for the Company's dispatch.
- 3.8.7 As described in Section 2.1, the Performance Standards identified in the applicable RDG PPAs or the ESPPA establish the minimum requirements a Proposal must satisfy to be eligible for consideration in this RFP. A proposed Facility's ability to meet these Performance Standards is both a Threshold Requirement and a Non-Price Related Criteria under Sections 4.3 and 4.4.2, respectively. As such, the Performance Standards included in the RDG PPAs or ESPPA are non-negotiable. Proposers may propose modifications to other sections of the RDG PPA or ESPPA but are encouraged to accept such terms as written in order to expedite the overall RFP process and potential contract negotiations. As a component of their Proposals, Proposers who elect to propose modifications shall provide a Microsoft Word red-line version of the relevant document identifying specific proposed modifications to the model language that the Proposer is

agreeable to, as well as a detailed explanation and supporting rationale for each modification.

- 3.8.7.1 General comments, drafting notes and footnotes such as “parties to discuss” are unacceptable and will be considered non-responsive. Proposed modifications to the Wind RDG PPA and ESPPA will be evaluated as a non-price evaluation criterion as further described in Section 4.4.2. In order to facilitate this process, the Company will make available electronic versions of the model agreements on the RFP website and through the PowerAdvocate platform for the RFP. Any proposed modifications to the RDG PPA or ESPPA will be subject to negotiation between the Company and the Final Award Group. As stated above, since general comments, drafting notes, and footnotes without accompanying specific proposed language modifications are unacceptable and non-responsive, the Company will not negotiate provisions simply marked by such general comments, drafting notes and footnotes.
- 3.8.7.2 The Company has an interest in maintaining consistency for certain provisions of the RDG PPAs and ESPPA, such as the calculation of availability and payment terms. Therefore, for such provisions, the Company will endeavor to negotiate similar and consistent language across PPAs for the Final Award Group.
- 3.8.8 Proposals that do not include specific proposed modifications to the attached RDG PPAs or ESPPA will be deemed to have accepted the RDG PPA or ESPPA in its entirety.

### **3.9 Pricing Requirements**

- 3.9.1 Proposers must submit pricing for each of their variations associated with each Proposal (if variations as described in Section 1.8.2 and 1.8.3 are submitted). Proposers are responsible for understanding the terms of the RDG PPA or ESPPA. Pricing cannot be specified as contingent upon other factors (e.g., changes to federal tax policy or receiving all Investment Tax Credits assumed).
- 3.9.2 Escalation in pricing over the term of the RDG PPA or the term of the ESPPA is prohibited.
- 3.9.3 Pricing information must only be identified within specified sections of the Proposal instructed by this RFP’s Appendix B Proposer’s Response Package (i.e., Proposal pricing information must be contained within defined Proposal sections of the Proposal submission). Pricing information contained anywhere else in a Proposal will not be considered during the evaluation process.
- 3.9.4 For projects that include a generation component, the Proposer’s Response Package must include the following prices for each Proposal (and variation):

For IPP or Affiliate proposals:

- **Lump Sum Payment (\$/year):** Payment amount for full dispatchability of the Facility. Payment will be made in monthly increments.

- **Price for Purchase of Electric Energy (\$/MWh):** Payment for delivery of net energy sourced from the variable generation resource, if applicable. No Energy Payment will be provided for any energy delivery that is sourced originally from the grid (Company's System).
- **Black Start (\$):** For energy storage ~~coupled~~paired with generation facilities, if the Facility is not already black start enabled, the incremental cost required to enable black start.
- **Contingency Storage ~~(\$):~~(\$/year):** For generation facilities that include Contingency Storage, the ~~incremental cost~~portion of the Lump Sum Payment attributable to ~~provide~~the Contingency Storage.

For Self-Build Proposals:

- **Total Project Capital Costs ~~(\$):~~(\$/year):** Total capital costs for the project (identified by year).
- **Annual O&M Costs (\$/year):** Initial year operations and maintenance costs, annual escalation rate.
- **Annual Revenue Requirement (ARR) (\$/year):** Revenue requirements calculated for each year.
- **Black Start (\$):** For energy storage ~~coupled~~paired with generation facilities, if the Facility is not already black start enabled, the incremental cost required to enable black start.
- **Contingency Storage ~~(\$):~~(\$/year):** For generation facilities that include Contingency Storage, the ~~incremental cost~~share of the Total Project Capital Costs, Annual O&M Costs, and Annual Revenue Requirement to provide Contingency Storage.

See Appendix G for descriptions and detail on the Total Project Capital Costs, Annual O&M Costs and Annual Revenue Requirement for the Self-Build Proposals.

3.9.5 For standalone energy storage projects, the Proposer's Response Package must include the following prices for each Proposal (and variation):

For IPP or Affiliate proposals:

- **Lump Sum Payment (\$/year):** Payment amount assuming full availability and dispatchability. Payment will be made in monthly increments.

- **Black Start (\$):** For energy storage coupled with generation facilities, if the Facility is not already black start enabled, the incremental cost required to enable black start.

For Self-Build Proposals:

- **Total Project Capital Costs ~~(\$):~~(\$/year):** Total capital costs for the project (identified by year).
- **Annual O&M Costs (\$/year):** Initial year operations and maintenance costs, annual escalation rate.
- **Annual Revenue Requirement (ARR) (\$/year):** Revenue requirements calculated for each year.
- **Black Start (\$):** For energy storage ~~coupled~~paired with generation facilities, if the Facility is not already black start enabled, the incremental cost required to enable black start.

See Appendix G for descriptions and detail on the Total Project Capital Costs, Annual O&M Costs and Annual Revenue Requirement for the Self-Build Proposals.

- 3.9.6 As identified in the Schedule of Defined Terms in the PPA under “BESS Allocated Portion of the Lump Sum Payment”, the allocated portion of the Lump Sum Payment specified for energy storage for the Facility is 50% and shall be a non-negotiable percentage in the PPA.

### 3.10 Project Description

- 3.10.1 Proposals that include a generation component are required to provide a **NEP RFP Projection** for the Project. The NEP RFP Projection associated with the proposed Project represents the estimated annual net energy (in MWh) that could be produced by the Facility and delivered to the Point of Interconnection over a ten-year period with a probability of exceedance of 95%. If the proposed Project includes an energy storage component, it should not be factored into the NEP RFP Projection. Any losses that may be incurred from energy being stored and then discharged from the energy storage component or any energy that may be diverted to the energy storage component due to generation in excess of the Facility’s Allowed Capacity should not be factored into the NEP RFP Projection. The NEP RFP Projection should assume that all energy is being directly exported to the MauiHawaii Electric Light System. The NEP RFP Projection

will be used in the RFP evaluation process and therefore Proposers will be held to their provided value.<sup>19</sup>

- 3.10.2 Proposers must provide all information pertaining to the design, development, and construction of the Interconnection Facilities as specified in Appendix B.
- 3.10.3 Each Proposer must also agree to provide Project financial information, including proposed Project finance structure information specified in Appendix B. Such information will be used to evaluate Threshold Requirements and non-price criteria (e.g., Financial Viability of Proposer, Financial Strength and Financing Plan, State of Project Development and Schedule) set forth in Sections 4.3 and 4.4.2. Upon selection, the Final Award Group may be requested to provide further detailed cost information if requested by the PUC or the Consumer Advocate as part of the PPA approval process. If requested, such information would be provided to the PUC, Consumer Advocate and Company pursuant to a protective order in the docket.
- 3.10.4 The Proposer agrees that no material changes or additions to the Facility from what is submitted in its Proposal will be made without the Proposer first having obtained prior written consent from the Company. Evaluation of all Proposals in this RFP is based on the information submitted in each Proposal at the Proposal Due Date. If any Proposer requests any Proposal information to be changed after that date, the Company, in consultation with the Independent Observer, and in consideration of whether the evaluation is affected, will determine whether the change is permitted.

### **3.11 Sites Identified by the Company**

- 3.11.1 As an alternative to a Site identified by the Proposer, the Company has identified potential Sites where landowners have expressed a willingness to negotiate a lease or purchase of the land to support a renewable energy project. These Sites were identified through a Land RFI. Proposers will be responsible for working directly with the land owner and must secure Site Control with such land owner prior to submitting a Proposal. Land RFI information is available to interested parties who sign the Stage 2 NDA. The Land RFI is further described in Appendix F.

Proposers are not required to select a Site identified in the Land RFI and as noted above may propose any Site for a Project. A Proposer may ask the Company questions as set forth in Section 2.2.1 if it would like to obtain similar information about the viability of interconnection at its proposed Site as identified for the Land RFI parcels.

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<sup>19</sup> If a Proposal is selected to the Final Award Group and a PPA is executed between the Company and the Proposer, the NEP RFP Projection will be further evaluated at several steps throughout the process as set forth in the RDG PPA, and adjustments to the Lump Sum Payment will be made accordingly. Additionally, because the Company will rely on an accurate representation of the NEP RFP Projection in the RFP evaluation, a one-time liquidated damage as described in the RDG PPA will be assessed if the First NEP benchmark is less than the Proposer's NEP RFP Projection. After the Facility has achieved commercial operations, the performance of the Facility will be assessed on a continuing basis against key metrics identified in the RDG PPA. See Article 2 and Attachment U of the RDG PPA.

- 3.11.2 Additionally, two Company-owned Sites are being offered to Proposers of standalone energy storage Projects for their consideration. An area within the Keahole Generating Station, referred to as the Keahole Site, and an area within the Puna Generating Station, referred to as the Puna Site, are further described in Appendix F.

Proposers proposing to use either the Keahole or Puna Sites shall be required to agree to conditions for such use as provided for in an attachment to the PPA. Provisions providing for access to the Sites during construction and thereafter, during commercial operations, will be subject to current Company security policies and procedures. Physical, communication and internet security will be required consistent with Company policy. Additional measures may be required to limit/eliminate interference between Seller and Company facilities and infrastructure. Such policies, procedures and requirements may change as necessary during the term of the ESPPA to reflect changes in Company policies or to remain in compliance with current applicable laws, rules or regulations. A draft copy of the proposed form of the Terms and Conditions for Use (“TCU”) is included as Attachment X to the model ESPPA. Limited sections (Section 4 Seller’s Investigation of the Company-Owned Site, Section 5 Construction and Maintenance, Section 7 Hazardous Substances, and Section 8 Archeological and Historic Items) of the TCU shall be negotiable.

The Company plans to offer site visits for potential Proposers to see both sites and to ask questions about a potential project at either site. The dates, times, and requirements for these site visits will be posted to the Company’s RFP website.

### **3.12 Confidentiality**

- 3.12.1 Each prospective Proposer must submit an executed Stage 2 NDA (specific to the Hawai’i Variable Renewable Dispatchable Generation and Energy Storage RFP) in the form attached as Appendix E by the Proposal Due Date specified in the RFP Schedule in Section 3.1. The form of the Stage 2 NDA is not negotiable. Information designated as confidential by the Company will be provided on a limited basis, and only those prospective Proposers who have submitted an executed Stage 2 NDA will be considered. NDAs that were fully executed for Stage 1 will not be accepted for Stage 2. Proposers must clearly identify all confidential information in their Proposals. However, Proposers should designate as confidential only those portions of their Proposals that genuinely warrant confidential treatment. The Company discourages the practice of marking every page of a Proposal as confidential. The Company will make reasonable efforts to protect any such information that is clearly marked as confidential. Consistent with the terms of the Stage 2 NDA, the Company reserves the right to share any information, even if marked confidential, to its agents, contractors, or the Independent Observer for the purpose of evaluating the Proposal and facilitating potential contract negotiations.
- 3.12.2 Proposers, in submitting any Proposal(s) to Company in response to this RFP, certify that such Proposer has not shared its Proposal(s), or any part thereof, with any other Proposer of a Proposal(s) responsive to this RFP.

3.12.3 The Company will request that the PUC issue a Protective Order to protect confidential information provided by Proposers to the Company and to be filed in a proceeding before the PUC. A copy of the Protective Order, once issued by the PUC, will be provided to Proposers. Proposers should be aware that the Company may be required to share certain confidential information contained in Proposals with the PUC, the State of Hawai'i Department of Commerce and Consumer Affairs, Division of Consumer Advocacy, and the parties to any docket instituted by the PUC, provided that recipients of confidential information have first agreed in writing to abide by the terms of the Protective Order. Notwithstanding the foregoing, no Proposer will be provided with Proposals from any other Proposer, nor will Proposers be provided with any other information contained in such Proposals or provided by or with respect to any other Proposer.

### **3.13 Credit Requirements Under the PPA**

- 3.13.1 Proposers with whom the Company concludes PPA contract negotiations must post Development Period Security and Operating Period Security in the form of an irrevocable standby letter of credit from a bank chartered in the United States as required and set forth in Article 14 of the RDG PPA or the ESPPA.
- 3.13.2 The Development Period Security and Operating Period Security identified in the RDG PPAs or the ESPPA are minimum requirements. Proposers shall not propose an amount lower than that set forth in the RDG PPAs or the ESPPA.
- 3.13.3 Each Proposer shall be required to provide a satisfactory irrevocable standby letter of credit in favor of the Company from a bank chartered in the United States to guarantee Proposer's payment of interconnection costs for all Company-Owned Interconnection Facilities in excess of the Total Estimated Interconnection Costs and/or all relocations costs in excess of Total Estimated Relocation Costs that are payable to Company as required and set forth in Attachment G to the RDG PPAs or the ESPPA.
- 3.13.4 Proposers may be required to provide an irrevocable standby letter of credit in favor of the Company from a bank chartered in the United States in lieu of the required Source Code Escrow in an amount and as required and set forth in Attachment B to the RDG PPAs or ESPPA.

## **Chapter 4: Evaluation Process and Evaluation Criteria**

### **4.1 Proposal Evaluation and Selection Process**

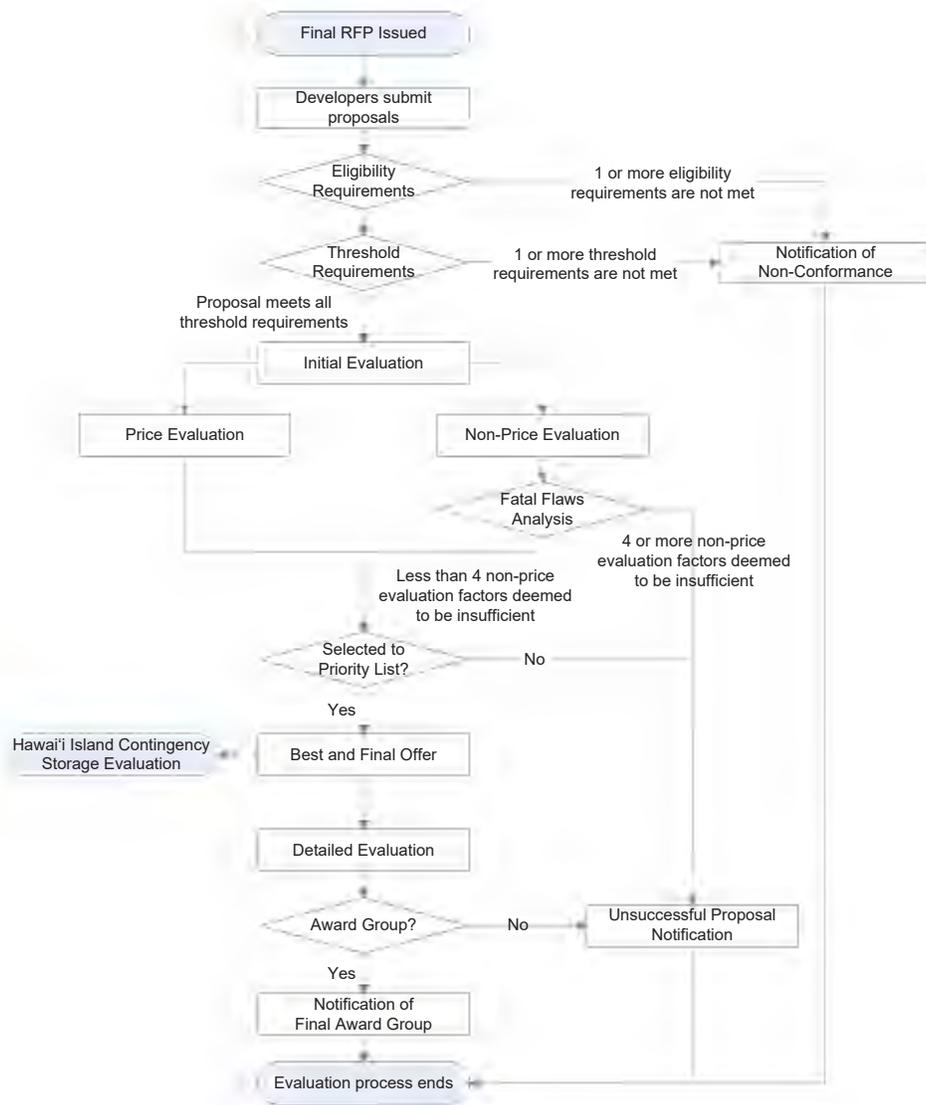
The Company will employ a multi-step evaluation process. Once the Proposals are received, the Proposals will be subject to a consistent and defined review, evaluation, and selection process. This Chapter provides a description of each step of the process, along with the requirements of Proposers at each step. Figure 1 and Figure 2 set forth the flowchart for the proposal evaluation and selection process.

Upon receipt of the Proposals, the Company will ensure that the Proposals meet the Eligibility Requirements, and if so, will review the Proposals to ensure that the Threshold Requirements have been met. The Company, in coordination with the Independent Observer will determine if a Proposer is allowed to cure any aspect of its Proposal or whether the Proposal would be eliminated based on failure to meet either Eligibility or Threshold Requirements.<sup>20</sup> If a Proposer is provided the opportunity to cure any aspect of its Proposal, the Proposer shall be given three (3) business Days to cure from the date of notification to cure. Proposals that have successfully met the Eligibility and Threshold Requirements will then enter a two-phase process for Proposal evaluation, which includes the Initial Evaluation resulting in the development of a Priority List, followed by the opportunity for Priority List Proposals to provide Best and Final Offers, and then a Detailed Evaluation process to arrive at a Final Award Group.

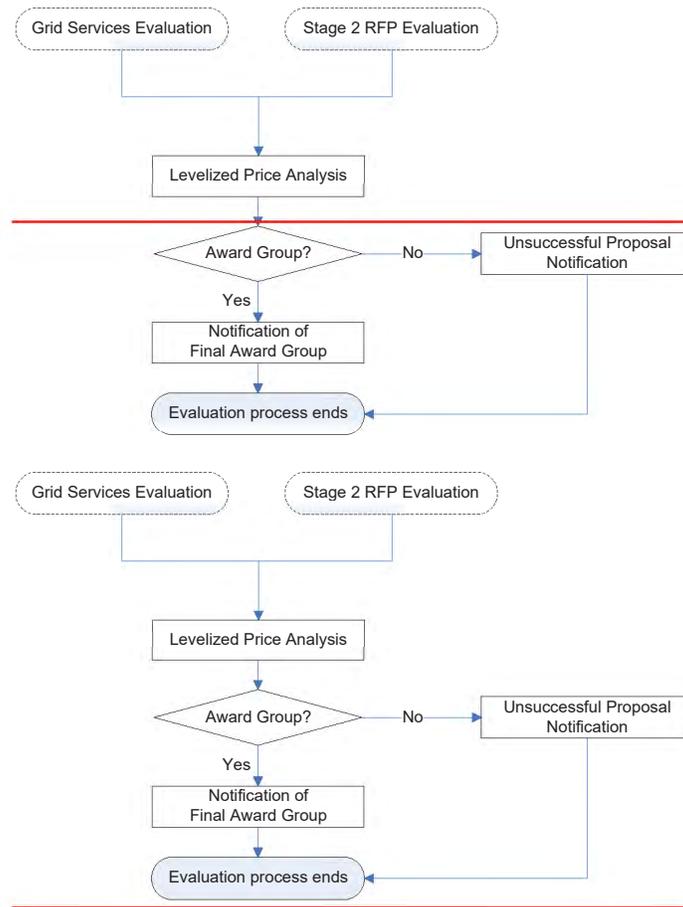
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<sup>20</sup> As a general rule, if a Proposer does not include a requested document, inadvertently excludes minor information or provides inconsistencies in its information, it may be given a chance to cure such deficiency. If a Proposer fails to provide material required information in its Proposal and providing the Proposer an opportunity to cure is deemed by the Company, in consultation with the Independent Observer, as an unfair advantage to such Proposer, the Proposal could be classified as non-conforming and eliminated for failure to meet the Eligibility Requirements.

**Figure 1 – Evaluation Workflow**



**Figure 2 – Hawai‘i Island Contingency Storage Evaluation Workflow**



#### 4.2 Eligibility Requirements Assessment

Upon receipt of the Proposals, each Proposal will be reviewed to ensure that it meets the following Eligibility Requirements.

- The Proposal including required uploaded files must be received on time via the PowerAdvocate Platform.
- The Proposal Fee must be received on or before the Proposal Due Date.<sup>21</sup>
- The Proposal must not contain material omissions.
- The Proposal must be signed and certified by an officer or other authorized person of the Proposer.
- The Proposer must fully execute the agreements or other documents required pursuant to this RFP.
- The Proposer must provide a certificate of good standing from the State of Hawai‘i Department of Commerce and Consumer Affairs.

<sup>21</sup> Proposal Fees will not be required for SBO Proposals or Proposals utilizing Company offered and owned sites.

- The Proposer must provide federal and state tax clearance certificates for the Proposer.
- The Proposal must not be contingent upon changes to existing county, state, or federal laws or regulations.
- The proposed Project must be located on the island of Hawai‘i.
- Project must be greater than the threshold for a waiver from the Competitive Bidding Framework applicable to Hawai‘i island.
- No single point of failure from the Facility shall result in a decrease in net electrical output greater than 30 MW.
- Project infrastructure and point of interconnection must be located outside the 3.2 feet sea level rise exposure area (SLR-XA) as described in the Hawai‘i Sea Level Rise Vulnerability and Adaptation Report (2017), and not located within a Tsunami Evacuation Zone.
- Proposals must meet the grid-charging requirements of Section 1.2.16.
- Standalone energy proposals must specify a GCOD no later than December 31, 2022.
- Generation only Proposals or generation ~~coupled~~paired with energy storage Proposals must specify a GCOD no later than December 31, 2025.

### 4.3 Threshold Requirement Assessment

Proposals that meet all the Eligibility Requirements will then be evaluated to determine compliance with the Threshold Requirements, which have been designed to screen out Proposals that are insufficiently developed, lack demonstrated technology, or will impose unacceptable execution risk for the Company. Proposers are responsible to provide explanations and supporting information demonstrating how and why they believe the Project they are proposing meets each of the Threshold Requirements. Proposals that fail to provide this information or meet a Threshold Requirement will be eliminated from further consideration upon concurrence with the Independent Observer. The Threshold Requirements for this RFP are the following:

- **Site Control:** The Proposal must demonstrate that the Proposer has Site Control for all real property required for the successful implementation of a specific Proposal at a Site not controlled by the Company, including any Interconnection Facilities for which the Proposer is responsible. The need for a firm commitment is necessary to ensure that Proposals are indeed realistic and can be relied upon as the Company moves through the remainder of the RFP process. In addition, developmental requirements and restrictions such as zoning of the Site and the status of easements must be identified and will be considered in determining whether the Proposal meets the Site Control threshold.

To meet this Site Control requirement, Proposers must do one of the following:

- Provide documentation confirming (1) that the Proposer has an existing legally enforceable right to use and control the Site, either in fee simple or under leasehold for a term at least equal to the term of the PPA or ESPPA (“Site Control”) as specified in the Proposer’s Proposal (taking into account the timelines set forth in this RFP for selection, negotiation, and execution of

- a PPA or ESPPA and PUC approval), and (2) the applicable zoning for the Site and that such zoning does not prohibit the development of the Site consistent with the Proposal; or
- Provide documentation confirming, at a minimum, (1) that the Proposer has an executed binding letter of intent, memorandum of understanding, option agreement, or similar document, with the land owner (a “binding commitment”) which sets forth the general terms of a transaction that would grant the Proposer the required Site Control, and (2) the applicable zoning for the Site and that such zoning does not prohibit the development of the Site consistent with the Proposal. The binding commitment does not need to be exclusive to the Proposer at the time the Proposal is submitted and may be contingent upon selection of the Proposal to the Final Award Group. If multiple Projects are provided a binding commitment for the same Site, the documents granting the binding commitments must not prevent the Company from choosing the Proposal that otherwise would have been selected.
  - Government/Public Lands Only: The above two bullet points may not be feasible where government or publicly-owned lands are part of the Site or are required for the successful implementation of the Proposal. In such a case, at a minimum the Proposer must provide a credible and viable plan, including evidence of any steps taken to date, to secure all necessary Site Control for the Proposal, including but not limited to evidence of sufficient progress toward approval by the government agency or other body vested with the authority to grant such approval (as demonstrated by records of the agency). The Proposer will be required, however, to demonstrate Site Control as required in the applicable RDG PPA or ESPPA should the Proposal be selected to the Final Award Group.
- **Performance Standards:** The proposed Facility must be able to meet the performance attributes identified in this RFP and the Performance Standards identified in the applicable RDG PPAs or the ESPPA. Proposals should include sufficient documentation to support the stated claim that the Facility will be able to meet the Performance Standards (including the Project’s ability to provide ~~contingency response~~). Fast Frequency Response if the Proposal includes a Contingency Storage component or is for standalone contingency reserve storage). The Proposal should include information required to make such a determination in an organized manner to ensure this evaluation can be completed within the evaluation review period.
  - **Proven Technology:** This criterion is intended as a check to ensure that the technology proposed is viable and can reasonably be relied upon to meet the objectives of this RFP. The Company will only consider Proposals utilizing technologies that have successfully reached commercial operations in commercial applications (i.e., a PPA) at the scale being proposed. Proposals should include any supporting information for the Company to assess the commercial and financial maturity of the technology being proposed.

- **Experience of the Proposer:** The Proposer, its affiliated companies, partners, and/or contractors and consultants on the Proposer’s Project team must have experience in financing, designing, constructing, interconnecting, owning, operating, and maintaining at least one (1) electricity generation project, including all components of the project (i.e., storage or other attributes), similar in size, scope, technology, and structure to the Project being proposed by Proposer. The Company will consider a Proposer to have reasonably met this Threshold Requirement if the Proposer can provide sufficient information in its Proposal’s RFP Appendix B Section 2.13 tables demonstrating that at least one member of the Proposer’s team (identified in the Proposal) has specific experience in each of the following categories: financing, designing, constructing, interconnecting, owning, operating, and maintaining projects similar to the Project being proposed.
- **Credit/Collateral Requirements:** Proposers shall agree to post Development Period Security and Operating Period Security as described in Section 3.13.
- **Available Circuit Capacity:** The output capacity of the proposed Project (including Contingency Storage, as applicable) must not exceed the available capacity of the 69 kV circuit to which it will interconnect.
- **Viability of Proposer’s Financial Plan:** Proposers must provide a basic financial plan for the Project with details on the sources of debt and equity, capital structure, etc. Evidence must be provided of general support for Project financing.
- **Financial Compliance:** The proposed Project must not cause the Company to be subject to consolidation as set forth, in Financial Accounting Standards Board (“FASB”) Accounting Standards Codification Topic 810, Consolidation (“ASC 810”) as issued and amended from time to time by FASB. Proposers are required to state to the best of their knowledge, with supporting information to allow the Company to verify such conclusion, that the Proposal will not result in the Seller under the PPA being a Variable Interest Entity (“VIE”) and result in the Company being the primary beneficiary of the Seller that would trigger consolidation of the Seller’s finances on to the Company’s financial statements under FASB ASC 810. The Company will perform a preliminary consolidation assessment based on the Proposals received. The Company reserves the right to allow a Proposal to proceed through the evaluation process through selection of the Priority List and work with the Proposer on this issue prior to or during PPA negotiations.
- **Community Outreach:** Gaining community support is an important part of a Project’s viability and success. A comprehensive community outreach and communications plan (“Community Outreach Plan”) is an essential roadmap that guides a ~~developer~~as developer as they work with various communities and stakeholders to gain their support for a Project. Proposers must include a Community Outreach Plan that describes the Proposer’s commitment to work with the neighboring community and stakeholders and to provide them timely Project information during all phases of the Project. The Community Outreach Plan shall include but not be limited to the following information: Project description, community scoping (including stakeholder and community concerns), Project

benefits, government approvals, development process (including Project schedule), and a comprehensive communications plan.

Proposers need to also be mindful of the Projects' potential impacts to historical and cultural resources. At a minimum, Proposers should identify: (1) any valued cultural, historical, or natural resources in the area in question, including the extent to which traditional and customary native Hawaiian rights are exercised in the area; (2) the extent to which those resources – including traditional and customary native Hawaiian rights – will be affected or impaired by the proposed action; and (3) the feasible action, if any, to be taken to reasonably protect native Hawaiian rights if they are found to exist. Also, at a minimum, Proposers should have already contracted with a consultant with expertise in this field to begin a cultural impact assessment for the Project.

#### 4.4 Initial Evaluation – Price and Non-Price Analysis

Proposals that meet both the Eligibility and Threshold Requirements are Eligible Proposals which will then be subject to a price and non-price assessment. Two teams have been established to undertake the Proposal evaluation process: a Price Evaluation Team and Non-Price Evaluation Team. The results of the price and non-price analysis will be a relative ranking and scoring of all Eligible Proposals. Price-related criteria will account for sixty percent (60%) of the total score and non-price-related criteria will account for forty percent (40%) of the total score. The non-price criteria and methodology for applying the criteria are explained in Section 4.4.2.

The Company will employ a closed-bidding process for this solicitation in accordance with Part IV.H.3 of the Framework where the price and non-price evaluation models to be used will not be provided to Proposers. However, the Company will provide the Independent Observer with all necessary information to allow the Independent Observer to understand the evaluation models and to enable the Independent Observer to observe the entire analysis to ensure a fair process. The evaluation models will be finalized prior to the receipt of Proposals.

##### 4.4.1 Initial Evaluation of the Price Related Criteria

For the initial price analysis, an equivalent energy price (Levelized \$/MWh) will be calculated for each renewable generation and renewable generation with energy storage proposal based on information provided in the Proposal including the Lump Sum Payment (\$/year), Price for Purchase of Electric Energy (\$/MWh), and the Net Energy Potential (“NEP”) RFP Projection (MWh) information defined in RFP Sections 3.9 and 3.10.

For standalone contingency ~~reserve energy~~ storage proposals, and for the Contingency Storage portion of a renewable energy project paired with storage, a levelized energy price (Levelized \$/MWh) will be calculated for each Proposal based on information provided in the Proposal including the Lump Sum Payment (\$/year), and the facility's contingency ~~response~~storage energy capability.

In order to fairly evaluate Proposals with different technologies and characteristics while using an equivalent energy price in Levelized \$/MWh at this stage in the evaluation, the Company will group Proposals into technology-based evaluation categories, as applicable, For example<sup>22</sup>: (1) Wind generation (MWh) only; (2) Wind generation (MWh) and Energy storage; (3) Solar generation (MWh) only; (4) Solar generation (MWh) and Energy storage; (5) EnergyContingency storage only; and (6) Renewable EnergyWind generation (MWh), Energy Storage, and Contingency Storage; and (8) Solar generation (MWh), Energy Storage, and Contingency Storage.

The Eligible Proposal with the lowest LEP in each evaluation category will receive 600 points. All other Eligible Proposals in that evaluation category will receive points based on a proportionate reduction using the percentage by which the Eligible Proposal's LEP exceeds the lowest LEP in that evaluation category. For example, if a Proposal's LEP is ten percent (10%) higher than the lowest LEP in that evaluation category, the Proposal will be awarded 540 points (that is, 600 points less 10%). The result of this assessment will be a ranking and scoring of each Proposal within each evaluation category.

#### 4.4.2 Initial Evaluation of the Non-Price Related Criteria

For the non-price analysis, each Proposal will be evaluated on each of the eight (8) non-price criteria categories set forth below:

- Community Outreach and Cultural Resource Impacts
- State of Project Development and Schedule
- Performance Standards
- Environmental Compliance and Permitting Plan
- Experience and Qualifications
- Financial Strength and Financing Plan
- RDG PPA or ESPPA Contract Exceptions
- Guaranteed Commercial Operations Date

Each of the first three criteria – Community Outreach and Cultural Resource Impacts, State of Project Development and Schedule, Performance Standards – will be weighted twice as heavily as the others to reflect the impact these categories have to achieve a successful and timely procurement. The non-price criteria are generally scored on a scale of 1 (poor) to 5 (highly preferable).

The total non-price score will be the sum of the scores for each of the individual non-price criteria. The Company will then award non-price evaluation points in accordance with the relative ranking of scores within each evaluation category. The Proposal in each evaluation category with the highest total non-price score will receive 400 points, and all other Proposals will receive points equal to the Proposal's score divided by the top score, multiplied by 400.

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<sup>22</sup> There may be other technologies that are offered in this RFP. This list is illustrative of how technology-based evaluation categories will be established for the Initial Evaluation.

During the non-price criteria evaluation, a fatal flaws analysis will also be conducted such that any Proposal that is deemed not to meet the minimum standards level<sup>23</sup> for four (4) or more non-price criteria will be disqualified given that the Proposal has failed to meet a majority of non-price factors that are indicative as to the general feasibility and operational viability of a proposed Project.

The Companies' evaluation of the non-price criteria will be based on the materials provided by a Proposer in its Proposal. Acceptance of any Proposal into the Final Award Group shall not be assumed or construed to be an endorsement or approval that the materials provided by Proposer are complete, accurate or in compliance with applicable law. The Companies assume no obligation to correct, confirm or further research any of the materials submitted by Proposers. Proposers retain sole responsibility to ensure their Proposals are accurate and in compliance with all laws.

The non-price criteria are:

- **Community Outreach and Cultural Resource Impacts** – Gaining community support is an important part of a Project's viability and success. An effective Community Outreach Plan will call for early meaningful communications with stakeholders and will reflect a deep understanding and respect for the community's desire for information to enable them to make informed decisions about future projects in their communities. Therefore, Proposals will be evaluated on the quality of the Community Outreach Plan to inform the Project's impacted communities. Proposers need to also be mindful of the Project's potential impacts to historical and cultural resources. **Parties Proposers** should at least identify (1) valued cultural, historical, or natural resources in the area in question, including the extent to which traditional and customary native Hawaiian rights are exercised in the area; (2) the extent to which those resources – including traditional and customary native Hawaiian rights – will be affected or impaired by the proposed action; and (3) the feasible action, if any, to be taken to reasonably protect native Hawaiian rights if they are found to exist.

At a minimum, Proposals should include a Community Outreach Plan that describes the Proposer's commitment to work with the neighboring community and stakeholders and to provide timely Project information during project development, construction, and operation. The Community Outreach Plan shall include, but not be limited to the following:

- 1) **Project description.** A thorough description including a map of the location of the Project. This information will help the community understand the impact that the Project may have on the community.
- 2) **Community scoping.** Identify stakeholders (individuals, community leaders, organizations), community issues and concerns, and community sentiment.

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<sup>23</sup> A score of 3 is the "meets minimum standards" level that a Proposal must achieve in at least five (5) criteria.

- 3) **Project benefits.** An explanation of the need for the Project. This will help the community to understand how the Project might benefit their community.
- 4) **Government approvals.** Required government permits and approvals, public hearings and other opportunities for public comment. This information will help the community to understand the level of public scrutiny and participation that might occur for the Project and the opportunities to provide public comments.
- 5) **Development process.** A Project schedule that identifies key milestones will facilitate the community's understanding of the development process.
- 6) **Communications Plan.** A communications plan including a detailed community outreach schedule that will keep the affected communities and stakeholders informed about the Project's outreach efforts during early Project development period through construction and operations.

Preference will be given to Proposers who have already identified established contacts to work with the local community, have used community input to incorporate changes to the final design of the Project and mitigate community concerns, have proposed a community benefits package (including details of the community recipients and benefits package), or have community consultants as part of the Project team doing business in Hawai'i that have successfully worked with communities in Hawai'i on the development of two or more energy projects or projects with similar community issues. These criteria are aligned with the Companies' community engagement expectation whereby all developers will be required to engage in community outreach prior to signing a PPA with the Companies. This process is also outlined in RFP Section 5.3.

Also, at a minimum, Proposers should have already contracted with a consultant with expertise in such field to begin a cultural impact assessment for the Project. Preference will be given to Proposals that are further along in the assessment process and are able to provide a mitigation/action plan or are able to provide a date for when a mitigation/action plan will be available that addresses any identified cultural resource issues.

- **State of Project Development and Schedule** – Projects that are further along in development generally have lower project execution risk and a greater probability of being able to be successfully placed into service prior to the GCOD (specifically identified in each Proposal). At a minimum, Projects should demonstrate how they plan to capture any ITC safe harbor and reach their GCOD specified, including identification of risks and schedule assumptions. (Schedules must identify the IRS completion date and PUC approval dates assumed.) Proposals should also demonstrate, via a detailed critical path schedule, that there is a high likelihood that the Project will be able to reach commercial operations as specified. Proposals shall include a Gantt chart that clearly illustrates the overall schedule and demonstrates achievement of any ITC safe harbor, if applicable, and commercial operations by their specified GCOD. The Gantt chart shall include

task durations and dependencies, identify tasks that will be fast tracked, and identifies slack time and contingencies. This criterion will also look at the high-level Project costs set forth in the Proposal including: costs for equipment, construction, engineering, Seller-Owned Interconnection Facilities, Company-Owned Interconnection Facilities, land, annual O&M, the reasonableness of such costs and the assumptions used for such costs. Project costs that do not appear reasonable for a project of the size proposed may result in a lower ranking for this criterion if the Company reasonably determines that the cost information is unrealistic based on prior experience in the market which may result in a risk that the Project can be built on time and for the price proposed by the Proposer. The Company reserves the right to discuss any cost and financial information with a Proposer to ensure the information provided is accurate and correct.

- **Performance Standards:** The proposed Facility must be able to meet the performance attributes identified in this RFP and the Performance Standards identified in the RDG PPA or the ESPPA. The Company will review the Proposal information received, including design documents and operating procedures materials provided in the Proposal, and evaluate whether the Project as designed is able to meet the Performance Standards identified in the RDG PPA or ESPPA (including the Project's ability to provide Fast Frequency Response if the Proposal includes a Contingency Storage component or is for standalone contingency ~~response~~reserve storage) and in this RFP. At a minimum, in addition to meeting the Performance Standards, the Proposals should include sufficient documentation, provided in an organized manner, to support the stated claim that the Facility will be able to meet the Performance Standards. The Proposal should include information required to make such a determination in an organized manner to ensure this evaluation can be completed on a timely basis. Preference will be given to Proposals that provide detailed technical and design information showing how each standard can be met by the proposed Facility. Preference will also be provided to proposed Projects that offer additional capabilities (e.g., Black-Start, Grid-Forming).
- **Environmental Compliance and Permitting Plan** – This criterion relates to the potential (short- and long-term) environmental impacts associated with each project, the quality of the plan offered by the Proposer to mitigate and manage any environmental impacts (including any pre-existing environmental conditions), and the plan of Proposers to remain in environmental compliance over the term of the contract. These impacts are reflected on a technology-specific basis. Completing any necessary environmental review and obtaining the required permitting in a timely manner is also important and Proposals will be evaluated on their plan to identify, apply for, and secure the required permits for the Project, any permitting activity that has been completed to date, including having initial discussions with U.S. Fish and Wildlife and State of Hawai'i Department of Land and Natural Resources, Division of Forestry and Wildlife, to the extent applicable, prior to submitting a Proposal, and the degree of certainty offered by the Proposer in securing the necessary permits.

At a minimum, proposed Projects should be expected to have minimal

environmental impact for most areas and Proposals should provide a comprehensive plan to mitigate the identified potential or actual significant environmental impacts to remain in environmental compliance. The proposed mitigation plans should be included in the Project timeline. Preference will be given to Proposals that provide a more detailed plan as well as those that have proactively taken steps to mitigate potential environmental impacts.

Also, this criterion requires that, at a minimum, Proposers should have identified all major permits, approvals, appurtenances and entitlements (including applicable access, rights of way and/or easements) (collectively, the “permits”) required and have a preliminary plan for securing such permits. Preference will be given to Proposals that are able to provide a greater degree of certainty that its plan to secure the required permits is realistic and achievable, or have already received all or a majority of the required permits. The Proposer must provide a credible and viable plan, including evidence of any steps taken to date, to secure all necessary and appropriate permits necessary for the project. For example, if the project is located within an agricultural district, the Proposer shall provide evidence of Proposer’s verification with the appropriate government agency that the project complies with HRS Section 205-2 and Section 205-4.5, relating to solar energy facilities placed on agricultural land, provided, however that reliance upon an exemption to the requirements of HRS Section 205-2 and/or Section 205-4.5 available under HRS Section 205-6, shall not satisfy this requirement unless the exemption has already been granted for the desired use and Proposer is in possession of a valid, unexpired and nonappealable special use permit issued under such section at the time Proposer’s Proposal(s) is/are submitted in response to this RFP, and provided further, that reliance upon an amendment to land use district boundary lines available under HRS Section 205-4 shall also not satisfy this requirement unless such amendment has already been granted for the desired use and Proposer is in possession of a valid, unexpired and nonappealable order amending such land use district boundary or boundaries to permit Proposer’s desired use at the time Proposer’s Proposal(s) is/are submitted in response to this RFP.

- **Experience and Qualifications** – Proposals will be evaluated based on the experience of the Proposer in financing, designing, constructing, interconnecting, owning, operating, and maintaining projects (~~include~~including all components of the project) of similar size, scope and technology. At a minimum, Proposals must show via the table format specified in RFP Appendix B Section 2.13 that at least one (1) member must have the specific experience in each of the following categories: financing, designing, constructing, interconnecting, owning, operating, and maintaining at least one electricity generation project including all components of the project similar to the Project being proposed. Preference will be given to Proposers with experience in successfully developing multiple projects that are similar to the one being proposed and/or that have prior experience successfully developing and interconnecting a utility scale project to the Company’s System.

- **Financial Strength and Financing Plan** – This criterion addresses the comprehensiveness and reasonableness of the financial plan for the Project as well as assesses the financial strength and capability of the Proposer to develop the Project. A complete financial plan addresses the following issues: Project ownership, capital cost and capital structure, sources of debt and equity, and evidence that credit-worthy entities are interested in financing the Project. The financial strength of Proposers or their credit support providers will be considered, including their credit ratings. The financing participants are expected to be reasonably strong financially. Developers and their sources of capital that have investment grade credit ratings from a reputable credit rating agency (S&P, Moody’s, Fitch) will also be given preference, with those that have higher credit ratings ranked higher.
- **RDG PPA or ESPPA Contract Proposed Modifications** – Proposers are encouraged to accept the contract terms identified in the model agreements in their entirety in order to expedite the overall RFP process and potential contract negotiations. Proposers who accept the model agreements without edits will receive a higher score and will be the only proposals that can achieve the highest scoring for this non-price evaluation. Technology-specific or operating characteristic-required modifications, with adequate explanation as to the necessity of such modifications, will not jeopardize a project’s ability to achieve the highest score. Proposers who elect to propose modifications to the model agreements shall provide a Microsoft Word red-line version of the applicable document identifying specific proposed modifications to the model agreement language as well as a detailed explanation and supporting rationale for each modification. General comments without proposed alternate language, drafting notes without explanation or alternate language, footnotes such as “parties to discuss,” or a reservation of rights to make additional modifications to the model agreements at a later time are unacceptable, will be considered unresponsive, and will result in a lower score. The Company and Independent Observer will evaluate the impact that the proposed modifications will have on the overall risk assessment associated with the evaluation of each Proposal.
- **Guaranteed Commercial Operations Date:** The Company is procuring resources and incorporating projects onto its System in Stages as part of its long-term plan to meet RPS goals. Proposers will be held to the Guaranteed Commercial Operations Date identified in their Proposal. The GCOD will be a Guaranteed Milestone and will be inserted without amendment into the RDG PPAs or ESPPA, as applicable. Proposers that are able to design for and commit to an earlier GCOD will be given more favorable scoring. Proposers must have met the GCOD requirements of RFP Sections 1.2.18 and 1.2.19 prior to being evaluated in this non-price criterion.

#### 4.5 Selection of a Priority List

At the conclusion of both the price and non-price analysis, a total score will be calculated for each Proposal using the 60% price-related criteria / 40% non-price-related criteria

weighting outlined above. The price and non-price analysis, and the summation of both price and non-price scores described above, will result in a ranking of proposals within each technology-based evaluation category.

The Company will determine a Priority List from the highest scoring Proposals for each technology-based evaluation category. Each Priority List will include a sufficient number of projects, but not less than 2 Proposals per technology-based evaluation category, such that the Company can assemble portfolio combinations that meet or exceed the Renewable Energy MWh and Storage MW and MWh targets for comparison in the Detailed Evaluation. The Companies will develop the Priority Lists in consultation with the Independent Observer. The Companies reserve the right, in consultation with the Independent Observer, to limit the projects allowed for further consideration in the initial evaluation to projects that fall within 15% of the lowest price proposed per technology-based evaluation category. Selection to the Priority List does not assure an eligible Project's inclusion in the selection of the Final Award Group.

#### **4.6 Best and Final Offer (BAFO)**

4.6.1 The Company will solicit a Best and Final Offer from Proposers selected to a Priority List in a technology-based evaluation category. If the SBO is selected to a Priority List, the SBO will not be eligible to provide a Best and Final Offer and the original pricing submitted in its Self-Build Proposal will be used in the Detailed Evaluation. All other Proposers selected to a Priority List will have the opportunity to update (downward only)<sup>24</sup> the pricing elements in their Proposal to improve the competitiveness of their Proposal prior to being further assessed in the Detailed Evaluation phase. At this time, updates may only be made to the following pricing elements:

- Lump Sum Payment (\$/year) amount
- Price for Purchase of Electric Energy (\$/MWh) amount. Payment for delivery of net energy sourced from the variable generation resource, if applicable. No Energy Payment will be provided for any energy delivery that is sourced originally from the grid (Company's System).

Proposers will not be allowed to increase their price<sup>25</sup> but may elect to maintain the same pricing submitted in their original Proposal. Proposers will not be allowed to make any other changes to their Proposal during the Best and Final Offer.

4.6.2 If a Proposer does not propose improvements to their pricing elements during the Best and Final Offer solicitation, the original Proposal pricing elements will be deemed its Best and Final Offer.<sup>26</sup>

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<sup>24</sup> Proposers will only be allowed to adjust pricing elements downward. No upward adjustment to the pricing elements will be permitted or considered. All other characteristics of the Proposal and Facility capabilities must remain valid and unchanged (e.g., NEP, GCOD, etc.)

<sup>25</sup> Proposers will not be allowed to increase the pricing in their Proposals to address interconnection and/or system upgrade costs or for any other reason.

#### 4.7 Detailed Evaluation

The Best and Final Offers of the Priority List Proposals from this RFP, the Best and Final Offers of the Short List Proposals for contingency storage from the Grid Services RFP, as well as original Self-Build Proposals if advanced to the Priority Listed Proposals, will be further assessed in the Detailed Evaluation to identify the Priority List Proposals that meet the variable renewable dispatchable generation MWh and contingency response storage MW targets to determine the Proposals selected to the Final Award Group.

The Initial Evaluation for the Grid Services RFP and Renewable this RFP will occur in parallel. A combined evaluation for Grid Services FFR-1 and the Hawaii Island this RFP's contingency storage proposals will take place after the completion of the BAFO rounds for each RFP, which will ensure that the proposals being considered have met eligibility and threshold requirements, represent the highest overall ranked projects based on price and non-price criteria, and have incorporated Best and Final pricing. If possible based on the number and quality of Proposals received, the Company will attempt to include in the joint evaluation Projects totaling 18 MW of contingency storage on the Priority List for contingency storage for the Renewable RFP and 18 MW of FFR-1 on the Short List for the Grid Services RFP. An Energy Storage Only Levelized Price (\$ / MWh) will be calculated for each FFR-1 proposal and proposed contingency storage project, including both standalone storage projects as well as storage projects paired with renewable generation (the Company notes that the issues for calculating the NPV for determination of the levelized price for FFR proposals are further discussed in the Grid Services RFP evaluation document). The Company will evaluate all FFR-1 and contingency storage proposals and rank them by lowest Energy Storage Only Levelized Price ~~Price~~. The top-rated proposals (lowest cost) summing to 18MW will be selected as contingency storage proposal awardees (NOTE: contingency storage selection will incorporate locational constraints not applicable to the Grid Services FFR selection). Renewable For renewable energy projects paired with storage which include a Contingency Storage option: a) if the project is selected as a contingency storage option, which are Proposal awardee, in order for the project to be confirmed to the Final Award Group (such confirmation is subject to the further considerations described below), it must also be included in the portfolio of projects selected to meet the energy requirements of this RFP; and b) if the project is not selected as a contingency storage proposal awardees, Proposal awardee, a variation of the project without contingency storage may still continue to be considered in the Renewable this RFP as Renewable renewable energy projects project paired with storage that meet meets the energy requirements of the Renewable this RFP.

The Company will build Portfolios for evaluation that meet both the energy MWh target and the contingency response storage MW target.

<sup>26</sup> The Company reserves the right in consultation with the Independent Observer, to adjust the parameters of the BAFO, in the unlikely event that system needs have evolved in a way that the Proposals received do not fully address.

The detailed evaluation process will consist of assessment of combinations of Proposals from the Priority Lists that meet the energy and contingency responses storage targets of this RFP (“Portfolios”). A production simulation iteration will be created for each Portfolio to evaluate the Total Net Cost (Cost and Benefits) of integrating the Portfolio onto the Company’s System. Each Portfolio’s Total Net Cost will be compared against the Base Case, described further below.

The Company intends to use a computer model for this analysis. The evaluation will be based on the Total Net Cost (Costs and Benefits) to the Company of integrating the combination of Priority List Proposals onto the Company’s System which includes:

1. The cost to dispatch the combination of Projects and the energy and storage purchased;
2. The fuel cost savings (benefits) and any other direct savings (IPP savings from dispatchable fossil fuel savings) resulting from the displacement of generation by the Priority List Proposals, including consideration of round-trip efficiencies for facilities with storage;
3. The estimated increase (or decrease) in operating cost, if any, incurred by the Company to maintain system reliability; and
4. The cost of imputed debt, if applicable.

As noted, the Company will take into account the cost of rebalancing its capital structure resulting from any debt or imputed debt impacts associated with each Proposal (including any costs to be incurred by the Company, as described above, that are necessary in implementing the Proposal). The Company proposes to use the imputed debt methodology published by S&P that is applicable to the Proposal being evaluated. S&P views long-term PPAs as creating fixed, debt-like financial obligations that represent substitutes for debt-financed capital investments in generation capacity. By adjusting financial measures to incorporate PPA-fixed obligations, greater comparability of utilities that finance and build generation capacity and those that purchase capacity to satisfy new load are achieved.

During the Detailed Evaluation and before the Proposals advance to the Final Award Group, the Company will perform load flow analyses to determine if certain Project combinations introduce transmission circuit constraints that will factor into the selection process. This is to address the possibility that even though sufficient line capacity was identified for an individual Project, large Projects on separate transmission circuits that are in close proximity with each other could introduce additional transmission circuit constraints. The Projects selected must not have any additional constraints imposed based on the load flow analysis to advance to the Final Award Group. However, the Company reserves the right, in consultation with the Independent Observer, to allow minor modifications to a Proposal to avoid such additional constraints. If such modification resulted in a reduced size of the Facility, the pricing proposed would also

need to be revised. Under no circumstances would a Proposer be allowed to increase their price as a result of such minor modification.

Also in the Detailed Evaluation, other factors will be validated to ensure that the final combination of Projects provides the contemplated benefits that the Company seeks. The Company will evaluate the collateral consequences of the implementation of a combination of Projects, including consideration of the geographic diversity, resource diversity, interconnection complexity, and flexibility and latitude of operation control of the Projects.

The Company may assess additional combinations of Projects if requested by the Independent Observer and if the time and capability exist to perform such analyses.

#### **4.8 Selection of the Final Award Group**

Based on the results of the Detailed Evaluation and review of the results with the Independent Observer, the Company will select a Final Award Group from which to begin contract negotiations. The Company intends to select projects that meet the targeted needs and provide customer benefits. All Proposers will be notified at this stage of the evaluation process whether their Proposal is included in the Final Award Group.

Selection to the Final Award Group and/or entering into contract negotiations does not guarantee execution of a PPA.

Further, if at any time during the evaluation process it is discovered that a Proposer's Proposal contains incorrect or misrepresented information that have a material effect on any of the evaluation processes, including selection of the Priority List or the Final Award Group, the Company reserves the right, at any time prior to submission of the PPA Application with the PUC application, in consultation with the Independent Observer, to disqualify the Proposer from the RFP. If discovery of the incorrect or misrepresented information is made after the Company has filed its PUC application for approval of the PPA with the Proposer, the Company will disclose the incorrect or misrepresented information to the PUC for evaluation and decision as to whether such Proposer should be disqualified and the Company's application dismissed.

Following any removal of a proposal from the Final Award Group, either by disqualification noted immediately above, or via any other removal or withdrawal of a proposal, including failure to reach agreement to the PPA, the Company, taking into consideration the timing of such removal and the current status of the Company's needs under the RFP, in consultation with and concurrence from the Independent Observer, will review the Priority List to determine (1) if another proposal should be added to the Final Award Group; (2) if either of the Contingency Plan or Parallel Plan should be pursued; or (3) if the remaining proposals in the Final Award Group should remain unchanged.

Order No. 36536 "directs the Companies to work with the [Independent Observers] to increase bid transparency within the RFP process, while maintaining an appropriate level of confidentiality regarding bids and bidders." The Companies agree that it is desirable

for the RFP process to be as transparent as possible while maintaining the confidentiality of Proposer and Proposal information. The type and quantity of information that can be disclosed will not be known until the Companies and the Independent Observer have a better understanding of the number and types of proposals received and whether such information can be easily anonymized. The Companies will work with the Independent Observers to determine an appropriate level of disclosure after Proposals are received with a goal of disclosing more information than was disclosed in Stage 1.

## **Chapter 5: Post Evaluation Process**

### **5.1 Interconnection Requirements Study Process**

A complete package of IRS Data Request worksheets and project single line diagram(s) shall be submitted with each Proposal. For Projects with a proposed GCOD in 2022, the models for equipment and controls, list(s) to clearly identify the components and respective files (for inverters and power plant controller), and complete documentation with instructions, shall be submitted within 60 days thereafter. See Section 2.11.1 of Appendix B. For all other Projects, the same complete submittal shall be due within 60 days after selection to the Final Award Group. PSSE Generic models, PSSE User models, and ASPEN models shall be configured to represent all of the functional equipment with settings in place to comply with the Company's PPA performance requirements. These must be checked for functionality by the bidder or its vendors and consultants prior to submission to the Company. Similar and fully accurate PSCAD models shall be submitted in a condition that complies with the PSCAD modeling guidelines provided by the Company. PSSE generic models shall be provided promptly after the PSSE user models have been approved by the Company.

After proposals and models are submitted, the Company will inspect the data packages for general completeness. For any incomplete submissions, a list of missing or non-functional items will be provided. Proposers will be given 15 Days to resolve data and modeling deficiencies. The Company, in consultation with the Independent Observer, may remove Proposals from the Priority List or Final Award Group, or may terminate PPA negotiations or executed PPAs if their submission requirements are deemed incomplete for the lack of requested models. Proposals that are complete will be considered for further evaluation. A formal, technical model checkout will be deferred until a later date when IRS Agreements and deposits are in place, so that the expert subject matter work can be provided by the Company's IRS consultant(s).

Upon notification of selection to the Final Award Group, the Company will provide a draft IRS Agreement for each selected project, with a statement of required deposit for individual and prorated work as part of an IRS Scope for a System Impact Study that will involve (a) technical model checkout for each project, (b) any considerations that are specific to a particular project and location, and (c) system impact analyses of the projects as a group. Interconnection cost and schedule, including cost of any required system upgrades, will be determined in a subsequent Facilities Study.

The technical model checkouts will be conducted first. Upon identification of any functional problems or deficiencies, corrective action shall be taken immediately and on an interactive basis so that the problems or deficiencies can be resolved within 15 Days, including re-submission of data and updated models, or the project shall be deemed withdrawn. At the discretion of the Company and provided that there is a demonstration of good faith action to minimize delay that would affect the schedule for IRS analyses, a second round of model checkout and problem solving may proceed. Thereafter any notice that a Project is deemed withdrawn for lack of completeness shall be final. Subject to consultation with the Independent Observer, failure to provide all requested material within the time(s) specified, or changes to the data provided after the due date(s), shall result in elimination from the Final Award Group.

Proposers shall be responsible for the cost of the IRS, under separate agreements for the System Impact Study and the Facilities Study. The overall IRS will provide information including, but not limited to, an estimated cost and schedule for the required Interconnection Facilities for a particular Project and any required mitigation measures. Proposers will be responsible for the actual final costs of all Seller-Owned Interconnection Facilities and Company-Owned Interconnection Facilities. Upon reviewing the results of the IRS, Proposers will have the opportunity to declare the PPA null and void in the event that the estimated interconnection costs and schedule for the Project are higher than what was estimated in the Project Proposal. See Section 12.4 of the RDG PPA or Section 2.3(b) of the ESPPA.

## 5.2 Contract Negotiation Process

Within five (5) business Days of being notified by the Company of its intent to enter into contract negotiations, Proposers selected for the Final Award Group will be required to indicate, in writing to the Company's primary contact for this RFP, whether they intend to proceed with their Proposals. Proposers who elect to remain in the Final Award Group will be required to keep their Proposal valid through the award period. Contract negotiations will take place in parallel with the IRS process. Given the significant scope of the RFP, and depending on the number of Projects selected to the Final Award Group, the Company will prioritize which Projects to negotiate with first. The Company will first prioritize Projects that meet the identified 18 MW ~~contingency response~~Fast Frequency Response need. Prioritization will take into consideration the GCOD of the Project, the benefits to and the needs of the Company's System, and extensiveness of the exceptions to the model PPA. While PPA negotiations and submission of executed PPAs for approval will take place on a rolling basis, the Company's goal is to begin to complete this process for the first projects within six (6) months of notification of intent to enter contract negotiations. The IRS may not be completed at such time. The Company intends to execute and file the PPA with the PUC for approval and later amend the PPA to include the results of the IRS.

## 5.3 Community Outreach and Engagement

The public meeting and comment solicitation process described in this Section and Section 29.21 of the PPA (Community Outreach Plan) do not represent the only

community outreach and engagement ~~and outreach~~ activities that can or should be performed by Proposer. Within 30 Days of the start of PPA negotiations, Proposers shall have provided the Company with an updated comprehensive Community Outreach Plan to work with and inform neighboring communities and stakeholders and to provide them timely information during all phases of the Project. The Community Outreach Plan shall include, but not limited to the following information: Project description, Project stakeholders, community concerns and Proposer's efforts to address such concerns, Project benefits, government approvals, Project schedule, and a comprehensive communications plan. Upon selection to the Final Award Group, a Proposer's Community Outreach Plan shall be a public document available to the public on the Proposer's website and upon request. The Proposer shall also provide the Company with links to their Project website and Community Outreach Plan, which the Company will post on the Company's website. Prior to the execution date of the PPA Proposers shall also host a public meeting in the community where the proposed Project is to be located for community and neighborhood groups in and around the vicinity of the Project Site that provided the neighboring community, stakeholders and the general public with: (i) a reasonable opportunity to learn about the proposed Project; (ii) an opportunity to engage in a dialogue about concerns, mitigation measures, and potential community benefits of the proposed Project; and (iii) information concerning the process and/or intent for the public's input and engagement, including advising attendees that they will have thirty (30) calendar days from the date of said public meeting to submit written comments to Company and/or Proposer for inclusion in the Company's submission to the PUC of its application for a satisfactory PUC Approval Order. The Proposer shall collect all public comments, and then provide the Company copies of all comments received in their original, unedited form, along with copies of all comments with personal information redacted and ready for filing. If a PPA is executed by the Proposer and the Company, the Company may submit any and all public comments (presented in its original, unedited form) as part of its PUC application for this Project. Proposers shall notify the public at least three weeks in advance of the meeting. The Company shall be informed of the meeting. The Company will provide Proposers with detailed instructions regarding the community meeting requirement after the selection of the Final Award Group. (For example, notice will be published in county or regional newspapers/media, as well as media with statewide distribution. The Proposer will be directed to notify certain individuals and organizations. The Proposer will be provided templates to use for the public meeting notices, agenda, and presentation.) Proposers must also comply with any other requirement set forth in the PPA relating to Community Outreach.

Following the submission of the PUC application for the Project, and prior to the date when the Parties' statements of position are to be filed in the docketed PUC proceeding for the Project, the Proposer shall provide another opportunity for the public to comment on the proposed Project. The Proposer's statement of position filed in the docket associated with the Project will contain an attachment including those comments.

The Proposer shall be responsible for community outreach and engagement for the Project, and that the public meeting and comment solicitation process described in this

section do not represent the only community outreach and engagement activities that can or should be performed.

~~Following the submission of the PUC application for the Project, the Company will provide another opportunity for the public to comment on the proposed Project. The Company's statement of position filed in the docket associated with the Project will contain an attachment including those comments.~~

#### 5.4 Greenhouse Gas Emissions Analysis

Proposers whose Proposal(s) are selected for the Final Award Group shall cooperate with and promptly provide to the Company and/or the Company's consultant(s) upon request all information necessary, in the Company's sole and exclusive discretion, for such consultant to prepare a greenhouse gas ("GHG") emissions analysis and report in support of a PUC application for approval of the PPA for the project (the "GHG Review"). Proposers shall be responsible for the full cost of the GHG Review associated with their project under a separate agreement between the Proposer and the Company. The GHG Review is anticipated to address whether the GHG emissions that would result from approval of the PPA and subsequent to addition of the Project to the Company's System are greater than the GHG emissions that would result from the operations of the Company's System without the addition of the Project, whether the cost for renewable, dispatchable generation, and/or energy storage services as applicable under the PPA is reasonable in light of the potential for GHG emissions, and whether the terms of the PPA are prudent and in the public interest in light of its potential hidden and long-term consequences.

#### 5.5 PUC Approval of PPA

Any signed PPA resulting from this RFP is subject to PUC approval as described in the RDG PPA, including Article 12 and Section 29.20 thereof, or Article 24 of the ESPPA.

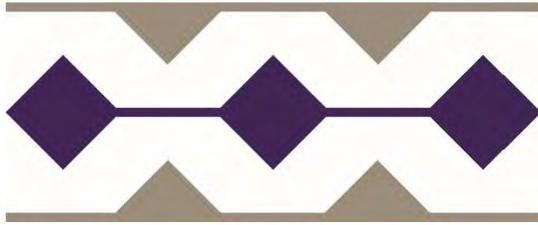
#### 5.6 Facility In-Service

In order to facilitate the timely commissioning of the numerous projects required to meet the MW and MWh targets of this RFP, the Company requires the following be included ~~in~~with the 60% design drawings: relay settings and protection coordination study, including fuse selection and ac/dc schematic trip scheme.

For the Company to test the facility, coordination between the Company and Project is required. Drawings must be approved by the Company prior to testing. The entire facility must be ready for testing to commence. Piecemeal testing will not be allowed. Communication infrastructure and equipment must be tested by the IPP and ready for operation prior to Company testing.

If approved drawings are not available, or if the facility is otherwise not test ready as scheduled, the Project will be moved to the end of the Company's testing queue. If tests are not completed within the allotted scheduled testing time, the Project will be moved to the end of the Company's testing queue. The IPP will be allowed to cure if successful

testing is completed within the allotted scheduled time. No adjustments will be made to PPA milestones if tests are not completed within the original allotted time. Liquidated damages for missed milestones will be assessed pursuant to the PPA.



# Hawaiian Electric

## **FINAL DRAFT REQUEST FOR PROPOSALS**

**FOR**

### **DELIVERY OF GRID SERVICES FROM CUSTOMER-SITED DISTRIBUTED ENERGY RESOURCES**

**ISLANDS OF O‘AHU, MAUI & HAWAI‘I**

**JULY 10, 2019**

**Docket No. 2017-0352**

This Request for Proposals (“RFP”) is a DRAFT only. Hawaiian Electric Company, Inc. (“Hawaiian Electric” or “Company”) will employ a competitive bidding process to select variable renewable dispatchable generation and energy storage projects consistent with the State of Hawai‘i Public Utilities Commission’s (“PUC”) Competitive Bidding Framework. Under the Competitive Bidding Framework, Hawaiian Electric will file the initial draft RFP with the (PUC). Then, Hawaiian Electric will seek input from prospective Proposers and other stakeholders through a Technical Conference as described in the draft RFP and will modify the draft RFP to the extent feasible to address input received in order to foster a robust competitive process. The proposed final RFP will be submitted to the PUC for approval and is subject to further revision based upon direction received from the PUC. After approval by the PUC, Hawaiian Electric will issue the final RFP.

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**Chapter 1: Introduction and General Information**

Hawaiian Electric Company, Inc. (“Hawaiian Electric” or the “Company”) seeks proposals for the delivery of qualified grid services from customer-sited distributed energy resources for the Hawaiian Electric, Maui Electric and Hawaii electric Light systems in accordance with this Request for Proposals (“RFP”). The total amount of grid services being solicited in this RFP is presented in the form of cumulative annual targets in the table below:

**Table 1-1 Hawaiian Electric Company’s Grid Services Needs by System (MW)<sup>1</sup>**

Year	Oahu FFR-1	Oahu FFR-2	Oahu Capacity	Maui FFR-1	Maui Capacity	Hawai'i Big Island FFR-1	Hawai'i Big Island Capacity
2020	50.0MW	27.0MW	87.0MW	8.0MW	12.0MW	18.0MW	4.0MW
2021	50.0MW	29.0MW	103.0MW	8.0MW	16.0MW	18.0MW	4.0MW
2022	50.0MW	39.0MW	119.0MW	8.0MW	21.0MW	18.0MW	4.0MW
2023	50.0MW	39.0MW	119.0MW	8.0MW	21.0 MW	18.0MW	4.0MW
2024	50.0MW	39.0MW	119.0MW	8.0MW	21.0 MW	18.0MW	4.0MW

The Company seeks aggregated grid services from customer-sited distributed energy resources in this RFP. The Company intends to contract for grid services through this RFP using its Grid Services Purchase Agreement (“GSPA”). The GSPA is attached as Appendix L to this RFP.

Each successful Proposer will provide the specified, aggregated grid services from customer-sited assets to the Company pursuant to the terms of GSPA to be negotiated between the Company and Proposer, which will also be subject to PUC review and approval. The Company or its affiliate may submit a Proposal in response to this RFP.

The Company will evaluate Proposals using the evaluation and selection process described in Chapter 4 of this RFP. The Company will evaluate and select Proposals based on both price and non-price factors that impact the Company, its customers, and communities affected by the proposed Projects. The amount of grid services that the Company may acquire from this RFP depends on, among other things, the quality of bids received in response to this RFP; economic comparison to other RFP responses; updates to the Company’s forecasts; and changes to regulatory or legal requirements.

All requirements necessary to submit a Proposal or Proposals are provided in this RFP. A description of the technical requirements for Proposers is included in Chapter 2 of this RFP, in the Proposer’s Response Package attached as Appendix B to this RFP, in the GSPA attached as Appendix L to this RFP, and in the Electronic Procurement Platform described in Section 3.2 of this RFP.

<sup>1</sup> These totals are cumulative; Proposers are permitted to propose enablement of incremental services through the end of year 3 of the contract period.

All capitalized terms used in this RFP shall have the meaning set forth in the Glossary of defined terms attached as Appendix A to this RFP. Capitalized terms that are not included in Appendix A shall have the meaning ascribed in this RFP.

## **1.1 Authority and Purpose of the Request for Proposals**

- 1.1.1 This RFP is issued in response to Order No. 36187 issued on February 27, 2019 in Docket No. 2017-0352 as part of a procurement process established by the State of Hawai'i Public Utility Commission ("PUC").
- 1.1.2 This RFP is subject to Decision and Order ("D&O") No. 23121 in Docket No. 03-0372 (To Investigate Competitive Bidding for New Generating Capacity in Hawai'i), which sets forth the PUC's Framework for Competitive Bidding ("Framework" or "Competitive Bidding Framework").
- 1.1.3 This RFP also follows the guidance from the Public Utilities Commission of the State of Hawaii ("Commission") in Decision and Order No. 35238 in Docket No. 2015-0412 which approved the Companies Revised Integrated Demand Response Program Portfolio submitted to the commission in the same docket.
- 1.1.4 The Company hereby invite qualified vendors (referred to herein as "Proposers") to provide proposals to deliver grid services (as defined herein) utilizing customer-sited resources. It is acceptable for a Proposer to provide a proposal to a single operating system.
- 1.1.5 ***The purpose of this RFP is to procure grid services provided from customer-sited resources.*** The Company considers grid services to include capacity and ancillary services, specifically, fast frequency response. This RFP represents an opportunity for both the Proposer and the Company to continue to develop an innovative portfolio of customer-sited resources that meet a variety of grid requirements, while providing additional choices and benefits for the Company's customers. This RFP is soliciting innovative proposals for the provision of fully functional resources to deliver grid services. Delivery of a fully-functional grid service includes the implementation and ongoing maintenance of resources to provide the complete set of services specified in section 1.4.1 of this RFP.
- 1.1.6 ***The resources that provide the grid services requested in this RFP must be electrically interconnected on the customer side of the revenue meter.*** Proposers may submit proposals that employ controllable customer loads, energy storage devices, and/or non-fossil generation amongst other technologies. Proposed resources must also meet the other technical and business requirements set forth in this RFP and the Company's Grid Service Tariffs. Resources proposed in response to this RFP that are interconnected on the customer's side of the meter and that are intended to be operated in parallel with the Company's system (e.g. generation and energy storage systems) at any time, must meet the interconnection requirements included in the Company's Rule 14 Section H, in this



ensuring the contract with the customer is valid under Hawaii and U.S. laws and meets any applicable consumer protection regulations. In turn, the Proposer will have a direct contractual relationship with the Company to deliver the grid services in the quantities and requirements specified in this chapter of the RFP. The Company will directly deliver incentives to participants on their utility bills. Accordingly, the Proposer's marketing to customers will refer to the Proposer as "a Hawaiian Electric Company authorized aggregator, or demand-side provider."

b. The Company will accept bids from consortiums or multiple parties in partnership. Proposals from consortiums or multiple parties must clearly identify the relationship (actual or proposed) among the parties for the purposes of a transaction with the Company, including, the party (or parties) with whom the Company will have the legally binding contractual relationship.

c. The Company requires that responsive proposals be submitted consistent with the requirements set forth herein.

#### **1.4 Scope of the RFP**

The Company's system sizes are small, relative to many U.S. mainland systems and further, the different systems are not interconnected with each other, or any other third party electric system. As in any system, capacity and ancillary services are required to ensure an adequacy of supply and acceptable reliability of the power system. Due to the unique considerations of small island systems, the ancillary service requirements differ from larger interconnections. The small size of the Company's systems results in a greater sensitivity to imbalance between power supply and demand. Any generation and demand imbalances within the systems will result in significant frequency deviations that cannot be supported by neighboring interconnections. The sensitivity to imbalance is described by the frequency bias (MW/0.1 Hz). The frequency biases of the Hawaiian Islands are much smaller than on mainland systems with significantly higher rates of change of frequency. For example, in the Hawaii Electric Light system with a typical daytime load of 150 MW, the loss of the largest generating station (60 MW) represents the loss of generation equivalent to 40% of the load. In addition to the small system size increasing amounts of variable generation from wind and distributed solar have reduced online responsive generation and increasing the need for frequency response and regulation. The variability resulting from solar and wind resources requires an increase in the available contingency reserve, responsive in the milliseconds time frame, and also requires a large amount of supplemental frequency control from regulating reserves. Wind and solar ramp events also lead to a depletion of reserves and require replacement reserves to restore load following faults and contingencies. Therefore, the technical requirements for Proposer proposals to provide grid services must meet technical and operational specifications that are dictated by the unique operational requirements of the Company's systems.

Over time, the needs of the Company's systems will change, particularly as greater penetrations of variable renewable resources are reached in the systems. This means that the incremental need for specific grid services may change over time or that different response rates or requirements may be required. The company reserves the right to alter requirements as

necessary to provide the grid services required for acceptable system reliability for future system configurations.

#### 1.4.1 Grid Service Requirements

The Company has identified specific grid services requirements by system. The table below summarizes the grid services. Detailed specifications and requirements are identified in Exhibit A of the GSPA, which can be found in Appendix L. The quantity, or Capability, of each grid service required for this RFP is provided in Table 1-1 previously in this chapter. This should be used as a guide for Proposers in making proposals to deliver specific grid services.

**Table 1-2 Company’s Grid Services Needs from Customer-sited Resources**

Grid Service(s) Requested in this RFP	System Need
Capacity	Capacity to meet system peak, including load shift from high demand peak periods to low demand periods.
Fast Frequency Response ( <b>FFR</b> )	Maintain system security during contingency events ( <u>Two different types FFR-1 and FFR-2 defined in Exhibit A.</u> )

#### 1.4.2 System & Data Integration

The Company specifies system integration data exchange requirements in both Exhibit G of the GSPA as well as the *Aggregator Handbook*, which can be found in Appendix O of this RFP.

#### 1.4.3 Forecasting & Availability Delivery Requirements

Proposer obligations with respect to the type and frequency of service availability forecasting are presented in Exhibit F of the GSPA.

1.4.4 The Company does not have a predetermined preference for a particular technology for the delivery of grid services.

1.4.5 Proposers may offer to deliver any of the grid services on any of the islands where a need is depicted.

1.4.6 Each Proposal submitted in response to this RFP must represent a Plan that is capable of meeting the requirements of this RFP without having to rely on the completion or implementation of any other Plan or Project submitted in response to this RFP or any other RFP.

1.4.7 Proposals submitted in response to this RFP must be located on the Islands of O‘ahu, Maui and/or Hawai‘i island and must propose an enablement schedule that shows the completion of enablement by Commercial Operations Date (“GCOD”) before December 31, 2022.

- 1.4.8 While this RFP procures the management of grid services for up to 5 years, and the enablement of incremental Contract Capability through the first 3 years of the contract period, Proposers are not obligated to commit to enablement for the full three year incremental enablement period.
- 1.4.9 Plans must offer at least 500kW of capability for each service bid.
- 1.4.9.1 For FFR on Big Hawai'i Island, Proposers must bid a minimum of 3MW of FFR.
- 1.4.10 If selected, Proposers will be responsible for all costs throughout the term of the GSPA, including but not limited to Plan execution, system integration testing, completion of an Interconnection Requirements Study (“IRS”), permitting, financing, and operations and maintenance.
- 1.4.11 Proposers shall pursue all available applicable federal and state tax credits, and Proposal pricing must be set to incorporate the benefit of such tax credits or to pass the benefit of the tax credits to the Company’s customers.

## **1.5 Competitive Bidding Framework**

Consistent with the Framework, this RFP outlines the Company’s requirements in relation to the resources being solicited and the procedures for conducting the RFP process. It also includes information and instructions to prospective Proposers participating in and responding to this RFP.

## **1.6 Role of the Independent Observer**

- 1.6.1 Part III.C.1 of the Framework sets forth the circumstances under which an Independent Observer is required in a competitive bidding process. The PUC has retained an Independent Observer both to advise and monitor the process for this RFP. All phases of the RFP process will be subject to the Independent Observer’s oversight, and the Independent Observer will coordinate with PUC staff throughout the RFP process to ensure that it is undertaken in a fair and unbiased manner. In particular, the Company will review and discuss with the Independent Observer all decisions regarding the evaluation, disqualification, non-selection, and selection of Proposals.
- 1.6.2 The role of the Independent Observer, as described in the Framework, will include but is not limited to:
- Monitor all steps in the competitive bidding process
  - Monitor communications (and communications protocols) with Proposers
  - Monitor adherence to the Company’s Code of Conduct
  - Submit comments and recommendations, if any, to the PUC concerning the RFP
  - Review the utility’s Proposal evaluation methodology, models, criteria, and assumptions
  - Review the utility’s evaluation of Proposals
  - Advise the utility on its decision-making
  - Participate in dispute resolution as set forth in Section 1.10 of this RFP

- Monitor contract negotiations with Proposers
- Report to the PUC on monitoring results during each stage of the competitive bidding process
- Provide an overall assessment of whether the goals of the RFP were achieved

1.6.3 The Independent Observer for this RFP is **Bates White, LLC**.

## **1.7 Communications Between the Company and Proposers – Procedures Manual**

1.7.1 Communications and other procedures under this RFP are governed by the “Procedures Manual,” developed by the Company as required by the Framework, and attached as Appendix C to this RFP.

1.7.2 All pre-Proposal communication with prospective Proposers will be conducted via the Company’s website, Electronic Procurement Platform and/or electronic mail (“Email”) through the address specified in Section 1.7 of this RFP (the “RFP Email Address”). Frequently asked questions submitted by prospective Proposers and the answers to those questions may be posted on the Company website, or sent through either email or the Electronic Procurement Platform to registered individuals. The Company reserves the right to respond only to comments and questions it deems are appropriate and relevant to the RFP. Proposers are advised to submit questions no later than fifteen days before the Proposals Due date (RFP Schedule in Section 3.1 of this RFP). The Company will endeavor to respond to all questions no later than five days before the Proposals Due date.

1.7.3 After Proposals have been submitted, the Company may contact individual Proposers for purposes of clarifying their Proposal(s).

1.7.4 Any confidential information deemed by the Company, in its sole discretion, to be appropriate to share, will only be transmitted to the requesting party after receipt of a fully executed Mutual Confidentiality and Non-Disclosure Agreement (“NDA”). See Appendix E of this RFP.

1.7.5 Except as expressly permitted and in the manner prescribed in the Procedures Manual, any unsolicited contact by a Proposer or prospective Proposer with personnel of the Company pertaining to this RFP is prohibited.

## 1.8 Company Contact for Proposals

The primary contact for this RFP is:

Yoh Kawanami  
Grid Services Contract Manager  
Hawaiian Electric Company, Inc.  
American Savings Bank Building, Suite 1050  
1001 Bishop Street  
Honolulu, Hawai'i 96813

RFP Email Address: [response@hawaiianelectric.com](mailto:response@hawaiianelectric.com)

## 1.9 Proposal Submission Requirements

- 1.9.1 All Proposals must be prepared and submitted in accordance with the procedures and format specified in the RFP. Proposers are required to respond to all questions and provide all information requested in the RFP, as applicable, and only via the communication methods specified in the RFP.
- 1.9.2 Detailed requirements regarding the form, submission, organization and information for the Proposal are set forth in Chapter 3 of this RFP and Appendix B to this RFP.
- 1.9.3 In submitting a Proposal in response to this RFP, each Proposer certifies that the Proposal has been submitted in good faith and without fraud or collusion with any other person or entity. The Proposer shall agree to a Certificate of Non-Collusion acknowledgement provided on the Electronic Procurement Platform for each Proposal.

In participating in this RFP, Proposer further agrees that to mitigate the potential appearance of impropriety, and with the intent of maximizing benefits to the Company's customers through this RFP, unaffiliated Proposers will not be permitted to use the same counsel or other representative(s) in negotiations with the Company either during or after the RFP evaluation and selection process. Furthermore, in executing the NDA provided as Appendix E to this RFP, the Proposer agrees on behalf of its Representatives that Company's confidential negotiating positions will not be shared with other Proposers.

- 1.9.4 Proposals must be submitted via the Electronic Procurement Platform by 2:00 pm Hawai'i Standard Time (HST) on the Proposals Due date shown in the RFP Schedule in Section 3.1 of this RFP. No hard copies of the Proposals will be accepted. It is the Proposer's responsibility to ensure that its complete and accurate information has been submitted on time and within the instructions of this RFP. Any errors or typos identified by the Proposer after the Proposals Due date has passed may jeopardize further consideration and success of the Proposal. The Electronic Procurement Platform will cease accepting any submission of late information for this RFP after the Proposals Due date.

### **1.10 Procedures for Affiliate Proposals**

The Competitive Bidding Framework allows affiliates of the Company to submit Proposals to RFPs issued by the Company. All Affiliate Proposals are subject to Appendix C Code of Conduct Procedures Manual.

The Independent Observer will assist the PUC in helping to ensure that the established procedures of the Code of Conduct Procedures Manual and the terms of the Code of Conduct are followed and administered fairly such that no preferential treatment or preferential access to information will be provided to an affiliate by the Evaluation Team.

### **1.11 Dispute Resolution Process**

- 1.11.1 If disputes arise under the RFP, the provisions of Section 1.10 of this RFP and the dispute resolution process established in the Framework will control. See Part V of the Framework.
- 1.11.2 Proposers who challenge or contest any aspect of the RFP process must first attempt to resolve their concerns with the Company and the Independent Observer (“Initial Meeting”). The Independent Observer will seek to work cooperatively with the parties to resolve any disputes or pending issues and may offer to mediate the Initial Meeting to resolve disputes prior to such issues coming before the PUC.
- 1.11.3 Any and all disputes arising out of or relating to the RFP which remain unresolved for a period of twenty (20) days after the Initial Meeting takes place may, upon the agreement of the Proposer and the Company, be submitted to confidential mediation in Honolulu, Hawai‘i, pursuant to and in accordance with the Mediation Rules, Procedures, and Protocols of Dispute Prevention Resolution, Inc. (“DPR”) (or its successor) or, in its absence, the American Arbitration Association then in effect (“Mediation”). The Mediation will be administered by DPR. If the parties agree to submit the dispute to Mediation, the Proposer and the Company shall each pay fifty percent (50%) of the cost of the Mediation (i.e., the fees and expenses charged by the mediator and DPR) and shall otherwise each bear their own Mediation costs and attorney’s fees.
- 1.11.4 If settlement of the dispute is not reached within sixty (60) days after commencement of the Mediation, or if after the Initial Meeting, the parties do not agree to submit any unresolved disputes to Mediation, then as provided in the Framework, the Proposer may seek a determination of the issue by the PUC.
- 1.11.5 In accordance with the Framework, the PUC will serve as the arbiter of last resort for any disputes relating to this RFP involving Proposers. The PUC will use an informal expedited dispute resolution process to resolve the issue within thirty (30) days, as

described in Parts III.B.8 and V of the Framework.<sup>3</sup> There will be no right to hearing or appeal from this informal expedited dispute resolution process.

- 1.11.6 If any Proposer initiates a dispute resolution process for any dispute or claim arising under or relating to this RFP, other than that permitted by the Framework and Section 1.10 of this RFP (e.g. arbitration or court proceeding), then such Proposer shall be responsible for any and all attorney's fees and costs that may be incurred by the Company or the PUC in order to resolve such claim.

## **1.12 No Protest or Appeal**

Subject to Section 1.11 of this RFP, no Proposer or other person will have the right to protest or appeal any award of a Project made by the Company.

By submitting a Proposal in response to the RFP, the Proposer expressly agrees to the terms and conditions set forth therein.

## **1.13 Modification or Cancellation of the Solicitation Process**

- 1.13.1 Unless otherwise expressly prohibited, the Company may, at any time up to the final award, in consultation with the Independent Observer, postpone, withdraw and/or cancel any requirement, term or condition of this RFP, including deferral of the award of any contract, and/or cancellation of the award all together, all of which will be without any liability to the Company.
- 1.13.2 The Company may modify this RFP subject to requirements of the Framework, whereby the modified RFP will be reviewed by the Independent Observer and submitted to the PUC thirty (30) Days prior to its issuance, unless the PUC directs otherwise. See Framework Part IV.B.10. The Company will follow the same procedure with regard to any potential postponement, withdrawal or cancellation of the RFP or any portion thereof.

## **Chapter 2: Resource Needs and Requirements**

### **2.1 Performance Standards**

Proposals must meet the attributes set forth in this RFP and the requirements of the GSPA. This RFP and the GSPA set forth the minimum requirements that all Proposals must satisfy to be eligible for consideration in this RFP.

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<sup>3</sup> The informal expedited dispute resolution process does not apply to PUC review of contracts that result from the RFP. See Decision and Order No. 23121 at 34-35. Further, the informal expedited dispute resolution process does not apply to the Framework's process relating to issuance of a draft and final RFP, and/or to the PUC approval of the RFP because: (1) the Framework (and the RFP) set forth specific processes whereby interested parties may provide input through the submission of comments; and (2) the Framework's dispute resolution process applies to "Bidders" and there are no "Bidders" at this stage in the RFP process.

**2.2 Interconnection to the Company System**

- 2.2.1 All customer assets that are otherwise subject to interconnection standards as articulated in Rule 14H remain subject to those standards as a precondition for inclusion in a grid services offering.
- 2.2.2 If an interconnected system, in order to achieve anticipated and committed grid services, would be expected to export power in excess of pre-approved export limits, the resource would be subject to a Supplemental Review as described in Appendix N.

**Chapter 3: Instructions to Proposers**

**3.1 Schedule for the Proposal Process**

Table 3-1 sets forth the schedule for the proposal process (the “RFP Schedule”). The Company reserves the right to revise the RFP Schedule as necessary. Changes to the RFP Schedule prior to the RFP Proposals Due date will be posted to the RFP website. Changes to the RFP Schedule after the Proposals Due date will be communicated via email or via the Electronic Procurement Platform to the Proposers.

Table 3-1 RFP Schedule

<b>(1) RFP is Issued</b>	
(2) Proposers Conference Webinar	2 weeks after RFP issued
(3) Proposals Due	2 months after RFP
(4) Selection of Short List	6 weeks after submissions
(5) BAFOs Due	1 week after selection
(6) Selection of Final Award Group	2 weeks after BAFO submission
(7) Pass Award Information to Planning	Simultaneous with previous line
(8) Contract Negotiations Start	Simultaneous with previous line
(9) Contract Negotiations Concluded	7 months following previous step

**3.2 Company RFP Website/Electronic Procurement Platform**

- 3.2.1 The Company has established a website for general information to share with potential Proposers. The website is located at the following link:

[www.hawaiianelectric.com/demandresponse](http://www.hawaiianelectric.com/demandresponse)

The Company will provide general notices, updates, schedules and other information on the RFP website throughout the process. Proposers should check the website frequently to stay abreast of any new developments throughout the RFP process. This website will also contain the link to the Electronic Procurement Platform employed by the Company for the receipt of Proposals.

“Sourcing Intelligence” developed by Power Advocate is the Electronic Procurement Platform that the Company has licensed and will utilize for this RFP. Proposers who do not already have an existing account with PowerAdvocate and who intend to submit a Proposal for this RFP will need to register as a “Supplier” with PowerAdvocate.

- 3.2.2 There are no license fees, costs, or usage fees to Proposers for the use of the Electronic Procurement Platform.

See Appendix D to this RFP for user information and screenshots on PowerAdvocate’s Sourcing Intelligence procurement platform.

### **3.3 Proposers Conference**

The Company will hold a webinar (“Proposers Conference Webinar”) in accordance with the Competitive Bidding Framework for prospective Proposers and other stakeholders to discuss the provisions and requirements of this RFP. Following webinar, stakeholders may submit questions to help them better understand the Companies’ proposed competitive bidding process and draft documents. General responses will be posted to the RFP website.

Prospective Proposers may submit written questions regarding the RFP to the RFP Email Address set forth in Section 1.7. The Company will endeavor to address all questions that will be helpful to prospective Proposers via a Q&A section on the RFP website.

Prospective Proposers should review the RFP Website’s Q&A section prior to submission of your Proposal to ensure all guidance provided by the Company is read.

### **3.4 Preparation of Proposals**

- 3.4.1 Each Proposer shall be solely responsible for reviewing the RFP (including all attachments and links) and for thoroughly investigating and informing itself with respect to all matters pertinent to this RFP, the Proposer’s Proposal, and Proposer’s anticipated performance under the GSPA. It is the Proposer’s responsibility to ensure they understand all requirements of the RFP, to seek clarification if the RFP’s requirement or Company’s request is not clear, and to ask for any confirmation of receipt of submission of information.

- 3.4.2 Proposers shall rely only on official information provided by the Company in this RFP when preparing their Proposal. The Company will rely only on the information included in the Proposals and additional information solicited by the Company to Proposers in the format requested, to evaluate the Proposals received. Evaluation will be based on the stated information in this RFP and on submitted information (e.g., Proposal submissions should not reference previous RFP submissions for support. Proposers also should not assume that any previous RFP decisions/preferences will also pertain to this RFP).

- 3.4.3 Each Proposer shall be solely responsible for and shall bear all of its costs incurred in the preparation of its Proposal and/or its participation in this RFP, including, but not limited to, all costs incurred with respect to the following: (1) review of the RFP documents; (2) meetings with the Company; (3) Site visits; (4) third-party consultant consultation; and

(5) investigation and research relating to its Proposal and this RFP. Any such costs associated with the same will not be reimbursed by the Company to any Proposer, including the selected Proposer(s).

3.4.4 Each Proposal must contain the full name and business address of the Proposer and must be signed by an authorized officer or agent<sup>4</sup> of the Proposer.

### **3.5 Organization of the Proposal**

The Proposal must be organized as specified in Appendix B to this RFP.

### **3.6 Proposal Limitations**

Proposers expressly acknowledge that Proposals are submitted subject to the following limitations:

The RFP does not commit or require the Company to award a contract, pay any costs incurred by a Proposer in the preparation of a Proposal, or procure or contract for products or services of any kind whatsoever. The Company reserves the right, in consultation with the Independent Observer, to accept or reject, in whole or in part, any or all Proposals submitted in response to this RFP, to negotiate with any or all Proposers eligible to be selected for award, or to withdraw or modify this RFP in whole or in part at any time.

- The Company reserves the right, in consultation with the Independent Observer, to request additional information from any or all Proposers relating to their Proposals or to request that Proposers clarify the contents of their Proposals. Proposers who are not responsive to such information requests may be eliminated from further consideration upon consultation with the Independent Observer.
- The Company reserves the right, in consultation with the Independent Observer, to solicit additional Proposals from Proposers after reviewing the initial Proposals. Other than as provided in this RFP, no Proposer will be allowed to alter its Proposal or add new information to a Proposal after the Proposals Due date.
- All material submitted in response to this RFP will become the sole property of the Company, subject to the terms of the ~~Stage 2~~-NDA.

### **3.7 Proposal Compliance and Bases for Disqualification**

Proposers may be deemed non-responsive and/or Proposals may not be considered for reasons including, but not limited to, the following:

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<sup>4</sup> Proposer's officer or agent must be authorized to sign the Proposal. Such authorization must be in writing and may be granted via Proposer's organizational documents (i.e., Articles of Incorporation, Articles of Organization, By-laws, etc.), resolution, or similar documentation.

- Any unsolicited contact by a Proposer or prospective Proposer with personnel of the Company pertaining to this RFP as described in Section 1.6.5.
- Any illegal or undue attempts by or on behalf of the Proposer or others to influence the Proposal Review process.
- The Proposal does not meet one or more of the Eligibility Requirements specified in Section 4.2.
- The Proposal does not meet one or more of the Threshold Requirements specified in Section 4.3.
- The Proposal is deemed to be unacceptable through a fatal flaws analysis as described in Section 4.4.2.
- The Proposer does not respond to the Company's request for additional information to clarify the contents of its Proposal.
- The Proposal contains misrepresentations.

### **3.8 Grid Service Purchase Agreement**

- 3.8.1 The Grid Services Purchase Agreement for proposals selected under this RFP will be in the form of the Company's GSPA, attached as Appendix L to this RFP.
- 3.8.2 If selected, any affiliate Proposers will be required to enter into the GSPA with the Company.
- 3.8.3 In general, under the GSPA, payment to the Supplier contains two parts: Enablement Fees to apply towards fixed costs associated with hardware and installation and Management Fees (\$/MW component) to cover operations and maintenance costs. In return, the Supplier shall guarantee minimum performance and availability metrics to ensure that the Services are available for the Company's dispatch.
- 3.8.4 Proposers may propose modifications to the GSPA but are encouraged to accept the GSPA in order to expedite the overall RFP process and potential GSPA negotiations. As a component of their Proposals, Proposers who elect to propose modifications shall provide a MS Word red-line version of the GSPA identifying specific modifications to the GSPA language that the Proposer is agreeable to, as well as a detailed explanation and supporting rationale for each modification. General comments such as "parties to discuss" are unacceptable and will not be considered a proposed revision. Modifications will be evaluated as a non-price evaluation criteria as further described in Section 4.4.2 of this RFP. In order to facilitate this process, the Company will make available electronic versions of the GSPA. Any proposed modifications to the GSPA will be subject to negotiation between the Company and the Final Award Group. Certain provisions of the GSPA, such as the calculation of availability and payment terms, may be administratively burdensome to endeavor if they differ between selected Projects. Therefore, the

Company will endeavor to negotiate similar provisions across the Final Award Group for such provisions.

- 3.8.5 Proposals that do not include specific proposed revisions to the attached GSPA will be deemed to have accepted its terms and these provisions cannot be opened up during the contract finalization stage. In other words, only provisions and terms redlined as part of the submitted proposals will be considered eligible for negotiations.

### 3.9 Pricing Requirements

- 3.9.1 Proposers must submit pricing for the proposed delivery of grid services.
- 3.9.2 Pricing cannot be specified as contingent upon other factors (e.g., changes to State or federal tax policy or receiving all investment tax credits assumed).
- 3.9.3 Escalations in pricing over the term of the GSPA may not be proposed.

3.9.4 If bidding to FFR-1 grid service as part of a bundled grid services proposal, Proposer's must provide both the bundled grid service pricing as well as discrete unbundled grid service pricing for FFR-1 only.

3.9.43.9.5 Pricing information must only be identified within specified sections of the Proposal instructed by this RFP's Appendix B Proposer's Response Package (i.e., Proposal pricing information must be contained within defined Proposal sections of the Proposal submission).

3.9.53.9.6 Proposers may specify the desire to rely on the Company to provide marketing/recruitment support; however, it is anticipated that in doing so, the Supplier would then seek a lower assignment of Enablement and/or Management Fees to off-set the request for direct Company marketing support.

3.9.63.9.7 The Proposer's Response Package must include the following pricing components for each Proposal:

For Aggregator or affiliate proposals:

- **Management Fee:** Represented as a \$/kW/service/month amount, this fee reflects the Proposer's effective bid for managing each kW of the services being offered. This fee should ramp as the collective enablement ramps and the Proposer is managing more kW per service.
- **Enablement Fee:** The Enablement Fee represents a \$/capability (kW) to accommodate – all or in part - the enablement of customer assets for delivering grid services. This fee allocation is set at a maximum of ten (10) times the monthly Management fee on a \$ per kW, per services basis. Bids containing a price for enablement that exceed the specified limit will be disqualified.

- **Incentive Adder:** As set forth on Exhibit K of the GSPA, the Companies have published minimum incentives on a \$ per kW, per service, per island basis for each of the services to be procured. The Proposer may opt to offer additional incentives to participating customers, which will in turn be paid by the Company via the customer bill. The Incentive Adder will be added to the Proposer's total contract costs in the determination cost effective bids.
- **Levelized Grid Service Price:** As part of the pricing exercise, Proposers must present in average annual \$/kW for each service per each island per bid. The calculation for this dollar amount is presented in Appendix M.

### 3.10 Plan Description

3.10.1 Proposers must provide sufficient information on the scope and description of the proposed grid services delivery commitment. To this end, Proposer must furnish the following as described and/or provided as part of Attachment B:

- **Cover Letter** signed by a representative for the Proposer **authorizing the submission** of the Proposal
- **Proposal** document as per Appendix B Section 2.0
- Fully executed **Mutual Confidentiality and Non-Disclosure Agreement** (Appendix E to the RFP, may be downloaded from the "1. Download Documents" tab in the Electronic Procurement Platform)
- **Federal and State tax clearance certificates** for the Proposer (a Certificate of Vendor Compliance for the Proposer may be provided in lieu of **Federal and State tax clearance** certificates)
- **Contract Capability Bid** Form (Appendix G)
- **Pricing Sheet** (Appendix H)
- **Requirements Summary** Worksheet (Appendix I)
- **Questionnaire Summary** Worksheet (Appendix J)
- **Information Assurance** Worksheet (Appendix K)
- **Levelized Grid Service Price** Worksheet (Appendix M)
- **Supplier Code of Conduct** (if not conforming to Company's Code of Conduct)
- **Sample Participant Services Agreement**

3.10.2 Proposers must comply with the Standards of Conduct as depicted in Attachment C.

3.10.3 The Proposer agrees that no material changes or additions to the proposed grid services delivery plan from what is submitted with this Proposal will be made without the Proposer first having obtained prior written consent from the Company

### 3.11 Confidentiality

3.11.1 Each prospective Proposer must submit an executed NDA in the form attached as Appendix E to this RFP by the Proposals Due date specified in the RFP Schedule in

Section 3.1. The form of the NDA is not negotiable. Information designated as confidential by the Company will be provided on a limited basis, and only those prospective Proposers who have submitted an executed NDA will be considered. Proposers must clearly identify all confidential information in their Proposals. However, Proposers should take care to designate as confidential only those portions of their Proposals that genuinely warrant confidential treatment. The Company discourages the practice of marking each and every page of a Proposal as confidential. The Company will make reasonable efforts to protect any such information that is clearly marked as confidential. The Company reserves the right to share any information, even if marked confidential, to its agents, contractors, or the Independent Observer for the purpose of evaluating the Proposal, as set forth in the NDA.

3.11.2 The Company will request that the PUC issue a Protective Order to protect confidential information provided by Proposers to the Company. A copy of the Protective Order, once issued by the PUC, will be provided to Proposers. Proposers should be aware that the Company may be required to share certain confidential information contained in Proposals with the PUC, the Division of Consumer Advocacy, State of Hawai‘i Department of Commerce and Consumer Affairs, and the parties to any docket instituted by the PUC, provided that recipients of confidential information have first agreed in writing to abide by the terms of the Protective Order. Notwithstanding the foregoing, no Proposer will be provided with Proposals from any other Proposer, nor will Proposers be provided with any other information contained in such Proposals or provided by or with respect to any other Proposer.

### **3.12 Credit Requirements Under the GSPA**

3.12.1 Proposers with whom the Company concludes GSPA contract negotiations must post an irrevocable Standby Letter of Credit as set forth in Article 21 of the GSPA.

3.12.2 The letter of credit amount described in the GSPA is a minimum requirement. Proposers shall not propose an amount lower than that set forth in the GSPA.

3.12.3 Proposers may be required to fund a monetary escrow account in lieu of the required Source Code Escrow required under Article 5 of the GSPA.

## **Chapter 4: Evaluation Process and Evaluation Criteria**

### **4.1 Proposal Evaluation and Selection Process**

All Proposals will be subject to a consistent and defined review, evaluation and selection process. Once proposals are received, the Companies’ will employ a multi-step evaluation process including an initial Eligibility and Threshold assessment, a Detailed Evaluation process and selection of a Priority List, a Best and Final Offer opportunity, an evaluation step specific to the ~~Big Island~~-FFR-1 and Contingency Storage opportunity and a Final Awards Group selection process. Affiliate Proposals are treated identically to and held to the same requirements as all other Proposals. This Chapter provides a description of each step of the process, along with the

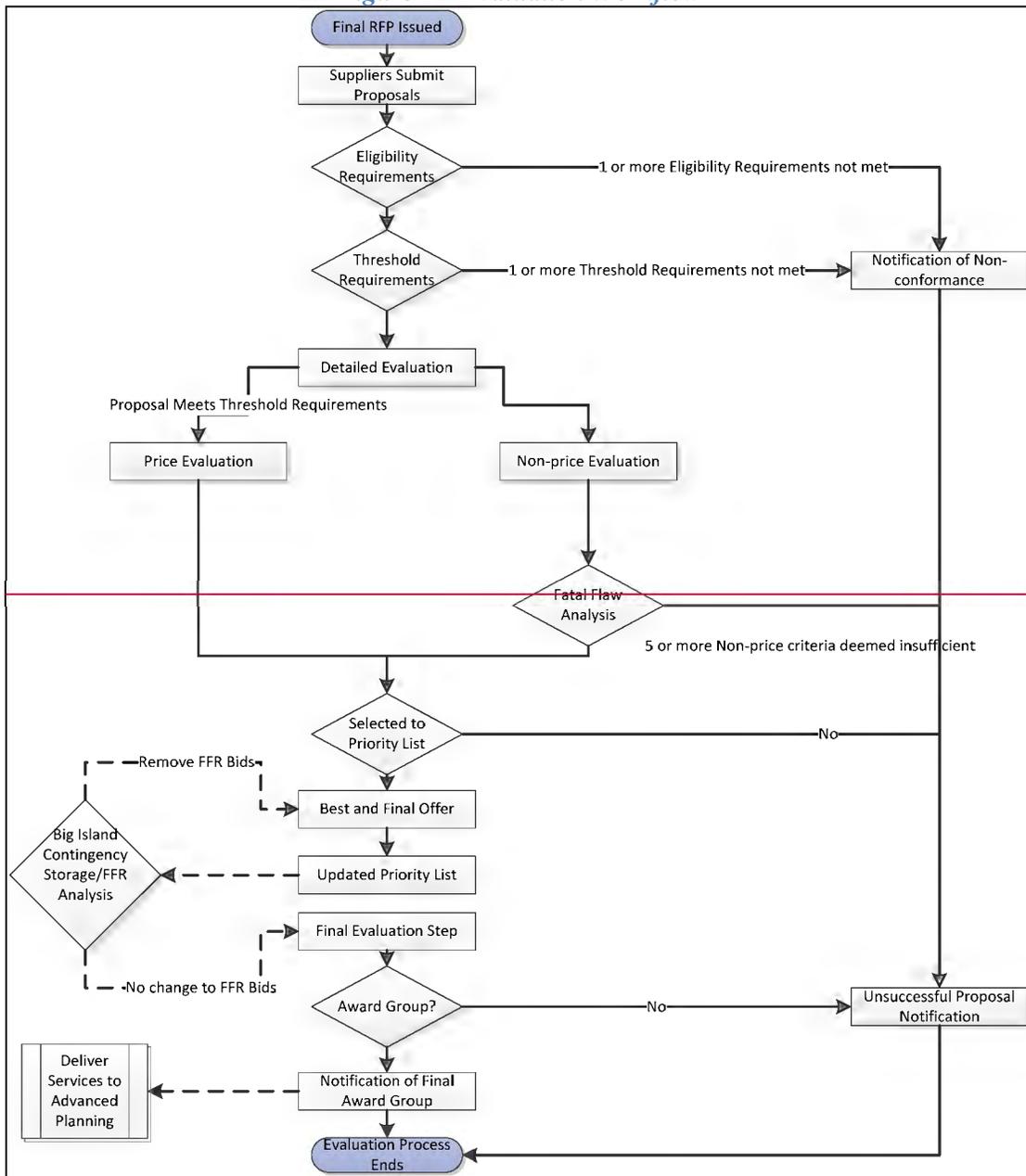
requirements of Proposers at each step. Figure 1 sets forth the flowchart for the proposal evaluation and selection process.

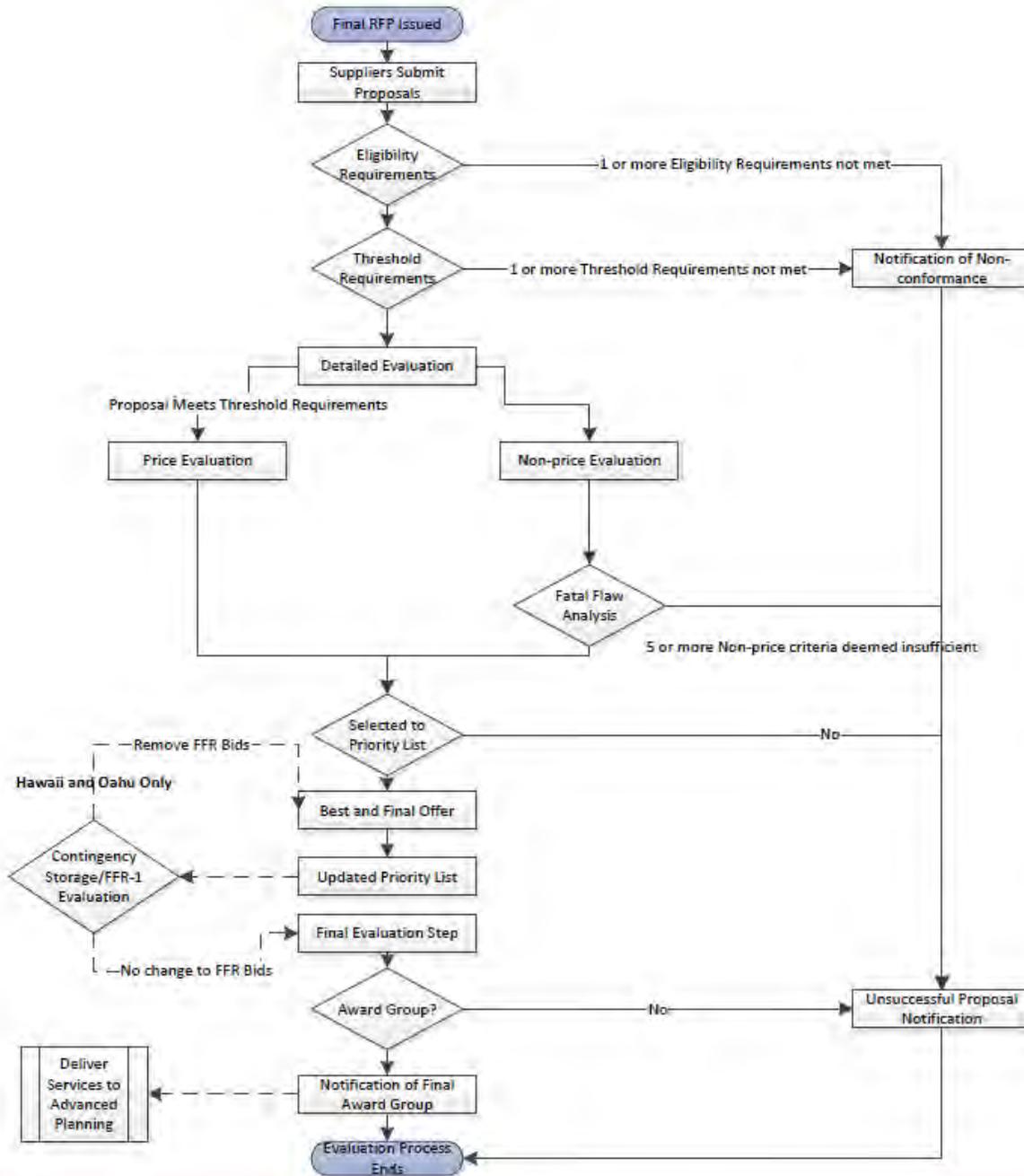
Upon receipt of the Proposals, the Company will ensure that the Proposals meet the Eligibility Requirements, and if so, will review the Proposals to ensure that the Threshold Requirements have been met. The Company in coordination with the Independent Observer will determine if a Proposer is allowed to cure any aspect of its Proposal or whether the Proposal would be eliminated based on failure to meet either Eligibility or Threshold Requirements<sup>5</sup>. If a Proposer is provided the opportunity to cure any aspect of its Proposal, the Proposer shall be given three (3) business days to cure from the date of notification to cure. Proposals that have successfully met the Eligibility and Threshold Requirements will then enter a two-phase process for Proposal evaluation, which includes the Initial Evaluation development of a Short List, followed by the opportunity for Short List Proposals to provide Best and Final Offers, and then a Detailed Evaluation process to arrive at a Final Award Group.

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<sup>5</sup> As a general rule, if a Proposer does not include a requested document or may inadvertently exclude minor information or provides inconsistencies in its information, it may be given a chance to cure the inadequacies. If a Proposer does not include significant sections of its Proposal and providing the Proposer with the opportunity to cure is deemed a benefit to that Proposer at the expense of the competitors it could be classified as non-conforming and eliminated for failure to meet the eligibility requirements.

Figure 1 – Evaluation Workflow





After the Proposals are submitted, a Proposal Summary table will be created by the ECM of the RFP.

The Proposal summary will be shared with RFP Team members responsible for the evaluation of proposals (including the oversight team, Price Evaluation Team and Non-Price Evaluation Team), the IO, and Company’s Management. Non-Price Evaluation Team members will not receive the pricing information from proposals.

**4.2 Eligibility Requirements Assessment**

Once the Proposals are summarized, the Lead ECM will make the Proposal information available to the RFP team and the IO to begin the review of the proposals. The Lead ECM (with the assistance of select RFP team members) will review each Proposal and determine if the Proposal meets each of the Eligibility Requirements set forth in Table 1 below. If a Proposal is deemed not to meet the Eligibility Requirements, the reasons for such failure will be clearly identified and documented.

*Table 1 – Eligibility Requirements*

1. The Proposal must be received on time via the PowerAdvocate Platform.
2. The Proposal must not contain material omissions.
3. The Proposal must be signed and certified by an officer or other authorized person of the Proposer.
4. The Proposers must fully execute the agreements or other documents required pursuant to this RFP.
5. The Proposer must provide Federal and State tax clearance certificates for the Proposer.
6. The Proposal must not be contingent upon changes to existing county, state or federal laws or regulations.
7. The proposed grid services delivery must be provided by customer assets located on the Islands of O‘ahu, Maui and Hawai‘i.
8. All committed enablement must be scheduled to be completed no later than December 31, 2025.

The Company, in coordination with the IO, will determine if a Proposer is allowed to cure any aspect of its Proposal or whether the Proposal would be eliminated based on failure to meet Eligibility Requirements.<sup>6</sup> If it is deemed that a Proposer will have the opportunity to cure any aspect of its Proposal, the Proposer shall be given three (3) business days to cure from the date of notification of such failure.

**4.3 Threshold Requirement Assessment**

Proposals that meet the Eligibility Requirements will be reviewed against the Threshold Requirements. The Non-Price Evaluation Team, which includes subject matter experts in the various practice areas associated with the Threshold subject area, will review each proposal against the Threshold Requirements and determine if it passes or fails, and if it fails, document why it fails.

Any proposals that meet these eligibility requirements will then be reviewed to ensure that the Threshold Requirements have been met, which have been designed to screen out Proposals that are insufficiently developed, lack demonstrated technology, or will impose unacceptable execution risk for the Company. Proposers are responsible to provide explanations and supporting information demonstrating how and why they believe the Project they are proposing meets each of the Threshold Requirements. Proposals that fail to meet a Threshold Requirement will be eliminated from further consideration upon concurrence with the Independent Observer.

The Threshold Requirements are presented in Table 2 below:

*Table 2 - Threshold Requirements*

<p><b>Performance Standards:</b> The proposed Plan must be able to meet the performance attributes identified in the GSPA. Proposals should include sufficient documentation to support the stated claim that the grid service offering will be able to meet the Performance Standards. The Proposal should include information required to make such a determination in an organized manner to ensure this evaluation can be completed within the evaluation review period.</p>
<p><b>Proven Technology:</b> This criterion is intended as a check to ensure that the technology proposed is viable and can reasonably be relied upon to meet the objectives of this RFP. The Company will only consider Proposals utilizing technologies that have successfully reached commercial operations in commercial applications. Proposals should include any supporting information for the Company to assess the commercial and financial maturity of the technology being proposed.</p>
<p><b>Experience of the Proposer:</b> The Proposer, its affiliated companies, partners, and/or contractors and consultants on the Proposer’s team must have experience in deliver of similar services in at least (1) project, including similar in size, scope, technology, and structure to the services being proposed by Proposer. The Company will consider a Proposer to have reasonably met this Threshold Requirement if the Proposer can provide sufficient information to demonstrate that the member of the project team whose experience is being identified to meet this threshold criterion has a firm commitment to provide services to the Proposer. The Proposer should articulate if and how entities with local ties will be supporting to deliver the proposed grid service.</p>
<p><b>Credit/Collateral Requirements:</b> Proposers shall agree to post a Letter of Credit as described in <u>Section 3.12</u> of this RFP.</p>
<p><b>Financial Viability of Proposer:</b> Proposers must provide a basic financial plan for the project with details on the sources of debt and equity, capital structure, etc. Evidence must be provided of general support for the project financing (i.e. credit-worthy entities are interested in financing the project).</p>

The Company in coordination with the Independent Observer will determine if a Proposer is allowed to cure any aspect of its Proposal or whether the Proposal would be eliminated based on failure to meet either Threshold Requirements<sup>7</sup>.

If a Proposer is provided the opportunity to cure any aspect of its Proposal, the Proposer shall be given three (3) business days to cure from the date of notification to cure. Proposals that have successfully met the Threshold Requirements will then enter a Detailed Evaluation process for Proposal evaluation.

#### **4.4 Detailed Evaluation – Process Overview**

Proposals that meet both the Eligibility and Threshold requirements will then be subject to a price and non-price assessment. Two teams have been established to undertake the bid

evaluation process: (1) the Price Evaluation Team and (2) Non-Price Evaluation Team. Each team will work independently and not divulge the scoring or ranking of Proposals to the other team. The Non-Price Evaluation Team will not be permitted to view any information relating to the pricing set forth in a Proposal. Any request for information from the Proposer's submission shall go through the ECM with IO oversight.

Members of the Non-Price Evaluation Team will undertake an initial analysis and evaluation of each Proposal and score the Proposals. Once all team members have conducted an initial evaluation of the Proposals, the Non-Price Evaluation Team will meet to review and assess the scoring and ranking of each Proposal. Team members will be asked to justify and document their evaluation results. After the initial review and assessment, team members will review and assess their evaluations to ensure they are consistent and unbiased.

Members of both the Price and Non-Price teams will then present their final evaluation results to the ECM, who will then compile the results and rank the proposals.

#### **4.5 Specifics of the Detailed Evaluation Resulting in Selection of the Priority List**

The results of the price and non-price analysis will be a relative ranking and scoring of all eligible proposals. Price-related criteria will account for fifty percent (50%) of the total score and non-price-related criteria will account for fifty percent (50%) of the total score.

The expected outcome of the Detailed Evaluation will be a prioritized list of shortlisted vendors from which a Best and Final Offer ("BAFO") will be solicited. The list will be ranked in order of final scores as described below, with a cutoff at the quantity higher (up to 125%) than solicited. In the event that several bids are at an equal score at the bottom of the priority list, all will be offered the opportunity to provide a BAFO.

##### **4.5.1 Price Analysis**

The Price threshold – or not-to-exceed \$/kW threshold - will be assessed using two key elements: The first is an equivalent LGSP (Levelized Grid Services Price), which is represented as a \$/kW/service/island), which will be provided for each Proposal and reassessed by the Company based on information provided in the Proposal including the Management fee (\$/kW) and Enablement fee (\$/kW), applicable incentives and enablement schedule. The LGSP represents the levelized price of grid service that is produced by the Proposer. This value is then compared against [a Qualifying Value. For both Grid Services Capacity on Oahu, Maui, and Hawai'i island, and for FFR2 on Oahu, the Value of Service, which is an avoided cost value that is produced by the Company to reflect an annual \\$/kW for each service being procured by island, is the Qualifying Value. For the FFR1 services sought on Oahu, Maui, and Hawai'i island, the Contingency Storage Price is the Qualifying Value.](#)

By the time that the proposals are received, the company is intending to re-evaluate certain Value of Services ("VoS") based on the resource plan consistent with the Stage 2 variable RFP process. That VoS will provide an annual \$/kW value for the Capacity [services for each island](#) and FFR2 services for [Oahu each island. Regarding all three Grid Services sought, a](#)Any [proposal](#) pricing that does not come in lower than the [respective](#)

Qualifying Value~~VoS threshold~~ will be seen as having a fatal flaw for the purposes of evaluation.

For scores that do fall under the Qualifying Value~~VoS threshold~~, the scores~~se~~ will be rated relative to each other on a \$/kW basis. The Proposal with the highest total price score (lowest price) will receive 400 points, and all other Proposals will receive points equal to the Proposal's score divided by the top score, multiplied by 400.

#### 4.5.2 Non-price Analysis

For the non-price analysis, each Proposal will be evaluated on each of the seven (7) non-price criteria categories set forth in the draft RFP to assess their merit in the general areas of project development feasibility and operational viability. These are presented below, with their corresponding weights. More details on these criteria and rubrics are found in Appendix A.:

- |  |     |
|--|-----|
| - Experience and Qualifications                                  | 15% |
| - Financial Strength and Financing Plan                          | 10% |
| - Model GSPA Contract Exceptions                                 | 10% |
| - Participants Acquisition and Enablement Strategy               | 30% |
| - Participant Service Agreement                                  | 5%  |
| - Conformance with Hawaiian Electric's Code of Conduct standards | 15% |
| - Conformance with Information Assurance Policies                | 15% |

All seven (7) non-price criteria will be scored on a scale of 1 (poor) to 5 (highly preferable). The total non-price score will be the sum of the scores for each of the individual non-price criteria. The Company will then award non-price evaluation points in accordance with the relative ranking of scores. The Proposal with the highest total non-price score will receive 400 points, and all other Proposals will receive points equal to the Proposal's score divided by the top score, multiplied by 400.

During the non-price criteria evaluation, a fatal flaws analysis will also be conducted such that any Proposal that is deemed not to meet the minimum standards level<sup>8</sup> for five (5) or more non-price criteria will be disqualified given that the Proposal has failed to meet a majority of non-price factors that are indicative as to the general feasibility and operational viability of a proposed project.

- **Experience and Qualifications** – Suppliers with a demonstrated ability to construct and deliver grid services to support an electric grid can reasonably be expected to be able to successfully supply grid services to the Company with a higher level of confidence than those without any prior experience. Therefore, proposals will be evaluated based on the experience of the Supplier in recruiting, enrolling, enabling and aggregating customer assets (similar to those being proposed) and managing these assets so as to successfully deliver grid services. At a minimum, the proposer and its team should have experience with delivering (including aggregating, financing, interconnecting and managing) at least one

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<sup>8</sup> A score of 3 is the “meets minimum standards” level that a Proposal must achieve in at least four (4) criteria.

project of a similar size and technology to the one being proposed. Additional preference will be given to proposers with experience in successfully delivering services to multiple utilities in a manner that is similar to the one being proposed and/or that have prior experience delivering such services in Hawai‘i.

- **Financial Strength and Financing Plan** – This criterion addresses the comprehensiveness and reasonableness of the financial plan for the grid services delivery commitment. A complete financial plan addresses the following issues: project ownership, capital cost and capital structure, sources of debt and equity, and evidence that credit-worthy entities are interested in financing the project. The financial strength of proposers or their credit support providers will be considered, including their credit ratings. At a minimum, the Proposal should include a basic financial plan for the Plan covering the sources of debt and equity, capital structure, etc. and provide evidence of general support for the project financing. The financing participants are expected to be reasonably strong financially. Suppliers and their sources of capital that have investment grade credit ratings from a reputable credit rating agency (S&P, Moody’s, Fitch) will also be given preference.
- **GSPA Contract Exceptions** – In general, Proposers are encouraged to accept the contract terms identified in the GSPA where possible in order to expedite the overall RFP process and potential GSPA negotiations. Proposers who elect to propose modifications to the GSPA shall provide a MS Word red-line version of the GSPA identifying specific modifications as a component of their Proposal and shall also provide a detailed explanation and supporting rationale for each of the proposed modifications to the GSPA in order to enable the Company and Independent Observer to evaluate the impact that the proposed modifications will have on the overall risk assessment associated with the evaluation of each Proposal. With respect to the foregoing, Proposers are encouraged to avoid using drafting notes and comments without making red-line changes directly to the GSPA, or otherwise reserving the right to make additional modifications to the GSPA at a later time, as this will make it difficult for the Company and Independent Observer to determine the impact any such unspecified modifications will have on the overall risk assessment associated with the evaluation of each Proposal. General comments, such as “parties to discuss” are unacceptable and will not be considered as a modification.
- **Participants Acquisition Strategy** – In tandem with the bid size, the Company will be extremely attentive to the customer recruitment strategy. The Company will assess this in terms of the credibility of the approach and seek to determine how much knowledge or experience the Supplier has with the Hawaii market. The Company sees customer or participant acquisition as one of the largest areas of uncertainty or risk in the grid service delivery process, and will seek compelling and well-thought-out participant recruitment and enrollment strategies. A failed enablement will result in economic impacts to Suppliers and leave the system short on projected grid service resources. A plan that utilizes local installers, technicians

or contractors will be rated more favorably than those that do not have a similar consideration.

- **Participant Service Agreement** – The Company has specified that while the Supplier must develop a Participant Service Agreement for engagements directly with customers, the Company would need to review the agreements for completeness relative to the Company guidelines.
- **Conformance with Hawaiian Electric's Code of Conduct** standards – The Company has specified that a Supplier must conform to, at a minimum, the Company Code of Conduct, this is of particular importance given that Suppliers will be interactive with customers, typically on customer premises and otherwise indirectly acting as a certified partner with the Company. As such, the Company will be interested in reviewing the Suppliers' Code of Conduct standards to ensure adequate conformity to Company standards.
- **Conformance with Information Assurance Policies** – Customer data will be exchanged as part of the enrollment and enablement process. Furthermore, Supplier event performance data and by inference, Company system data will also be shared across Supplier-Company systems. As a result, conformity to Company IA standards is a critical part of this engagement and will be an important part of the evaluation process, especially in areas such as secure data transfer, data protection and encryption.

#### 4.6 Selection of the Short List

At the conclusion of both the price and non-price analysis, a total score will be calculated for each Proposal using the 50% price-related criteria/50% non-price-related criteria weighting outlined above. The price and non-price analysis will result in a ranking of Proposals. The Company will select a Priority List from the highest-scoring Proposals that accrue to the ~~total~~ quantity of up to 125% of grid services as solicited. The Company will to a degree practical will take into consideration a balanced distribution of class segmentation (residential, small and medium business, and commercial and industrial) and diversity of end-use technologies. Again, if there are evenly ranked proposals at the low end of the list, these will all be advanced for BAFO solicitation.

#### 4.7 Best and Final Offer (BAFO)

The Company will solicit a Best and Final Offer from Proposers selected to the Priority List. Proposers will have the opportunity to, but are not obligated to, update (downward only<sup>9</sup>) only the pricing elements of their Proposal in order to improve the competitiveness of their Proposal prior to being further assessed in the Final Evaluation. At this time, updates may only be made to the following pricing elements:

- Management Fees (\$/kW/service/month/island)
- Enablement Fee price (\$/kW/service/island)

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<sup>9</sup> Pricing elements will only be allowed to be lowered - no upward adjustment to the pricing elements. All other characteristics of the Proposal and capabilities must remain valid.

- Incentive Adder (\$/kW/service/island)

Proposers will not be allowed to make any other changes to their Proposal during the Best and Final Offer.

If a Proposer does not propose improvements to their pricing elements during the Best and Final Offer solicitation, the original Proposal pricing elements will be deemed its Best and Final Offer.

At the conclusion of the BAFO phase, ~~each bid to provide FFR-1 bids~~ will be converted into an NPV for a range of years, extending from the 5-year contract term to the maximum ~~C~~ontingency ~~S~~torage proposal project term. These NPVs will be used, as described below, for FFR-1 and ~~C~~ontingency ~~S~~torage project comparisons.

#### 4.8 Final Evaluation for Grid Services Capacity

Once the Priority Lists have been established and the BAFOs are received, the Company will determine a final evaluation score. This will be calculated using the Initial Evaluation methodology. The Non-Price evaluation score will be retained but the Price evaluation will be rescored on the BAFO prices. Projects will be selected to the Final Award Group, beginning with the highest final evaluation score, until the target MW from Table 1-1 is met, or the list of eligible projects are exhausted.

#### 4.9 Final Evaluation for Grid Services FFR-2 (Oahu) and FFR-1 (Maui)

Once the Priority Lists have been established and the BAFOs are received, the Company will determine a final evaluation score. This will be calculated using the Initial Evaluation methodology. The Non-Price evaluation score will be retained but the Price evaluation will be rescored on the BAFO prices. Projects will be selected to the Final Award Group, beginning with the highest final evaluation score, until the target MW from Table 1-1 is met, or the list of eligible projects are exhausted.

#### 4.10 ~~Big Island~~ Final FFR-1 Evaluation for Grid Services FFR-1 for Oahu and ~~Hawai'i~~Big Island

Once the Priority lists have been established and BAFOs are received, the Company will proceed with a comparative assessment of Contingency ~~Storage bids in the Variable RFP~~ and FFR-1 bids for delivering these services on the ~~Hawai'i~~ Island ~~and Oahu~~. This step will precede the development of the Final Award list for the Grid Services RFP and precede the Detailed Evaluation stage for the Variable RFP process.

Given that both the Grid Services and Variable Renewable ~~RFP~~ bid review teams will have already assessed both price and nonprice criteria and subsequently established Priority lists, the assumption is that price thresholds have been passed and the non-price assessments have addressed all concerns and potential risks associated with the offers. Therefore, at the time of the comparative assessment, the Company intends to combine all FFR-1 and Contingency ~~battery~~ ~~Storage~~ bids from each Priority list into a full set of projects (if possible based on bids, the

Company will pull at least 18MW and 50MW of proposed projects from each list for Hawai'i and Oahu respectively). Proposers will be required to bid FFR-1 and contingency storage for Hawaii island in increments of 3 MW, 6 MW, 9 MW or 12 MW and for Oahu for a minimum of 5 MW.

With the complete list established, the Company will execute a price-based evaluation. The proposed cost for eEach FFR-1 bid and Contingency Storage project will be calculated as a Net Present Value ("NPV") to determine a levelized price in \$ per MWh.~~to an NPV~~. Because a storage project offered under the Variable RFP may have a longer term than a Grid Services contract, the Company will make certain valuation assumptions about the extensibility of an FFR bid under the Grid Services RFP to establish a comparative basis for analysis. The crux of the effort will be to extend the costs associated with the FFR-1 Grid Services bid to match the proposed project term for the Contingency Storage. With this as a premise, the Company will develop two NPVs for each FFR-1 proposal, as a form of a sensitivity analysis. The first will be a simplified extension of the 50-year contract costs as follows:

Costs are extended by creating theoretical contract years beyond the initial 5-year period

- Incentive amounts
- Management fees

There is a 10% attrition of enabled customers every five years, so enablement fees need to account for that

- Enablement fees to address attrition will stay consistent with currently bid enablement fees.

The second will be a set of modified assumptions as follows:

Costs are extended by creating theoretical contract years beyond the initial 5-year period

Customer incentive values stay consistent over additional years

There is a 10% attrition of enabled customers every five years, so enablement fees need to account for that

- Enablement fees to address attrition will stay consistent with currently bid enablement fees.

Aggregator management fees see a 5% reduction every five years

This approach will be applied to allow the Company to align a 5-year Grid Services contract with any Variable Renewable RFP proposed ~~contingency reserve~~Contingency Storage battery project term. The sensitivity, largely based on increased management fees, allows the Company to determine risk associated with Management fee increases; attrition is based largely on historical attrition rates.

With the calculations completed to create a levelized price par NPV for comparison, the Company will evaluate all FFR-1 and Contingency Battery Storage proposals and rank them in order of least cost to highest cost. If possible based on the number and quality of Proposals received, the Company will attempt to include in the joint evaluation Projects totaling 18 MW of Contingency Storage on the Priority List for Contingency Storage for the Variable Renewable RFP and 18 MW of FFR-1 on the Short List for the Grid Services RFP for Hawai'i island, and

similarly for Oahu, 50 MW of Contingency Storage for the Variable Renewable RFP and 50 MW for the Grid Services RFP. -The lowest cost proposals across all Variable Renewable RFP and Grid Services RFP projects summing to 18MW and 50MW will be selected for the Hawai'i Island and Oahu Final Award Groups, respectively (NOTE: Contingency Storage selection for Hawai'i island will incorporate locational constraints not applicable to the Grid Services FFR selection).

If after this process, the Priority list reflects a shortage of total resources based on solicitation targets, the Company will identify any additional prospective bids and seek BAFO from those bids. Specifically, if as a result of an aggregator's ~~Big Island-FFR-1~~ bid being removed, the Capacity contribution from that aggregator as a stand-alone service is not within the Priority list, and thus the Company is short on Capacity ~~for the Big island~~, the Company would inspect the bid ranking for the next best ~~Big Island~~ Capacity bid of equal or greater quantity. At that time, the Company would approach the aggregator and request a BAFO for the remaining Capacity target.

#### **4.8 — Final Award Group Evaluation & Selection**

~~At that point, all BAFO respondents will be rescored, taking into account the revised pricing and the results of the Big Island FFR assessment. If there is a tie, the price will be the deciding factor between or among equally scored bids. On this basis, the Company will determine the Final Award Group.~~

~~Following the BAFO a Final Award Group is established and are added to the productions simulation model as adjustments to the system load forecasts.~~

### **Chapter 5: Post Evaluation Process**

#### **5.1 Contract Negotiation Process**

Within five (5) business days of being notified by the Company of its intent to enter into contract negotiations, Proposers selected for the Final Award Group will be required to indicate, in writing to the Company's primary contact for this RFP, whether they intend to proceed with their Proposals. Proposers who elect to remain in the Final Award Group will be required to keep their Proposal valid through the award period. Contract negotiations will take place in parallel with the IRS process. The Company's goal is to complete contract negotiations and submit GSPAs for approval within six (6) months of notification of intent to enter contract negotiations.

#### **5.2 PUC Approval of GSPA**

Any signed GSPA resulting from this RFP is subject to PUC approval as described in the GSPA, including Appendix 1 thereof.

**FINAL DRAFT REQUEST FOR PROPOSALS**  
**FOR**  
**GRID SERVICES FROM CUSTOMER-SITED ASSETS**  
**ISLANDS OF O‘AHU, MAUI & HAWAII‘I**

JULY 10, 2019

Docket No. 2017-0352

*Appendix B – Proposer’s Response Package*



**Hawaiian  
Electric**

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## 1. GENERAL INSTRUCTIONS TO PROPOSERS

The Company has elected to use the services of PowerAdvocate®, a third-party electronic platform provider. Sourcing Intelligence®, developed by PowerAdvocate® is the Electronic Procurement Platform that the Company has licensed and will utilize for the RFP process. All Proposals and all relevant information must be submitted via the Electronic Procurement Platform, in the manner described in this RFP.

Proposers must adhere to the response structure and file naming conventions identified in this Appendix for the Proposer's response package.

Proposers must provide a response for every item. If input/submission items in the RFP are not applicable to a specific Proposer, Proposal or Proposal variation, Proposers must clearly mark such items as "N/A" (Not Applicable) and provide a brief explanation.

Proposers must clearly identify all confidential information in their Proposals, as described in more detail in Section 3.12 Confidentiality of the RFP.

All information (including attachments) must be provided in English. All financial information must be provided in U.S. Dollars and using U.S. credit ratings, or Proposers must provide a basis for translation.

It is the Proposer's sole responsibility to notify the Company of any conflicting requirements, ambiguities, omission of information, or the need for clarification prior to submitting a Proposal.

The RFP will be conducted as a "Sealed Bid" event within Sourcing Intelligence, meaning the Company will not be able to see or access any of the Proposer's submitted information until after the event closes.

### 1.1 ELECTRONIC PROCUREMENT PLATFORM

To access the RFP event, the Proposer must register as a "Supplier"<sup>1</sup> on Sourcing Intelligence (Electronic Procurement Platform). One Proposal may be submitted with each Supplier registration. Minor variations, as defined in Section 1.8 of this RFP may be submitted along with the Proposal under the same registration.

If a Proposer is already registered on Sourcing Intelligence, the Proposer may use their current login information to submit their first Proposal. If the Proposer chooses to submit more than one Proposal, the Proposer must register as a new "Supplier" on Sourcing Intelligence for each additional Proposal.

Each registration will require a unique username, unique e-mail address, and unique Company name. Proposers that require multiple registrations to submit multiple Proposals should use the Company name field to represent the Company name and Proposal number (ex: CompanyNameP1). Proposers may use shorthand or clear abbreviations. Proposers are asked to refer to their chosen unique company name throughout when referring to it in text responses.

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<sup>1</sup> The language in Appendix B sometimes refers to "Grid Services Contract Managers" as "Bid Event Coordinator" and to "Proposers" as "Suppliers" (Bid Event Coordinator and Supplier are terms used by PowerAdvocate).

Proposers can register for an account on Sourcing Intelligence by clicking on the “Registration” button (located in the top right corner of the webpage) on the PowerAdvocate website at the following address:

[www.poweradvocate.com](http://www.poweradvocate.com)

The Proposer’s use of the Electronic Procurement Platform is governed by PowerAdvocate’s Terms of Use. By registering as a “Supplier” on the Electronic Procurement Platform, the Proposer acknowledges that the Proposer has read these Terms of Use and accepts and agrees that, each time the Proposer uses the Electronic Procurement Platform, the Proposer will be bound by the Terms of Use then accessible through the link(s) on the PowerAdvocate login page.

Once a Proposer has successfully registered as a “Supplier” with PowerAdvocate, the Proposer shall request access to the subject RFP event from the Company Contact via e-mail through the RFP e-mail address set forth in Section 1.7 of the RFP. The e-mail request must list the Company Name field under which the Proposer has registered with PowerAdvocate. If the Proposer plans to submit multiple Proposals and has registered multiple accounts in accordance with the instructions above, the e-mail request must contain the Company Name field for each account that will be used to submit the Proposals. After the Bid Event Coordinator has added the Proposer to the event, the Proposer will receive an invitation to the RFP event at the registered e-mail account, and the Proposer will see the bid event on their dashboard upon logging into Sourcing Intelligence. Once the RFP event opens, the Proposer may begin submitting their Proposal(s).

After registering and prior to the opening of the RFP, Proposers are encouraged to familiarize themselves with the Electronic Procurement Platform, including tabs, the dashboard, the messaging feature, the Sourcing Intelligence Quick Start for Suppliers, etc. Proposers should note that they will not be able to access any bid documents until the event officially opens.

Proposers may contact PowerAdvocate Support for help with registration or modification of registration if desired. Support is available from 8 AM to 8 PM Eastern Time (2 AM to 2 PM Hawai’i Standard Time when daylight savings is in effect) Monday to Friday, except for Holidays posted on the PowerAdvocate website, both by phone (857-453-5800) and by e-mail ([support@poweradvocate.com](mailto:support@poweradvocate.com)).

Contact information for PowerAdvocate Support can also be found on the bottom border of the PowerAdvocate website: [www.poweradvocate.com](http://www.poweradvocate.com)

Once the RFP event is opened and Proposers have registered, Proposers will have online access to general notices, RFP-related documents, and other communications via the Electronic Procurement Platform.

## **1.2 PROPOSAL SUBMISSION PROCEDURES**

An e-mail notification will be sent to all prospective Proposers via the messaging feature in the Electronic Procurement Platform when the event has been opened to receive Proposals.

After logging onto the Electronic Procurement Platform, the RFP will be visible on the Proposer’s dashboard with several tabs, including the following:

- “1. Download Documents:” Documents stored under this tab are provided for the Proposer’s use and information. All documents can be downloaded and/or printed, as required.

- “2. Upload Documents:” Proposal submission documents requested in Appendix B must be uploaded using this tab.
- “3. Commercial Data:” This tab is NOT USED for this event.
- “4. Technical Data:” This tab is NOT USED for this event.
- “5. Pricing Data:” This tab is NOT USED for this event.

Step-by-step instructions for submitting a complete Proposal are provided below:

1. Proposers must upload their Proposal files to submit a complete Proposal. These tasks may be completed in any order, but all must be completed before the Proposal Due Date.
2. Submit (upload) one consolidated PDF representing your Proposal via the “2. Upload Documents” tab. That Proposal PDF must abide by the format specified in this Appendix B. An MSWord.docx template that outlines the format of this document is available under the “1. Download Documents” tab for the Proposer’s use. **Response information must be provided in the order, format and manner specified in this Appendix B and must clearly identify and reference the Appendix B section number that the information relates to.**
  - a. Proposers shall use a filename denoting: CompanyName\_Proposal#.pdf.
3. Proposal information that cannot be easily consolidated into the PDF file as described in Step 2 (such as large-scale drawing files) or files that must remain in native file format (such as computer models and spreadsheets) shall be uploaded separately but must be referenced from within the main Proposal PDF file. Such additional files must follow the naming convention below:
  - a. File names must include, in order, Company Name, Proposal number (if more than one Proposal being submitted per Proposer), Variation (if any variations are being submitted), Appendix B section number, and a file descriptor, as shown in the example file name below:  
AceEnergyP1V2\_2.5\_ContractCapability.xlsx  
Proposers may use abbreviations if they are clear and easy to follow.
4. Upload files using the "**2. Upload Documents**" tab on the Electronic Procurement Platform.
  - a. For all documents identify the "Document Type" as “Technical Information.” (Do not identify any documents as “Commercial and Administrative” or “Pricing.”)
  - b. "Reference ID" may be left blank.
  - c. Select "Choose File..." Navigate to and choose the corresponding file from your computer. Select "Open" and then "Submit Document."

There is no limit to the number or size of files that can be uploaded. Multiple files may be grouped into a .zip archive for upload. When successfully uploaded, documents will appear under the "Bid Submissions" section on the bottom of the tab's page, organized within the “Technical Information” Document Type. Repeat steps a, b and c, as required for each file upload.

If a file with the same name is uploaded twice, the Platform will automatically append a unique numerical extension to the Document Name. To delete a file that has been previously uploaded, click on the “X” button in the “Actions” column for the file to be deleted.

5. The Company will not be responsible for technical problems that interfere with the upload or download of Proposal information. Support is available to answer technical questions about PowerAdvocate’s Sourcing Intelligence from 8 AM to 8 PM Eastern Time (2 AM to 2 PM Hawai’i Standard Time when daylight savings is in effect) Monday to Friday, except for Holidays posted on the PowerAdvocate website, both by phone (857-453-5800) and by e-mail (support@poweradvocate.com).
6. Proposers are strongly encouraged to start early, save data frequently and avoid waiting until the last minute to submit the required information. Proposers are allowed to revise information that has been previously submitted, as well as add, modify and/or delete documents any time prior to the event close deadline.
7. All questions or concerns regarding the RFP, prior to RFP Proposal Submission shall be submitted to the Company Contact via the RFP email address provided in Section 1.7 of the RFP. Communication after Proposal Submission shall be via the PowerAdvocate Messaging tab. Per RFP Section 1.5, the Independent Observer will monitor messages within the bid event.

### 1.3 PROPOSAL COMPLETION AND CONFIRMATION PROCEDURES

To confirm the submission of all proposal files, in the “Status” tab on the Electronic Procurement Platform, confirm that the “Total Uploaded Files” is the number of expected files to be included in the submission by checking it against your list of submitted files.

Example “Status” tab view:

Your Bid Intention: Bidding		
Total Uploaded Files:	18	Last Upload: 02/08/18
Saved Commercial Datasheets:	1 of 1	Last Saved: 02/08/18
Saved Technical Datasheets:	0 of 0	
Saved Pricing Datasheets:	0 of 0	

## 2.0 PROPOSAL PDF

### 2.1 REQUIRED FORMS ACCOMPANYING PROPOSAL PDF

The following forms must accompany each proposal, must be attached to the Proposal PDF, and uploaded via the “2. Upload Documents” tab:

- **Cover Letter** signed by a representative for the Proposer **authorizing the submission** of the Proposal

- Fully executed **Mutual Confidentiality and Non-Disclosure Agreement** (Appendix E to the RFP, may be downloaded from the “1. Download Documents” tab in the Electronic Procurement Platform)
- **Federal and State tax clearance certificates** for the Proposer (a Certificate of Vendor Compliance for the Proposer may be provided in lieu of Federal and State tax clearance certificates)
- Contract Capability Bid Form (Appendix G)
- Pricing Sheet (Appendix H)
- Requirements Summary Worksheet (Appendix I)
- Questionnaire Summary Worksheet (Appendix J)
- Information Assurance Worksheet (Appendix K)
- Levelized Grid Service Price Worksheet (Appendix M)

## 2.2 PROPOSAL SUMMARY/CONTACT INFORMATION

2.2.1 Provide a **primary point of contact** for the Proposal being submitted:

- Name
- Title
- Mailing Address
- Phone Number
- Email Address

2.2.2 **Executive Summary of Proposal.** Include an executive summary that briefly and concisely conveys what the Proposer sees as the most important messages of its proposal, the factors of differentiation relative to other potential Proposals, and the critical points that the Company should consider in their evaluation. Please explain how your approach will benefit the Company from both a short term and a long-term perspective.

2.2.3 **Pricing summary.** Pricing information must be filled out in the Pricing Sheet (Appendix H). Enablement fees and management fees by service by island can be summarized here for the Proposal and any of its variations (if applicable). The Company also recommends that presenting the levelized cost of service in the form of \$/kW for each island be presented in summary form here. The Company has prepared a calculation worksheet and supporting narrative to derive these summary figures in Appendix M. Provide any pricing information only in this section – do not embed pricing information in any other portion of the Proposal PDF. Ensure the pricing information matches what is submitted in the Pricing Sheet. (If there are any discrepancies, pricing information submitted in the Pricing Sheet fields will take precedence over this summary section.

2.2.4 Provide a **high-level overview of the proposed Contract Capability**, including at a minimum the following information:

- Annual MW targets by service by island
  - Specific to Hawai'i island, the Fast Frequency Response grid service bid must be in increments of 3MW.
- Number of projected customers (incremental by year by service by island)
- Customer segment(s) targeted

## 2.3 IMPLEMENTATION PLAN

The Proposer should include a detailed plan for implementing customer resources necessary to acquire and deliver grid services to the Company. When preparing the Implementation Plan, Proposers should refer to the Requirements Summary ([Appendix I](#)). Information captured in the worksheet or presented in the GSPA and other informational appendices does not have to be repeated in the Implementation Plan, but rather the Plan should capture the manner and timing in which Proposers will implement the requirements and perform maintenance operations in Hawai'i. The detailed Implementation Plan should address, at a minimum the following sub-sections:

### 2.3.1 DR Service (Phase and Roles)

In this section, the Proposers shall discuss how it or its subcontractors will meet each of the phases and roles specified below.

#### 1. Customer Acquisition

*Customer Recruitment and Enrollment:* Proposer shall perform tasks related to recruiting customers, including marketing and advertising, and execution of program Participant Services Agreement. Agreements shall exist between the customer and the Proposer. Proposer should articulate if and how entities with local ties will be performing the customer recruitment and enrollment. If Proposer choose to do so, Proposer could offer minimal marketing and rely on the Company to provide marketing support as required. *Technical Coordination & Customer Enablement:* Proposers shall perform tasks related to scheduling customer visits for audits and/or installation and testing.

The Proposer's Implementation Plan must include a Customer Acquisition Plan that clearly identifies the customer classes to be targeted for recruitment and specifies their marketing strategy. The Implementation Plan must highlight the Proposer capabilities and experience in marketing customer-side programs to utility customers. Proposers must provide the methodology used to project the number of customers and Contract Capability that can be recruited and enrolled in customer-side programs. The Plan must also identify the tasks required before the recruitment process begins, including a timeline.

## 2. Technology Solution

*Technology Provider:* Respondent shall provide the customer-sited device, VEN and VTN:

- Customer-sited Device - The device, which is connected to the VEN on the customer side of the meter, is the equipment that ultimately provides the response that results in a grid service,
- VEN - Virtual End Node, also known as a gateway. The VEN is a device that allows communication between the customer-sited devices and the Proposer's VTN, which will participate during a DR event by connecting to a Utility's VTN.
- VTN - Virtual Top Node, also known as a head-end. The VTN signals customers VEN to start and end event participation. VTN can also send price signals to VEN's. In this instance, there are two VTNs: a Proposer's VTN and the Company's VTN.

The Company has specified technical design principles for the architecture. These are identified in the GSPA attached as Appendix L. The Proposer's technology solution must adhere to those principles and requirements. They include:

- **Cyber Security**
- **Scalable Solution**
- **Leverage Industry Protocols**
- **Interoperability**

The Company has adopted OpenADR 2.0b as the standard protocol for communications among the Company VTN and Supplier VTN and/or VENs. Proposers are encouraged, but not required, to provide Open ADR 2.0b certified VENs, but must have OpenADR 2.0b certification if the head-end (Proposer VTN) will be interacting with the Company VTN. To the extent that OpenADR 2.0b certified systems are not proposed, any additional costs the Companies may incur to integrate alternative systems may affect the competitiveness of Respondent's proposal and as specified in the GSPA, require additional integration measures in event of default.

The Proposer's Implementation Plan should clearly explain the technical solutions to be employed by the Proposer. The Company reserves the right to require a field demonstration of technical solutions proposed by Proposers if they are unproven technologies.

The Plan should also explain how the Proposer's systems are logistically operated including staffing levels, server locations, communications requirements and the availability of secure communications networks. The Proposer should place particular emphasis on explaining how the technologies will perform and be operated in a remote island environment.

In the Plan, the Proposer should clearly identify the responsibilities of the Company, if any, necessary to implement the technical solution, including required integration with the Company's back office systems.

### 3. Field Services

*Installation of Customer-sited Devices:* All efforts associated with the installation of or retrofitting of a customer-sited device such that the device is enabled and can perform to an event signal from the Proposer's VEN or VTN. Proposer should articulate if and how entities with local ties will be performing the installation or retrofit.

*Commission VEN:* Respondent shall perform tasks related to purchasing VEN, installing VEN, connecting VEN with VTN, and verifying VTN to VEN connection and resource response during test events. Proposer should articulate if and how entities with local ties will be performing the VEN commissioning.

*Operation of VTN:* Operations performed by a VTN include, but are not limited to, provisioning of VENs, execution of events, contacting participants, tracking participant information, and reporting related to events and participation.

### 4. Operations and Maintenance

*Customer Maintenance:* Proposer shall perform tasks related to the customer premise, maintaining customer devices and/or VEN's, addressing customer inquiries and performing baseline calculations for purposes of determining customer performance. Proposer should articulate if and how entities with local ties will be performing the customer maintenance.

*Measurement & Verification (M&V)* – M&V is the use of meter data to quantify customer performance during a customer event. Meter data is used to measure customer's performance, which in turn can be used for incentive payments. The Company Meter Installation department will replace all Commercial customer revenue meters to interval meters. Residential customers may or may not receive an interval meter from the Company, but Respondents should provide a sub meter or on-board resource telemetry for measurement purposes. The Proposer will be obligated to comply with Advanced Metering Requirements found in Exhibit E of the GSPA.

*Settlement* – Proposer shall perform tasks related to settlement of compensation for the provision of grid services. Proposer shall submit settlement results to the Companies for delivery of customer incentive. Proposers will be held to the Settlement processes and customer data exchange requirements as specified in Exhibit G and Exhibit K of the GSPA.

The Proposer's Implementation Plan should address its plan for the installation of VENs/gateways and other in-premise devices, including personnel requirements, transportation requirements, scheduling practices, customer service level requirements, installation status reporting practices and safety training and practices. The Plan must identify any planned sub-contractors to be used for this work, or if such subcontractors have not yet been identified, then a plan for identifying and retaining sub-contractors.

The Proposer must describe their plan for providing customer service related to customer and/or Company initiated trouble calls, repairs and other field services. Proposers are expected to meet industry standards. The Companies' customer service requirements and specifications are available in the GSPA Exhibit M.

a. Continuity of Business Plan

In lieu of providing Source Code escrow or economic escrow in the place of Source Code, Proposers may choose to provide a Continuity of Business Plan that demonstrates how the enabled devices will be capable of containing the delivery of grid services in accordance with the contractual obligations in the event of a Proposer's default or bankruptcy.

b. Achieving Performance Requirements

The Proposer shall prepare information in the Implementation Plan to clearly depict the overall approach to portfolio design and management such that the Proposer can be reasonably expected to meet the bid and the contractual obligations as set forth in the GSPA. The Proposer may include information about the expected load shapes of the customers and load profiles of associated participating devices, the analysis employed to derive the quantity of services to be committed, the risk adjustments made and applied to the assumptions to minimize exposure to failure to meet obligations, and so forth.

## 2.4 PRICING

Pricing should be based on a five (5) year contract starting in June 2020. The Proposers shall reflect pricing in the Pricing Sheet ([Appendix H](#)), which will - upon final award and negotiations - be inserted as Exhibit K of the GSPA. Rather than a single \$/capability (kW) bid amount each month, the cost proposal format shall be broken down into three line items of "Enablement," "Management" and "Added Incentive." The Company will allow the \$/capability (kW) for enablement to be a maximum of ten (10) times the \$/capability (kW)\*Month for the management fee. Bids containing a price for enablement of more than the specified limit will be disqualified. The proposal should include all costs (labor costs and/or equipment costs) that will be incurred by the Company and outside the Proposer's pricing.

Pricing proposals should be inclusive of all labor, materials, administrative and non-labor costs, including travel, rent, overheads, licenses, permits, taxes (*including Hawaii General Excise Taxes*), etc. deemed necessary to successfully deliver the proposed grid services, and to otherwise comply with the terms and conditions specified in this RFP.

Pricing should articulate clearly the assumptions that make up the bid such as if the Proposer expects the Companies to assist with the marketing how that impacts the bid, Proposer relying on specific tax provisions to continue during the GSPA contract duration, or any other assumptions that may impact the bid during negotiation.

Specific to pricing bids regarding [Fast Frequency Response – 1 \("FFR-1"\) for Oahu and Hawai'i island](#), the Proposers shall provide pricing for bundled services and unbundled services where the grid services are individually priced.

## 2.5 FINANCIAL

Provide the information identified below for the Company to assess the following financial aspects of its Proposal:

- Financial Viability
- Financial Strength

- Financing Plan

## 2.5.1 Financial Viability & Financing Plan

2.5.1.1 The Proposer should offer the Company evidence of financial viability. This can be portrayed through a variety of mechanism, including equity partners, equity financing, or project finance.

2.5.1.1.1 Who are the equity participants in the Plan (or the equity investors)?

- Provide an organization structure for the Proposer including any general and limited partners and providers of capital that identifies:
  - Associated responsibilities from a financial and legal perspective
  - Percentage interest of each party

2.5.1.1.2 **How will the Project be financed?**

Address at a minimum:

- The Plan's projected financial structure
- Expected source of debt and equity financing

2.5.1.1.3 Discuss and/or provide **supporting information on any project financing guarantees.**

2.5.1.1.4 Describe any **written commitments obtained from the equity participants.**

2.5.1.1.5 Describe any **conditions precedent to project financing**, and the Proposer's plan to address them, other than execution of the GSPA or any other applicable project agreements and State of Hawaii Public Utilities Commission approval of the Power Purchase Agreement and other agreements.

2.5.1.1.6 Provide any **additional evidence to demonstrate that the Grid Services Delivery plan is financeable.**

2.5.1.1.7 Project Financing Experience of the Proposer

Describe **the project financing experience of the Proposer** in securing financing for projects of a similar size and technology as the one being proposed including the following information for any referenced projects:

- Project Name
- Project Technology
- Project Size
- Location
- Starting Date of Project

- Duration of Project/contract
- Counter party
- Financing Structure
- Major Pricing Terms

## 2.5.2 **Financial Strength**

2.5.2.1 Provide **copies of the Proposer's audited financial statements** (balance sheet, income statement, and statement of cash flows) or equivalent:

- Legal Entity
  - Three (3) most recent fiscal years
  - Quarterly report for the most recent quarter ended
- Parent Company
  - Three (3) most recent fiscal years
  - Quarterly report for the most recent quarter ended

2.5.2.2 Provide the **current credit ratings** for the Proposer (or Parent Company, if not available for Proposer), affiliates, partners, and/or credit support provider:

- Standard & Poor's
- Moody's
- Fitch

2.5.2.3 Describe any **current credit issues** regarding the Proposer or affiliate entities raised by rating agencies, banks, or accounting firms.

2.5.2.4 Provide any **additional evidence that the Proposer has the financial resources and financial strength** to complete and operate the Project as proposed.

2.5.2.5 Provide evidence that the Proposer can provide the required securities.

2.5.2.5.1 Describe the Proposer's **ability (and/or the ability of its credit support provider) and proposed plans to provide the required securities** including:

- Type of security
- Sources of security
- Description of its credit support provider

2.5.2.5.2 Disclosure of Litigation and Disputes

Disclose any **litigation, disputes, and the status of any lawsuits or dispute resolution** related to projects owned or managed by the Proposer or any of its affiliates

## 2.6 GSPA CONTRACT EXCEPTIONS AND FINANCIAL COMPLIANCE

2.5.1 If Proposers elect to propose modifications to the GSPA, **provide a red-lined MS Word version of the GSPA** indicating specific requested modifications. In general, Proposers are encouraged to accept the contract terms identified in the GSPA where possible in order to expedite the overall RFP process and potential GSPA negotiations. Proposers shall also provide a detailed explanation and supporting rationale for each of the proposed modifications to the GSPA in order to enable the Company to evaluate the impact that the proposed modifications will have on the overall risk assessment. Only redlines received through the response of the RFP will be considered during the negotiation. The Company thus will be better able to assess the bids (including the pricing) in complete picture knowing the full legal position that the Proposers have taken.

The Exhibits of GSPA are deemed to be non-negotiable as they are akin to market participation rules. With multiple Proposer responses expected, the Company would prefer not to manage GSPAs with meaningfully different terms or key components. For example, the Company will not execute GSPA contracts with different Participation Service Agreement. The Proposer will be expected to populate Exhibit H Contract Capability and Exhibit K Settlement with their proposed information. Furthermore, while these Exhibits are non-negotiable, redlines will be considered if it will add clarification to the requirements.

NOTE: In the event the Proposer does not upload redlines of the applicable form agreements, the Company will assume the terms in such form agreements are agreeable to the Proposer

## 2.7 INFORMATION ASSURANCE

Respondents must clearly state any exceptions to the specifications and requirements included in the RFP (Appendix K) and the attached GSPA (Article 26). Each exception shall be stated separately, identify the reason(s) for the Respondent's exception, and shall propose a clearly stated alternative. The Companies will have the right in their sole judgment and discretion to reject any proposal or evaluate it unfavorably based on exceptions taken by Respondents. The Companies may in their sole discretion disqualify Respondents, even if selected for the short list, if exceptions to the RFP are not explicitly identified in the Respondent's proposal and such unidentified exceptions are discovered after the proposals are received by the Companies and, such unidentified exceptions affect the Respondent's price or ability to deliver the grid services proposed.

## 2.8 EXPERIENCE AND QUALIFICATIONS

Proposers, its affiliated companies, partners and/or contractors and consultants are required to demonstrate experience and capability to successfully cultivate and deliver the proposed Grid Services Delivery Plan. The Company is interested in a team that has demonstrated success in the aggregation and delivery of grid services,

including any technology proposed, through the commercial operations stage where such efforts were of a similar scope, technology and structure to the Grid Services Delivery Plan being proposed by the Proposer. The Company is also interested in any local partners or subcontractors the Proposer may or may not work within delivering the grid services.

2.8.1 Provide an **organizational chart** for the Plan that lists the project participants and identifies the management structure and responsibilities.

- For each of the plan participants (including the Proposer, partners, and proposed contractors), provide statements that list the specific experience of the firm in: recruiting, enrolling, enabling, aggregating, forecasting and delivering grid services of similar type, size and technology, and
- Any evidence that the plan participants have worked jointly on other plans.

2.8.2 Identify those **member(s) of the team** the Proposer is submitting to meet the experience Threshold Requirement and demonstrate the member(s) firm commitment to provide services to the Proposer.

2.8.3 Identify those **members of the team with experience and qualifications** including affiliates and their principal personnel who will be involved in the plan contracting deliver grid services. If the Proposer consists of multiple parties, such as joint ventures or partnerships, provide this information for each party, clearly indicating the proposed role of each party, and percentage interests in the partnership.

2.8.4 Provide a **management chart** that lists the key personnel dedicated to this Plan and provide **biographies / resumes** of the key personnel, including position, years of relevant experience, and similar project experience. Provide specifics as they relate to the various elements of the Plan.

2.8.5 Provide a **listing and associated description of all grid service, capacity demand response or DER integration projects** the Proposer has successfully developed or that are currently under development. Describe the Proposer's role and responsibilities associated with these efforts (lead, owner, investor, etc.). Provide the following information as part of the response:

- Name of the project
- Location
- Service type, size and technology
- Delivery dates
- Contracting entity
- References with contact information: name, address, phone number, and relationship with the Proposer and with the related project.

## 2.9 STANDARDS OF CONDUCT

The GSPA allows Suppliers to implement its own standard of conduct consistent with the Company's principally concerning code of conduct. If a Supplier prefers to operate under its own Code of Conduct, it needs to be attached with the proposal submission. If a Supplier omits the submission of their code of conduct, it is assumed

they will adhere to the Company's code of conduct published here:  
[https://www.hawaiianelectric.com/Prebuilt/contractors/code\\_of\\_conduct.pdf](https://www.hawaiianelectric.com/Prebuilt/contractors/code_of_conduct.pdf).

## **2.10 PARTICIPANT SERVICE AGREEMENT**

This RFP requires the submission of the Suppliers' Participant Service Agreement ("PSA") that the Respondent intends to use as a contract with its Participants. If the Respondent intends to use PSA's with different terms and conditions (e.g. different PSA's for different end devices), it must include all PSA's. The PSA's must comply with Exhibit N of the GSPA in Appendix L.

## **3.0 MINOR PROPOSAL VARIATIONS**

Proposers submitting minor variations to a Proposal must provide **details of each variation in this section**. Include only details and specifications which differ from the Proposal in this section. For any item not listed in this Section 3.0, the Company will assume that the information contained in the Proposal applies to the minor variation as well.

### **3.1 PROPOSAL VARIATION 1 (IF MINOR VARIATION PROPOSED)**

Identify all items which differ from the primary Proposal. Information must be organized in order of Appendix B and referenced by the corresponding Section Number.

### **3.2 PROPOSAL VARIATION 2 (AS NECESSARY)**

Repeat instructions for Section 3.1, as required for each variation.

### **3.3 PROPOSAL VARIATION 3 (AS NECESSARY)**

Repeat instructions for Section 3.1, as required for each variation.

ARTICLE 2  
PURCHASE AND SALE OF ENERGY AND DISPATCHABILITY;  
RATE FOR PURCHASE AND SALE; BILLING AND PAYMENT

[DRAFTING NOTE: For any projects which intend to meet the capacity need for Oahu and which propose a GCOD after March 2022 (but, in no event later than June 1, 2022), such projects shall be required to meet the availability and performance metrics of this Article 2 immediately as of GCOD (i.e., no seasoning period), and liquidated damages would be assessable for failure to satisfy such metrics without taking into account a seasoning period. Conforming revisions to be made based on a project's proposed GCOD and whether such project intends to meet the capacity need for Oahu.]

- 2.1 Purchase and Sale of Electric Energy, Dispatchability of Facility and Availability of the BESS. Subject to the other provisions of this Agreement, Company shall, by a Lump Sum Payment, pay for: (i) the Actual Output produced by the Facility and delivered to the Point of Interconnection in response to Company Dispatch of the Facility; (ii) the availability of the Facility's Net Energy Potential for Company Dispatch in accordance with this Agreement; and (iii) the availability of the BESS. Included in such purchase and sale are all of the Environmental Credits associated with the electric energy. Company will not reimburse Seller for any taxes or fees imposed on Seller including, but not limited to, State of Hawai'i general excise tax. **[Drafting Note: For PPA with energy payment, use the following in lieu of the above:** Subject to the other provisions of this Agreement: (i) Company shall, by an Energy Payment, pay for the Actual Output produced by the Facility and delivered to the Point of Interconnection in response to Company Dispatch of the Facility; and (ii) Company shall, by a Lump Sum Payment, pay for the availability of the Facility's Net Energy Potential and the availability of the BESS to respond to Company Dispatch in accordance with this Agreement. Included in such purchase and sale of electric energy and such purchase and sale of dispatchability are all of the Environmental Credits associated with the electric energy. Company will not reimburse Seller for any taxes or fees imposed on Seller including, but not limited to, State of Hawai'i general excise tax.]
- 2.2 **[Drafting Note: If there is no Energy Payment, replace this paragraph with [RESERVED]]** Payment for Electric Energy.

Commencing on the Commercial Operations Date, in exchange for the electric energy delivered to the Point of Interconnection in response to Company Dispatch, Seller will be paid an Energy Payment on a monthly basis as provided in Section 1 (Price for Purchase of Electric Energy) of Attachment J (Company Payments for Energy, Dispatchability and Availability of BESS) to this Agreement.

2.3 Lump Sum Payment. Commencing on the Commercial Operations Date, Company shall pay to Seller a monthly Lump Sum Payment as provided in Section 2 (Lump Sum Payment for Purchase of Dispatchability) of Attachment J (Company Payments for Energy, Dispatchability and Availability of BESS) to this Agreement. As more fully set forth in Section 3 (Calculation of Lump Sum Payment) of said Attachment J (Company Payments for Energy, Dispatchability and Availability of BESS), the monthly Lump Sum Payment shall be calculated and adjusted to reflect changes in the estimate of the Facility's Net Energy Potential as such estimate is revised from time to time as more fully set forth in Attachment U (Calculation and Adjustment of Net Energy Potential) to this Agreement. For purposes of calculating the monthly Lump Sum Payment, the monthly Lump Sum Payment shall be adjusted downward to account for the time the Facility inverter(s) are not available for Company Dispatch because of a Force Majeure condition (i) at the Facility or (ii) that otherwise delays or prevents the Seller from making the Facility inverter(s) in question available for Company Dispatch, as more fully set forth in Section 3.iv of Attachment J (Company Payments for Energy, Dispatchability and Availability of BESS) to this Agreement.

2.4 Assurance of Capability of Facility to Deliver Net Energy Potential and Availability of BESS.

(a) Design, Operation and Maintenance to Achieve Required Performance Metrics; Charging of BESS. In order to provide Company with reasonable assurance that, subject to the Renewable Resource Variability, the Facility's Net Energy Potential will be available for Company Dispatch: (i) the PV System Equivalent Availability Factor Performance Metric shall be used to evaluate the availability of the PV System for dispatch by Company; (ii) the Guaranteed Performance Ratio ("GPR") Performance Metric shall be used to evaluate the

efficiency of the PV System; (iii) the BESS Capacity Performance Metric shall be used to confirm the capability of the BESS to discharge continuously for four (4) hours at Maximum Rated Output or to discharge continuously for a total energy (MWh) equal to the BESS Contract Capacity if the test is conducted at less than Maximum Rated Output; (iv) the BESS EAF Performance Metric shall be used to determine whether the BESS is meeting its expected availability; and (v) the BESS EFOF Performance Metric shall be used to evaluate whether the BESS is experiencing excessive unplanned outages. Whenever the PV System potential output is in excess of the Company Dispatch, the excess energy from the PV System shall be used to maximize the BESS State of Charge so long as this does not conflict with the operating parameters of the BESS set forth in Section 9(d) (Battery Energy Storage System) of Attachment B (Facility Owned by Seller) to this Agreement. Seller shall design, operate and maintain the Facility in a manner consistent with the standard of care reasonably expected of an experienced owner/operator with the desire and financial resources necessary to design, operate and maintain the Facility to achieve the Performance Metrics. The foregoing is without limitation to Seller's other obligations under this Agreement, including the obligation to operate the Facility in accordance with Good Engineering and Operating Practices. The Performance Metrics set forth in Section 2.5 (PV System Equivalent Availability Factor; Liquidated Damages; Termination Rights) through Section 2.9 (BESS Annual Equivalent Forced Outage Factor; Liquidated Damages) of this Agreement shall be interpreted consistent with the North American Electric Reliability Corporation Generating Availability Data System ("NERC GADS") Data Reporting Instructions.

(b) [Reserved]

2.5 PV System Equivalent Availability Factor; Liquidated Damages; Termination Rights.

(a) Calculation of the PV System Equivalent Availability Factor. Following the end of each LD Period, the PV System Equivalent Availability Factor shall be calculated for such LD Period as follows:

$$\text{PV System Equivalent Availability Factor} = 100\% \cdot \frac{\text{Period Hours} - \text{ExcludedTime}}{\text{Period Hours}}$$

where:

Period Hours (PH) is the total number of hours in the LD Period counting twenty-four (24) hours per day minus ExcludedTime. In a normal year, PH = 8,760 minus ExcludedTime, and in a leap year PH = 8,784 minus ExcludedTime.

Available Hours (AH) is the number of hours that the PV System is not on Outage. It is the sum of all Service Hours (SH) + Reserve Shutdown Hours (RSH).

An "Outage" exists whenever the entire PV System is not online producing electric energy and is not in a Reserve Shutdown state, resulting from Seller-Attributable Non-Generation but excluding ExcludedTime.

Service Hours (SH) is the number of hours during the LD Period the PV System is online and producing electric energy to meet Company Dispatch and/or to maintain the BESS State of Charge.

Reserve Shutdown Hours (RSH) is the number of hours the PV System was available to the Company System but not providing electric energy or is offline for reasons other than Seller-Attributable Non-Generation, or is offline due to insufficient irradiance levels based on the inverter manufacturer's minimum irradiance level for production. All hours except for ExcludedTime between 7:00 pm and 6:00 am will be considered RSH. The PV System will be considered RSH in these hours, even if the system would otherwise be in an outage or derated state.

A "Deration" exists if the Facility is available for Company Dispatch, but at less than full potential output for the given irradiance conditions. Derations include only periods of Seller-Attributable Non-Generation and derations by Company pursuant to Section 8.3 (Company Rights of Dispatch). Derations do not include periods

of ExcludedTime. Each individual Deration is transformed into equivalent full outage hour(s). For Derations due to inverter outages, this is calculated by multiplying the actual duration of the derating (hours) by the number of inverters in the PV System offline and dividing by the total number of inverters in the PV System. For Derations by Company pursuant to Section 8.3 (Company Rights of Dispatch), this is calculated by the size of the Deration (in MW) divided by the Contract Capacity. For avoidance of doubt, if the Facility is in an Outage it cannot also be in a Deration.

Equivalent Planned Derated Hours (EPDH) includes Planned Derations (PD) and Maintenance Derations (D4). A Planned Deration is when the PV System experiences a Deration scheduled well in advance and for a predetermined duration. A Maintenance Deration is a Deration that can be deferred beyond the end of the next weekend (Sunday at midnight or before Sunday turns into Monday) but requires a reduction in capacity before the next Planned Deration (PD). Each individual Deration is transformed into equivalent full outage hour(s).

Equivalent Unplanned Derated Hours (EUDH): An Unplanned Deration (Forced Deration) occurs when the PV System experiences a Deration that requires a reduction in availability before the end of the nearest following weekend. Unplanned Derations include those due to Seller-Attributable Non-Generation. Each individual Unplanned Deration is transformed into equivalent full outage hour(s). For Derations due to inverter outages, this is calculated by multiplying the actual duration of the Deration (in hours) by the number of inverters in the PV System offline and dividing by the total number of inverters in the PV System. For Derations by Company pursuant to Section 8.3 (Company Rights of Dispatch) this is calculated by the size of the deration (in MW) divided by the Contract Capacity. These equivalent hour(s) are then summed.

ExcludedTime is unavailability as a result of the PV System or a portion of the PV System being unavailable due to Force Majeure. The hours and/or equivalent hours of ExcludedTime shall not be added to Available Hours and shall be subtracted from Period Hours. This is

calculated by multiplying the actual duration of the event that counts as ExcludedTime (in hours) by the number of inverters in the PV System offline and dividing by the total number of inverters in the PV System. These equivalent hour(s) are then summed.

The effect of Force Majeure is taken into account in calculating the PV System Equivalent Availability Factor over the 12 calendar month LD Period as follows: When an LD Period contains a month during which the PV System or a portion of the PV System is unavailable due to Force Majeure, then such month shall be excluded from the LD Period and the LD Period shall be extended back in time to include the next previous month during which there was no such unavailability of the PV System or a portion thereof due to Force Majeure.

EXAMPLE: The following is an example of a PV System Equivalent Availability Factor calculation and is included for illustrative purposes only. Assume the following:

1. PV System has 10 inverters.
2. LD Period = first 12 calendar months of the Agreement (non-leap year).
3. PV System was online and producing electric energy for 4,000 hours and was available but not producing electric energy due to lack of sufficient irradiance for production (i.e., not Seller-Attributable Non-Generation) for 500 hours.
4. 3 Inverters were offline for 100 hours due to a Planned Deration between the hours of 6 am and 7 pm.
5. 2 Inverters were offline for 50 hours due to an Unplanned Deration between the hours of 6 am and 7 pm (Seller-Attributable Non-Generation).
6. The PV System was offline for 10 hours due to Force Majeure, which occurred between the hours of 6 am and 7 pm.



Metric, Seller shall pay, and Company shall accept, as liquidated damages for Seller's failure to achieve the PV System Equivalent Availability Factor Performance Metric for such LD Period, an amount calculated in accordance with the following formula:

<u>PV System Equivalent Availability Factor</u>	<u>Amount of Liquidated Damages Per Calendar Month</u>
<b>97.9%</b> and below	For each one-tenth of one percent (0.001) by which the PV System Equivalent Availability Factor for such LD Period falls below the PV System Equivalent Availability Factor Performance Metric, an amount equal to 0.001917 of the Applicable Period Lump Sum Payment for the last calendar month of such LD Period.

For purposes of determining liquidated damages under the preceding formula, the amount by which the PV System Equivalent Availability Factor for the LD Period in question falls below the applicable threshold shall be rounded to the nearest one-tenth of one percent (0.001). Each Party agrees and acknowledges that (i) the damages that Company would incur if the Seller fails to achieve the PV System Equivalent Availability Factor Performance Metric for a LD Period would be difficult or impossible to calculate with certainty and (ii) the aforesaid liquidated damages are an appropriate approximation of such damages.

EXAMPLE: The following is an example calculation of liquidated damages for the PV System Equivalent Availability Factor Performance Metric and is included for illustrative purposes only. Assume the monthly Lump Sum Payment is \$1,000,000 and the PV System Equivalent Availability Factor is 96.9% as calculated in the example in Section 2.5(a) (Calculation of the PV System Equivalent Availability Factor) above.

The liquidated damages would be calculated as follows:

Applicable Period Lump Sum Payment = \$1,000,000

$\$1,000,000 \times .001917 = \$1,917$

$98.0\% - 96.9\% = 1.1\%$

$1.1\%/0.1\% = 11$

$\$1,917 \times 11 = \$21,087$

- (c) PV System Equivalent Availability Factor Termination Rights. The Parties acknowledge that, although the intent of the liquidated damages payable under Section 2.5(b) (PV System Equivalent Availability Factor Performance Metric and Liquidated Damages) is to compensate Company for the damages that Company would incur if the Seller fails to achieve the PV System Equivalent Availability Factor Performance Metric for a LD Period, such liquidated damages are not intended to compensate Company for the damages that Company would incur if a pattern of underperformance establishes a reasonable expectation that the PV System is likely to continue to substantially underperform the PV System Equivalent Availability Factor Performance Metric. Accordingly, and without limitation to Company's rights under said Section 2.5(b) (PV System Equivalent Availability Factor Performance Metric and Liquidated Damages) for those LD Periods during which the Seller failed to achieve the PV System Equivalent Availability Factor Performance Metric, the failure of the Facility to achieve a PV System Equivalent Availability Factor of not less than **84%** for each of three consecutive Contract Years shall constitute an Event of Default under Section 15.1(b) of this Agreement for which Company shall have the rights (including but not limited to the termination rights) set forth in Article 15 (Events of Default) and Article 16 (Damages in the Event of Termination by Company).

2.6 Measured Performance Ratio; Liquidated Damages; Termination Rights.

- (a) Calculation of Measured Performance Ratio.





- (iii) The time periods used in the foregoing calculation shall be only periods during which, for the entire 15-minute interval, the PV System output is allowed to convert all irradiance to gross AC power and is not offline due to insufficient irradiance levels based on the inverter minimum requirements for production. Data points that will be excluded are limited to data points where: (A) the  $G_{POA}$  is below minimum threshold, (B)  $G_{POA}$  above the maximum threshold (C) the PV System is in RSH, (D) when there is a EUDH or EPDH, (E) the PV System was not allowed to convert the full DC output to AC energy; or (F) when there is any other Outage. The aforementioned 15-minute intervals are fixed intervals that commence, in sequence, at the top of each hour and at 15, 30 and 45 minutes past the hour. At the end of each month, Seller shall provide Company a report that lists all hours when such excluded data points occur (from the Facility's SCADA system as necessary) to validate the exclusion of any data points from the calculation set forth in Section 2(a)(ii) above. This information shall be validated on a monthly basis.
- (iv) MPR Test. In the event that the set of operational data points under Section 2.6(a)(iii) that is available for any month to calculate the MPR cannot be validated to Company's reasonable satisfaction or in the event there were not at least 16 such data points during such month that could be used to calculate the MPR, the Company shall have the right to perform a test ("MPR Test") to collect the data points for such month to be used to calculate the MPR in lieu of the use of operational data for such month. The Company shall retain sole discretion as to when to conduct the MPR Test and the MPR Test may be conducted at any point during the month following the month for which Company was either unable to validate the set of operational data points for such month or there were not at least 16 data points available during such month, provided that Company will provide Seller three (3) Business Days' notice prior to conducting the MPR Test. The MPR Test shall have a minimum duration of four (4) hours and shall





- (i) Upon Commencement of Commercial Operations. If a copy of the IE Energy Assessment Report together with the supporting data (plane of array irradiance and corresponding power output) is not provided to Company in accordance with Section 1(c) (NEP IE Estimate and Company-Designated NEP Estimate) of Attachment U (Calculation and Adjustment of Net Energy Potential), the GPR Performance Metric for the period commencing on the Commercial Operations Date through the end of the calendar month during which the Initial OEPR is issued shall be **0.85**. If a copy of the IE Energy Assessment Report together with the supporting data (plane of array irradiance and corresponding power output) is provided to Company in accordance with Section 1(c) (NEP IE Estimate and Company-Designated NEP Estimate) of Attachment U (Calculation and Adjustment of Net Energy Potential), the GPR Performance Metric shall be the GPR set forth in the IE Energy Assessment Report, provided that such GPR is justified by such supporting data and consistent with the manufacturer's minimum irradiance level for production and point of power measurement specified in Section 2.6(a)(ii). In the event that the IE Assessment Report includes the supporting data (plane of array irradiance and corresponding power output) relied upon in arriving at the NEP IE Estimate, but does not set forth a GPR, the GPR Performance Metric shall be calculated using such supporting data and the Measured Performance Ratio formula in Section 2.6(a)(ii) of this Agreement. Within 30 Days of Company's receipt of the IE Energy Assessment Report together with the aforementioned supporting data, Company shall provide written notice to Seller of either (aa) the GPR Performance Metric derived from such supporting data or (bb) Company's inability to reasonably derive a GPR Performance Metric from such supporting data, in which case the GPR Performance Metric shall be **0.85**.
- (ii) Commencing With Initial OEPR. For the period commencing with the first Day of the calendar month following the establishment of the NEP OEPR Estimate for the Initial OEPR (as provided in

Section 2 (Initial OEPR) and Sections 4(g) (Review of the First OEPR Evaluator Report) and (h) (Review of the Second OEPR Evaluator Report) of Attachment U (Calculation and Adjustment of Net Energy Potential) to this Agreement) through the end of the calendar month during which the NEP OEPR Estimate for the first Subsequent OEPR is established as provided in Section 3 (Subsequent OEPRs) and Sections 4(g) (Review of the First OEPR Evaluator Report) and (h) (Review of the Second OEPR Evaluator Report) of Attachment U (Calculation and Adjustment of Net Energy Potential) to this Agreement, the GPR Performance Metric shall be the GPR as established through the Initial OEPR process as aforementioned. If no GPR has been established through the Initial OEPR process, the GPR Performance Metric shall be **0.85**.

(iii) Commencing With the First Subsequent OEPR and Thereafter. Commencing with the establishment of the NEP OEPR Estimate for the first Subsequent OEPR as provided in Section 3 (Subsequent OEPRs) and Sections 4(g) (Review of the First OEPR Evaluator Report) and (h) (Review of the Second OEPR Evaluator Report) of Attachment U (Calculation and Adjustment of Net Energy Potential) to this Agreement, for each period commencing with the first Day of the calendar month following the establishment of the NEP OEPR Estimate for a Subsequent OEPR (including but not limited to the first Subsequent OEPR) through the end of the calendar month during which the NEP OEPR Estimate is established for the next Subsequent OEPR, the GPR Performance Metric shall be the GPR established for the applicable Subsequent OEPR. If no GPR has been established through the then applicable Subsequent OEPR process, the GPR Performance Metric shall be **0.85**.

(c) GPR Performance Metric and Liquidated Damages. For each MPR Assessment Period, a Measured Performance Ratio shall be calculated as provided in Section 2.6(a) (Calculation of Measured Performance Ratio) of this Agreement. In the event the MPR is less than **95%** of the GPR Performance Metric as adjusted by the degradation

factor set forth below, Seller shall pay, and Company shall accept, as liquidated damages for Seller's failure to achieve the GPR Performance Metric for such MPR Assessment Period, an amount calculated in accordance with the following formula:

<u>Tier</u>	<u>Measured Performance Ratio</u>	<u>Amount of Liquidated Damages Per MPR Assessment Period</u>
<b>Tier 1</b>	<b>GPR Performance Metric x DF x 0.95 &gt; Measured Performance Ratio ≥ GPR Performance Metric x DF x 0.90</b>	For each one-tenth of one percent (0.001) by which the Measured Performance Ratio for such MPR Assessment Period falls below the upper limit of the bandwidth specified in this subparagraph, an amount equal to one-tenth of one percent (0.001) of the MPR Assessment Period Lump Sum Payment. The upper end of the aforementioned bandwidth is equal to the product of the GPR Performance Metric, the applicable degradation factor (DF), and 95%. The lower limit of the aforementioned bandwidth consists of and includes the product of the GPR Performance Metric, the applicable degradation factor (DF), and 90%; plus
<b>Tier 2</b>	<b>GPR Performance Metric x DF x 0.90 &gt; Measured Performance Ratio ≥ GPR Performance</b>	For each one-tenth of one percent (0.001) by which the Measured Performance Ratio for such MPR Assessment Period falls below the upper limit of the bandwidth specified in this subparagraph, an amount equal to two-tenths





The GPR for the Facility as determined by the OEPR is 0.9.

The MPR has been calculated to be 0.694.

Applicable Contract Year =  $[(5 \times 2) + (7 \times 3)]/12 = 2.58$

DF =  $1 - 0.005 * (2.58 - 1) = 0.9921$

Upper limit of the Tier 1 bandwidth =  $0.9 \times 0.9921 \times 0.95 = 0.848$

Lower limit of the Tier 1 bandwidth/Upper limit of the Tier 2 bandwidth =  $0.9 \times 0.9921 \times 0.9 = 0.804$

Lower limit of the Tier 2 bandwidth =  $0.8 \times 0.9921 \times 0.9 = 0.714$

LD =  $[(0.848 - 0.804) \times 1) + ((0.804 - 0.714) \times 2) + ((0.714 - 0.694) \times 4)] \times \text{MPR Assessment Period Lump Sum Payment}$   
=  $0.304 \times \text{MPR Assessment Period Lump Sum Payment}$

- (d) MPR Termination Rights. The Parties acknowledge that, although the intent of the liquidated damages payable under Section 2.6(c) (GPR Performance Metric and Liquidated Damages) is to compensate Company for the damages that Company would incur if the Seller fails to achieve the GPR Performance Metric for a MPR Assessment Period, such liquidated damages are not intended to compensate Company for the damages that Company would incur if a pattern of underperformance establishes a reasonable expectation that the Facility is likely to continue to substantially underperform the GPR Performance Metric. Accordingly, and without limitation to Company's rights under said Section 2.6(c) (GPR Performance Metric and Liquidated Damages) for those MPR Assessment Periods during which the Seller failed to achieve the GPR Performance Metric, the failure of the PV System to achieve, for each of three consecutive Contract Years, a Measured Performance Ratio of not less than the Tier 2 Bandwidth for such Contract Year shall constitute an Event of Default under Section 15.1(c) of this Agreement for which Company shall have the rights (including but not limited to the termination rights)

set forth in Article 15 (Events of Default) and Article 16 (Damages in the Event of Termination by Company).

2.7 BESS Capacity Test; Liquidated Damages; Termination Rights.

- (a) BESS Capacity Test and Liquidated Damages. For each BESS Measurement Period following the Commercial Operations Date, the BESS shall be required to complete a BESS Capacity Test, as more fully set forth in Attachment W (BESS Tests) to this Agreement. For each BESS Measurement Period for which the BESS fails to demonstrate that it satisfies the BESS Capacity Performance Metric, Seller shall pay, and Company shall accept, as liquidated damages for such shortfall, the amount set forth in the following table (on a progressive basis) upon proper demand at the end the BESS Measurement Period in question:

<b>BESS Capacity Ratio</b>	<b>Liquidated Damage Amount</b>
Tier 1 95.0% - 99.9%	For each one-tenth of one percent (0.001) that the BESS Capacity Ratio is below 100% and is above 94.9%, an amount equal to one-tenth of one percent (0.001) of the BESS Allocated Portion of the Lump Sum Payment for the BESS Measurement Period in question; plus
Tier 2 85.0% - 94.9%	For each one-tenth of one percent (0.001) that the BESS Capacity Ratio is below 95% and is above 84.9%, an amount equal to one and a half-tenths of one percent (0.0015) of the BESS Allocated Portion of the Lump Sum Payment for the BESS Measurement Period in question; plus

<p>Tier 3 75.0% - 84.9%</p>	<p>For each one-tenth of one percent (0.001) that the BESS Capacity Ratio is below 85% and is above 74.9%, an amount equal to two-tenths of one percent (0.002) of the BESS Allocated Portion of the Lump Sum Payment for the BESS Measurement Period in question; plus</p>
<p>Tier 4 60.0% - 74.9%</p>	<p>For each one-tenth of one percent (0.001) that the BESS Capacity Ratio is below 75% and is above 59.9%, an amount equal to two and a half-tenths of one percent (0.0025) of the BESS Allocated Portion of the Lump Sum Payment for the BESS Measurement Period in question; plus</p>
<p>Tier 5 50.0% - 59.9%</p>	<p>For each one-tenth of one percent (0.001) that the BESS Capacity Ratio is below 60% and is above 49.9%, an amount equal to three-tenths of one percent (0.003) of the BESS Allocated Portion of the Lump Sum Payment for the BESS Measurement Period in question; plus</p>
<p>Tier 6 49.9% and below <u>("Lowest BESS Capacity Bandwidth")</u></p>	<p>For each one-tenth of one percent (0.001) that the BESS Capacity Ratio is below 50%, an amount equal to three and a half-tenths of one percent (0.0035) of the BESS Allocated Portion of the Lump Sum Payment for</p>

	the BESS Measurement Period in question.
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For purposes of determining liquidated damages under this Section 2.7(a) (BESS Capacity Test and Liquidated Damages), the starting and end points for the duration of the period that the BESS discharges shall be rounded to the nearest MWh. Each Party agrees and acknowledges that (i) the damages that Company would incur if the Seller fails to achieve the BESS Capacity Performance Metric for a BESS Measurement Period would be difficult or impossible to calculate with certainty and (ii) the aforesaid liquidated damages are an appropriate approximation of such damages.

EXAMPLE: The following is an example calculation of liquidated damages for the BESS Capacity Performance Metric and is included for illustrative purposes only. Assume the following:

The Maximum Rated Output for the BESS is 25 MW.

A BESS Capacity Test was conducted and the BESS was measured to have discharged 65 MWh

BESS Contract Capacity = 25 MW x 4 hours = 100 MWh  
BESS Capacity Ratio = MWh Discharged/BESS Contract Capacity = 65 MWh/100 MWh = 0.65

$LD = [(1 - 0.950) \times 1] + [(0.950 - 0.850) \times 1.5] + [(0.850 - 0.750) \times 2] + [(0.750 - 0.65) \times 2.5] \times$  BESS Allocated Portion of the Lump Sum Payment for the BESS Measurement Period in question  
 $= 0.65 \times$  BESS Allocated Portion of the Lump Sum Payment for the BESS Measurement Period in question

- (b) BESS Capacity Test Termination Rights. The Parties acknowledge that, although the intent of the liquidated damages payable under Section 2.7(a) (BESS Capacity Test and Liquidated Damages) is to compensate Company for the damages that Company would incur if the BESS fails to demonstrate satisfaction of the BESS Capacity Performance Metric during a BESS Measurement Period, such liquidated damages are not intended to compensate

Company for the damages that Company would incur if a pattern of underperformance establishes a reasonable expectation that the BESS is likely to continue to substantially underperform the Company's expectations. Accordingly, and without limitation to Company's rights under said Section 2.7(a) (BESS Capacity Test and Liquidated Damages) for those BESS Measurement Periods during which the BESS fails to demonstrate satisfaction of the BESS Capacity Performance Metric, substantial underperformance shall give rise to a termination right as set forth in this Section 2.7(b) (BESS Capacity Test Termination Rights). If the BESS is in the Lowest BESS Capacity Bandwidth for any two BESS Measurement Periods during a 12-month period, an 18-month cure period (the "BESS Capacity Cure Period") will commence on the Day following the close of the second such BESS Measurement Period. For each BESS Measurement Period during such BESS Capacity Cure Period, BESS Capacity Tests shall continue to be conducted as set forth in Attachment W (BESS Tests) and liquidated damages paid and accepted as set forth in Section 2.7(a) (BESS Capacity Test and Liquidated Damages); provided, however, that if the Seller fails to demonstrate satisfaction of the BESS Capacity Performance Metric prior to the expiration of the BESS Capacity Cure Period, such failure shall constitute an Event of Default under Section 15.1(d) of this Agreement for which Company shall have the rights (including but not limited to the termination rights) set forth in Article 15 (Events of Default) and Article 16 (Damages in the Event of Termination by Company).

2.8 BESS Annual Equivalent Availability Factor; Liquidated Damages; Termination Rights.

- (a) BESS Annual Equivalent Availability Factor and Liquidated Damages. For each BESS Measurement Period following the Commercial Operations Date, a BESS Annual Equivalent Availability Factor shall be calculated as set forth in Attachment X (BESS Annual Equivalent Availability Factor). If the BESS Annual Equivalent Availability Factor for such BESS Measurement Period is less than **97%** (the "BESS EAF Performance Metric"), Seller shall pay, and Company shall accept, as liquidated damages for such shortfall, the amount set forth in the following table (on a progressive basis)

upon proper demand at the end the current BESS  
Measurement Period:

<b>BESS Annual Equivalent Availability Factor</b>	<b>Liquidated Damage Amount</b>
Tier 1  85.0% - 96.9%	For each one-tenth of one percent (0.001) by which the BESS Annual Equivalent Availability Factor falls below 97% but equal to or above 85%, an amount equal to one-tenth of one percent (0.001) of the BESS Allocated Portion of the Lump Sum Payment for the BESS Measurement Period in question; plus
Tier 2  80.0% - 84.9%	For each one-tenth of one percent (0.001) by which the BESS Annual Equivalent Availability Factor falls below 85% but equal to or above 80%, an amount equal to two-tenths of one percent (0.002) of the BESS Allocated Portion of the Lump Sum Payment for the BESS Measurement Period in question; plus
Tier 3  75.0% - 79.9%	For each one-tenth of one percent (0.001) by which the BESS Annual Equivalent Availability Factor falls below 80% but equal to or above 75%, an amount equal to three-tenths of one percent (0.003) of the BESS Allocated Portion of the Lump Sum Payment for the BESS Measurement Period in question; plus
Tier 4	For each one-tenth of one percent (0.001) by which the BESS Annual Equivalent

Below 75.0%	Availability Factor falls below 75%, an amount equal to four-tenths of one percent (0.004) of the BESS Allocated Portion of the Lump Sum Payment for the BESS Measurement Period in question.
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Such liquidated damages shall be due within thirty (30) Days after the first to occur of the end of such BESS Measurement Period or the end of Term. In the event Seller fails to pay Company amounts of liquidated damages due under this Section 2.8(a) (BESS Annual Equivalent Availability Factor and Liquidated Damages) within thirty (30) Days of receipt of Company's written demand, Company may, without limitation to any other remedy Company may have, set-off such amounts due against payments it is otherwise obligated to make under this Agreement.

For purposes of determining liquidated damages under this Section 2.8(a) (BESS Annual Equivalent Availability Factor and Liquidated Damages), the BESS Annual Equivalent Availability Factor for the BESS Measurement Period in question shall be rounded to the nearest one-tenth of one percent (0.001). Each Party agrees and acknowledges that (i) the damages that Company would incur if the Seller fails to achieve the BESS EAF Performance Metric for a BESS Measurement Period would be difficult or impossible to calculate with certainty and (ii) the aforesaid liquidated damages are an appropriate approximation of such damages.

- (b) BESS Annual Equivalent Availability Factor Termination Rights. The Parties acknowledge that, although the intent of the liquidated damages payable under Section 2.8(a) (BESS Annual Equivalent Availability Factor and Liquidated Damages) is to compensate Company for the damages that Company would incur if the Seller fails to achieve the BESS EAF Performance Metric for a BESS Measurement Period, such liquidated damages are not intended to compensate Company for the damages that Company would incur if a pattern of underperformance establishes a reasonable expectation that the BESS is

likely to continue to substantially underperform the BESS EAF Performance Metric. Accordingly, and without limitation to Company's rights under said Section 2.8(a) (BESS Annual Equivalent Availability Factor and Liquidated Damages) for those BESS Measurement Periods during which the Seller failed to achieve the BESS EAF Performance Metric, the failure of the Seller to achieve, for each of four consecutive BESS Measurement Periods, a BESS Annual Equivalent Availability Factor of not less than **75%** shall constitute an Event of Default under Section 15.1(e) of this Agreement for which Company shall have the rights (including but not limited to the termination rights) set forth in Article 15 (Events of Default) and Article 16 (Damages in the Event of Termination by Company); provided, however, that if a BESS Measurement Period for which the aforementioned 75% threshold is not achieved falls within a BESS Capacity Cure Period, such BESS Measurement Period shall be excluded from the calculation of the aforementioned "four consecutive BESS Measurement Periods" if the failure to achieve the aforementioned 75% threshold was the result of unavailability caused by the process of carrying out the repairs to or replacements of the BESS necessary to remedy the failure of the BESS to achieve the BESS Capacity Performance Metric.

2.9 BESS Annual Equivalent Forced Outage Factor; Liquidated Damages.

For each BESS Measurement Period following the Commercial Operations Date, the BESS shall maintain a BESS Annual Equivalent Forced Outage Factor of not more than 4% (the "BESS EFOF Performance Metric") as calculated as set forth in Attachment Y (BESS Annual Equivalent Forced Outage Factor). If the BESS Annual Equivalent Forced Outage Factor for such BESS Measurement Period exceeds the BESS EFOF Performance Metric, Seller shall pay, and Company shall accept, as liquidated damages for exceeding the BESS EFOF Performance Metric, the amount set forth in the following table (on a progressive basis) upon proper demand by the Company at the end of the BESS Measurement Period in question:

BESS Annual Equivalent Forced Outage Factor	Liquidated Damage Amount
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0.0% - 4.0%	-0-
4.1% - 6.9%	For each one-tenth of one percent (0.001) that the BESS Annual Equivalent Forced Outage Factor is above 4.0% but less than 7.0%, an amount equal to two-tenths of one percent (0.002) of the BESS Allocated Portion of the Lump Sum Payment for the BESS Measurement Period in question; plus
7.0% and above	For each one-tenth of one percent (0.001) that the BESS Annual Equivalent Forced Outage Factor is above 6.9%, an amount equal to four-tenths of one percent (0.004) of the BESS Allocated Portion of the Lump Sum Payment for the BESS Measurement Period in question

Such liquidated damages shall be due within thirty (30) Days after the first to occur of the end of such BESS Measurement Period or the end of Term. In the event Seller fails to pay Company amounts of liquidated damages due under this Section 2.9 (BESS Annual Equivalent Forced Outage Factor; Liquidated Damages) within thirty (30) Days of receipt of Company's written demand, Company may set-off such amounts due against payments it is otherwise obligated to make under this Agreement.

For purposes of determining liquidated damages under this Section 2.9 (BESS Annual Equivalent Forced Outage Factor; Liquidated Damages), the BESS Annual Equivalent Forced Outage Factor for the BESS Measurement Period in question shall be rounded to the nearest one-tenth of one percent (0.001). Each Party agrees and acknowledges that (i) the damages that Company would incur if the Seller fails to achieve the BESS EFOF Performance Metric for a BESS Measurement Period would be difficult or impossible to calculate with certainty and



Where:

PM = RTE Performance Metric stated as percentage

RTE Ratio = RTE Ratio from Selected RTE Test stated as percentage

For each percentage point by which the RTE Ratio is below the LDT, Seller shall pay, and Company shall accept, liquidated damages in an amount equal to two-tenths of one percent (0.002) of the BESS Allocated Portion of the Lump Sum Payment for the BESS Measurement Period in question.

Each Party agrees and acknowledges that (i) the damages that Company would incur if the Seller fails to achieve the RTE Performance Metric for a BESS Measurement Period would be difficult or impossible to calculate with certainty and (ii) the aforesaid liquidated damages are an appropriate approximation of such damages.

- (b) RTE Test Termination Rights. The Parties acknowledge that, although the intent of the liquidated damages payable under Section 2.10(a) (RTE Test and Liquidated Damages) is to compensate Company for the damages that Company would incur if the BESS fails to demonstrate satisfaction of the RTE Performance Metric during a BESS Measurement Period, such liquidated damages are not intended to compensate Company for the damages that Company would incur if a pattern of underperformance establishes a reasonable expectation that the BESS is likely to continue to substantially underperform the Company's expectations. Accordingly, and without limitation to Company's rights under said Section 2.10(a) (RTE Test and Liquidated Damages) for those BESS Measurement Periods during which the BESS fails to demonstrate satisfaction of the RTE Performance Metric, substantial underperformance shall give rise to a termination right as set forth in this Section 2.10(b) (RTE Test Termination Rights). If the RTE Ratio for the Selected RTE Test for the BESS Measurement Period in question is more than 15 percentage points below the RTE Performance Metric for any two BESS Measurement Periods during a 12-month period, an **18-month** cure period (the "RTE Cure Period") will commence on the Day following

the close of the second such BESS Measurement Period. For each BESS Measurement Period during such RTE Cure Period, RTE Tests shall continue to be conducted as set forth in Attachment W (BESS Tests) and liquidated damages paid and accepted as set forth in Section 2.10(a) (RTE Test and Liquidated Damages); provided, however, that if the Seller fails to demonstrate satisfaction of the RTE Performance Metric prior to the expiration of the RTE Cure Period, such failure shall constitute an Event of Default under Section 15.1(g) of this Agreement for which Company shall have the rights (including but not limited to the termination rights) set forth in Article 15 (Events of Default) and Article 16 (Damages in the Event of Termination by Company).

2.11 Fast Frequency Response Performance Metric. [DRAFTING NOTE: SECTION 2.11 APPLIES ONLY TO PROJECTS THAT INCLUDE CONTINGENCY STORAGE IN THEIR PROPOSALS. IT WILL BE REMOVED FROM PROJECTS THAT DO NOT INCLUDE CONTINGENCY STORAGE.]

- (a) Fast Frequency Response Criteria and Liquidated Damages. Following the Commercial Operations Date, the Facility shall respond appropriately to frequency disturbances in the Company System by operating in a manner consistent with standards and parameters established for Fast Frequency Response. With respect to such frequency disturbances in the Company System, the Facility shall be required to meet all of the following minimum frequency performance criteria (collectively, the "Fast Frequency Response Performance Metric"):
- (i) Perform per design approved by Company [DRAFTING NOTE: TO BE ELABORATED UPON BASED ON FACILITY DESIGN.];
  - (ii) When control is activated, achieve 95% to 105% of control commanded full response at the POI within 200 msecs of the initiation of the disturbance; and
  - (iii) Meet all other requirements listed in Section 3(p) (Fast Frequency Response) of Attachment B (Facility Owned by Seller).

Company will review historical operational data to determine the Facility's fast frequency response following disturbances and satisfaction of the Fast Frequency Response Performance Metric. To the extent the historical operational data is insufficient or otherwise lacking for purposes of determining the Facility's satisfaction of the Fast Frequency Response Performance Metric, Company shall review Facility's performance under structured test conditions no less than once per Contract Year.

After the first Contract Year:

- (1) for each instance of the Facility failing to satisfy the Fast Frequency Response Performance Metric, Seller shall pay, and Company shall accept, as liquidated damages for such failure, an amount equal to 25% of the FFR Allocated Portion of the Lump Sum Payment upon proper demand by Company; and
- (2) in the event poor Facility fast frequency response performance requires disabling the fast frequency response controls, as determined by Company in its sole discretion (e.g., in the event a Facility response to Company System frequency outside of the FFR deadband contributes to frequency error or worsens the disturbance), Seller shall pay, and Company shall accept, as liquidated damages for such underperformance, an amount equal to 100% of the FFR Allocated Portion of the Lump Sum Payment upon proper demand by Company, and Seller shall not be entitled to receive further payments of the FFR Allocated Portion of the Lump Sum Payment while the Facility fast frequency response controls remain disabled to allow Seller to implement corrective actions on the Facility to Company's reasonable satisfaction.

Such liquidated damages shall be due within thirty (30) Days of Company's written demand.

Company agrees that, when evaluating performance under this Section 2.11 (Fast Frequency Response Performance Metric), the available State of Charge shall be taken into consideration and Seller shall not be held to the criteria set forth in this Section 2.11 (Fast Frequency Response

Performance Metric) if there is insufficient charged capacity available for the appropriate response.

(b) Performance Deficiencies; Fast Frequency Response Performance Factor Termination Rights. With respect to any Facility response under this Section 2.11 (Fast Frequency Response Performance Metric), Company will notify Seller of any discrepancies in the Facility response, and Seller shall respond to and cure all such performance deficiencies in accordance with Section 1(j) (Demonstration of Facility) of Attachment B (Facility Owned by Seller). The Parties acknowledge that, although the intent of the liquidated damages payable under Section 2.11(a) (Fast Frequency Response Criteria and Liquidated Damages) is to compensate Company for the damages that Company would incur if the Facility fails to respond appropriately to Company System frequency, such liquidated damages are not intended to compensate Company for the damages that Company would incur if a pattern of underperformance establishes a reasonable expectation that the Facility is likely to continue to substantially underperform. Accordingly, and without limitation to Company's rights under said Section 2.11(a) (Fast Frequency Response Criteria and Liquidated Damages), in the event Seller fails to comply with the terms of Section 1(j) (Demonstration of Facility) of Attachment B (Facility Owned by Seller), such event shall constitute an Event of Default under Section 15.2(f) of this Agreement for which Company shall the rights (including but not limited to the termination rights) set forth in Article 15 (Events of Default) and Article 16 (Damages in the Event of Termination).

2.112.12 Payment of Liquidated Damages for Failure to Achieve Performance Metrics; Limitation on Liquidated Damage.

(a) Payment of Liquidated Damages. With respect to the liquidated damages payable under Section 2.5(b) (PV System Equivalent Availability Factor Performance Metric and Liquidated Damages), Section 2.6(c) (GPR Performance Metric and Liquidated Damages), Section 2.7(a) (BESS Capacity Test and Liquidated Damages), Section 2.8(a) (BESS Annual Equivalent Availability Factor and Liquidated Damages), Section 2.9 (BESS Annual Equivalent Forced Outage Factor; Liquidated Damages), ~~and~~ Section

2.10 (BESS Round Trip Efficiency; Liquidated Damages; Termination Rights) and Section 2.11 (Fast Frequency Response Performance Metric) [SUBJECT TO REMOVAL PER SECTION 2.11 DRAFTING NOTE] (collectively, the "Performance Metrics LDs"), Company shall have the right, at any time on or after the LD Assessment Date for the liquidated damages in question, at Company's option, to set-off such liquidated damages from the amounts to be paid to Seller under Section 2.3 (Lump Sum Payment) of this Agreement or, to draw such liquidated damages from the Operating Period Security, as follows:

- (i) if the BESS fails to achieve the BESS Capacity Performance Metric for a BESS Measurement Period, the Company shall have the right to set-off or draw the amount owed for such failure as calculated as provided in Section 2.7(a) (BESS Capacity Test and Liquidated Damages); and
- (ii) if the Monthly Report for the calendar month, MPR Assessment Period, or BESS Measurement Period in question, as applicable, shows a failure to achieve one or more of the Performance Metrics required for the LD Period in question, the MPR Measurement Period in question, or the BESS Measurement Period in question, as applicable, and Company does not submit a Notice of Disagreement with respect to such Monthly Report, the Company shall have the right to set-off or draw the amount of liquidated damages owed for such failure as calculated as provided in Section 2.5(b) (PV System Equivalent Availability Factor Performance Metric and Liquidated Damages), Section 2.6(c) (GPR Performance Metric and Liquidated Damages), Section 2.8(a) (BESS Annual Equivalent Availability Factor and Liquidated Damages), Section 2.9 (BESS Annual Equivalent Forced Outage Factor; Liquidated Damages) and Section 2.10 (BESS Round Trip Efficiency Test; Liquidated Damages; Termination Rights), as applicable;
- (iii) in all cases in which Company submits a Notice of Disagreement for a given Monthly Report, Company shall have the right to set-off or draw all or any portion of the amount of liquidated damages for the

calendar month in question, MPR Assessment Period in question, or BESS Measurement Period in question, as applicable, as calculated on the basis of the shortfall(s) in the achievement of the Performance Metric(s) in question, as shown in such Notice of Disagreement; and

- (iv) in the event of any disagreement as to the liquidated damages owed under clause (i) and (iii) above:
  - (aa) if the amount set-off or drawn by the Company exceeds the amount of liquidated damages for such calendar month, BESS Measurement Period or MPR Assessment Period that are eventually found to be payable for the LD Period in question as determined under Section 2 (Monthly Report Disagreements) of Attachment T (Monthly Reporting and Dispute Resolution by Independent AF Evaluator) to this Agreement, Company shall promptly (and in no event more than forty-five (45) Business Days from the date of such determination) repay such excess to Seller together with, unless the Parties otherwise agree in writing, interest from the date of Company's set-off or draw until the date that such excess is repaid to Seller at the average Prime Rate for such period; and
  - (bb) if Company does not exercise its rights to set-off or draw liquidated damages for such calendar month, BESS Measurement Period or MPR Assessment Period, or does not set-off or draw the full amount of the liquidated damages for such calendar month, BESS Measurement Period or MPR Assessment Period that are eventually found to be payable for the LD Period, BESS Measurement Period or MPR Assessment Period in question as determined under Section 2 (Monthly Report Disagreements) of Attachment T (Monthly Reporting and Dispute Resolution by Independent AF Evaluator) to this Agreement, Seller shall promptly, upon such determination as aforesaid, pay to Company the amount of liquidated damages that are found to be owing

together with, unless otherwise agreed by the Parties in writing, interest on the amount of such liquidated damages that went unpaid from the applicable LD Assessment Date for such liquidated damages until the date such liquidated damages are paid to Company in full at the average Prime Rate for such period, and Company shall have the right, at its option, to set-off such interest for the amounts to be paid to Seller under Section 2.3 (Lump Sum Payment) of this Agreement or to draw from the Operating Period Security.

Any delay by Company in exercising its rights to set-off liquidated damages and/or interest from the amounts to be paid to Seller under Section 2.3 (Lump Sum Payment) of this Agreement or to draw such liquidated damages and/or interest from the Operating Period Security shall not constitute a waiver by Company of its right to do so.

- (b) Limitation on Liquidated Damages. Notwithstanding any other provision of this Agreement to the contrary, the aggregate liquidated damages paid by Seller during each Contract Year for the Performance Metrics LDs, such payments by Seller to include but not be limited to any set-offs or draws made by Company during such Contract Year pursuant to Section 2.112(a) (Payment of Liquidated Damages), shall not exceed the total of the twelve (12) monthly Lump Sum Payments payable during such Contract Year pursuant to Section 2.3 (Lump Sum Payment) and Section 2.16-17 (Payment Procedures). For avoidance of doubt: A monthly Lump Sum Payment that is invoiced by Seller to Company pursuant to Section 2.15-16 (Seller's Preparation of the Monthly Invoice) for, e.g., the twelfth (12<sup>th</sup>) calendar month of Contract Year N but is paid during Contract Year N+1 as provided in Section 2.16-17 (Payment Procedures) shall, for purposes of determining the limitation on Performance Metrics LDs under this Section 2.112(b) (Limitation on Liquidated Damages), be included in the total of the twelve (12) monthly Lump Sum Payments payable during Contract Year N+1. As a result of the foregoing, the total of the monthly Lump Sum Payments used to establish the limitation on Performance Metrics LDs for the initial Contract Year under this Section 2.112(b) (Limitation

on Liquidated Damages) will be less than twelve (12). The Parties acknowledge that, because the monthly Lump Sum Payment is subject to adjustment (including downward adjustment) as provided in Section 2.3 (Lump Sum Payment), it is possible that a downward adjustment in some or all of the monthly Lump Sum Payments payable during a Contract Year might cause the Performance Metrics LDs paid by Seller during the course of such Contract Year to exceed the limitation on the Performance Metrics LDs for such Contract Year established at the close of such Contract Year pursuant to the first sentence of this Section 2.112(b) (Limitation on Liquidated Damages). In such case, Company shall promptly upon the determination that the Performance Metrics LDs paid during the course of such Contract Year exceeded the limitation on Performance Metrics LDs for such Contract Year (and in no event more than forty-five (45) Business Days from the end of such Contract Year) repay such excess amount to Seller without interest.

2.122.13 No Payments Prior to Commercial Operations Date. Prior to the Commercial Operations Date, Company may accept test energy delivered by Seller in accordance with Section 4 (Test Energy) of Attachment J (Company Payments for Energy, Dispatchability and Availability of BESS). Company shall not be obligated to pay for any test energy accepted prior to the Commercial Operations Date.

2.132.14 Sales of Electric Energy by Company to Seller. Sales of electric energy by Company to Seller shall be governed by an applicable rate schedule filed with the PUC and not by this Agreement, except with respect to the reactive amount adjustment (if any) referred to in Attachment B (Facility Owned by Seller).

2.142.15 [Reserved] **[Drafting Note: Use following section if PPA has energy payment: Company's Obligation to Provide Certain Data.** By the fifth (5<sup>th</sup>) Business Day of each calendar month, Company shall provide Seller or its designated agent with the appropriate data for Seller to compute the amount to be paid for the electric energy purchased by Company in the preceding calendar month as determined in accordance with this Agreement.]

~~2.15~~2.16 Seller's Preparation of the Monthly Invoice. By the tenth (10<sup>th</sup>) Business Day of each calendar month, Seller shall submit to Company an invoice that separately states the following for the preceding month: (i) the Actual Output during this period; (ii) the monthly Lump Sum Payment for this period; and (iii) the monthly metering charge as set forth in Article 7 (Seller Payments) of this Agreement. **[Drafting Note: Add the following subclause if PPA has energy payment: "(iv) the charge for electric energy purchased by Company, as set forth in Attachment J (Company Payments for Energy, Dispatchability and Availability of BESS) of this Agreement."]**

~~2.16~~2.17 Payment Procedures. By the twentieth (20<sup>th</sup>) Business Day of each calendar month following the month during which the invoice was submitted (i.e., by the twentieth (20<sup>th</sup>) Business Day of the second calendar month following the calendar month covered by the invoice in question), (but, except as otherwise provided in the following sentence, no later than the last Business Day of that month if there are less than twenty (20) Business Days in that month), Company shall, subject to Company's right to set-off liquidated damages as provided in Section 2.11-12 (Payment of Liquidated Damages for Failure to Achieve Performance Metrics; Limitation on Liquidated Damages) of this Agreement, make payment on such invoice, or provide to Seller an itemized statement of its objections to all or any portion of such invoice and pay any undisputed amount. Notwithstanding the foregoing, the Day by which the Company shall make payment to Seller hereunder shall be increased by one (1) Day for each Day that Seller is delinquent in providing to the Company either: (i) the Monthly Report for the calendar month in question pursuant to Section 1 (Monthly Report) of Attachment T (Monthly Reporting and Dispute Resolution by Independent AF Evaluator) to this Agreement; or (ii) the information required under Section 2.15-16 (Seller's Preparation of the Monthly Invoice) of this Agreement. **[Drafting Note: If PPA has an energy payment, replace language starting from subclause "(ii)" with the following: "(ii) the information required under Section 2.15-16 (Seller's Preparation of the Monthly Invoice) of this Agreement. However, if Company is not timely in providing data required in Section 2.14-15 (Company's Obligation to Provide Certain Data) and this directly causes Seller to be unable to deliver its invoice in accordance with the time frame set forth in Section 2.15**

16 (Seller's Preparation of the Monthly Invoice), then Company shall still meet the payment date of the twentieth (20<sup>th</sup>) Business Day of the month following the month during which the invoice was submitted. If Seller is unable to provide a complete invoice for the reasons set forth in the preceding sentence, an estimated payment, subject to reconciliation with the complete invoice, may be made by Company as an interim provision until a complete invoice can be prepared by Seller and received by Company." ]

2.172.18 Late Payments. Notwithstanding all or any portion of such invoice in dispute, and subject to the provisions of Section 2.1012 (a) (iii) of this Agreement (to the extent applicable), interest shall accrue on any invoiced amount that remains unpaid following the twentieth (20<sup>th</sup>) Business Day of each calendar month (or the last Business Day of that month if there are less than twenty Business Days in that month), or following the due date for such payment if extended pursuant to Section 2.15-16 (Payment Procedures), at the average daily Prime Rate for the period commencing on the Day following the Day such payment is due until the invoiced amounts (or amounts due to Seller if determined to be less than the invoiced amounts) are paid in full. Partial payments shall be applied first to outstanding interest and then to outstanding invoice amounts.

2.182.19 Adjustments to Invoices After Payment. In the event adjustments are required to correct inaccuracies in an invoice after payment, the Party requesting adjustment shall recompute and include in the Party's request the principal amounts due during the period of the inaccuracy together with the amount of interest from the date that such invoice was payable until the date that such recomputed amount is paid at the average daily Prime Rate for the period. The difference between the amount paid and that recomputed for the invoice, along with the allowable amount of interest, shall either be (i) paid to Seller or set-off by Company, as appropriate, in the next invoice payment to Seller, or (ii) objected to by the Party responsible for such payment within thirty (30) Days following its receipt of such request. If the Party responsible for such payment objects to the request, then the Parties shall work together in good faith to resolve the objection. If the Parties are unable to resolve the objection, the matter shall, except to the extent otherwise provided in Section 28.3 (Exclusions), be

resolved pursuant to Article 28 (Dispute Resolution). All claims for adjustments shall be waived for any amounts that were paid or should have been payable more than thirty-six (36) months preceding the date of receipt of any such request.

2.192.20 Company's Billing Records. Seller, after giving reasonable advance written notice to Company, shall have the right to review all billing, metering and related records necessary to verify the accuracy of payments relating to the Facility during Company's normal working hours on Business Days. Company shall maintain such records for a period of not less than thirty-six (36) months. **[Drafting Note: If PPA has an energy payment, replace this section with the following: Company's Billing Records. Seller, after giving reasonable advance written notice to Company, shall have the right to review all billing, metering and related records necessary to verify the accuracy of the data provided by Company pursuant to Section 2.14-15 (Company's Obligation to Provide Certain Data) and payments relating to the Facility during Company's normal working hours on Business Days. Company shall maintain such records for a period of not less than thirty-six (36) months.]**

**[ATTACHMENT B WILL BE REVISED TO REFLECT  
THE RESULTS OF IRS]**

ATTACHMENT B  
FACILITY OWNED BY SELLER

1. The Facility.

(a) Drawings, Diagrams, Lists, Settings and As-Builts.

- (i) Single-Line Drawing, Interface Block Diagram, Relay List, Relay Settings and Trip Scheme. A preliminary single-line drawing (including notes), Interface Block Diagram, relay list, relay settings, and trip scheme of the Facility shall, after Seller has obtained prior written consent from Company, be attached to this Agreement on the Execution Date as Attachment E (Single-Line Drawing and Interface Block Diagram) and Attachment F (Relay List and Trip Scheme). A final single-line drawing (including notes), Interface Block Diagram, relay list and trip scheme of the Facility shall, after having obtained prior written consent from Company, be labeled the "Final" Single-Line Drawing, the "Final" Interface Block Diagram and the "Final" Relay List and Trip Scheme and shall supersede Attachment E (Single-Line Drawing and Interface Block Diagram) and Attachment F (Relay List and Trip Scheme) to this Agreement and shall be made a part hereof on the Commercial Operations Date. After the Commercial Operations Date, no changes shall be made to the "Final" Single-Line Drawing, the "Final" Interface Block Diagram and the "Final" Relay List and Trip Scheme without the prior written consent of Seller and Company. The single-line drawing shall expressly identify the Point of Interconnection of Facility to Company System.
- (ii) As-Builts. Seller shall provide final as-built drawings of the Seller-Owned Interconnection Facilities within 30 Days of the successful completion of the Acceptance Test.
- (iii) No Material Changes. Seller agrees that no material changes or additions to the Facility as

reflected in the "Final" Single-Line Drawing (including notes), the "Final" Interface Block Diagram and the "Final" Relay List and Trip Scheme, shall be made without Seller first having obtained prior written consent from Company. The foregoing are subject to changes and additions as part of any Performance Standards Modifications. If Company directs any changes in or additions to the Facility, records and operating procedures that are not part of any Performance Standards Modifications, Company shall specify such changes or additions to Seller in writing, and, except in the case of an emergency, Seller shall have the opportunity to review and comment upon any such changes or additions in advance.

(b) Certain Specifications for the Facility.

(i) Seller shall furnish, install, operate and maintain the Facility including breakers, relays, switches, synchronizing equipment, monitoring equipment and control and protective devices approved by Company as suitable for parallel operation of the Facility with Company System. The Facility shall be accessible at all times to authorized Company personnel.

(ii) The Facility shall include:

**[LIST OF THE FACILITY**

**Examples may include, but are not limited to:**

- **Seller-Owned Interconnection Facilities**
- **Substation**
- **Control and monitoring facilities**
- **Transformers**
- **Generators and BESS equipment (as described in Attachment A)**
- **"Lockable" cabinets or housings suitable for the installation of the Company-Owned Interconnection Facilities located on the Site**
- **Relays and other protective devices**
- **Leased telephone line and/or equipment to facilitate microwave communication]**

(iii) The Facility shall comply with the following  
**[includes excerpts of language that may be requested  
by Company]:**

- A. Seller shall install a \_\_\_\_ kV gang operated, load breaking, lockable disconnect switch and all other items for its switching station (relaying, control power transformers, high voltage circuit breaker). Bus connection shall be made to a manually and automatically (via protective relays) operated high-voltage circuit breaker. The high-voltage circuit breaker shall be fitted with bushing style current transformers for metering and relaying. Downstream of the high-voltage circuit breaker, a structure shall be provided for metering transformers. From the high-voltage circuit breaker, another bus connection shall be made to another pole mounted disconnect switch, with surge protection.
- B. Seller shall provide within the Seller-Owned Interconnection Facilities a separate, fenced area with separate access for Company. Seller shall provide all conduits, structures and accessories necessary for Company to install the Revenue Metering Package. Seller shall also provide within such area, space for Company to install its communications, supervisory control and data acquisition ("SCADA") equipment (remote terminal unit or equivalent) and certain relaying if necessary for the interconnection. Seller shall also provide AC and DC source lines as specified by Company. Seller shall provide a telephone line for Company-owned meters. Seller shall work with Company to determine an acceptable location and size of the fenced-in area. Seller shall provide an acceptable demarcation cabinet on its side of the fence where Seller and Company wiring will connect/interface.
- C. Seller shall ensure that the Seller-Owned Interconnection Facilities have a lockable cabinet for switching station relaying equipment. Seller shall select and install

relaying equipment acceptable to Company. At a minimum the relaying equipment will provide over and under frequency (81) negative phase sequence (46), under voltage (27), over voltage (59), ground over voltage (59G), over current functions (50/51) and direct transfer trip. Seller shall install protective relays that operate a lockout relay, which in turn will trip the main circuit breaker.

- D. Seller shall configure the relay protection system to provide overpower protection to enable Facility to comply with the Allowed Capacity limitation.
- E. Seller's equipment also shall provide at a minimum:
  - (i) Interface with Company's Telemetry and Control, or designated communications and control interface, to provide telemetry of electrical quantities such as total Facility net MW, MVar, power factor, voltages, currents, and other quantities as identified by the Company;
  - (ii) Interface with Company's Telemetry and Control, or designated communications and control interface, to provide status for circuit breakers, reactive devices, switches, and other equipment as identified by the Company;
  - (iii) Interface with Company's Telemetry and Control, or designated communications and control interface, to provide control to incrementally raise and lower the voltage target at the point of regulation operating in automatic voltage regulation control. If Company's Telemetry and Control, or designated communications and control interface, is unavailable, due to loss of communication link, Telemetry and Control failure, or other event resulting in loss of the remote control by Company, provision must be made for Seller to be able to institute via local controls,

within 30 minutes (or such other period as Company accepts in writing) of the verbal directive by the Company System Operator, such change in voltage regulation target as directed by the Company System Operator;

(iv) Interface with Company's Telemetry and Control, or designated communications and control interface, to provide active power control to limit or set level of (when storage is not depleted) net real power import or export from the Facility and to remove the limit or change level (when storage is not depleted) of net real power import or export of the Facility.; and

(v) For Variable Energy Facilities:  
Interface with Company's Telemetry and Control, or designated communications and control interface, to provide telemetry of inverter availability and meteorological and production data required under Section 8 (Data and Forecasting) of this Attachment B (Facility Owned by Seller) and the Facility's Power Possible.

F. If Seller adds, deletes and/or changes any of its equipment, or changes its design in a manner that would change the characteristics of the equipment and specifications used in the IRS, Seller shall be required to obtain Company's prior written approval. If an analysis to revise parts of the IRS is required, Seller shall be responsible for the cost of revising those parts of the IRS, and modifying and paying for the cost of the modifications to the Facility and/or the Company-Owned Interconnection Facilities based on the revisions to the IRS.

G. Critical Infrastructure Protection.

(i) Documentation. Seller shall submit documentation describing the approach, methodology and design to provide physical and cyber security with its submittal of

the design drawings pursuant to Section 1(c) (Design Drawings, Bill of Materials, Relay Settings and Fuse Selection) of Attachment B (Facility Owned by Seller) which shall be at least sixty (60) Days prior to the Acceptance Test.

- The design shall meet industry standards and best practices, as indicated by NERC CIP guidelines and requirements for critical generation facilities. The system shall be designed with the criteria to meet applicable industry standards and guidelines (at the time of this writing, NERC CIP, or any future standard adopted by the industry in its place) compliance requirements and identify areas that are not consistent with NERC CIP guidelines and requirements.
- The cyber-security documentation shall include a block diagram of the control system with all external connections clearly described.
- Seller shall provide such additional information as Company may reasonably request as part of a security posture assessment.
- Company shall be notified in advance when there is any condition that would compromise physical or cyber security, or if any breaches in security, or security incidents are detected.

(ii) Malware. Seller shall (consistent with the following sentence) ensure that no malware or similar items are coded or introduced into any aspect of the Facility, Interconnection Facilities, the Company Systems interfacing with the

Facility and Interconnection Facilities, and any of Seller's critical control systems or processes used by Seller to provide energy, including the information, data and other materials delivered by or on behalf of Seller to Company, (collectively, the "Environment"). Seller will continue to review, analyze and implement improvements to and upgrades of its Malware prevention and correction programs and processes that are commercially reasonable and consistent with the then current technology industry's standards and, in any case, not less robust than the programs and processes implemented by Seller with respect to its own information systems. If Malware is found to have been introduced into the Environment, Seller will promptly notify Company and Seller shall take immediate action to eliminate and remediate the effects of the Malware, at Seller's expense. Seller shall not modify or otherwise take corrective action with respect to the Company Systems except at Company's request. Seller will promptly report to Company the nature and status of all Malware elimination and remediation efforts.

- (iii) Security Breach. In the event that Seller discovers or is notified of a breach, potential breach of security, or security incident at Seller's Facility or of Seller's systems, Seller shall immediately (i) notify Company of such potential, suspected or actual security breach, whether or not such breach has compromised any of Company's confidential information; (ii) investigate and promptly remediate the effects of the breach, whether or not the breach was caused by Seller; (iii) cooperate with Company with respect to any such breach or unauthorized access or use; (iv) comply with all applicable privacy and data protection laws governing Company's or any other

individual's or entity's data; and (v) to the extent such breach was caused by Seller, provide Company with reasonable assurances satisfactory to Company that such breach, potential breach, or security incident shall not recur. Seller shall provide documentation to Company evidencing the length and impact of the breach. Any remediation of any such breach will be at Seller's sole expense.

(iv) Monitoring and Audit. Seller shall provide information on available audit logs and reports relating to cyber and physical and security. Company may audit Seller's records to ensure Seller's compliance with the terms of this Section 1(b)(iii)G (Critical Infrastructure Protection) of this Attachment B (Facility Owned by Seller), provided that Company has provided reasonable notice to Seller and any such records of Seller's will be treated by Company as confidential.

H. Because a reliable Power Possible value under Section 1(b)(iii)(E)(v) of this Attachment B (Facility Owned by Seller) is necessary throughout the Term in order for Company to effectively optimize the benefits of its right of Company Dispatch, Seller's available power production considering equipment and resource availability ("Power Possible") will be determined at any given time using the best-available data and methods for an accurate representation of the amount of active power at the point of interconnection. To the extent available, the Parties shall use Seller's real time Power Possible communicated to Company through the SCADA system except to the extent that the potential energy does not accurately reflect the actual available active power at the point of interconnection (plus or minus 0.1 MW). During those periods of time when the SCADA derived Power Possible is unavailable, or does not accurately represent the available power production considering equipment and resource availability, the Parties shall use

the best available data obtained through commercially reasonable methods to determine the Power Possible.

- (i) If, at any time during the Term, there is a material discrepancy or pattern of discrepancies in the accuracy of Power Possible, the Parties shall review the method for determining Power Possible and develop modifications with the objective of avoiding future discrepancies. If the Parties are unable to resolve the issue, then (aa) the Parties shall promptly commission a study to be performed by one of the engineering firms then included on the Qualified Independent Third-Party Consultants List attached to the Agreement as Attachment D (Consultants List) to evaluate the cause of the Power Possible discrepancy and to make recommendations with the objective of avoiding future Power Possible discrepancies ("Study"); and (bb) if the Company decides that its ability to effectively optimize the benefits of its right of Company Dispatch to dispatch the Facility's Net Energy Potential is materially impaired by the lack of an accurate method to determine Power Possible, the Company shall have the right to derate the Facility and the Facility shall be deemed to be in Seller-Attributable Non-Generation status until the Study has been completed and the Study's recommendations have been implemented by Seller to Company's reasonable satisfaction. Seller shall pay for the cost of the Study. The Study shall be completed within ninety (90) days from the date the Study is commissioned, unless otherwise reasonably agreed to in writing by Seller and Company. The Consultant shall send the Study to Company and Seller. Seller (and/or its Third-Party consultants and contractors), at Seller's expense, shall take such action as the Study shall recommend (e.g.,

modifications to the model, modifications and/or additions to the data inputs used in the model, modifications to the procedures for maintaining and/or recalibrating the Monitoring and Communication Equipment used to provide data inputs, replacement of such Monitoring and Communication Equipment, modifications of procedures for Facility operations) with the objective of avoiding future Power Possible discrepancies. Such recommendations shall be implemented by Seller to Company's reasonable satisfaction no later than forty-five (45) Days from the Day the completed Study is issued by the consultant, or such other longer commercially reasonable timeframe otherwise agreed to in writing by Company.

- I. Seller shall reserve space within the Site for possible future installation of Company-owned meteorological equipment (such as SODAR and irradiance monitors) and AC and DC source lines for such equipment. In the event Company decides to install such meteorological equipment: (i) Seller shall work with Company to determine an acceptable location for such equipment and any associated wiring, interface or other components; and (ii) Company shall pay for the needed equipment, and installation of such equipment, unless otherwise agreed to by the Parties. Company and Seller shall use commercially reasonable efforts to facilitate installation and minimize interference with the operation of the Facility.
  
- J. The Facility shall, at a minimum, satisfy the wind load and seismic load requirements of the International Building Code and any more stringent requirements imposed under applicable Laws.

- (c) Design Drawings, Bill of Material, Relay Settings and Fuse Selection. Seller shall provide to Company for its review the design drawings, Bill of Material, relay settings and fuse selection for the Facility and Company shall have the right, but not the obligation, to specify

the type of electrical equipment, the interconnection wiring, the type of protective relaying equipment, including, but not limited to, the control circuits connected to it and the disconnecting devices, and the settings that affect the reliability and safety of operation of Company's and Seller's interconnected system. Seller shall provide the relay settings and protection coordination study, including fuse selection and AC/DC Schematic Trip Scheme (part of design drawings), for the Facility to Company during the 60% design. Company, at its option, may, with reasonable frequency, witness Seller's operation of control, synchronizing, and protection schemes and shall have the right to periodically re-specify the settings. Seller shall utilize relay settings prescribed by Company, which may be changed over time as Company System requirements change.

- (d) Disconnect Device. Seller shall provide a manually operated disconnect device which provides a visible break to separate Facility from Company System. Such disconnect device shall be lockable in the OPEN position and be readily accessible to Company personnel at all times.
  
- (e) Other Equipment. Seller shall install, own and maintain the infrastructure associated with the Revenue Metering Package, including but not limited to all enclosures (meter cabinets, meter pedestals, meter sockets, pull boxes, and junction boxes, along with their grounding/bonding connections), CT/PT mounting structures, conduits and ductlines, enclosure support structures, ground buses, pads, test switches, terminal blocks, isolation relays, telephone surge suppressors, and analog phone lines (one per meter), subject to Company's review and approval. **[COMPANY TO REVISE THIS SECTION 1(E) PRIOR TO EXECUTION FOR SPECIFICS OF THE PROJECT.]**
  
- (f) Maintenance Plan. Seller shall maintain Seller-Owned Interconnection Facilities in accordance with the following maintenance plan:

Transmission line: \_\_\_\_\_

\_\_\_\_ kV Facility switching station:  
\_\_\_\_\_

Relay protection equipment: \_\_\_\_\_

Other equipment as identified: \_\_\_\_\_

Seller shall furnish to Company a copy of records documenting such maintenance, within thirty (30) Days of completion of such maintenance work.

(g) Active Power Control Interface.

- (i) Seller shall provide and maintain in good working order all equipment, computers and software associated with the control system (the "Active Power Control Interface") necessary to interface the Facility active power controls with the Company System Operations Control Center for real power control of the Facility by the Company System Operator. The Active Power Control Interface will be used to control the net real power import or export from the Facility as required under this Attachment B (Facility Owned by Seller). The implementation of the Active Power Control Interface will allow Company System Operator to control the net real power import to or export from the entire Facility remotely from the Company System Operations Control Center through control signals from the Company System Operations Control Center.
- (ii) Company shall review and provide prior written approval of the design for the Active Power Control Interface to ensure compatibility with Company's SCADA and EMS systems. In order to ensure such continued compatibility, Seller shall not materially change the approved design without Company's prior review and prior written approval.
- (iii) The Active Power Control Interface shall include, but not be limited to, a demarcation cabinet, ancillary equipment and software necessary for Seller to connect to Company's Telemetry and Control, located in Company's portion of the Facility switching station which shall provide the control signals to the Facility and send feedback status to the Company System Operations

Control Center. The control type shall be analog output (set point) controls.

- (iv) The Active Power Control Interface shall also include provision for feedback points from the Facility indicating when the Company System Operator active power controls are in effect and the analog value of the controls received from the Company. The Facility shall provide the feedback to the Company SCADA system within 2 seconds of receiving the respective control signal from the Company.
- (v) Seller shall provide an analog input to the Telemetry and Control for the MW output of the individual generating units, and an analog signal for the total MW output at the Point of Interconnection.
- (vi) The Active Power Control Interface shall provide for remote control of the net real power input or output of the Facility by the Company at all times. If the Active Power Control Interface is unavailable or disabled, the Facility shall not import or export net real power from or to Company, and the Facility shall be deemed to be in Seller-Attributable Non-Generation status, unless the Company, in its sole discretion, agrees to supply or accept net real power and Seller and Company agree on an alternate means of dispatch. Notwithstanding the foregoing, if Seller fails to provide such remote control features (whether temporarily or throughout the Term) and fails to discontinue importing or exporting electric energy to Company as required by this Section 1(g)(vi), then, notwithstanding any other provision of this Attachment B (Facility Owned by Seller), Company shall have the right to derate or disconnect the entire Facility during those periods that such control features are not provided and the Facility shall be deemed to be in Seller-Attributable Non-Generation status for such periods.

- If all local and remote active power controls become unavailable or fail, the Facility

shall immediately disconnect from the Company's System.

- If the direct transfer trip is unavailable due to loss of communication link, Telemetry and Control failure, or other event resulting in the loss of the remote control by the Company, provision must be made for the Seller to shutdown Facility and open and lockout the main circuit breaker.
- (vii) The rate at which the Facility changes net real power import or export shall not exceed the ramp rate specified in Section 3(c) (Ramp Rate) of Attachment B (Facility Owned by Seller). The Facility's Active Power Control Interface will control the rate at which electric energy is changed to achieve the active power limit. The Facility will respond to the active power control request immediately. **[THESE REQUIREMENTS MAY BE CHANGED BY COMPANY FOLLOWING COMPLETION OF THE IRS]**
- (viii) The Active Power Control Interface shall accept the following active power control(s) from the Company SCADA and EMS systems:
- **Maximum Power Import and Export Limits:** The Facility is not allowed to exceed these settings under any circumstances. The frequency response control specified in Section 3(m) (Frequency Response) of Attachment B (Facility Owned by Seller) is not allowed to increase the Facility's net real power import or export above the Import and Export limits, respectively.
  - **Power Reference Set Point:** The Facility is to import or export active power at this level to the extent allowed by the solar resource and energy storage and is not allowed to exceed this setting when system frequency is within the deadband determined in Section 3(m) (iii) of Attachment B (Facility Owned by Seller). When system frequency exceeds the deadband determined in Section 3(m) (iii) of

Attachment B (Facility Owned by Seller), the Facility's net real power import or export is allowed to exceed this setting or be further reduced below this setting when commanded by the frequency response control specified in Section 3(m) of Attachment B (Facility Owned by Seller).

- Inverter Enable/Disable Control: The Facility shall include an inverter Enable/Disable control. When Disable is selected, the Facility shall ramp down, shutdown, and leave offline its inverters. When Enable is selected, the Facility inverters can start up, ramp up, and remain in normal operations.
- (ix) Seller shall not override Company's active power controls without first obtaining specific approval to do so from the Company System Operator.
- (x) The requirements of the Active Power Control Interface may be modified as mutually agreed upon in writing by the Parties.
- (h) Control System Acceptance Test Procedures.
- (i) Conditions Precedent. The following conditions precedent must be satisfied prior to conducting the Control System Acceptance Test:
- Successful Completion of the Acceptance Test.
  - Facility has been successfully energized.
  - All of the Facility's generators have been fully synchronized.
  - The control system computer has been programmed for normal operations.
  - All equipment that is relied upon for normal operations (including ancillary devices such as capacitors/inductors, energy storage device, statcom, etc.) shall have been commissioned and be operating within normal parameters.
- (ii) Facility Generators. Unless all of the Facility's generators are available for the

duration of the Control System Acceptance Test, the Control System Acceptance Test will have to be re-run from the beginning unless Seller demonstrates to the satisfaction of the Company that the test results attained with less than all of the Facility's generators are consistent with the results that would have been attained if all of the Facility's generators had been available for the duration of the test.

- (iii) Procedures. The Control System Acceptance Test will be conducted on Business Days during normal working hours on a mutually agreed upon schedule. No Control System Acceptance Test will be scheduled during the final 21 Days of a calendar year. No later than thirty (30) Days prior to conducting the Control System Acceptance Test, Company and Seller shall agree on a written protocol setting out the detailed procedure and criteria for passing the Control System Acceptance Test. Attachment O (Control System Acceptance Test Criteria) provides general criteria to be included in the written protocol for the Control System Acceptance Test. Within fifteen (15) Business Days of completion of the Control System Acceptance Test, Company shall notify Seller in writing whether the Control System Acceptance Test(s) has been passed and, if so, the date upon which such Control System Acceptance Test(s) was passed. If any changes have been made to the technical specifications of the Facility or the design of the Facility in accordance with Section 5(f) of Attachment A (Description of Generation, Conversion and Storage Facility), such changes shall be reflected in an amendment to this Agreement, and the written protocol for the Control Systems Acceptance Test shall be based on the Facility as modified. Such amendment shall be executed prior to conducting the Control System Acceptance Test and Company shall have no obligation for any delay in performing the Control Systems Acceptance Test due to the need to complete and execute such amendment.

- (i) Facility Security and Maintenance. Seller is responsible for securing the Facility. Seller shall

have personnel available to respond to all calls related to security incidents and shall take commercially reasonable efforts to prevent any security incidents. Seller is also responsible for maintaining the Facility, including vegetation management, to prevent security breaches. Seller shall comply with all commercially reasonable requests of Company to update security and/or maintenance if required to prevent security breaches.

- (j) Demonstration of Facility. Company shall have the right at any time, other than during maintenance or other special conditions, including Force Majeure, communicated by Seller, to notify Seller in writing of Seller's failure, as observed by Company and set forth in such written notice, to meet the operational and performance requirements specified in Section 2.11 (Fast Frequency Response Performance Metric) of this Agreement, and Section 1(g) (Active Power Control Interface) and Section 3 (Performance Standards) of this Attachment B (Facility Owned by Seller), and to require documentation or testing to verify compliance with such requirements. Upon receipt of such notice, Seller shall promptly investigate the matter, implement corrective action and provide to Company, within thirty (30) Days of such notice or such longer time period agreed to in writing by Company, a written report of both the results of such investigation and the corrective action taken by Seller. If the Seller's report does not resolve the issues to Company's reasonable satisfaction, the Parties shall promptly commission a study to be performed by one of the engineering firms then included on the Qualified Independent Third-Party Consultants List attached to the Agreement as Attachment D (Consultants List) to evaluate the cause of the non-compliance and to make recommendations to remedy such non-compliance. Seller shall pay for the cost of the study. The study shall be completed within ninety (90) Days, unless the selected consultant determines that such study cannot reasonably be completed within ninety (90) Days, in which case, such longer commercially reasonable period of time as it takes the consultant to complete the study. The consultant shall send the study to Company and Seller. Seller (and/or its Third-Party consultants and contractors), at Seller's expense, shall take such action as the study shall recommend with the objective of resolving the non-compliance. Such recommendations shall be implemented by Seller to Company's reasonable

satisfaction no later than forty-five (45) Days from the Day the completed study is issued by the consultant unless the consultant determines that such recommendation cannot reasonably be implemented within forty-five (45) Days, in which case, such longer commercially reasonable period of time to implement such recommendation as determined by the consultant. Failure to implement such recommendations within this period shall constitute a material breach of this Agreement. Unless the aforementioned written report and study are being completed, and any recommendations are being implemented, solely to address Seller's failure to satisfy the requirements of Section 3(o) (Round Trip Efficiency) of this Attachment B (Facility Owned by Seller), the Company shall have the right to derate the Facility and the Facility shall be deemed to be in Seller-Attributable Non-Generation status until the Seller's aforementioned written report has been completed, any subsequent study commissioned by the Parties has been completed and any recommendations to resolve the non-compliance have been implemented to Company's reasonable satisfaction.

2. Operating Procedures. **[NOTE: NUMERICAL SPECIFICATIONS IN THIS SECTION 2 MAY VARY DEPENDING ON THE SPECIFIC PROJECT AND THE RESULTS OF THE PROJECT SPECIFIC INTERCONNECTION REQUIREMENT STUDY.]**

- (a) Reviews of the Facility. Company may require periodic reviews of the Facility, maintenance records, available operating procedures and policies, and relay settings, and Seller shall implement changes Company deems necessary for parallel operation or to protect the Company System from damages resulting from the parallel operation of the Facility with the Company System.
- (b) Separation. Seller must separate from Company System whenever requested to do so by the Company System Operator pursuant to Article 8 (Company Dispatch) and Article 9 (Personnel and System Safety) of the Agreement.
- (c) Seller Logs. Logs shall be kept by Seller for information on unit availability including reasons for planned and forced outages; circuit breaker trip operations, relay operations, including target

initiation and other unusual events. Company shall have the right to review these logs, especially in analyzing system disturbances. Seller shall maintain such records for a period of not less than six (6) years.

- (d) Reclosing. Under no circumstances shall Seller, when separated from the Company System for any reason, reclose into the Company System without first obtaining specific approval to do so from the Company System Operator.
- (e) Reserved.
- (f) Reserved.
- (g) Critical Infrastructure Protection. Seller shall comply with the critical infrastructure protection requirements set forth in Section 1(b)(iii)G of this Attachment B (Facility Owned by Seller).
- (i) Allowed Operations. Facility shall be allowed to import or export net real power to the Company System only when the [\_\_\_\_\_] circuit is in normal operating configuration served by breaker [\_\_\_\_\_] at [\_\_\_\_\_] Substation. **[TO BE DETERMINED BY COMPANY BASED ON THE RESULTS AND REQUIREMENTS OF THE IRS]**

3. Performance Standards.

- (a) Reactive Power Control. Seller shall control its reactive power by automatic voltage regulation control. Seller shall automatically regulate voltage at a point, the point of regulation, between the Seller's generator terminal and the Point of Interconnection to be specified by Company, to within 0.5% of a voltage specified by the Company System Operator to the extent allowed by the Facility reactive power capabilities as defined in Section 3(b)(Reactive Amount) of this Attachment B (Facility Owned by Seller). **[FOR FACILITIES CONNECTED TO THE DISTRIBUTION SYSTEM, THESE REQUIREMENTS MAY BE CHANGED BY COMPANY UPON COMPLETION OF THE IRS.]**
- (b) Reactive Amount. **[THESE REQUIREMENTS MAY BE CHANGED BY COMPANY UPON COMPLETION OF THE IRS.]**
  - (i) Seller shall install sufficient equipment so that each \_\_\_\_\_ kVA generator **inverter** and each kVA

energy storage unit online at the Facility will have the ability to deliver or receive, at its terminal, reactive power as illustrated in the **[generator capability and energy storage unit]** curve[s] attached to this Agreement as Exhibit B-2 (Generator and Energy Storage Capability Curve(s)). **[NOTE: THE IRS WILL DETERMINE IF ANY ADDITIONAL REACTIVE POWER RESOURCES WILL BE REQUIRED.]**

- (ii) The Facility shall contain equipment able to continuously and actively control the output of reactive power under automatic voltage regulation control reacting to system voltage fluctuations. The automatic voltage regulation response speed at the point of regulation shall be such that at least 90% of the initial voltage correction needed to reach the voltage control target will be achieved within 1 second following a step change.
- (iii) If the Facility does not operate in accordance with Section 3(b)(i) of this Attachment B (Facility Owned by Seller), Company may disconnect all or a part of Facility from Company System until Seller corrects its operation (such as by installing capacitors at Seller's expense).

(c) Ramp Rates.

- (i) Seller shall ensure that the ramp rate of the Facility is less than the following limits for all conditions including start up, normal operations, Seller adjusting the Facility Actual Output, changes in the solar resource, and shut down for the following periods as calculated in accordance with Attachment C (Methods and Formulas For Measuring Performance Standards).
  - Maximum Ramp Rate Upward of [\_\_] MW/minute for all periods. **[TO BE DETERMINED FOLLOWING IRS.]**
  - Maximum Ramp Rate Downward of 2 MW/minute for all periods other than periods for which such maximum is not operationally possible because of rapid loss of solar resource and the depletion of energy storage.

(ii) Upon receiving a command from the Company active power control(s) described in Section 1(g)(viii) of this Attachment B (Facility Owned by Seller), Seller shall adjust the Facility's net real power import or export at a ramp rate, as calculated in accordance with Attachment C (Methods and Formulas for Measuring Performance Standards), to be specified by the Company to the extent allowed by the solar resource and energy storage without exceeding such ramp rate and without intentional delay. Such ramp rate shall be in the range of \_\_\_ MW/min to \_\_\_ MW/min.

(iii) The Facility is allowed to exceed the maximum ramp rate limits in Section 3(c) (Ramp Rates) of this Attachment B (Facility Owned by Seller) when Facility net real power import or export is changed by the frequency response control described in Section 3(m) (Frequency Response) of this Attachment B (Facility Owned by Seller).

(d) Ride Through Requirements.

In meeting the voltage and frequency ride-through requirements in this Attachment B, Sections 3(e), 3(f), 3(i), and 3(j), the Facility shall not enter momentary cessation of operations within the voltage and frequency zones and time periods where the Facility must remain connected to the Company System. **[THIS PROVISION MAY BE ADJUSTED BY COMPANY UPON COMPLETION OF THE IRS IF MOMENTARY CESSATION IS NEEDED TO PREVENT EQUIPMENT DAMAGE DUE TO A POWER EQUIPMENT LIMITATION. DOCUMENTATION FROM THE EQUIPMENT MANUFACTURER OF SUCH LIMITATION SHALL BE PROVIDED TO COMPANY IN WRITING FOR THE OWNER'S RFP SUBMITTAL AND THE CONDUCT OF THE IRS.]**

(e) Undervoltage Ride-Through.

The Facility, as a whole, will meet the following undervoltage ride-through requirements during low voltage affecting one or more of the three voltage phases ("V" is the voltage of any three voltage phases at the Point of Interconnection). **[THESE VALUES MAY BE CHANGED BY COMPANY UPON COMPLETION OF THE IRS. WITHOUT LIMITATION, FOR A DISTRIBUTION-CONNECTED FACILITY, UPON COMPLETION OF THE IRS THE COMPANY MAY SPECIFY**

**REQUIREMENTS FOR A MANDATORY DISCONNECTION FROM THE COMPANY SYSTEM.] :**

0.88 pu $\leq$ V $\leq$ 1.00 pu	The Facility remains connected to the Company System.
0.70 pu $\leq$ V < 0.88 pu	The Facility may initiate disconnection from the Company System if the voltage remains in this range for more than 20 seconds.
0.50 pu $\leq$ V < 0.70 pu	The Facility may initiate disconnection from the Company System if the voltage remains in this range for more than 10 seconds.
0.00 pu $\leq$ V < 0.50 pu	The Facility may disconnection from the Company System if voltage remains in this range for more than 600 milliseconds.

Seller shall have sufficient capacity to fulfill the above mentioned requirements to ride-through the following sequences or combinations thereof **[THE ACTUAL CLEARING TIMES WILL BE DETERMINED BY COMPANY IN CONNECTION WITH THE IRS]**:

- Normally cleared 138 kV transmission faults cleared after 5 cycles with one reclose attempt, cleared in 5 cycles, 30 cycles after the initial fault was cleared. The voltage at the Point of Interconnection will recover above the 0.80 p.u. level for the 30 cycles between the initial clearing time and the reclosing time.
- Normally cleared 46kV subtransmission faults cleared in 7 cycles with one reclose attempt, cleared in 7 cycles, 23 cycles after the initial fault was cleared. The voltage at the Point of Interconnection will recover above the 0.80 p.u. level for the 23 cycles between the initial clearing time and the reclosing time.

(f) Over Voltage Ride-Through.

The overvoltage protection equipment at the Facility shall be set so that the Facility will meet the following overvoltage ride-through requirements during high voltage affecting one or more of the three voltage phases (as described below) ("V" is the voltage of any of the three voltage phases at the Point of Interconnection). **[THESE VALUES MAY BE CHANGED BY THE COMPANY UPON COMPLETION OF THE IRS. WITHOUT LIMITATION, FOR A DISTRIBUTION-CONNECTED FACILITY, UPON COMPLETION OF THE IRS THE COMPANY MAY SPECIFY REQUIREMENTS FOR A MANDATORY DISCONNECTION FROM THE COMPANY SYSTEM AT  $V > 1.2$  pu. RIDE-THROUGH REQUIREMENTS FOR OTHER SYSTEMS WILL BE DETERMINED IN THE IRS.]**:

$1.00 \text{ pu} < V \leq 1.10 \text{ pu}$       The Facility remains connected to the Company System.

$1.10 \text{ pu} < V \leq 1.20 \text{ pu}$       The Facility may initiate disconnection from the Company System if voltage remains in this range for more 0.92 seconds.

$V > 1.2 \text{ pu}$       The Facility may initiate disconnection from the Company System immediately.

(g) [RESERVED].

(h) [RESERVED].

(i) Underfrequency ride-through.

The Facility shall meet the following underfrequency ride-through requirements during an underfrequency disturbance ("f" is the Company System frequency at the Point of Interconnection):

$57.0 \text{ Hz} \leq f \leq 60.0 \text{ Hz}$       The Facility remains connected to the Company System.

$56.0 \text{ Hz} \leq f \leq 57.0 \text{ Hz}$       The Facility may initiate disconnection from the Company System if frequency remains in

this range for more than 20 seconds.

$f < 56.0 \text{ Hz}$

The Facility may initiate disconnection from the Company System immediately.

(j) Overfrequency ride-through.

The Facility will behave as specified below for overfrequency conditions ("f" is the Company System frequency at the Point of Interconnection):

$60.0 \text{ Hz} \leq f \leq 63.0 \text{ Hz}$

The Facility remains connected to the Company System.

$63.0 \text{ Hz} \leq f \leq 64.0 \text{ Hz}$

The Facility shall initiate disconnection from the Company System if frequency remains in this range for more than 20 seconds.

$f > 64.0 \text{ Hz}$

The Facility shall initiate disconnection from the Company System immediately.

(k) Voltage Flicker.

Any voltage flicker on the Company System caused by the Facility shall not exceed the limits stated in IEEE Standard 1453-2011, or latest version "Recommended Practice - Adoption of IEC 61000-4-15:2010, Electromagnetic compatibility (EMC) - Testing and measurement techniques - Flickermeter - Functional and design specifications".

(l) Harmonics.

Harmonic distortion at the Point of Interconnection caused by the Facility shall not exceed the limits stated in IEEE Standard 519-1992, or latest version "Recommended Practices and Requirements for Harmonic Control in Electrical Power Systems". Seller shall be responsible for the installation of any necessary controls or hardware to limit the voltage and current harmonics generated from the Facility to defined levels.

(m) Frequency Response.

Seller Facility shall provide a primary frequency response with a frequency droop characteristic reacting to system frequency fluctuations at the Point of Interconnection in both the overfrequency and underfrequency directions except to the extent such response is not operationally possible because of the level of available solar resource and depletion of energy storage.

- (i) The Facility frequency response control shall adjust, without intentional delay and without regard to the ramp rate limits in Section 3(c) (Ramp Rates) of this Attachment B (Facility Owned by Seller), the Facility's net real power import or export when system frequency is not 60 Hz based on frequency deadband and frequency droop settings specified by the Company.
- (ii) The Facility frequency response control shall be allowed to increase the net real power import or export above the Power Reference Set Point set under Section 1(g)(viii) of this Attachment B (Facility Owned by Seller) or further decrease the net real power import or export from the Power Reference Set Point in its operations.
- (iii) The frequency deadband shall be settable in the range from +/-0.01 Hz to +/- 0.10 Hz and the frequency droop shall be settable in the range of 0.1% to 10%.
- (iv) The Facility frequency response control shall be in continuous operation when the Facility is online and connected to the Company unless directed otherwise by the Company.

(n) Grid Forming.

Facility inverters shall be capable of operating in grid forming mode supporting system operation under normal and emergency conditions without relying on the characteristics of synchronous machines. This includes operation as a current independent ac voltage source during normal and transient conditions (as long as no limits are reached within the inverter), and the ability

to synchronize to other voltage sources or operate autonomously if a grid reference is unavailable.

- (i) Seller shall operate the Facility in grid forming mode only as directed by the System Operator, in its sole discretion.
- (ii) The Facility shall include safeguards to prevent the unintentional switching of the Facility into and out of grid forming mode. The safeguards shall be approved in writing by the Company and implemented by the Seller in the Facility prior to conducting the CSAT.

(o) Round Trip Efficiency.

The round trip efficiency of the BESS as measured at the POI shall be not less than [ ] percent ([ ]%).

**[Note: The percentage for round trip efficiency should be taken from Seller's response to the RFP.]**

(p) Fast Frequency Response.

[DRAFTING NOTE: This section only applies if Facility provides fast frequency response.]

Seller Facility shall provide a fast frequency response to rapidly inject or absorb energy in the event of a sudden and rapid system frequency disturbance.

- (i) The Facility fast frequency response control shall adjust, without intentional delay and without regard to the ramp rate limits in Section 3(c) (Ramp Rates) of this Attachment B (Facility Owned by Seller), the Facility's net real power import or export based on the rate of change of frequency setting(s) and deadband specified by the Company.
- (ii) The Facility fast frequency response shall be proportional to or discrete but dynamically sized to the severity of the disturbance.
- (iii) The Facility output as adjusted by the Facility fast frequency response control as measured at the POI shall reach the control's full commanded response in 200 milliseconds or less from the initiation of the disturbance.

- (iv) The Facility fast frequency response control shall be allowed to increase the net real power import or export above the Power Reference Set Point under Section 1(g) (viii) of this Attachment B (Facility Owned by Seller) or further decrease the net real power import or export from the Power Reference Set Point in its operations. The fast frequency response control is not allowed to control the Facility net real power import or export to exceed the Maximum Power Import and Export Limits under Section 1(g) (viii) of this Attachment B (Facility Owned by Seller).
- (v) The rate of change of frequency is proportional to the per unit generation-load mismatch and inversely proportional to the system inertial time constant. The Facility shall be capable of receiving a periodically updated signal from the Company EMS to assist in scaling the Facility fast frequency response. If the EMS signal becomes unavailable, the Facility shall be capable using a local look up table as a substitute.
- (vi) The Facility fast frequency response control shall be in continuous operation when the Facility is online and connected to the Company unless directed otherwise by the Company.
- ~~(iii)~~ (vii) The Facility fast frequency response design shall be approved in writing by the Company and implemented by the Seller in the Facility prior to conducting the CSAT.

4. Maintenance of Seller-Owned Interconnection Facilities.

- (a) Seller must address any Disconnection Event (as defined below) according to the requirements of this Section 4 (Maintenance of Seller-Owned Interconnection Facilities) of Attachment B (Facility Owned by Seller). For this purpose, a "Disconnection Event" is a disconnection from Company System of at least \_\_\_ MW **[TO BE DETERMINED BY COMPANY FOLLOWING THE IRS]** from the Facility over a "rolling 120-second period", (i) that is not the result of Company dispatch, frequency droop response, or isolation of the Facility resulting from designed protection fault clearing, and (ii) for which Company

does not issue for such disconnection the written notice for failure to meet operational and performance requirements as set forth in Section 1(j) (Demonstration of Facility) of this Attachment B (Facility Owned by Seller). A "rolling 120-second period" means a period that is comprised of 120 seconds and such rolling period will change as each new one (1) second elapses. With the elapse of each new one (1) second, the newest one (1) second would be added to the 120-second period, and the oldest one (1) second would no longer be included in the rolling 120-second period. Company's election to exercise its rights under Section 1(j) (Demonstration of Facility) shall not relieve Seller of its obligation to comply with the requirements of this Section 4 (Maintenance of Seller-Owned Interconnection Facilities) for any future Disconnection Event during the pendency of such election or thereafter.

- (b) For every Disconnection Event, Seller shall investigate the cause. Within three (3) Business Days of the Disconnection Event, Seller shall provide, in writing to Company, an incident report that summarizes the sequence of events and probable cause.
- (c) Within forty-five (45) Days of a Disconnection Event, Seller shall provide, in writing to Company, Seller's findings, data relied upon for such findings, and proposed actions to prevent reoccurrence of a Disconnection Event ("Proposed Actions"). Company may assist Seller in determining the causes of and recommendations to remedy or prevent a Disconnection Event ("Company's Recommendations"). Seller shall implement such Proposed Actions (as modified to incorporate the Company's Recommendations, if any) and Company's Recommendations (if any) in accordance with the time period agreed to by the Parties.
- (d) In the event Seller and Company disagree as to (i) whether a Disconnection Event occurred, (ii) the sequence of events and/or probable cause of the Disconnection Event, (iii) the Proposed Actions, (iv) Company's Recommendations, and/or (v) the time period to implement the Proposed Actions and/or Company's Recommendations, then the Parties shall follow the procedure set forth in Section 5 (Expedited Dispute Resolution) of this Attachment B (Facility Owned by Seller).

- (e) Upon the fourth (4th) Disconnection Event (and each subsequent Disconnection Event) within any Contract Year, the Parties shall follow the procedures set forth in Section 4(a) and Section 4(d) of Attachment B (Facility Owned by Seller), to the extent applicable. If after following the procedures set forth in this Section 4 (Maintenance of Seller-Owned Interconnection Facilities) of Attachment B (Facility Owned by Seller), Seller and Company continue to have a disagreement as to (1) the probable cause of the Disconnection Event, (2) the Proposed Actions, (3) the Company's Recommendations, and/or (4) the time period to implement the Proposed Actions and/or the Company's Recommendations, then the Parties shall commission a study to be performed by a qualified independent Third-Party consultant ("Qualified Consultant") chosen from the Qualified Independent Third-Party Consultants List ("Consultants List") attached to the Agreement as Attachment D (Consultants List). Such study shall review the design of, review the operating and maintenance procedures dealing with, recommend modifications to, and determine the type of maintenance that should be performed on Seller-Owned Interconnection Facilities ("Study"). Seller and Company shall each pay for one-half of the total cost of the Study. The Study shall be completed within ninety (90) Days from such fourth Disconnection Event (and each subsequent Disconnection Event) within any Contract Year, unless otherwise reasonably agreed to in writing by Seller and Company. The Qualified Consultant shall send the Study to Company and Seller. Seller (and/or its Third-Party consultants and contractors), at Seller's expense, shall change the design of, change the operating and maintenance procedures dealing with, implement modifications to, and/or perform the maintenance on Seller-Owned Interconnection Facilities recommended by the Study. Such design changes, operating and maintenance procedure changes, modifications, and/or maintenance shall be completed no later than forty-five (45) Days from the Day the completed Study is issued by the Qualified Consultant, unless otherwise agreed to in writing by Company, such agreement not to be unreasonably withheld. Company shall have the right to derate the Facility to a level that maintains reliable operations in accordance with Good Engineering and Operating Practices, and the Facility shall be deemed to be in Seller-Attributable Non-Generation status, until the study has been

completed and the study's recommendations have been implemented by Seller to Company's reasonable satisfaction. Nothing in this provision shall affect Company's right to dispatch the Facility as provided for in this Agreement.

- (f) The Consultants List attached hereto as Attachment D (Consultants List) contains the names of engineering firms which both Parties agree are fully qualified to perform the Study. At any time, except when a Study is being conducted, either Party may remove a particular consultant from the Consultants List by giving written notice of such removal to the other Party. However, neither Party may remove a name or names from the Consultants List without approval of the other Party if such removal would leave the list without any names. Intended deletions shall be effective upon receipt of notice by the other Party, provided that such deletions do not leave the Consultants List without any names. Proposed additions to the Consultants List shall automatically become effective thirty (30) Days after notice is received by the other Party unless written objection is made by such other Party within said thirty (30) Day period. By mutual agreement between the Parties, a new name or names may be added to the Consultants List at any time.

5. Expedited Dispute Resolution.

If there is a disagreement between Company and Seller regarding (i) whether a Disconnection Event occurred, (ii) the sequence of events and/or probable cause of the Disconnection Event, (iii) the Proposed Actions, (iv) the Company's Recommendations, and (v) the time period to implement the Proposed Actions and/or the Company's Recommendations, then authorized representatives from Company and Seller, having full authority to settle the disagreement, shall meet in Hawai'i (or by telephone conference) and attempt in good faith to settle the disagreement. Unless otherwise agreed in writing by the Parties, the Parties shall devote no more than five (5) Business Days to settle the disagreement in good faith. In the event the Parties are unable to settle the disagreement after the expiration of the time period, then such disagreement shall constitute a Dispute for which either Party may pursue the dispute resolution procedure set forth in Section 28.2 (Dispute Resolution Procedures, Mediation) of this Agreement.

6. Modeling.

- (a) Seller's Obligation to Provide Models. Within 30 Days of Company's written request, but no later than the Commercial Operations Date, Seller shall provide detailed data regarding the design and location of the Facility, in a form reasonably satisfactory to Company, to allow the modeling of the inverters and any other equipment within the Facility identified in the IRS which utilizes Source Code (such as energy storage system, STATCOM or DVAR equipment), including, but not limited to, integrated and validated power flow and transient stability models (such as PSS/E models), a short circuit model (such as an ASPEN model), and an electro-magnetic transient model (such as a PSCAD model) of the inverters and any additional equipment identified in the IRS as set forth above, applied assumptions, and pertinent data sets (each a "Required Model" and collectively, the "Required Models"). Thereafter, during the Term, Seller shall provide working updates of any Required Model within 30 Days of (i) Company's written request, or (ii) Seller obtaining knowledge or notice that any Required Model has been modified, updated or superseded by the Source Code Owner.
- (b) Escrow Establishment. If, pursuant to Section 6(a) (Seller's Obligation to Provide Models) of this Attachment B (Facility Owned by Seller), the Required Models are provided to the Company in a form other than Source Code, Seller shall arrange for and ensure that the Source Code for the relevant Required Model is deposited into the Source Code Escrow as set forth below in Section 6(b)(i) (Source Code Escrow) of this Attachment B (Facility Owned by Seller) no later than the time periods set forth in Section 6(a) (Seller's Obligation to Provide Models) of this Attachment B (Facility Owned by Seller) for delivery of the Required Models. Seller shall be responsible for all costs associated with establishing and maintaining the Source Code Escrow. If, however, Seller is unable to deposit the required Source Code into the Source Code Escrow within the time periods set forth in Section 6(a) (Seller's Obligation to Provide Models), Seller shall, no later than such time periods, instead establish a monetary escrow as set forth below in Section 6(b)(ii)

(Monetary Escrow) of this Attachment B (Facility Owned by Seller).

(i) Source Code Escrow.

(A) Establishment of Source Code Escrow. If the Required Models are not provided to the Company in the form of Source Code pursuant to Section 6(a) of this Attachment B (Facility Owned by Seller), Seller shall: (a) arrange for and ensure the deposit of a copy of the current version of the Source Code and relevant documentation for all Required Models with the Source Code Escrow Agent under the terms and conditions of the Source Code Escrow Agreement, and (b) arrange for and ensure the update of the deposited Source Code and relevant documentation for Major Releases and Minor Releases of the Required Models as soon as reasonably possible after they are made generally available.

(B) Release Conditions. Company shall have the right to obtain from the Source Code Escrow Agent one copy of the escrowed Source Code for the Required Models, under the following conditions upon Company's request:

(i) A receiver, trustee, or similar officer is appointed, pursuant to federal, state or applicable foreign law, for the Source Code Owner;

(ii) Any voluntary or involuntary petition or proceeding is instituted, under (x) U.S. bankruptcy laws or (y) any other bankruptcy, insolvency or similar proceeding outside of the United States, by or against the Source Code Owner; or

(iii) Failure of the Source Code Owner to function as a going concern or operate in the ordinary course; or

(iv) Seller and the Source Code Owner fail to provide to Company the Required Models or updated Required Models, or, alternatively, fail to issue a Source Code LC, within the time periods set forth in Section 6(a) (Seller's Obligation to Provide Models) of this Attachment B (Facility Owned by Seller), Company gives written notice of such failure to Seller and the Source Code Owner, and Seller and Source Code Owner fail to remedy such breach within five (5) Days following receipt of such notice.

(C) Remedies. If Company has the right to obtain from the Source Code Escrow Agent one copy of the escrowed Source Code for the Required Models pursuant to Section 6(b)(i)(B) (Release Conditions) of Attachment B (Facility Owned by Seller), and Company finds that Seller failed to arrange for and ensure the update the Source Code Escrow with the modified and/or updated Source Code and relevant documentation for Major Releases and Minor Releases of the Required Models as provided in Section 6(b)(i) (Establishment of Source Code Escrow) of Attachment B (Facility Owned by Seller) or that the Source Code for the Required Models is incomplete or otherwise unusable, Seller shall be liable to Company for liquidated damages in the amount of \$500 per Day for each Day Seller fails to provide such Source Code to Company or such update to the Source Code to Company from the date such Major Release or Minor Release was first made available by the Source Code Owner to customers of the Source Code Owner. Failure to provide the updated Source Code of the Required Models within 30 Days' notice from Company of a breach of Section 6(b)(i)(A) (Establishment of Source Code Escrow) of Attachment B (Facility Owned by Seller); provided, that Seller has also failed to provide a satisfactory Source Code LC as set forth in Section 6(b)(ii) (Source Code Security) of this Attachment B (Facility Owned by Seller) shall constitute an Event of Default pursuant to Section 15.2(f) under the Agreement.

(D) Certification. The Source Code Escrow Agent shall release the Source Code of the Required Models to Company upon receipt of a signed statement by a representative of Company that reads substantially as follows:

The undersigned hereby certifies that (i) I am duly authorized to execute this document on behalf of Hawaiian Electric Company, Inc. ("Hawaiian Electric"), and (ii) Hawaiian Electric is entitled to a copy of the Source Code of the Required Models Pursuant to Section 6(b)(i)(B) (Release Conditions) of Attachment B (Facility Owned by Seller) of the Power Purchase Agreement dated as of \_\_\_\_\_, between \_\_\_\_\_, and Hawaiian Electric.

(E) Authorized Use. If Company becomes entitled to a release of the Source Code of the Required

Models from escrow, Company may thereafter correct, modify, update and enhance the Required Models for the sole purpose of providing itself the support and maintenance it otherwise would have been entitled to if it had been provided the Required Models by Seller under Section 6(a) (Seller's Obligation to Provide Models) of this Attachment B (Facility Owned By Seller) (the "Source Code Authorized Use").

(F) Confidentiality Obligations. Company shall keep the Source Code of the Required Models confidential pursuant to the confidentiality obligations of the Source Code Escrow Agreement. Company shall restrict access to the Source Code of the Required Models to those employees, independent contractors and consultants of Company who have agreed in writing to be bound by confidentiality and use obligations consistent with those specified in the Escrow Agreement, and who have a need to access the Source Code of the Required Models on behalf of Company to carry out their duties for the Authorized Use. Promptly upon Seller's request, Company shall provide Seller with the names and contact information of all individuals who have accessed the Source Code of the Required Models, and shall take all reasonable actions required to recover any such Source Code in the event of loss or misappropriation, or to otherwise prevent their unauthorized disclosure or use.

(ii) Source Code Security.

(A) Establishment of Source Code Security. If the Required Models and their relevant Source Code are not provided to the Company in the form of Source Code pursuant to Section 6(a) (Seller's Obligation to Provide Models) of this Attachment B (Facility Owned by Seller) and if the Seller is unable to arrange for and ensure the deposit of the Source Code into the Source Code Escrow established for the benefit of the Company pursuant to Section 6(b)(i) (Source Code Escrow) of this Attachment B (Facility Owned by Seller) then, no later than the time periods set forth in Section 6(a) (Seller's Obligation to Provide Models) of this Attachment B (Facility Owned by Seller) for delivery of the Required Models and Source Code, Seller shall provide an irrevocable standby letter of credit (the "Source Code LC") with no documentation requirement in the amount of Two Hundred Fifty Thousand Dollars (\$250,000) per Required Model (and its relevant Source Code) substantially in the form attached to this Agreement as Attachment M (Form of Letter of Credit) from a bank chartered in the United States with a

credit rating of "A-" or better from Standard & Poor's or A3 or better from Moody's. Such letter of credit shall be issued for a minimum term of one (1) year. Furthermore, at the end of each year the security shall be renewed for an additional one (1) year term so that at the time of such renewal, the remaining term of any such security shall not be less than one (1) year. The letter of credit shall include a provision for at least thirty (30) Days' advance notice to Company of any expiration or earlier termination of the letter of credit so as to allow Company sufficient time to exercise its rights under said security if Seller fails to extend or replace the security. In all cases, the reasonable costs and expenses of establishing, renewing, substituting, canceling, increasing, reducing, or otherwise administering the letter of credit shall be borne by Seller.

(B) Release Conditions. Company shall have the right to draw on the letter of credit the funds necessary to develop and recreate the Required Model or Required Models upon Company's request if Seller fails to provide the Company the Required Models or updated Required Models within the time periods set forth in Section 6(a) (Seller's Obligation to Provide Models) or Section 6(b)(i)(C) (Remedies) of this Attachment B (Facility Owned by Seller), Company gives written notice of such failure to Seller, and Seller fails to remedy such breach within five (5) Days following receipt of such notice (for a breach under Section 6(a) (Seller's Obligation to Provide Models), or within thirty (30) Days following receipt of such notice (for a breach under Section 6(b)(i)(C) (Remedies)).

(C) Extend Letter of Credit. If the letter of credit is not renewed or extended no later than thirty (30) Days prior to its expiration or earlier termination, Company shall have the right to draw immediately upon the full amount of the letter of credit and to place the proceeds of such draw (the "Proceeds"), at Seller's cost, in an escrow account in accordance with Section 6(b)(ii)(D) (Proceeds Escrow), until and unless Seller provides a substitute form of letter of credit meeting the requirements of this Section 6(b)(ii) (Source Code Security) of this Attachment B (Facility Owned by Seller).

(D) Proceeds Escrow. If Company draws on the letter of credit pursuant to Section 6(b)(ii)(C) (Extend Letter of Credit) of this Attachment B (Facility Owned by Seller), Company shall, in order to avoid comingling the

Proceeds, have the right but not the obligation to place the Proceeds in an escrow account as provided in this Section 6(b)(ii)(D) (Proceeds Escrow) of this Attachment B (Facility Owned by Seller) with a reputable escrow agent acceptable to Company ("Proceeds Escrow Agent") subject to an escrow agreement acceptable to Company (the "Proceeds Escrow Agreement"). Without limitation to the generality of the foregoing, a federally-insured bank shall be deemed to be a "reputable escrow agent." Company shall have the right to apply the Proceeds as necessary to recover amounts Company is owed pursuant to this Section 6 (Modeling) of this Attachment B (Facility Owned by Seller). To that end, the Proceeds Escrow Agreement governing such escrow account shall give Company the sole authority to draw from the account. Seller shall not be a party to such Proceeds Escrow Agreement and shall have no rights to the Proceeds. Upon full satisfaction of Seller's obligations under Section 6 (Modeling) of this Attachment B (Facility Owned by Seller), Company shall instruct the Proceeds Escrow Agent to remit to the bank that issued the letter of credit that was the source of the Proceeds the remaining balance (if any) of the Proceeds. If there is more than one escrow account with Proceeds, Company may, in its sole discretion, draw on such accounts in any sequence Company may select. Any failure to draw upon the Proceeds for any damages or other amounts due Company shall not prejudice Company's rights to recover such damages or amounts in any other manner.

(E) Seller's Obligation. If the letter of credit is not sufficient to cover Company's associated consultant fees, costs and expenses to develop and recreate the Required Models, Seller shall pay to Company the difference within ten (10) Days of Company's written notice to Seller.

(F) Model Verification. Seller shall work with the Company to validate the new Required Models developed by or on behalf of Company within sixty (60) Days of receiving such new Required Models. Seller shall also arrange for and ensure that Company may obtain new Required Models directly from the Source Code Owner in the event that Seller ceases to operate as a going concern or is subject to voluntary or involuntary bankruptcy and is unable or unwilling to obtain the new Required Models from the Source Code Owner.

(G) Certification. The terms of the letter of credit shall provide for a release of the funds, or in the event the funds have been placed into a Proceeds Escrow, the Escrow Agent shall release the necessary funds to Company upon receipt of a signed statement by a representative of Company that reads substantially as follows:

The undersigned hereby certifies that (i) I am duly authorized to execute this document on behalf of Hawaiian Electric Company, Inc. ("Hawaiian Electric"), and (ii) Hawaiian Electric is entitled to \$ \_\_\_\_\_, pursuant to Section 6(b)(ii)(B) (Release Conditions) of Attachment B (Facility Owned by Seller) of the Power Purchase Agreement dated as of \_\_\_\_\_, between \_\_\_\_\_, and Hawaiian Electric.

(H) Authorized Use. If Company becomes entitled to a draw of funds from the Source Code Security or a release of funds from the Proceeds Escrow, Company may thereafter use such funds to develop, recreate, correct, modify, update and enhance the Required Models for the sole purpose of providing itself the support and maintenance it otherwise would have been entitled to if it had been provided the Required Models by Seller under Section 6(a) (Seller's Obligation to Provide Models) of this Attachment B (Facility Owned by Seller).

(iii) Supplementary Agreement. The parties stipulate and agree that the escrow provisions in this Section 6(b) (Escrow Establishment) of Attachment B (Facility Owned by Seller) and the Source Code Escrow Agreement and Proceeds Escrow Agreement are "supplementary agreements" as contemplated in Section 365(n)(1)(B) of the Code. In any voluntary or involuntary bankruptcy proceeding involving Seller, failure by Company to assert its rights to "retain its rights" to the intellectual property encompassed by the Source Code or the funds in the Proceeds Escrow, pursuant to Section 365(n)(1)(B) of the Code, under an executory contract rejected in a bankruptcy proceeding, shall not be construed as an election to terminate the contract by Company under Section 365(n)(1)(A) of the Code.

## 7. Testing Requirements.

- (a) Testing Requirements. Once the Control System Acceptance Test has been successfully passed, Seller shall not replace and/or change the configuration of the Facility Control, inverter control settings and/or ancillary device controls, without prior written notice to Company. In the event of any such replacement and/or change, the relevant test(s) of the Control System Acceptance Test shall be redone and must be successfully passed before the replacement or altered equipment is allowed to be placed in normal operations. In the event that Company reasonably determines that such replacement and/or change of controls makes it inadvisable for the Facility to continue in normal operations without a further Control Systems Acceptance Test, the Facility shall be deemed to be in Seller-Attributable Non-Generation status until the new relevant tests of the Control System Acceptance Test have been successfully passed.
- (b) Periodic Testing. Seller shall coordinate periodic testing of the Facility with Company to ensure that the Facility is meeting the performance standards specified under this Agreement.

8. Data and Forecasting.

Seller shall provide Site, meteorological and production data in accordance with the terms of Article 6 (Forecasting) of this Agreement and the following requirements:

- (i) Physical Site Data: Seller shall provide Company with an accurate description of the physical Site, including but not limited to the following, which may not be changed during the Term without Company's prior written consent:
- A. Location Facility Map showing the layout of the Facility (coverage area or footprint) and the coordinates (latitude and longitude), elevation (above ground), orientation angle and direction (north-east-south-west plane) of arrays/concentrators.
  - B. Location (latitude and longitude) and elevation (above ground) of each MMS and each field measurement device located on such MMS.

- C. Inverter type, power rating, array configuration to inverters and DC rating of the Facility at the following standard test conditions: irradiance of 1000 W/m<sup>2</sup>, air mass 1.5, and cell temperature 25° C.
- D. Solar generation technology employed at the Facility with temperature dependence, mounting and module type.
- E. BESS technology and related auxiliary equipment, location and type.

(ii) Meteorological and Production Data:

- A. Seller shall install and maintain a minimum of one MMS for facilities with a Contract Capacity of less than 5 MW and a coverage area of not more than one square kilometer.
- B. Seller shall install and maintain a minimum of two MMS for facilities that have either (i) a DC rating of the Facility of 5 MW or greater or (ii) a coverage area greater than one square kilometer.
- C. Placement of each MMS should account for the microclimate of the area and Facility coverage area and shall be oriented with respect to the primary wind direction.
- D. For purposes of calculating the Measured Performance Ratio, the Seller shall provide (i) Plane of Array irradiance, (ii) back of panel temperature at array height, and (iii) the power production at the transducer on the Seller's side of the Point of Interconnection.
- E. Seller shall provide to Company, via SCADA communication and protocol acceptable to Company to support operations and forecasting needs at a continuous scan, all meteorological and production data required under this Agreement updated every 2 seconds.
- F. For facilities with a Contract Capacity greater than 1 MW, Seller shall arrange for a

dedicated 12 kV line to provide separate service from Company, or for such other independent, backup power source as approved by Company in writing, to temporarily store and record the meteorological data from the field measuring devices at the MMSs. Any such backup power source must be capable of providing power for the field measurement devices for a reasonable period of time until primary power is restored. The same backup power source can serve multiple MMSs as needed by the Facility.

(iii) Units and Accuracy:

A. The Table below shows minimum required solar irradiance measurements for various types of solar generation technology. This value may not be derived.

<b>Solar Technology</b>	<b>Direct Normal Irradiance</b>	<b>Global Irradiance (GHI)</b>	<b>Plane of Array Irradiance (POA)</b>
<b>Flat Plate</b> (fixed horizontal, fixed angle, tracking, roof mounted)		X	X
<b>Flat Panel Solar Thermal</b> (fixed angle, roof mounted, tracking)	X		X
<b>Concentrated PV</b> (flat, trough, tracking)	X	X	X

B. Units and accuracy of measured parameters to be provided to Company in real time shall be as shown in the Table below. These represent the minimum required accuracies.

**Table of Units and Accuracy of Meteorological and Production Data  
(PV)**

<b>Parameter</b>	<b>Measurement Device (typical)</b>	<b>Unit</b>	<b>Range</b>	<b>Accuracy</b>
Global Horizontal Irradiance at MMS	Pyranometer or equivalent	W/m <sup>2</sup>	0 to 1500 W/m <sup>2</sup>	Secondary standard per ISO 9060 or <= 3% from 100 W/m <sup>2</sup> to 1500 W/m <sup>2</sup> if using a PV Reference Cell
Plane of Array Irradiance on same axis as array	Pyranometer or equivalent	W/m <sup>2</sup>	0 to 1500 W/m <sup>2</sup>	Secondary standard per ISO 9060 or <= 3% from 100 W/m <sup>2</sup> to 1500 W/m <sup>2</sup> if using a PV Reference Cell
Back of Panel temperature at array height	Temperature probe	°C	-20 to +50 °C	+/-1 °C
Ambient air temperature at MMS	Temperature probe	°C	-20 to +50 °C	+/-1 °C
Ambient air pressure at MMS	Piezoresistive transducer or equivalent	mbar	150 to 1150 mbar	+/-60 mbar (0 to +50°C)
Wind speed at MMS	Anemometer, sonic device or equivalent	mph	0 to 134 mph	+/-1 mph
Wind direction at MMS	Vane, sonic device or equivalent	Degrees (from True North)	360°	+/-5°
Set point for each inverter	Reported by Seller	MW	0 to inverter name plate	Not applicable

Power production of Facility	Measured at Facility's analog transducer on Seller's side of POI	MW	Up to Allowed Capacity	The lesser of the tolerances of the /telemetry equipment or 2% of measurement
Facility power production ratio	Ratio of Facility's power production (MW)/Allowed Capacity (MW)	%	0 to 100%	+/-0.1 %
Inverters Available	NA	NA	Up to the number installed inverters	
Facility Inverter Availability	Ratio of inverters online/number of inverters	%	0 to 100%	
Power Possible	Seller's Model	MW	0 to Allowed Capacity	+/-4%

(iv) Status of Inverters for Purposes of Calculating Facility Availability:

For each inverter, Seller shall, unless agreed otherwise by Company and Seller in writing, provide to Company, via SCADA communication and protocol acceptable to Company at a continuous scan updated not less frequently than every 2 seconds, a signal as to whether such inverter is available or unavailable.

9. Technology Specific Requirements.

(a) Three-Phase Synchronous Generators.

The generating facility circuit breakers shall be 3-phase devices with electronic or electromechanical control. The Seller shall be responsible for properly synchronizing its generating facility with the Company System by means of either a manual or automatic synchronizing function. Automatic synchronizing is required for all synchronous generators which have an short circuit current rating ("SCCR") greater than 5%.

For a generating facility whose SCCR exceeds 5%, the Facility shall provide protective equipment suitable for detecting loss of synchronism and automatically disconnecting the generating facility from the Company System. Unless otherwise agreed to between the Company and Seller, synchronous generators shall automatically regulate power factor, not voltage, while operating in parallel with the Company System.

(b) Induction Generators.

- (i) Induction generators may be connected and brought up to synchronous speed (as an induction motor) if it can be demonstrated that the initial voltage drop measured at the Point of Interconnection is within the visible flicker limits as defined by IEEE 519-1992 (or latest version). The same requirements also apply to induction generation connected at or near synchronous speed because a similar voltage dip is present due to an inrush magnetizing current. The Facility shall submit number of starts per specific time period and maximum starting kVA draw data for the utility to verify that the voltage dip due to starting is within the visible flicker limits and does not degrade the normal voltage provided by the utility.
- (ii) Induction generators do not require separate synchronizing equipment. Starting or rapid load fluctuations on induction generators can adversely impact the Company System voltage. Corrective step-switched capacitors or other techniques may be necessary if the voltage fluctuations measured at the Point of Interconnection are not within the visible flicker limits as defined by IEEE 519-1992 (or latest version). These measures can, in turn, cause ferroresonance. If these measures (additional capacitors) are installed on Seller's side of the Point of Interconnection, the Company will review these measures and may require Seller to install additional protective relaying equipment. Company will determine whether additional equipment is required to protect the Company System.

(c) Inverter Systems.

- (i) Direct current generators and non-power (i.e. other than 60 Hertz) alternating current generators can only be installed in parallel with the Company System using a non-islanding synchronous inverter. The design shall comply with the requirements of IEEE Std 1547-2003 (or latest version), except as described in Section 3 (Performance Standards) of this Attachment B (Facility Owned by Seller).
  - (ii) Self-commutated inverters of the Company-interactive type shall synchronize to the Company System. Line-commutated, thyristor-based inverters are not recommended and will require additional technical study to determine harmonic and reactive power requirements. All interconnected inverter systems shall comply with the harmonic current limits of IEEE Std 519-1992 (or latest version).
- (d) Battery Storage System.

The Battery Energy Storage System ("BESS") operational conditions ("Operational Conditions") shall be as follows: **[DRAFTING NOTE - Revise to be specific to RFP and allowing for grid charging.]**

- (i) No more than     % of the BESS energy capacity can be charged from the grid prior to the fifth anniversary of the Commercial Operations Date. Thereafter, 100% of the BESS energy capacity can be charged from the grid. All charging from the grid will be at the direction of Company.  
**[DRAFTING NOTE: 5-YEAR LIMITATION ON GRID CHARGING WILL BE DELETED IF ITC RECAPTURE IS NOT APPLICABLE TO THE BESS.]**
- (ii) For Contract Years that are non-leap years, the BESS shall be discharged no more than BESS Rating x 365 MWh in each Contract Year. For Contract Years that are leap years, the BESS shall be discharged no more than BESS Rating x 366 MWh in each Contract Year.
- (iii) The BESS will not be required to discharge more energy than available relative to the available state of charge.

(iv) The BESS may be called on to provide frequency droop response, frequency regulation response, and frequency regulation (AGC dispatch) under the following conditions:

- A. Dispatch to the grid is limited to the interconnection limit minus the generation from the PV system.

EXHIBIT B-1  
REQUIRED MODELS

PSS/E

ASPEN

PSCAD

EXHIBIT B-2  
GENERATOR AND ENERGY STORAGE CAPABILITY CURVE(S)

ATTACHMENT O  
CONTROL SYSTEM ACCEPTANCE TEST CRITERIA

**[THIS ATTACHMENT WILL NEED TO BE MODIFIED BASED ON THE TYPE AND DESIGN OF THE FACILITY AND RESULTS OF THE IRS]**

Final test criteria and procedures shall be agreed upon by Company and Seller no later than thirty (30) Days prior to conducting the Control System Acceptance Test ("CSAT") in accordance with Good Engineering and Operating Practices and with the terms of this Agreement. The Control System RTU Points List is necessary for the effective operation of the Company System and will be tested during the Control System Acceptance Test.

The Control System Acceptance Test is comprised of two parts, a set of onsite (at Facility) specific tests and a monitoring performance test. These tests may include the following:

On-site Tests:

1. SCADA Test to verify the status and analog telemetry, and if the remote controls between the Company's EMS and the Facility are working properly end-to-end.
2. Dispatch Test to verify if the Facility's active power limit controls and the Active Power Control Interface with the Company's EMS are working properly. The Test is generally conducted by setting different active power setpoints and limits and observing the proper dispatch of the appropriate ramp rate of the Facility's real power output.
3. Control Test for Voltage Regulation to verify the Facility can properly perform automatic voltage regulation as defined in this Agreement. Test is generally conducted by making small adjustments of the voltage setpoint and verifying by observation that the Facility regulates the voltage at the point of regulation to the setpoint by delivering/receiving reactive power to/from the Company System to maintain the applicable setpoint according to the reactive power control and the reactive amount requirements of Sections 3(a) (Reactive Power Control) and Section 3(b) (Reactive Amount) of Attachment B (Facility Owned by Seller) to this Agreement.
4. Frequency Regulation Control Test to verify the Facility provides a frequency droop response as defined in this Agreement. Test is generally conducted by making adjustments of the frequency reference setting and verifying by

observation that the Facility responds per droop and deadband settings.

5. Fast Frequency Response Control Test to verify the Facility provides the fast frequency response required in this Agreement. Test is generally conducted by simulating rate of change of frequency and/or frequency inputs and verifying by observation that the Facility responds per design and settings. [DRAFTING NOTE: This test only applies if Facility provides fast frequency response.]
6. Loss-of-Communication Test to verify the Facility will properly shutdown upon the failure of the direct-transfer-trip communication system. Test is generally conducted by simulating a communications failure and observing the proper shutdown of the Facility.
- ~~6~~7. Round Trip Efficiency Test to verify that the round trip efficiency of the BESS is not less than [ ] percent ([ ]%). **[DRAFTING NOTE: The round trip efficiency percentage will be taken from Seller's response to the RFP.]**
- ~~7~~8. Capacity Test to verify the BESS Capacity Ratio.

Monitoring Test:

- a) The monitoring test requires the Facility to operate as it would in normal operations.
- b) To ensure useful and valid test data is collected, the monitoring test shall end when one of the following criteria is met:
  - A. The Facility's power production is greater than 85% of its Allowed Capacity, for at least four (4) hours in any continuous 24-hour CSAT period.
  - B. The recorded renewable energy resource at the Facility is above [600 W/m<sup>2</sup>] **[a Measured Wind Speed of 9 meters per second]** for at least eight (8) hours in any continuous 48-hour CSAT period.
  - C. 14 continuous Days from the start of the CSAT.
- c) At the end of the test, an evaluation period is selected based on the criteria that triggered the end of the test.
- d) The performance of the Facility during the period of a successfully completed monitoring test is evaluated for, e.g., voltage regulation, frequency response, dispatch control, operating limits and ramp rate performance, to

verify the performance meets the requirements of this Agreement. The Facility is considered to have complied with a requirement if the Facility was compliant with the requirement at least 99.0% of the time during the evaluation period and the Facility does not grossly violate the requirement when the Facility was in violation. The Parties understand and agree that these compliance conditions are limited only to determining whether the Facility successfully completes the CSAT monitoring test and are not for use in determining compliance during Commercial Operations, shall not be considered a waiver of any of the performance standards of Seller, all of which are hereby reserved, and shall not alleviate Seller from any of its obligations under the Agreement.

ATTACHMENT T  
MONTHLY REPORTING AND DISPUTE  
RESOLUTION BY INDEPENDENT AF EVALUATOR

1. Monthly Report. Commencing with the month during which the Commercial Operations Date is achieved, and for each calendar month thereafter during the Term, Seller shall provide to Company a Monthly Report in Excel, Lotus or such other format as Company may require, which Monthly Report shall include (i) the data for the calendar month in question populated into the form of "Monthly Report" below, (ii) the data for the BESS Measurement Period ending with the calendar month in question populated into the form of "BESS Measurement Period Report" below, and (iii) Seller's calculations of the performance metrics, other than the Fast Frequency Response Performance Metric, and any liquidated damages assessments for the LD Period ending with such calendar month as set forth below. Seller shall deliver such Monthly Report to Company by the fifth (5<sup>th</sup>) Business Day following the close of the calendar month in question. Seller shall deliver the Monthly Report electronically to the address provided by the Company. Company shall have the right to verify all data set forth in the Monthly Report by inspecting measurement instruments and reviewing Facility operating records. Upon Company's request, Seller shall promptly provide to Company any additional data and supporting documentation necessary for Company to audit and verify any matters in the Monthly Report.

Monthly Report

NAME OF IPP FACILITY: [Facility Name]  
MONTHLY REPORT PERIOD: [Month Day, Year] to [Month Day, Year]

BESS Measurement Period Report

NAME OF IPP FACILITY: [Facility Name]  
BESS MEASUREMENT PERIOD: [Month Day, Year] to [Month Day, Year]

Enter the applicable information from which the IPP is using to demonstrate satisfaction of the BESS Capacity Performance Metric during the reporting period. This can either be from a BESS Capacity Test performed during the period or taken from operational data reflecting the net output of the BESS.

Date/Time Start	Date/Time End	Total MWh delivered to the POI (A)	BESS Contract Capacity (MWh) (B)	BESS Capacity Ratio 100% x (A/B)

Enter the information for each ExcludedTime event during the reporting period. Dates and times should be entered to the nearest minute. Duration, size of reduction, maximum rated output, and equivalent hours should be rounded to 1 decimal place.

Date/Time Start (A)	Date/Time End (B)	Duration (hrs) (C) = (B - A)	Size of Reduction (MW) (D)	Maximum Rated Output (MW) (E)	Equivalent Hours (hrs) (C x D)/E
...					

Calendar hours in the reporting period: \_\_\_\_\_

Total equivalent ExcludedTime for the reporting period (from above): \_\_\_\_\_

Period Hours (PH) in the reporting period: \_\_\_\_\_

PH from the last three (3) reporting periods: \_\_\_\_\_

PH for the last four (4) reporting periods: \_\_\_\_\_

Enter the information for each Outage during the reporting period. Dates and times should be entered to the nearest minute. Duration should be rounded to 1 decimal place.

Date/Time Start (A)	Date/Time End (B)	Duration (hrs) (B - A)
...		

Calendar hours in the reporting period: \_\_\_\_\_

Total Outage hours for the reporting period (from above): \_\_\_\_\_

Available Hours (AH) in the reporting period: \_\_\_\_\_

AH from the last three (3) reporting periods: \_\_\_\_\_

AH for the last four (4) reporting periods: \_\_\_\_\_

Enter the information for each Planned Deration event during the reporting period. Dates and times should be entered to the nearest minute. Duration, size of reduction, maximum rated output, and equivalent hours should be rounded to 1 decimal place.

Date/Time Start (A)	Date/Time End (B)	Duration (hrs) (C) = (B - A)	Size of Reduction (MW) (D)	Maximum Rated Output (MW) (E)	Equivalent Hours (hrs) (C x D)/E
...					

Total equivalent planned derated hours (EPDH) for the reporting period: \_\_\_\_\_

EPDH from the last three (3) reporting periods: \_\_\_\_\_

EPDH for the last four (4) reporting periods: \_\_\_\_\_

Enter the information for each Unplanned Deration event during the reporting period. Dates and times should be entered to the nearest minute. Duration, size of reduction, maximum rated output, and equivalent hours should be rounded to 1 decimal place.

Date/Time Start (A)	Date/Time End (B)	Duration (hrs) (C) = (B - A)	Size of Reduction (MW) (D)	Maximum Rated Output (MW) (E)	Equivalent Hours (hrs) (C x D)/E
...					

Total equivalent unplanned derated hours (EUDH) for the reporting period: \_\_\_\_\_

EUDH from the last three (3) reporting periods: \_\_\_\_\_

EUDH for the last four (4) reporting periods: \_\_\_\_\_

Enter the Available Hours, EPDH, EUDH, and Period Hours for the last four (4) reporting periods as calculated above.

AH (A)	EPDH (B)	EUDH (C)	PH (D)	BESS Annual Equivalent Availability Factor $100\% \times (A - B - C)/D$

Enter the information for each Forced Outage during the reporting period. Dates and times should be entered to the nearest minute. Duration should be rounded to 1 decimal place.

Date/Time Start (A)	Date/Time End (B)	Duration (hrs) (B A)
...		

Total Forced Outage Hours (FOH) for the reporting period (from above): \_\_\_\_\_

FOH from the last three (3) reporting periods: \_\_\_\_\_

FOH for the last four (4) reporting periods: \_\_\_\_\_

Enter the FOH and EUDH for the last four (4) reporting periods as calculated above.

FOH (A)	EUDH (B)	BESS Annual Equivalent Forced Outage Factor $100\% \times (A + B)/8760$

2. Monthly Report Disagreements.

- (a) Notice of Disagreement With Monthly Report. Within ten (10) Business Days following the close of the calendar month in question, Seller shall provide to Company the Monthly Report for such calendar month and the LD Period, the MPR Assessment Period and the BESS Measurement Period (if any) ending with such calendar month, as provided in Section 1 (Monthly Report) of this Attachment T (Monthly Reporting and Dispute Resolution by Independent AF Evaluator). Within ten (10) Business Days after Company's receipt of a Monthly Report, Company shall provide written notice to Seller of any Monthly Report Disagreement, including with respect to the data for the calendar

month covered by such Monthly Report and Seller's calculation of, as applicable, (i) the PV System Equivalent Availability Factor for the LD Period ending with such calendar month, (ii) the MPR for the MPR Assessment Period ending with such calendar month, or (iii) any of the BESS Capacity Ratio, the BESS Annual Equivalent Availability Factor or the BESS Equivalent Forced Outage Factor for the BESS Measurement Period (if any) ending with such calendar month ("Notice of Disagreement"). Together with any such Notice of Disagreement, the Company shall include its own calculations and other support for its position. If Company fails to provide a Notice of Disagreement within said 10-Business Day period, the Monthly Report provided by Seller shall be deemed to be accepted by Company and shall no longer be subject to dispute by Company or Seller.

(b) [Reserved]

(c) Submission of Monthly Report Disagreement to Independent AF Evaluator. Upon issuance of a Notice of Disagreement, the Parties shall review the contents of the Monthly Report(s) together with such Notice of Disagreement and attempt to resolve such Monthly Report Disagreement. If the Parties are able to agree on a resolution of any Monthly Report Disagreement, the resulting corrected Monthly Report(s) in question shall be set forth in a writing executed by both Parties, following which (i) such corrected Monthly Reports shall no longer be subject to dispute by either Party and (ii) to the extent such resolution of such Monthly Report Disagreement affects future Monthly Reports, such future Monthly Reports shall be prepared, and the PV System Equivalent Availability Factor, the MPR, the BESS Annual Equivalent Factor and the BESS Annual Equivalent Forced Outage Factor in such future Monthly Reports shall be calculated, in a manner consistent with such resolution. If the Parties are unable to resolve such Monthly Report Disagreement within ten (10) Business Days after Company's issuance of such Notice of Monthly Report Disagreement, either Party may, within five (5) Business Days after the end of such 10-Business Day period, submit the unresolved Monthly Report Disagreement to an Independent AF Evaluator for resolution.

- (d) [Reserved]
- (e) Appointment of Independent AF Evaluator. If either Party decides to submit an unresolved Monthly Report Disagreement to an Independent AF Evaluator, it shall provide written notice to that effect (the "Submission Notice") to the other Party, which notice shall designate which of the engineering firms on the OEPR Consultants List is to act as the Independent AF Evaluator for purposes of resolving such dispute; provided, however, for purposes of facilitating consistency in the resolution of Monthly Report Disagreements, all Monthly Report Disagreements concerning the same Performance Metric arising out of any one or more of the twelve (12) Monthly Reports issued for a given Contract Year shall be submitted to the same Independent AF Evaluator unless such Independent AF Evaluator declines to accept any such submission(s). A Submission Notice must be provided within the 5-Business Day period provided in Section 2(c) (Submission of Monthly Report Disagreement to Independent AF Evaluator) of this Attachment T (Monthly Reporting and Dispute Resolution by Independent AF Evaluator). The Parties shall each pay fifty percent (50%) of the fees and expenses charged by the Independent AF Evaluator.
- (f) Eligibility for Appointment as Independent AF Evaluator. Both Parties agree that the engineering firms listed in Section 4(j) (Acceptable Persons and Entities) of Attachment U (Calculation and Adjustment of Net Energy Potential) are fully qualified to serve as Independent AF Evaluator. By mutual agreement between the Parties in writing, a name or names may be added to or removed from the OEPR Consultants List at any time. In no event shall there be less than three (3) names on the OEPR Consultants List.
- (g) Participation of Parties. Promptly following the issuance of a Submission Notice as provided in Section 2(e) (Appointment of Independent AF Evaluator) of this Attachment T (Monthly Reporting and Dispute Resolution by Independent AF Evaluator), Seller and Company shall provide the Independent AF Evaluator which such data as they consider to be material to the resolution of the disputed issue(s). Seller and

Company shall also provide such additional data and information as the Independent AF Evaluator may reasonably request. The Parties shall assist the Independent AF Evaluator throughout the process of resolving such dispute, including making key personnel and records available to the Independent AF Evaluator, but neither Party shall be entitled to participate in any meetings with personnel of the other Party or review of the other Party's records. However, the Independent AF Evaluator will have the right to conduct meetings, hearing or oral arguments in which both Parties are represented.

- (h) Written Decision of Independent AF Evaluator. The terms of engagement with the Independent AF Evaluator shall require the Independent AF Evaluator to issue its written decision resolving the disputed issues submitted to it within the applicable time period set forth below, which time periods are subject to any tolling that may be applicable pursuant to Section 2(i) (Sequence to Resolving Interrelated Disagreements) of this Attachment T (Monthly Reporting and Dispute Resolution by Independent AF Evaluator):
- (a) 30 Days as measured from the issuance of the Submission Notice; or (b) such other time period as the Parties may agree in writing. Unless otherwise agreed by the Parties in writing:
    - (i) for a Performance Metric Disagreement concerning the PV System Equivalent Availability Factor, the written decision of the Independent AF Evaluator shall set forth (aa) for the calendar month in question, the correct values for AH, EPDH, EUDH and PH to be used in calculations under Section 2.5 (PV System Equivalent Availability Factor; Liquidated Damages; Termination Damages) of this Agreement as determined by such Independent AF Evaluator if any such values were in dispute and (bb) for the LD Period ending with the calendar month in question, the PV System Equivalent Availability Factor for such LD Period as determined by such Independent AF Evaluator if such PV System Equivalent Availability Factor was in dispute;
    - (ii) for a Performance Metric Disagreement concerning the MPR, the written decision of the Independent

AF Evaluator shall set forth (aa) the correct data points from the operational data set for the calendar month in question to be used in the calculation of MPR under Section 2.6(a) (Calculation of Measured Performance Ratio) for the MPR Assessment Periods that include such calendar month if any such data points were in dispute, (bb) if a MPR Test was conducted during the month in question, the correct data points from such MPR Test to be used in the calculation of MPR under Section 2.6(a) (Calculation of Measured Performance Ratio) of this Agreement for the MPR Assessment Periods that include the month preceding the month covered by the Monthly Report in question if any such data points were in dispute and (cc) for the MPR Assessment Period ending with the calendar month in question, the Measured Performance Ratio if such Measured Performance Ratio was in dispute;

- (iii) for a Performance Metric Disagreement concerning the BESS Capacity Ratio, the written decision of the Independent AF Evaluator shall set forth the BESS Capacity Ratio for the BESS Measurement Period ending with the calendar month in question;
- (iv) for a Performance Metric Disagreement concerning the BESS Annual Equivalent Availability Factor, the written decision of the Independent AF Evaluator shall set forth (aa) the correct values to be used for AH, EPDH, EUDH and PH under Attachment X (BESS Annual Equivalent Availability Factor) for the calendar month in question if any such values were in dispute and (bb) the BESS Annual Equivalent Availability Factor for the BESS Measurement Period ending with the calendar month in question if such BESS Annual Equivalent Availability Factor was in dispute; and
- (v) for a Performance Metric Disagreement concerning the BESS Annual Equivalent Forced Outage Factor, the written decision of the Independent AF Evaluator shall set forth (aa) the correct values for FOH and EUDH under Attachment Y (BESS Annual Equivalent Forced Outage Factor) for the calendar month in question if any such values were in

dispute and (bb) the BESS Annual Equivalent Forced Outage Factor for the BESS Measurement Period ending with the calendar month in question if such BESS Annual Equivalent Forced Outage Factor was in dispute.

- (i) Sequence for Resolving Interrelated Disagreements. If at the time a Performance Metric Disagreement is submitted to an Independent AF Evaluator pursuant to Section 2(e) (Appointment of Independent AF Evaluator) of this Attachment T (Monthly Reporting and Dispute Resolution by Independent AF Evaluator) there are one or more other unresolved Performance Metric Disagreements concerning the same Performance Metric and the same LD Period that are pending before a different Independent AF Evaluator, and the resolution of such other Performance Metric Disagreement(s) is necessary to the resolution of the Performance Metric Disagreement that has been newly submitted to a new Independent AF Evaluator as aforesaid, the time period for such new Independent AF Evaluator to issue its written decision resolving such newly submitted Performance Metric Disagreement shall be tolled until such pending Performance Metric Disagreement(s) have been resolved. For avoidance of doubt, it is the intent of the Parties that disagreements over performance ratio data and calculations for a given calendar month or a given BESS Measurement Period shall (i) not be subject to resolution twice and (ii) once resolved, shall not be reopened.
- (j) Final, Conclusive and Binding. The Parties acknowledge the inherent uncertainty in calculating the Performance Metrics, and hereby assume the risk of such uncertainty and waive any right to dispute the qualification of the person or entity appointed as the Independent AF Evaluator pursuant to Section 2(e) (Appointment of Independent AF Evaluator) of this Attachment T (Monthly Reporting and Dispute Resolution by Independent AF Evaluator) and/or the appropriateness of the methodology used by Independent AF Evaluator in resolving such Performance Metric Disagreements. Without limitation to the generality of the preceding sentence, the decision of the Independent AF Evaluator as to each Performance Metric Disagreement submitted to an Independent AF Evaluator shall be final, conclusive and binding upon Company

and Seller and shall not be subject to further dispute under Article 28 (Dispute Resolution) of the Agreement.

3. Periodic Review of Method of Calculating and Reporting Performance Metric. At least once per Contract Year, Company shall review the method of calculating and reporting Performance Metric under this Agreement to determine if other variables should be incorporated into such calculations. Any revisions to the Performance Metric calculations in this Agreement shall be mutually agreed to by both Seller and Company.
4. Future Changes in Reporting Requirements. Seller shall reasonably cooperate with any Company requested revisions to the Monthly Report to include additional data that may be necessary from time to time to enable Company to comply with any new reporting requirements directed by the PUC or otherwise imposed under applicable Laws.

ARTICLE 2  
PURCHASE AND SALE OF ENERGY AND DISPATCHABILITY;  
RATE FOR PURCHASE AND SALE; BILLING AND PAYMENT

**DRAFTING NOTE: For any projects which intend to meet the capacity need for Oahu and which propose a GCOD after March 2022 (but, in no event later than June 1, 2022), such projects shall be required to meet the availability and performance metrics of this Article 2 immediately as of GCOD (i.e., no seasoning period), and liquidated damages would be assessable for failure to satisfy such metrics without taking into account a seasoning period. Conforming revisions to be made based on a project's proposed GCOD and whether such project intends to meet the capacity need for Oahu.**

- 2.1 Purchase and Sale of Electric Energy, Dispatchability of Facility and Availability of the BESS. Subject to the other provisions of this Agreement, Company shall, by a Lump Sum Payment, pay for: (i) the Actual Output produced by the Facility and delivered to the Point of Interconnection in response to Company Dispatch of the Facility; (ii) the availability of the Facility's Net Energy Potential for Company Dispatch in accordance with this Agreement; and (iii) the availability of the BESS. Included in such purchase and sale are all of the Environmental Credits associated with the electric energy. Company will not reimburse Seller for any taxes or fees imposed on Seller including, but not limited to, State of Hawai'i general excise tax. **[Drafting Note: For PPA with energy payment, use the following in lieu of the above:** Subject to the other provisions of this Agreement: (i) Company shall, by an Energy Payment, pay for the Actual Output produced by the Facility and delivered to the Point of Interconnection in response to Company Dispatch of the Facility; and (ii) Company shall, by a Lump Sum Payment, pay for the availability of the Facility's Net Energy Potential and the availability of the BESS to respond to Company Dispatch in accordance with this Agreement. Included in such purchase and sale of electric energy and such purchase and sale of dispatchability are all of the Environmental Credits associated with the electric energy. Company will not reimburse Seller for any taxes or fees imposed on Seller including, but not limited to, State of Hawai'i general excise tax.]
- 2.2 [Drafting Note: If there is no Energy Payment, replace this paragraph with [RESERVED]]Payment for Electric Energy.

Commencing on the Commercial Operations Date, in exchange for the electric energy delivered to the Point of Interconnection in response to Company Dispatch, Seller will be paid an Energy Payment on a monthly basis as provided in Section 1 (Price for Purchase of Electric Energy) of Attachment J (Company Payments for Energy, Dispatchability and Availability of BESS) to this Agreement.

2.3 Lump Sum Payment. Commencing on the Commercial Operations Date, Company shall pay to Seller a monthly Lump Sum Payment as provided in Section 2 (Lump Sum Payment for Purchase of Dispatchability) of Attachment J (Company Payments for Energy, Dispatchability and Availability of BESS) to this Agreement. As more fully set forth in Section 3 (Calculation of Lump Sum Payment) of said Attachment J (Company Payments for Energy, Dispatchability and Availability of BESS), the monthly Lump Sum Payment shall be calculated and adjusted to reflect changes in the estimate of the Facility's Net Energy Potential as such estimate is revised from time to time as more fully set forth in Attachment U (Calculation and Adjustment of Net Energy Potential) to this Agreement. For purposes of calculating the monthly Lump Sum Payment, the monthly Lump Sum Payment shall be adjusted downward to account for the time the Facility WTG(s) are not available for Company Dispatch because of a Force Majeure condition (i) at the Facility or (ii) that otherwise delays or prevents the Seller from making the Facility WTG(s) in question available for Company Dispatch, as more fully set forth in Section 3.iv of Attachment J (Company Payments for Energy, Dispatchability and Availability of BESS) to this Agreement.

2.4 Assurance of Capability of Facility to Deliver Net Energy Potential and Availability of BESS.

(a) Design, Operation and Maintenance to Achieve Required Performance Metrics; Charging of BESS. In order to provide Company with reasonable assurance that, subject to the Renewable Resource Variability, the Facility's Net Energy Potential will be available for Company Dispatch: (i) the Modified Pooled OMC Equipment Availability Factor Performance Metric shall be used to evaluate the availability of the WTGs for dispatch by Company; (ii) the Guaranteed Performance Index ("GPI") Performance Metric shall be used to evaluate the efficiency of the WTGs; (iii) the BOP Efficiency Ratio Performance Metric shall be used to evaluate the efficiency of the BOP; (iv) the BESS Capacity

Performance Metric shall be used to confirm the capability of the BESS to discharge continuously for four (4) hours at Maximum Rated Output or to discharge continuously for a total energy (MWh) equal to the BESS Contract Capacity if the test is conducted at less than Maximum Rated Output; (v) the BESS EAF Performance Metric shall be used to determine whether the BESS is meeting its expected availability; and (v) the BESS EFOF Performance Metric shall be used to evaluate whether the BESS is experiencing excessive unplanned outages. Whenever the WTGs potential output is in excess of the Company Dispatch, the excess energy from the WTGs shall be used to maximize the BESS State of Charge so long as this does not conflict with the operating parameters of the BESS set forth in Section 9(d) (Battery Energy Storage System) of Attachment B (Facility Owned by Seller) to this Agreement. Seller shall design, operate and maintain the Facility in a manner consistent with the standard of care reasonably expected of an experienced owner/operator with the desire and financial resources necessary to design, operate and maintain the Facility to achieve the Performance Metrics. The foregoing is without limitation to Seller's other obligations under this Agreement, including the obligation to operate the Facility in accordance with Good Engineering and Operating Practices. The Performance Metrics set forth in Section 2.5 (Modified Pooled OMC Equipment Availability Factor; Liquidated Damages; Termination Rights) through Section 2.10 (BESS Annual Equivalent Forced Outage Factor; Liquidated Damages) of this Agreement shall be interpreted consistent with the North American Electric Reliability Corporation Generating Availability Data System ("NERC GADS") Data Reporting Instructions.

(b) [Reserved]

2.5 Modified Pooled OMC Equipment Availability Factor; Liquidated Damages; Termination Rights.

(a) Calculation of the Modified Pooled OMC Equipment Availability Factor. Following the end of each LD Period, the Modified Pooled OMC Equipment Availability Factor shall be calculated for such LD Period as set forth in Section 1 (Modified Pooled OMC Equipment Availability Factor ("MPXEEAF")) of Attachment Q (Calculation of Certain Metrics).

(b) Modified Pooled OMC Equipment Availability Factor Performance Metric and Liquidated Damages. For each LD Period, a Modified Pooled OMC Equipment Availability Factor shall be calculated as provided in accordance with Section 1 (Modified Pooled OMC Equipment Availability Factor ("MPXEEAF")) of Attachment Q (Calculation of Certain Metrics) to this Agreement. In the event the Modified Pooled OMC Equipment Availability Factor is less than **97%** (the "Modified Pooled OMC Equipment Availability Factor Performance Metric") for any LD Period, Seller shall be subject to liquidated damages as set forth in this Section 2.5(b) (Modified Pooled OMC Equipment Availability Factor Performance Metric and Liquidated Damages). For avoidance of doubt, because the Modified Pooled OMC Equipment Availability Factor is calculated over an LD Period of 12 calendar months, the first month for which liquidated damages would be calculated under this Section 2.5(b) (Modified Pooled OMC Equipment Availability Factor Performance Metric and Liquidated Damages) would be the last calendar month of the initial Contract Year. If the Modified Pooled OMC Equipment Availability Factor for a LD Period is less than the Modified Pooled OMC Equipment Availability Factor Performance Metric, Seller shall pay, and Company shall accept, as liquidated damages for Seller's failure to achieve the Modified Pooled OMC Equipment Availability Factor Performance Metric for such LD Period, an amount calculated in accordance with the following formula:

<u>Modified Pooled          OMC Equipment          Availability          Factor</u>	<u>Amount of Liquidated Damages Per          Calendar Month</u>
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<b>96.9%</b> and below	For each one-tenth of one percent (0.001) by which the Modified Pooled OMC Equipment Availability Factor for such LD Period falls below the Modified Pooled OMC Equipment Availability Factor Performance Metric, an amount equal to 0.001 of the Applicable Period Lump Sum Payment for the last calendar month of such LD Period.
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For purposes of determining liquidated damages under the preceding formula, the amount by which the Modified Pooled OMC Equipment Availability Factor for the LD Period in question falls below the applicable threshold shall be rounded to the nearest one-tenth of one percent (0.001). Each Party agrees and acknowledges that (i) the damages that Company would incur if the Seller fails to achieve the Modified Pooled OMC Equipment Availability Factor Performance Metric for a LD Period would be difficult or impossible to calculate with certainty and (ii) the aforesaid liquidated damages are an appropriate approximation of such damages.

- (c) Modified Pooled OMC Equipment Availability Factor Termination Rights. The Parties acknowledge that, although the intent of the liquidated damages payable under Section 2.5(b) (Modified Pooled OMC Equipment Availability Factor Performance Metric and Liquidated Damages) is to compensate Company for the damages that Company would incur if the Seller fails to achieve the Modified Pooled OMC Equipment Availability Factor Performance Metric for a LD Period, such liquidated damages are not intended to compensate Company for the damages that Company would incur if a pattern of underperformance establishes a reasonable expectation that the Facility is likely to continue to substantially underperform the Modified Pooled OMC Equipment Availability Factor Performance Metric. Accordingly, and without limitation to Company's rights under said Section 2.5(b) (Modified Pooled OMC Equipment Availability Factor Performance Metric and Liquidated Damages) for those LD Periods during which the Seller failed to achieve the Modified Pooled OMC Equipment Availability Factor Performance Metric, the failure of the Facility to achieve a Modified Pooled OMC Equipment Availability Factor of not less than **84%** for each of three consecutive Contract Years shall constitute an Event of Default under Section 15.1(b) of this Agreement for which Company shall have the rights (including but not limited to the termination rights) set forth in Article 15 (Events of Default) and Article 16 (Damages in the Event of Termination by Company).

## 2.6 Performance Index; Liquidated Damages; Termination Rights.

(a) Calculation of Performance Index.

- (i) The Performance Index represents the efficiency of the WTG's conversion of the wind resource to electricity by comparing the calculated Expected Generation at the WTGs to the measured Actual Generation at the WTGs during Contact Hours excluding periods where the operational state is categorized as ERSDTH, oEFDTH, oEMPTH, oEPDTH or Environmental Derate.
- (ii) Following the end of each PI Assessment Period, the Performance Index shall be calculated for such PI Assessment Period (using the previous 12 months of data) as set forth in Section 2 (Performance Index) of Attachment Q (Calculation of Certain Performance Metrics) to this Agreement.
- (iii) PI Test. In the event that the set of operational data points under Attachment Q (Calculation of Certain Performance Metrics) that is available for any month to calculate the PI cannot be validated to Company's reasonable satisfaction or in the event there were not at least 16 such data points during such month that could be used to calculate the PI, the Company shall have the right to perform a test ("PI Test") to collect the data points for such month to be used to calculate the PI in lieu of the use of operational data for such month. The Company shall retain sole discretion as to when to conduct the PI Test, and the PI Test may be conducted at any point during the month following the month for which Company was either unable to validate the set of operational data points for such month or there were not at least 24 data points available during such month. The PI Test shall have a minimum duration of four (4) hours and shall run until at least 16 data points are collected that meet the criteria set forth in Attachment Q (Calculation of Certain Performance Metrics). During an PI Test, the PI shall be calculated from the data points collected during said PI Test using the formula set forth in Attachment Q. To the extent possible, the Company shall schedule the PI Test for a period where all WTGs are available and weather conditions are expected to be optimum allowing the WTG System to generate at near full

capacity for the duration of the PI Test (if possible). The result of the calculation based on the PI Test shall be the PI for the PI Assessment Period in question.

(iv) For each PI Assessment Period that includes one or more months for which a PI Test was performed, the data points collected during said PI Test for such month(s) shall be used together with the data points for months for which a PI Test was not conducted to calculate the PI for the PI Assessment Period in question using the formula set forth in Section 2.6(a)(iii) above. The result of the calculation based on the PI Test shall be the PI for the PI Assessment period in question.

(b) GPI Metric and Liquidated Damages. For each PI Assessment Period, a Performance Index shall be calculated as provided in Section 2 (Performance Index) of Attachment Q (Calculation of Certain Metrics) to this Agreement. In the event the PI is less than 97% (the "GPI Metric"), Seller shall pay, and Company shall accept, as liquidated damages for Seller's failure to achieve the GPI Metric for such PI Assessment Period, an amount calculated in accordance with the following formula:

<u>Tier</u>	<u>Facility PI</u>	<u>Amount of Liquidated Damages Per Calendar Month</u>
Tier 1	97.0% > PI > or equal to 90.0%	For each one tenth of one percent (0.001) by which the Performance Index for such PI Assessment Period falls below 97% and is above 89.9%, an amount equal to one tenth of one percent (0.001) of the PI Assessment Period Lump Sum Payment; plus
Tier 2	90.0% > PI > or equal to 80.0%	For each one tenth of one percent (0.001) by which the Performance Index for such PI Assessment Period falls below 90.0% and is above 79.9%, an amount equal to two tenths of one percent (0.002) of the PI Assessment Period Lump Sum Payment; plus

Tier 3	Below 80.0%	For each one tenth of one percent (0.001) by which the Performance Index for such PI Assessment Period falls below 80.0%, an amount equal to four tenths of one percent (0.004) of the PI Assessment Period Lump Sum Payment.
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(c) PI Termination Rights. The Parties acknowledge that, although the intent of the liquidated damages payable under Section 2.6(b) (GPI Metric and Liquidated Damages) is to compensate Company for the damages that Company would incur if the Seller fails to achieve the GPI Metric for a PI Assessment Period, such liquidated damages are not intended to compensate Company for the damages that Company would incur if a pattern of underperformance establishes a reasonable expectation that the Facility is likely to continue to substantially underperform the GPI Metric. Accordingly, and without limitation to Company's rights under said Section 2.6(b) (GPI Metric and Liquidated Damages) for those PI Assessment Periods during which the Seller failed to achieve the GPI Metric, the failure of the Facility to achieve, for each of three consecutive Contract Years, a Performance Index of not less than the Tier 2 Bandwidth for such Contract Year shall constitute an Event of Default under Section 15.1(c) of this Agreement for which Company shall have the rights (including but not limited to the termination rights) set forth in Article 15 (Events of Default) and Article 16 (Damages in the Event of Termination by Company).

2.7 BOP Efficiency Ratio; Liquidated Damages; Termination Rights.  
**[DRAFTING NOTE: THE SECTION ON BOP EFFICIENCY RATIO WILL BE REVISED FOR PROJECTS THAT INCLUDE A BESS.]**

(a) Calculation of Annual BOP Efficiency Ratio. The BOP Efficiency Ratio represents the efficiency of the BOP by comparing the measured Actual Generation at the WTGs to the Actual Output at the Point of Interconnection. Following the end of each Contract Year, Company shall calculate the BOP Efficiency Ratio for such Contract Year as follows:

$$\text{BOP} = \frac{\text{Actual Output (at POI) for such Contract Year}}{\text{Actual Output (at POI) for such Contract Year}}$$

Efficiency  
Ratio

Actual Generation at WTGs  
for such Contract Year

(b) Determination of BOP Benchmark.

- (i) First Two Contract Years. If a copy of the IE Energy Assessment Report is not provided to Company, the BOP Benchmark for the first two Contract Years shall be **97%**. If a copy of the IE Energy Assessment Report is provided to Company, the BOP Benchmark shall be derived from the IE Energy Assessment Report on the basis of the estimated electrical losses for the BOP used in the IE Energy Assessment Report in arriving at the NEP IE Estimate. Within 30 Days of Company's receipt of the IE Energy Assessment Report, Company shall provide written notice to Seller of either (aa) the BOP Benchmark derived from the IE Energy Assessment Report or (bb) Company's inability to reasonably derive a BOP Benchmark from the IE Energy Assessment, in which case the BOP Benchmark shall be **97%**.
- (ii) Commencing With Third Contract Year. For the third Contract Year through the end of the Contract Year preceding the Contract Year during which the first Subsequent OEPR is issued, the BOP Benchmark shall be derived from the Initial OEPR on the basis of the estimated electrical losses for the BOP used in the Initial OEPR in arriving at the Initial OEPR's NEP OEPR Estimate. Within 30 Days of Company's receipt of the Initial OEPR, Company shall either (i) provide written notice to Seller of the BOP Benchmark derived from the Initial OEPR or (ii) if Company is unable to reasonably derive a BOP Benchmark from the Initial OEPR, deliver a written request to the OEPR Evaluator (with a copy to Seller) that such OEPR Evaluator issue, within 30 Days, a written clarification of the Initial OEPR specifying the BOP Benchmark. If such request for clarification is made to the OEPR Evaluator, within 10 Business Days following the expiration of the 30-Day period provided for receipt of such OEPR Evaluator's reply, Company shall provide written notice to Seller of either (i) the BOP Benchmark derived from such written clarification by the OEPR

Evaluator or (ii) the designation of **97%** as the BOP Benchmark due to either the failure of the OEPR Evaluator to issue a written clarification or, if a written clarification was issued, the inability of Company to reasonably derive a BOP Benchmark on the basis of such written clarification.

- (iii) Commencing With the First Subsequent OEPR and Thereafter. For any Contract Year during which a Subsequent OEPR is issued through the end of the Contract Year preceding the Contract Year during which the next Subsequent OEPR is issued, the BOP Benchmark shall be derived from the first of the two Subsequent OEPRs referenced in this sentence on the basis of the estimated electrical losses for the BOP used in such Subsequent OEPR in arriving at such Subsequent OEPR's NEP Estimate. Within 30 Days of Company's receipt of such Subsequent OEPR, Company shall either (i) provide written notice to Seller of the BOP Benchmark derived from such Subsequent OEPR or (ii) if Company is unable to reasonably derive a BOP Benchmark from such Subsequent OEPR, deliver a written request to the OEPR Evaluator (with a copy to Seller) that such OEPR Evaluator issue, within 30 Days, a written clarification of such Subsequent OEPR specifying the BOP Benchmark. If such request for clarification is made to the OEPR Evaluator, within 10 Business Days following the expiration of the 30-Day period provided for the receipt of such OEPR Evaluator reply, Company shall provide written notice to Seller of either (i) the BOP Benchmark derived from such written clarification by the OEPR Evaluator or (ii) the designation of **97%** as the BOP Benchmark due to either the failure of the OEPR Evaluator to issue a written clarification or, if a written clarification was issued, the inability of Company to reasonably derive a BOP Benchmark on the basis of such written clarification.
- (iv) Disagreement Over Determination of BOP Benchmark. Any disagreement over the determination of the BOP Benchmark shall be resolved as set forth in Section 2(b) (Notice of Disagreement with BOP Benchmark Determination) of Attachment T (Monthly

Reporting and Dispute Resolution by Independent AF Evaluator) to this Agreement.

- (c) BOP Benchmark and Liquidated Damages. For each Contract Year, Seller shall achieve a BOP Efficiency Ratio, as calculated as provided in Section 2.7(a) (Calculation of Annual BOP Efficiency Ratio) of this Agreement, of not less than the BOP Benchmark. If the BOP Efficiency Ratio for a Contract Year is less than the BOP Benchmark, Seller shall pay, and Company shall accept, as liquidated damages for Seller's failure to achieve the BOP Benchmark for such Contract Year, an amount calculated in accordance with the following formula:

Amount of Liquidated Damages Per Contract Year

For each one-tenth of one percent (0.001) by which the BOP Efficiency Ratio for such Contract Year falls below the BOP Benchmark up to and including a BOP Efficiency Ratio of three percentage points below the BOP Benchmark ("BOP Benchmark Minus 3"), one-tenth of one percent (0.001) of the Applicable Period Lump Sum Payment for such Contract Year; plus

For each one-tenth of one percent (0.001) by which the BOP Efficiency Ratio for such Contract Year falls below BOP Benchmark Minus 3 up to an including a BOP Efficiency Ratio of six percentage points below the BOP Benchmark ("BOP Benchmark Minus 6"), two-tenths of one percent (0.002) of the Applicable Period Lump Sum Payment for such Contract Year; plus

For each one-tenth of one percent (0.001) by which the BOP Efficiency Ratio for such Contract Year falls below BOP Benchmark Minus 6, four-tenths of one percent (0.004) of the Applicable Period Lump Sum Payment for such Contract Year.

For purposes of determining liquidated damages under the preceding formula, the amount by which the BOP Efficiency Ratio for the Contract Year in question falls below the applicable threshold shall be rounded to the nearest one-tenth of one percent (0.001). Each Party agrees and acknowledges that (i) the damages that Company would incur if the Seller fails to achieve the BOP Benchmark for a Contract Year would be difficult or impossible to calculate with certainty and (ii) the aforesaid liquidated damages are an appropriate approximation of such damages.

- (d) BOP Efficiency Ratio Termination Rights. The Parties acknowledge that, although the intent of the liquidated damages payable under Section 2.7(c) (BOP Benchmark and Liquidated Damages) is to compensate Company for the damages that Company would incur if Seller fails to achieve the BOP Benchmark for a Contract Year, such liquidated damages are not intended to compensate Company for the damages that Company would incur if a pattern of underperformance establishes a reasonable expectation that the Facility is likely to continue to substantially underperform the BOP Benchmark. Accordingly, and without limitation to Company's rights under said Section 2.7(c) (BOP Benchmark and Liquidated Damages) for those Contract Years during which the Seller failed to achieve the BOP Benchmark, the failure of the Facility to achieve a BOP Efficiency Ratio of not less than BOP Benchmark Minus 6 for each of three consecutive Contract Years shall constitute an Event of Default under Section 15.1(c) of this Agreement for which Company shall have the rights (including but not limited to the termination rights) set forth in Article 15 (Events of Default) and Article 16 (Damages in the Event of Termination by Company).

## 2.8 BESS Capacity Test; Liquidated Damages; Termination Rights.

- (a) BESS Capacity Test and Liquidated Damages. For each BESS Measurement Period following the Commercial Operations Date, the BESS shall be required to complete a BESS Capacity Test, as more fully set forth in Attachment W (BESS Tests) to this Agreement. For each BESS Measurement Period for which the BESS fails to demonstrate that it satisfies the BESS Capacity Performance Metric, Seller shall pay, and Company shall

accept, as liquidated damages for such shortfall, the amount set forth in the following table (on a progressive basis) upon proper demand at the end the BESS Measurement Period in question:

<b>BESS Capacity Ratio</b>	<b>Liquidated Damage Amount</b>
Tier 1 95.0% - 99.9%	For each one-tenth of one percent (0.001) that the BESS Capacity Ratio is below 100% and is above 94.9%, an amount equal to one-tenth of one percent (0.001) of the BESS Allocated Portion of the Lump Sum Payment for the BESS Measurement Period in question; plus
Tier 2 85.0% - 94.9%	For each one-tenth of one percent (0.001) that the BESS Capacity Ratio is below 95% and is above 84.9%, an amount equal to one and a half-tenths of one percent (0.0015) of the BESS Allocated Portion of the Lump Sum Payment for the BESS Measurement Period in question; plus
Tier 3 75.0% - 84.9%	For each one-tenth of one percent (0.001) that the BESS Capacity Ratio is below 85% and is above 74.9%, an amount equal to two-tenths of one percent (0.002) of the BESS Allocated Portion of the Lump Sum Payment for the BESS Measurement Period in question; plus
Tier 4 60.0% - 74.9%	For each one-tenth of one percent (0.001) that the BESS Capacity Ratio is

	below 75% and is above 59.9%, an amount equal to two and a half-tenths of one percent (0.0025) of the BESS Allocated Portion of the Lump Sum Payment for the BESS Measurement Period in question; plus
Tier 5 50.0% - 59.9%	For each one-tenth of one percent (0.001) that the BESS Capacity Ratio is below 60% and is above 49.9%, an amount equal to three-tenths of one percent (0.003) of the BESS Allocated Portion of the Lump Sum Payment for the BESS Measurement Period in question; plus
Tier 6 49.9% and below ("Lowest BESS Capacity Bandwidth")	For each one-tenth of one percent (0.001) that the BESS Capacity Ratio is below 50%, an amount equal to three and a half-tenths of one percent (0.0035) of the BESS Allocated Portion of the Lump Sum Payment for the BESS Measurement Period in question.

For purposes of determining liquidated damages under this Section 2.8(a) (BESS Capacity Test and Liquidated Damages), the starting and end points for the duration of the period that the BESS discharges shall be rounded to the nearest MWh. Each Party agrees and acknowledges that (i) the damages that Company would incur if the Seller fails to achieve the BESS Capacity Performance Metric for a BESS Measurement Period would be difficult or impossible to calculate with certainty and (ii) the aforesaid liquidated damages are an appropriate approximation of such damages.

EXAMPLE: The following is an example calculation of liquidated damages for the BESS Capacity Performance

Metric and is included for illustrative purposes only.  
Assume the following:

The Maximum Rated Output for the BESS is 25 MW.

A BESS Capacity Test was conducted and the BESS was measured to have discharged 65 MWh

BESS Contract Capacity = 25 MW x 4 hours = 100 MWh  
BESS Capacity Ratio = MWh Discharged/BESS Contract Capacity = 65 MWh/100 MWh = 0.65

$LD = [((1 - 0.950) \times 1) + ((0.950 - 0.850) \times 1.5) + ((0.850 - 0.750) \times 2 + ((0.750 - 0.65) \times 2.5)] \times \text{BESS Allocated Portion of the Lump Sum Payment for the BESS Measurement Period in question}$   
= 0.65 x BESS Allocated Portion of the Lump Sum Payment for the BESS Measurement Period in question

- (b) BESS Capacity Test Termination Rights. The Parties acknowledge that, although the intent of the liquidated damages payable under Section 2.8(a) (BESS Capacity Test and Liquidated Damages) is to compensate Company for the damages that Company would incur if the BESS fails to demonstrate satisfaction of the BESS Capacity Performance Metric during a BESS Measurement Period, such liquidated damages are not intended to compensate Company for the damages that Company would incur if a pattern of underperformance establishes a reasonable expectation that the BESS is likely to continue to substantially underperform the Company's expectations. Accordingly, and without limitation to Company's rights under said Section 2.8(a) (BESS Capacity Test and Liquidated Damages) for those BESS Measurement Periods during which the BESS fails to demonstrate satisfaction of the BESS Capacity Performance Metric, substantial underperformance shall give rise to a termination right as set forth in this Section 2.8(b) (BESS Capacity Test Termination Rights). If the BESS is in the Lowest BESS Capacity Bandwidth for any two BESS Measurement Periods during a 12-month period, an **18-month** cure period (the "BESS Capacity Cure Period") will commence on the Day following the close of the second such BESS Measurement Period. For each BESS Measurement Period during such BESS Capacity Cure Period, BESS Capacity Tests shall continue to be conducted as set forth in Attachment W (BESS Tests) and liquidated damages paid and accepted as

set forth in Section 2.8(a) (BESS Capacity Test and Liquidated Damages); provided, however, that if the Seller fails to demonstrate satisfaction of the BESS Capacity Performance Metric prior to the expiration of the BESS Capacity Cure Period, such failure shall constitute an Event of Default under Section 15.1(e) of this Agreement for which Company shall have the rights (including but not limited to the termination rights) set forth in Article 15 (Events of Default) and Article 16 (Damages in the Event of Termination by Company).

2.9 BESS Annual Equivalent Availability Factor; Liquidated Damages; Termination Rights.

(a) BESS Annual Equivalent Availability Factor and Liquidated Damages. For each BESS Measurement Period following the Commercial Operations Date, a BESS Annual Equivalent Availability Factor shall be calculated as set forth in Attachment X (BESS Annual Equivalent Availability Factor). If the BESS Annual Equivalent Availability Factor for such BESS Measurement Period is less than **97%** (the "BESS EAF Performance Metric"), Seller shall pay, and Company shall accept, as liquidated damages for such shortfall, the amount set forth in the following table (on a progressive basis) upon proper demand at the end the current BESS Measurement Period:

<b>BESS Annual Equivalent Availability Factor</b>	<b>Liquidated Damage Amount</b>
Tier 1  85.0% - 96.9%	For each one-tenth of one percent (0.001) by which the BESS Annual Equivalent Availability Factor falls below 97% but equal to or above 85%, an amount equal to one-tenth of one percent (0.001) of the BESS Allocated Portion of the Lump Sum Payment for the BESS Measurement Period in question; plus
Tier 2  80.0% - 84.9%	For each one-tenth of one percent (0.001) by which the BESS Annual Equivalent Availability Factor falls

	below 85% but equal to or above 80%, an amount equal to two-tenths of one percent (0.002) of the BESS Allocated Portion of the Lump Sum Payment for the BESS Measurement Period in question; plus
Tier 3 75.0% - 79.9%	For each one-tenth of one percent (0.001) by which the BESS Annual Equivalent Availability Factor falls below 80% but equal to or above 75%, an amount equal to three-tenths of one percent (0.003) of the BESS Allocated Portion of the Lump Sum Payment for the BESS Measurement Period in question; plus
Tier 4 Below 75.0%	For each one-tenth of one percent (0.001) by which the BESS Annual Equivalent Availability Factor falls below 75%, an amount equal to four-tenths of one percent (0.004) of the BESS Allocated Portion of the Lump Sum Payment for the BESS Measurement Period in question.

Such liquidated damages shall be due within thirty (30) Days after the first to occur of the end of such BESS Measurement Period or the end of Term. In the event Seller fails to pay Company amounts of liquidated damages due under this Section 2.9(a) (BESS Annual Equivalent Availability Factor and Liquidated Damages) within thirty (30) Days of receipt of Company's written demand, Company may, without limitation to any other remedy Company may have, set-off such amounts due against payments it is otherwise obligated to make under this Agreement.

For purposes of determining liquidated damages under this Section 2.9(a) (BESS Annual Equivalent Availability Factor and Liquidated Damages), the BESS Annual

Equivalent Availability Factor for the BESS Measurement Period in question shall be rounded to the nearest one-tenth of one percent (0.001). Each Party agrees and acknowledges that (i) the damages that Company would incur if the Seller fails to achieve the BESS EAF Performance Metric for a BESS Measurement Period would be difficult or impossible to calculate with certainty and (ii) the aforesaid liquidated damages are an appropriate approximation of such damages.

- (b) BESS Annual Equivalent Availability Factor Termination Rights. The Parties acknowledge that, although the intent of the liquidated damages payable under Section 2.9(a) (BESS Annual Equivalent Availability Factor and Liquidated Damages) is to compensate Company for the damages that Company would incur if the Seller fails to achieve the BESS EAF Performance Metric for a BESS Measurement Period, such liquidated damages are not intended to compensate Company for the damages that Company would incur if a pattern of underperformance establishes a reasonable expectation that the BESS is likely to continue to substantially underperform the BESS EAF Performance Metric. Accordingly, and without limitation to Company's rights under said Section 2.9(a) (BESS Annual Equivalent Availability Factor and Liquidated Damages) for those BESS Measurement Periods during which the Seller failed to achieve the BESS EAF Performance Metric, the failure of the Seller to achieve, for each of four consecutive BESS Measurement Periods, a BESS Annual Equivalent Availability Factor of not less than **75%** shall constitute an Event of Default under Section 15.1(f) of this Agreement for which Company shall have the rights (including but not limited to the termination rights) set forth in Article 15 (Events of Default) and Article 16 (Damages in the Event of Termination by Company); provided, however, that if a BESS Measurement Period for which the aforementioned 75% threshold is not achieved falls within a BESS Capacity Cure Period, such BESS Measurement Period shall be excluded from the calculation of the aforementioned "four consecutive BESS Measurement Periods" if the failure to achieve the aforementioned 75% threshold was the result of unavailability caused by the process of carrying out the repairs to or replacements of the BESS necessary to remedy the failure of the BESS to achieve the BESS Capacity Performance Metric.

2.10 BESS Annual Equivalent Forced Outage Factor; Liquidated Damages.

For each BESS Measurement Period following the Commercial Operations Date, the BESS shall maintain a BESS Annual Equivalent Forced Outage Factor of not more than 4% (the "BESS EFOF Performance Metric") as calculated as set forth in Attachment Y (BESS Annual Equivalent Forced Outage Factor). If the BESS Annual Equivalent Forced Outage Factor for such BESS Measurement Period exceeds the BESS EFOF Performance Metric, Seller shall pay, and Company shall accept, as liquidated damages for exceeding the BESS EFOF Performance Metric, the amount set forth in the following table (on a progressive basis) upon proper demand by the Company at the end of the BESS Measurement Period in question:

<b>BESS Annual Equivalent Forced Outage Factor</b>	<b>Liquidated Damage Amount</b>
0.0% - 4.0%	-0-
4.1% - 6.9%	For each one-tenth of one percent (0.001) that the BESS Annual Equivalent Forced Outage Factor is above 4.0% but less than 7.0%, an amount equal to two-tenths of one percent (0.002) of the BESS Allocated Portion of the Lump Sum Payment for the BESS Measurement Period in question; plus
7.0% and above	For each one-tenth of one percent (0.001) that the BESS Annual Equivalent Forced Outage Factor is above 6.9%, an amount equal to four-tenths of one percent (0.004) of the BESS Allocated Portion of the Lump Sum Payment for the BESS Measurement Period in question

Such liquidated damages shall be due within thirty (30) Days after the first to occur of the end of such BESS Measurement Period or the end of Term. In the event Seller fails to pay Company amounts of liquidated damages due under this Section 2.10 (BESS Annual Equivalent Forced Outage Factor; Liquidated Damages) within thirty (30) Days of receipt of Company's written demand, Company may set-off such amounts due against payments it is otherwise obligated to make under this Agreement.

For purposes of determining liquidated damages under this Section 2.10 (BESS Annual Equivalent Forced Outage Factor; Liquidated Damages), the BESS Annual Equivalent Forced Outage Factor for the BESS Measurement Period in question shall be rounded to the nearest one-tenth of one percent (0.001). Each Party agrees and acknowledges that (i) the damages that Company would incur if the Seller fails to achieve the BESS EFOF Performance Metric for a BESS Measurement Period would be difficult or impossible to calculate with certainty and (ii) the aforesaid liquidated damages are an appropriate approximation of such damages.

For example, if the BESS Equivalent Annual Forced Outage Factor was 4.1% as calculated in the example in Attachment Y (BESS Annual Equivalent Forced Outage Factor) attached hereto and the BESS Allocated Portion of the Lump Sum Payment for the BESS Measurement Period in question is \$1,000,000, the liquidated damages would be \$2,000, calculated as follows:

$$\begin{aligned} 4.1\% - 4.0\% &= 0.1\% \\ 0.1\%/0.1 &= 1 \\ \$1,000,000 \times .002 &= \$2,000 \\ \$2,000 \times 1 &= \$2,000 \end{aligned}$$

2.11 BESS Round Trip Efficiency Test; Liquidated Damages; Termination Rights.

- (a) RTE Test and Liquidated Damages. For each BESS Measurement Period following the Commercial Operations Date, the BESS shall be required to complete a RTE Test or otherwise demonstrate satisfaction of the RTE Performance Metric, as more fully set forth in Attachment W (BESS Tests) to this Agreement. For each BESS Measurement Period for which the BESS fails to demonstrate that it satisfies the RTE Performance Metric, Seller shall pay, and Company shall accept, as liquidated damages for such shortfall, in the amount to



intended to compensate Company for the damages that Company would incur if a pattern of underperformance establishes a reasonable expectation that the BESS is likely to continue to substantially underperform the Company's expectations. Accordingly, and without limitation to Company's rights under said Section 2.11(a) (RTE Test and Liquidated Damages) for those BESS Measurement Periods during which the BESS fails to demonstrate satisfaction of the RTE Performance Metric, substantial underperformance shall give rise to a termination right as set forth in this Section 2.11(b) (RTE Test Termination Rights). If the RTE Ratio for the Selected RTE Test for the BESS Measurement Period in question is more than 15 percentage points below the RTE Performance Metric for any two BESS Measurement Periods during a 12-month period, an **18-month** cure period (the "RTE Cure Period") will commence on the Day following the close of the second such BESS Measurement Period. For each BESS Measurement Period during such RTE Cure Period, RTE Tests shall continue to be conducted as set forth in Attachment W (BESS Tests) and liquidated damages paid and accepted as set forth in Section 2.11(a) (RTE Test and Liquidated Damages); provided, however, that if the Seller fails to demonstrate satisfaction of the RTE Performance Metric prior to the expiration of the RTE Cure Period, such failure shall constitute an Event of Default under Section 15.1(g) of this Agreement for which Company shall have the rights (including but not limited to the termination rights) set forth in Article 15 (Events of Default) and Article 16 (Damages in the Event of Termination by Company).

2.12 Fast Frequency Response Performance Metric. [DRAFTING NOTE: SECTION 2.12 APPLIES ONLY TO PROJECTS THAT INCLUDE CONTINGENCY STORAGE IN THEIR PROPOSALS. IT WILL BE REMOVED FROM PROJECTS THAT DO NOT INCLUDE CONTINGENCY STORAGE.]

- (a) Fast Frequency Response Criteria and Liquidated Damages. Following the Commercial Operations Date, the Facility shall respond appropriately to frequency disturbances in the Company System by operating in a manner consistent with standards and parameters established for Fast Frequency Response. With respect to such frequency disturbances in the Company System, the Facility shall be required to meet all of the following minimum frequency performance criteria

(collectively, the "Fast Frequency Response Performance Metric"):

- (i) Perform per design approved by Company [DRAFTING NOTE: TO BE ELABORATED UPON BASED ON FACILITY DESIGN.];
- (ii) When control is activated, achieve 95% to 105% of control commanded full response at the POI within 200 msec of the initiation of the disturbance; and
- (iii) Meet all other requirements listed in Section 3(p) (Fast Frequency Response) of Attachment B (Facility Owned by Seller).

Company will review historical operational data to determine the Facility's fast frequency response following disturbances and satisfaction of the Fast Frequency Response Performance Metric. To the extent the historical operational data is insufficient or otherwise lacking for purposes of determining the Facility's satisfaction of the Fast Frequency Response Performance Metric, Company shall review Facility's performance under structured test conditions no less than once per Contract Year.

After the first Contract Year:

- (1) for each instance of the Facility failing to satisfy the Fast Frequency Response Performance Metric, Seller shall pay, and Company shall accept, as liquidated damages for such failure, an amount equal to 25% of the FFR Allocated Portion of the Lump Sum Payment upon proper demand by Company; and
- (2) in the event poor Facility fast frequency response performance requires disabling the fast frequency response controls, as determined by Company in its sole discretion (e.g., in the event a Facility response to Company System frequency outside of the FFR deadband contributes to frequency error or worsens the disturbance), Seller shall pay, and Company shall accept, as liquidated damages for such underperformance, an amount equal to 100% of the FFR Allocated Portion of the Lump Sum Payment upon proper demand by Company, and Seller shall

not be entitled to receive further payments of the FFR Allocated Portion of the Lump Sum Payment while the Facility fast frequency response controls remain disabled to allow Seller to implement corrective actions on the Facility to Company's reasonable satisfaction.

Such liquidated damages shall be due within thirty (30) Days of Company's written demand.

Company agrees that, when evaluating performance under this Section 2.12 (Fast Frequency Response Performance Metric), the available State of Charge shall be taken into consideration and Seller shall not be held to the criteria set forth in this Section 2.12 (Fast Frequency Response Performance Metric) if there is insufficient charged capacity available for the appropriate response.

(b) Performance Deficiencies; Fast Frequency Response Performance Factor Termination Rights. With respect to any Facility response under this Section 2.12 (Fast Frequency Response Performance Metric), Company will notify Seller of any discrepancies in the Facility response, and Seller shall respond to and cure all such performance deficiencies in accordance with Section 1(j) (Demonstration of Facility) of Attachment B (Facility Owned by Seller). The Parties acknowledge that, although the intent of the liquidated damages payable under Section 2.12(a) (Fast Frequency Response Criteria and Liquidated Damages) is to compensate Company for the damages that Company would incur if the Facility fails to respond appropriately to Company System frequency, such liquidated damages are not intended to compensate Company for the damages that Company would incur if a pattern of underperformance establishes a reasonable expectation that the Facility is likely to continue to substantially underperform. Accordingly, and without limitation to Company's rights under said Section 2.12(a) (Fast Frequency Response Criteria and Liquidated Damages), in the event Seller fails to comply with the terms of Section 1(j) (Demonstration of Facility) of Attachment B (Facility Owned by Seller), such event shall constitute an Event of Default under Section 15.2(f) of this Agreement for which Company shall have the rights (including but not limited to the termination rights) set forth in Article 15 (Events of Default) and Article 16 (Damages in the Event of Termination).

2.122.13 Payment of Liquidated Damages for Failure to Achieve Performance Metrics; Limitation on Liquidated Damage.

- (a) Payment of Liquidated Damages. With respect to the liquidated damages payable under Section 2.5(b) (Modified Pooled OMC Equipment Availability Factor Performance Metric and Liquidated Damages), Section 2.6(b) (GPI Metric and Liquidated Damages), Section 2.7(c) (BOP Benchmark and Liquidated Damages), Section 2.8(a) (BESS Capacity Test and Liquidated Damages), Section 2.9(a) (BESS Annual Equivalent Availability Factor and Liquidated Damages), Section 2.10 (BESS Annual Equivalent Forced Outage Factor; Liquidated Damages) ~~and~~, Section 2.11 (BESS Round Trip Efficiency Test; Liquidated Damages; Termination Rights) and Section 2.12 (Fast Frequency Response Performance Metric) **[SUBJECT TO REMOVAL PER SECTION 2.12 DRAFTING NOTE]** (collectively, the "Performance Metrics LDs"), Company shall have the right, at any time on or after the LD Assessment Date for the liquidated damages in question, at Company's option, to set-off such liquidated damages from the amounts to be paid to Seller under Section 2.3 (Lump Sum Payment) of this Agreement or, to draw such liquidated damages from the Operating Period Security, as follows:
- (i) if the BESS fails to achieve the BESS Capacity Performance Metric for a BESS Measurement Period, the Company shall have the right to set-off or draw the amount owed for such failure as calculated as provided in Section 2.8(a) (BESS Capacity Test and Liquidated Damages); and
  - (ii) if the Monthly Report for the calendar month, PI Assessment Period, or BESS Measurement Period in question, as applicable, shows a failure to achieve one or more of the Performance Metrics required for the LD Period in question, the PI Measurement Period in question, the BOP Measurement Period in question, or the BESS Measurement Period in question, as applicable, and Company does not submit a Notice of Disagreement with respect to such Monthly Report, the Company shall have the right to set-off or draw the amount of liquidated damages owed for such failure as calculated as provided in Section 2.5(b) (Modified Pooled OMC Equipment Availability Factor Performance Metric

and Liquidated Damages), Section 2.6(b) (GPI Metric and Liquidated Damages), Section 2.7(c) (BOP Benchmark and Liquidated Damages), Section 2.9(a) (BESS Annual Equivalent Availability Factor and Liquidated Damages), Section 2.10 (BESS Annual Equivalent Forced Outage Factor; Liquidated Damages) and Section 2.11 (BESS Round Trip Efficiency Test; Liquidated Damages; Termination Rights), as applicable;

- (iii) in all cases in which Company submits a Notice of Disagreement for a given Monthly Report, Company shall have the right to set-off or draw all or any portion of the amount of liquidated damages for the calendar month in question, PI Assessment Period in question, the BOP Measurement Period in question, or BESS Measurement Period in question, as applicable, as calculated on the basis of the shortfall(s) in the achievement of the Performance Metric(s) in question, as shown in such Notice of Disagreement; and
- (iv) in the event of any disagreement as to the liquidated damages owed under clause (i) and (iii) above:
  - (aa) if the amount set-off or drawn by the Company exceeds the amount of liquidated damages for such calendar month, BESS Measurement Period or PI Assessment Period that are eventually found to be payable for the LD Period in question as determined under Section 2 (Monthly Report Disagreements) of Attachment T (Monthly Reporting and Dispute Resolution by Independent AF Evaluator) to this Agreement, Company shall promptly (and in no event more than forty-five (45) Business Days from the date of such determination) repay such excess to Seller together with, unless the Parties otherwise agree in writing, interest from the date of Company's set-off or draw until the date that such excess is repaid to Seller at the average Prime Rate for such period; and
  - (bb) if Company does not exercise its rights to set-off or draw liquidated damages for such calendar month, the BOP Measurement Period in

question, BESS Measurement Period or PI Assessment Period, or does not set-off or draw the full amount of the liquidated damages for such calendar month, the BOP Measurement Period in question, BESS Measurement Period or PI Assessment Period that are eventually found to be payable for the LD Period, the BOP Measurement Period in question, BESS Measurement Period or PI Assessment Period in question as determined under Section 2 (Monthly Report Disagreements) of Attachment T (Monthly Reporting and Dispute Resolution by Independent AF Evaluator) to this Agreement, Seller shall promptly, upon such determination as aforesaid, pay to Company the amount of liquidated damages that are found to be owing together with, unless otherwise agreed by the Parties in writing, interest on the amount of such liquidated damages that went unpaid from the applicable LD Assessment Date for such liquidated damages until the date such liquidated damages are paid to Company in full at the average Prime Rate for such period, and Company shall have the right, at its option, to set-off such interest for the amounts to be paid to Seller under Section 2.3 (Lump Sum Payment) of this Agreement or to draw from the Operating Period Security.

Any delay by Company in exercising its rights to set-off liquidated damages and/or interest from the amounts to be paid to Seller under Section 2.3 (Lump Sum Payment) of this Agreement or to draw such liquidated damages and/or interest from the Operating Period Security shall not constitute a waiver by Company of its right to do so.

- (b) Limitation on Liquidated Damages. Notwithstanding any other provision of this Agreement to the contrary, the aggregate liquidated damages paid by Seller during each Contract Year for the Performance Metrics LDs, such payments by Seller to include but not be limited to any set-offs or draws made by Company during such Contract Year pursuant to Section 2.1213(a) (Payment of Liquidated Damages), shall not exceed the total of the twelve (12) monthly Lump Sum Payments payable during such Contract Year pursuant to Section 2.3 (Lump Sum Payment) and Section 2.1718 (Payment Procedures). For

avoidance of doubt: A monthly Lump Sum Payment that is invoiced by Seller to Company pursuant to Section 2.4617 (Seller's Preparation of the Monthly Invoice) for, e.g., the twelfth (12<sup>th</sup>) calendar month of Contract Year N but is paid during Contract Year N+1 as provided in Section 2.4718 (Payment Procedures) shall, for purposes of determining the limitation on Performance Metrics LDs under this Section 2.4213(b) (Limitation on Liquidated Damages), be included in the total of the twelve (12) monthly Lump Sum Payments payable during Contract Year N+1. As a result of the foregoing, the total of the monthly Lump Sum Payments used to establish the limitation on Performance Metrics LDs for the initial Contract Year under this Section 2.4213(b) (Limitation on Liquidated Damages) will be less than twelve (12). The Parties acknowledge that, because the monthly Lump Sum Payment is subject to adjustment (including downward adjustment) as provided in Section 2.3 (Lump Sum Payment), it is possible that a downward adjustment in some or all of the monthly Lump Sum Payments payable during a Contract Year might cause the Performance Metrics LDs paid by Seller during the course of such Contract Year to exceed the limitation on the Performance Metrics LDs for such Contract Year established at the close of such Contract Year pursuant to the first sentence of this Section 2.4213(b) (Limitation on Liquidated Damages). In such case, Company shall promptly upon the determination that the Performance Metrics LDs paid during the course of such Contract Year exceeded the limitation on Performance Metrics LDs for such Contract Year (and in no event more than forty-five (45) Business Days from the end of such Contract Year) repay such excess amount to Seller without interest.

2.132.14 No Payments Prior to Commercial Operations Date. Prior to the Commercial Operations Date, Company may accept test energy delivered by Seller in accordance with Section 4 (Test Energy) of Attachment J (Company Payments for Energy, Dispatchability and Availability of BESS). Company shall not be obligated to pay for any test energy accepted prior to the Commercial Operations Date.

2.142.15 Sales of Electric Energy by Company to Seller. Sales of electric energy by Company to Seller shall be governed by an applicable rate schedule filed with the PUC and not by this Agreement, except with respect to the reactive amount

adjustment (if any) referred to in Attachment B (Facility Owned by Seller).

2.152.16 [Reserved] [**Drafting Note: Use following if PPA has energy payment:** Company's Obligation to Provide Certain Data. By the fifth (5<sup>th</sup>) Business Day of each calendar month, Company shall provide Seller or its designated agent with the appropriate data for Seller to compute the amount to be paid for the electric energy purchased by Company in the preceding calendar month as determined in accordance with this Agreement.]

2.162.17 Seller's Preparation of the Monthly Invoice. By the tenth (10<sup>th</sup>) Business Day of each calendar month, Seller shall submit to Company an invoice that separately states the following for the preceding month: (i) the Actual Output during this period; (ii) the monthly Lump Sum Payment for this period; and (iii) the monthly metering charge as set forth in Article 7 (Seller Payments) of this Agreement. [**Drafting Note: Add the following subclause if PPA has energy payment:** "(iv) the charge for electric energy purchased by Company, as set forth in Attachment J (Company Payments for Energy, Dispatchability and Availability of BESS) of this Agreement" ]

2.172.18 Payment Procedures. By the twentieth (20<sup>th</sup>) Business Day of each calendar month following the month during which the invoice was submitted (i.e., by the twentieth (20<sup>th</sup>) Business Day of the second calendar month following the calendar month covered by the invoice in question), (but, except as otherwise provided in the following sentence, no later than the last Business Day of that month if there are less than twenty (20) Business Days in that month), Company shall, subject to Company's right to set-off liquidated damages as provided in Section 2.1213 (Payment of Liquidated Damages for Failure to Achieve Performance Metrics; Limitation on Liquidated Damages) of this Agreement, make payment on such invoice, or provide to Seller an itemized statement of its objections to all or any portion of such invoice and pay any undisputed amount. Notwithstanding the foregoing, the Day by which the Company shall make payment to Seller hereunder shall be increased by one (1) Day for each Day that Seller is delinquent in providing to the Company either: (i) the Monthly Report for the calendar month in question pursuant to Section 1 (Monthly Report) of Attachment T (Monthly Reporting and Dispute Resolution by Independent AF Evaluator) to this Agreement; or (ii) the information

required under Section 2.1617 (Seller's Preparation of the Monthly Invoice) of this Agreement. **[Drafting Note: If PPA has an energy payment, replace language starting from subclause "(ii)" with the following: "(ii) the information required under Section 2.1617 (Seller's Preparation of the Monthly Invoice) of this Agreement. However, if Company is not timely in providing data required in Section 2.1516 (Company's Obligation to Provide Certain Data) and this directly causes Seller to be unable to deliver its invoice in accordance with the time frame set forth in Section 2.1617 (Seller's Preparation of the Monthly Invoice), then Company shall still meet the payment date of the twentieth (20<sup>th</sup>) Business Day of the month following the month during which the invoice was submitted. If Seller is unable to provide a complete invoice for the reasons set forth in the preceding sentence, an estimated payment, subject to reconciliation with the complete invoice, may be made by Company as an interim provision until a complete invoice can be prepared by Seller and received by Company."]**

2.182.19 Late Payments. Notwithstanding all or any portion of such invoice in dispute, and subject to the provisions of Section 2.1213(a)(iii) of this Agreement (to the extent applicable), interest shall accrue on any invoiced amount that remains unpaid following the twentieth (20<sup>th</sup>) Business Day of each calendar month (or the last Business Day of that month if there are less than twenty Business Days in that month), or following the due date for such payment if extended pursuant to Section 2.1718 (Payment Procedures), at the average daily Prime Rate for the period commencing on the Day following the Day such payment is due until the invoiced amounts (or amounts due to Seller if determined to be less than the invoiced amounts) are paid in full. Partial payments shall be applied first to outstanding interest and then to outstanding invoice amounts.

2.192.20 Adjustments to Invoices After Payment. In the event adjustments are required to correct inaccuracies in an invoice after payment, the Party requesting adjustment shall recompute and include in the Party's request the principal amounts due during the period of the inaccuracy together with the amount of interest from the date that such invoice was payable until the date that such recomputed amount is paid at the average daily Prime Rate for the period. The difference between the amount paid and that recomputed for the invoice, along with the allowable amount of interest, shall either be (i) paid to Seller or set-off by Company, as

appropriate, in the next invoice payment to Seller, or (ii) objected to by the Party responsible for such payment within thirty (30) Days following its receipt of such request. If the Party responsible for such payment objects to the request, then the Parties shall work together in good faith to resolve the objection. If the Parties are unable to resolve the objection, the matter shall, except to the extent otherwise provided in Section 28.3 (Exclusions), be resolved pursuant to Article 28 (Dispute Resolution). All claims for adjustments shall be waived for any amounts that were paid or should have been payable more than thirty-six (36) months preceding the date of receipt of any such request.

2.202.21 Company's Billing Records. Seller, after giving reasonable advance written notice to Company, shall have the right to review all billing, metering and related records necessary to verify the accuracy of payments relating to the Facility during Company's normal working hours on Business Days. Company shall maintain such records for a period of not less than thirty-six (36) months. **[Drafting Note: If PPA has an energy payment, replace this section with the following: Company's Billing Records. Seller, after giving reasonable advance written notice to Company, shall have the right to review all billing, metering and related records necessary to verify the accuracy of the data provided by Company pursuant to Section 2.1516 (Company's Obligation to Provide Certain Data) and payments relating to the Facility during Company's normal working hours on Business Days. Company shall maintain such records for a period of not less than thirty-six (36) months.]**

**[ATTACHMENT B WILL BE REVISED TO REFLECT  
THE RESULTS OF IRS]**

ATTACHMENT B  
FACILITY OWNED BY SELLER

1. The Facility.

(a) Drawings, Diagrams, Lists, Settings and As-Builts.

- (i) Single-Line Drawing, Interface Block Diagram, Relay List, Relay Settings and Trip Scheme. A preliminary single-line drawing (including notes), Interface Block Diagram, relay list, relay settings, and trip scheme of the Facility shall, after Seller has obtained prior written consent from Company, be attached to this Agreement on the Execution Date as Attachment E (Single-Line Drawing and Interface Block Diagram) and Attachment F (Relay List and Trip Scheme). A final single-line drawing (including notes), Interface Block Diagram, relay list and trip scheme of the Facility shall, after having obtained prior written consent from Company, be labeled "Final" Single-Line Drawing, the "Final" Interface Block Diagram and "Final" Relay List and Trip Scheme and shall supersede Attachment E (Single-Line Drawing and Interface Block Diagram) and Attachment F (Relay List and Trip Scheme) to this Agreement and shall be made a part hereof on the Commercial Operations Date. After the Commercial Operations Date, no changes shall be made to the "Final" Single-Line Drawing, the "Final" Interface Block Diagram and the "Final" Relay List and Trip Scheme without the prior written consent of Seller and Company. The single-line drawing shall expressly identify the Point of Interconnection of Facility to Company System.
- (ii) As-Builts. Seller shall provide final as-built drawings of the Seller-Owned Interconnection Facilities within 30 Days of the successful completion of the Acceptance Test.
- (iii) No Material Changes. Seller agrees that no material changes or additions to the Facility as reflected in the "Final" Single-Line Drawing (including notes), the "Final" Interface Block

Diagram and the "Final" Relay List and Trip Scheme, shall be made without Seller first having obtained prior written consent from Company. The foregoing are subject to changes and additions as part of any Performance Standards Modifications. If Company directs any changes in or additions to the Facility, records and operating procedures that are not part of any Performance Standards Modifications, Company shall specify such changes or additions to Seller in writing, and, except in the case of an emergency, Seller shall have the opportunity to review and comment upon any such changes or additions in advance.

(b) Certain Specifications for the Facility.

(i) Seller shall furnish, install, operate and maintain the Facility including breakers, relays, switches, synchronizing equipment, monitoring equipment and control and protective devices approved by Company as suitable for parallel operation of the Facility with Company System. The Facility shall be accessible at all times to authorized Company personnel.

(ii) The Facility shall include:

**[LIST OF THE FACILITY**

**Examples may include, but not limited to:**

- **Seller-Owned Interconnection Facilities**
- **Substation**
- **Control and monitoring facilities**
- **Transformers**
- **Generators and BESS equipment (as described in Attachment A)**
- **"lockable" cabinets or housings suitable for the installation of the Company-Owned Interconnection Facilities located on the Site**
- **relays and other protective devices**
- **leased telephone line and/or equipment to facilitate microwave communication]**

(iii) The Facility shall comply with the following  
**[includes excerpts of language that may be requested  
by Company]:**

- A. Seller shall install a \_\_\_\_\_ kV gang operated, load breaking, lockable disconnect switch and all other items for its switching station (relaying, control power transformers, high voltage circuit breaker). Bus connection shall be made to a manually and automatically (via protective relays) operated high-voltage circuit breaker. The high-voltage circuit breaker shall be fitted with bushing style current transformers for metering and relaying. Downstream of the high-voltage circuit breaker, a structure shall be provided for metering transformers. From the high-voltage circuit breaker, another bus connection shall be made to another pole mounted disconnect switch, with surge protection.
- B. Seller shall provide within the Seller-Owned Interconnection Facilities a separate, fenced area with separate access for Company. Seller shall provide all conduits, structures and accessories necessary for Company to install the Revenue Metering Package. Seller shall also provide within such area, space for Company to install its communications, supervisory control and data acquisition ("SCADA") equipment remote terminal unit or equivalent and certain relaying if necessary for the interconnection. Seller shall also provide AC and DC source lines as specified later by Company. Seller shall provide a telephone line for Company-owned meters. Seller shall work with Company to determine an acceptable location and size of the fenced-in area. Seller shall provide an acceptable demarcation cabinet on its side of the fence where Seller and Company wiring will connect/interface.
- C. Seller shall ensure that the Seller-Owned Interconnection Facilities have a lockable cabinet for switching station relaying equipment. Seller shall select and install

relaying equipment acceptable to Company. At a minimum the relaying equipment will provide over and under frequency (81) negative phase sequence (46), under voltage (27), over voltage (59), ground over voltage (59G), over current functions (50/51) and direct transfer trip. Seller shall install protective relays that operate a lockout relay, which in turn will trip the main circuit breaker.

- D. Seller shall configure the relay protection system to provide overpower protection to enable Facility to comply with the Allowed Capacity limitation.
- E. Seller's equipment also shall provide at a minimum:
  - (i) Interface with Company's Telemetry and Control, or designated communications and control interface, to provide telemetry of electrical quantities such as total Facility net MW, MVar, power factor, voltages, currents, and other quantities as identified by the Company;
  - (ii) Interface with Company's Telemetry and Control, or designated communications and control interface, to provide status for circuit breakers, reactive devices, switches, and other equipment as identified by the Company;
  - (iii) Interface with Company's Telemetry and Control, or designated communications and control interface, to provide control to incrementally raise and lower the voltage target at the point of regulation operating in automatic voltage regulation control. If Company's Telemetry and Control, or designated communications and control interface, is unavailable, due to loss of communication link, Telemetry and Control failure, or other event resulting in loss of the remote control by Company, provision must be made for Seller to be able to institute via local controls,

within 30 minutes (or such other period as Company accepts in writing) of the verbal directive by the Company System Operator, such change in voltage regulation target as directed by the Company System Operator;

(iv) Interface with Company's Telemetry and Control, or designated communications and control interface, to provide active power control to limit or set level of (when storage is not depleted) net real power import or export from the Facility and to remove the limit or change level (when storage is not depleted) of net real power import or export of the Facility.

(v) For Variable Energy Facilities:  
Interface with Company's Telemetry and Control, or designated communications and control interface, to provide telemetry of WTG availability and meteorological and production data required under Section 8 (Data and Forecasting) of this Attachment B (Facility Owned by Seller) and the Facility's Power Possible.

F. If Seller adds, deletes and/or changes any of its equipment, or changes its design in a manner that would change the characteristics of the equipment and specifications used in the IRS, Seller shall be required to obtain Company's prior written approval. If an analysis to revise parts of the IRS is required, Seller shall be responsible for the cost of revising those parts of the IRS, and modifying and paying for the cost of the modifications to the Facility and/or the Company-Owned Interconnection Facilities based on the revisions to the IRS.

G. Critical Infrastructure Protection.

(i) Documentation. Seller shall submit documentation describing the approach, methodology and design to provide physical and cyber security with its submittal of

the design drawings pursuant to Section 1(c) (Design Drawings, Bill of Materials, Relay Settings and Fuse Selection) of Attachment B (Facility Owned by Seller) which shall be at least sixty (60) Days prior to the Acceptance Test.

- The design shall meet industry standards and best practices, as indicated by NERC CIP guidelines and requirements for critical generation facilities. The system shall be designed with the criteria to meet applicable industry standards and guidelines (at the time of this writing, NERC CIP, or any future standard adopted by the industry in its place) compliance requirements and identify areas that are not consistent with NERC CIP guidelines and requirements.
- The cyber-security documentation shall include a block diagram of the control system with all external connections clearly described.
- Seller shall provide such additional information as Company may reasonably request as part of a security posture assessment.
- Company shall be notified in advance when there is any condition that would compromise physical or cyber security, or if any breaches in security, or security incidents are detected.

(ii) Malware. Seller shall (consistent with the following sentence) ensure that no malware or similar items are coded or introduced into any aspect of the Facility, Interconnection Facilities, the Company Systems interfacing with the

Facility and Interconnection Facilities, and any of Seller's critical control systems or processes used by Seller to provide energy, including the information, data and other materials delivered by or on behalf of Seller to Company, (collectively, the "Environment"). Seller will continue to review, analyze and implement improvements to and upgrades of its Malware prevention and correction programs and processes that are commercially reasonable and consistent with the then current technology industry's standards and, in any case, not less robust than the programs and processes implemented by Seller with respect to its own information systems. If Malware is found to have been introduced into the Environment, Seller will promptly notify Company and Seller shall take immediate action to eliminate and remediate the effects of the Malware, at Seller's expense. Seller shall not modify or otherwise take corrective action with respect to the Company Systems except at Company's request. Seller will promptly report to Company the nature and status of all Malware elimination and remediation efforts.

- (iii) Security Breach. In the event that Seller discovers or is notified of a breach, potential breach of security, or security incident at Seller's Facility or of Seller's systems, Seller shall immediately (i) notify Company of such potential, suspected or actual security breach, whether or not such breach has compromised any of Company's confidential information, (ii) investigate and promptly remediate the effects of the breach, whether or not the breach was caused by Seller, (iii) cooperate with Company with respect to any such breach or unauthorized access or use; (iv) comply with all applicable privacy and data protection laws governing Company's or any other individual's or entity's data;

and (v) to the extent such breach was caused by Seller, provide Company with reasonable assurances satisfactory to Company that such breach, potential breach, or security incident shall not recur. Seller shall provide documentation to Company evidencing the length and impact of the breach. Any remediation of any such breach will be at Seller's sole expense.

(iv) Monitoring and Audit. Seller shall provide information on available audit logs and reports relating to cyber and physical and security. Company may audit Seller's records to ensure Seller's compliance with the terms of this Section 1(b)(iii)G (Critical Infrastructure Protection) of this Attachment B (Facility Owned by Seller), provided that Company has provided reasonable notice to Seller and any such records of Seller will be treated by Company as confidential.

H. Because a reliable Power Possible value under Section 1(b)(iii)(E)(v) of this Attachment B (Facility Owned by Seller) is necessary throughout the Term in order for Company to effectively optimize the benefits of its right of Company Dispatch, Seller's available power production considering equipment and resource availability ("Power Possible") will be determined at any given time using the best-available data and methods for an accurate representation of the amount of active power at the point of interconnection. To the extent available, the Parties shall use Seller's real time Power Possible communicated to Company through the SCADA system except to the extent that the potential energy does not accurately reflect the actual available active power at the point of interconnection (plus or minus 0.1 MW). During those periods of time when the SCADA derived Power Possible is unavailable, or does not accurately represent the available power production considering equipment and resource availability, the Parties shall use the best available data obtained through

commercially reasonable methods to determine the Power Possible.

- (i) If, at any time during the Term, there is a material discrepancy or pattern of discrepancies in the accuracy of Power Possible, the Parties shall review the method for determining Power Possible and develop modifications with the objective of avoiding future discrepancies. If the Parties are unable to resolve the issue, then (aa) the Parties shall promptly commission a study to be performed by one of the engineering firms then included on the Qualified Independent Third-Party Consultants List attached to the Agreement as Attachment D (Consultants List) to evaluate the cause of the Power Possible discrepancy and to make recommendations with the objective of avoiding future Power Possible discrepancies ("Study"); and (bb) if the Company decides that its ability to effectively optimize the benefits of its right of Company Dispatch to dispatch the Facility's Net Energy Potential is materially impaired by the lack of an accurate method to determine Power Possible, the Company shall have the right to derate the Facility and the Facility shall be deemed to be in Seller-Attributable Non-Generation status until the Study has been completed and the Study's recommendations have been implemented by Seller to Company's reasonable satisfaction. Seller shall pay for the cost of the Study. The Study shall be completed within ninety (90) days from the date the Study is commissioned, unless otherwise reasonably agreed to in writing by Seller and Company. The Consultant shall send the Study to Company and Seller. Seller (and/or its Third-Party consultants and contractors), at Seller's expense, shall take such action as the Study shall recommend (e.g., modifications to the model, modifications and/or additions to the data inputs used

in the model, modifications to the procedures for maintaining and/or recalibrating the Monitoring and Communication Equipment used to provide data inputs, replacement of such Monitoring and Communication Equipment, modifications of procedures for Facility operations) with the objective of avoiding future Power Possible discrepancies. Such recommendations shall be implemented by Seller to Company's reasonable satisfaction no later than forty-five (45) Days from the Day the completed Study is issued by the consultant, or such other longer commercially reasonable timeframe otherwise agreed to in writing by Company.

- I. Seller shall reserve space within the Site for possible future installation of Company-owned meteorological equipment (such as wind speed, direction and relative humidity monitors, and SODAR) and AC and DC source lines for such equipment. In the event Company decides to install such meteorological equipment: (i) Seller shall work with Company to determine an acceptable location for such equipment and any associated wiring, interface or other components; and (ii) Company shall pay for the needed equipment, and installation of such equipment, unless otherwise agreed to by the Parties. Company and Seller shall use commercially reasonable efforts to facilitate installation and minimize interference with the operation of the Facility.
- J. The Facility shall, at a minimum, satisfy the wind load and seismic load requirements of the International Building Code and any more stringent requirements imposed under applicable Laws.

- (c) Design Drawings, Bill of Materials, Relay Settings and Fuse Selection. Seller shall provide to Company for its review the design drawings, Bill of Material, relay settings and fuse selection for the Facility and Company shall have the right, but not the obligation, to specify the type of electrical equipment, the interconnection

wiring, the type of protective relaying equipment, including, but not limited to, the control circuits connected to it and the disconnecting devices, and the settings that affect the reliability and safety of operation of Company's and Seller's interconnected system. Seller shall provide the relay settings and protection coordination study, including fuse selection and AC/DC Schematic Trip Scheme (part of design drawings), for the Facility to Company during the 60% design. Company, at its option, may, with reasonable frequency, witness Seller's operation of control, synchronizing, and protection schemes and shall have the right to periodically re-specify the settings. Seller shall utilize relay settings prescribed by Company, which may be changed over time as Company System requirements change.

- (d) Disconnect Device. Seller shall provide a manually operated disconnect device which provides a visible break to separate Facility from Company System. Such disconnect device shall be lockable in the OPEN position and be readily accessible to Company personnel at all times.
  
- (e) Other Equipment. Seller shall install, own and maintain the infrastructure associated with the Revenue Metering Package, including but not limited to all enclosures (meter cabinets, meter pedestals, meter sockets, pull boxes, and junction boxes, along with their grounding/bonding connections), CT/PT mounting structures, conduits and ductlines, enclosure support structures, ground buses, pads, test switches, terminal blocks, isolation relays, telephone surge suppressors, and analog phone lines (one per meter), subject to Company's review and approval. **[COMPANY TO REVISE THIS SECTION 1(E) PRIOR TO EXECUTION FOR SPECIFICS OF THE PROJECT.]**
  
- (f) Maintenance Plan. Seller shall maintain Seller-Owned Interconnection Facilities in accordance with the following maintenance plan:

Transmission line: \_\_\_\_\_

\_\_\_ kV Facility switching station:  
\_\_\_\_\_

Relay protection equipment: \_\_\_\_\_

Other equipment as identified: \_\_\_\_\_

Seller shall furnish to Company a copy of records documenting such maintenance, within thirty (30) Days of completion of such maintenance work.

(g) Active Power Control Interface.

- (i) Seller shall provide and maintain in good working order all equipment, computers and software associated with the control system (the "Active Power Control Interface") necessary to interface the Facility active power controls with the Company System Operations Control Center for real power control of the Facility by the Company System Operator. The Active Power Control Interface will be used to control the net real power import or export from the Facility as required under this Attachment B (Facility Owned by Seller). The implementation of the Active Power Control Interface will allow Company System Operator to control the net real power import or export from the entire Facility remotely from the Company System Operations Control Center through control signals from the Company System Operations Control Center.
- (ii) Company shall review and provide prior written approval of the design for the Active Power Control Interface to ensure compatibility with Company's SCADA and EMS systems. In order to ensure such continued compatibility, Seller shall not materially change the approved design without Company's prior review and prior written approval.
- (iii) The Active Power Control Interface shall include, but not be limited to, a demarcation cabinet, ancillary equipment and software necessary for Seller to connect to Company's Telemetry and Control, located in Company's portion of the Facility switching station which shall provide the control signals to the Facility and send feedback status to the Company System Operations Control Center. The control type shall be analog output (set point) controls.

- (iv) The Active Power Control Interface shall also include provision for feedback points from the Facility indicating when the Company System Operator active power controls are in effect and the analog value of the controls received from the Company. The Facility shall provide the feedback to the Company SCADA system within 2 seconds of receiving the respective control signal from the Company.
- (v) Seller shall provide an analog input to the Telemetry and Control for the MW output of the individual generating units, and an analog signal for the total MW output at the Point of Interconnection.
- (vi) The Active Power Control Interface shall provide for remote control of the net real power input or output of the Facility by the Company at all times. If the Active Power Control Interface is unavailable or disabled, the Facility shall not import or export net real power from or to Company, and the Facility shall be deemed to be in Seller-Attributable Non-Generation status, unless the Company, in its sole discretion, agrees to supply or accept net real power and Seller and Company agree on an alternate means of dispatch. Notwithstanding the foregoing, if Seller fails to provide such remote control features (whether temporarily or throughout the Term) and fails to discontinue importing or exporting electric energy to Company as required by this Section 1(g)(vi), then, notwithstanding any other provision of this Attachment B (Facility Owned by Seller), Company shall have the right to derate or disconnect the entire Facility during those periods that such control features are not provided and the Facility shall be deemed to be in Seller-Attributable Non-Generation status for such periods.
- If all local and remote active power controls become unavailable or fail, the Facility shall immediately disconnect from the Company's System.

- If the direct transfer trip is unavailable due to loss of communication link, Telemetry and Control failure, or other event resulting in the loss of the remote control by the Company, provision must be made for the Seller to shutdown Facility and open and lockout the main circuit breaker.
- (vii) The rate at which the Facility changes net real power import or export shall not exceed the ramp rate specified in Section 3(c) (Ramp Rate) of Attachment B (Facility Owned by Seller). The Facility's Active Power Control Interface will control the rate at which electric energy is changed to achieve the active power limit. The Facility will respond to the active power control request immediately. **[THESE REQUIREMENTS MAY BE CHANGED BY COMPANY FOLLOWING COMPLETION OF THE IRS]**
- (viii) The Active Power Control Interface shall accept the following active power control(s) from the Company SCADA and EMS systems:
- Maximum Power Import and Export Limits: The Facility is not allowed to exceed these settings under any circumstances. The frequency response control specified in Section 3(m) (Frequency Response) of Attachment B (Facility Owned by Seller) is not allowed to increase the Facility's net real power import or export above the Import and Export limits, respectively.
  - Power Reference Set Point: The Facility is to import or export active power at this level to the extent allowed by the solar resource and energy storage and is not allowed to exceed this setting when system frequency is within the deadband determined in Section 3(m)(iii) of Attachment B (Facility Owned by Seller). When system frequency exceeds the deadband determined in Section 3(m)(iii) of Attachment B (Facility Owned by Seller), the Facility's net real power import or export is allowed to exceed this setting

or be further reduced below this setting when commanded by the frequency response control specified in Section 3(m) of Attachment B (Facility Owned by Seller).

- WTG Enable/Disable Control: The Facility shall include WTG Enable/Disable control. When Disable is selected, the Facility shall ramp down, shutdown, and leave offline its WTGs. When Enable is selected, the Facility WTGs can start up, ramp up, and remain in normal operations.
- (ix) Seller shall not override Company's active power controls without first obtaining specific approval to do so from the Company System Operator.
- (x) The requirements of the Active Power Control Interface may be modified as mutually agreed upon in writing by the Parties.
- (h) Control System Acceptance Test Procedures.
- (i) Conditions Precedent. The following conditions precedent must be satisfied prior to conducting the Control System Acceptance Test:
- Successful Completion of the Acceptance Test.
  - Facility has been successfully energized.
  - All of the Facility's generators have been fully synchronized.
  - The control system computer has been programmed for normal operations.
  - All equipment that is relied upon for normal operations (including ancillary devices such as capacitors/inductors, energy storage device, statcom, etc.) shall have been commissioned and be operating within normal parameters.
- (ii) Facility Generators. Unless all of the Facility's generators are available for the duration of the Control System Acceptance Test, the Control System Acceptance Test will have to be re-run from the beginning unless Seller demonstrates to the satisfaction of the Company

that the test results attained with less than all of the Facility's generators are consistent with the results that would have been attained if all of the Facility's generators had been available for the duration of the test.

- (iii) Procedures. The Control System Acceptance Test will be conducted on Business Days during normal working hours on a mutually agreed upon schedule. No Control System Acceptance Test will be scheduled during the final 21 Days of a calendar year. No later than thirty (30) Days prior to conducting the Control System Acceptance Test, Company and Seller shall agree on a written protocol setting out the detailed procedure and criteria for passing the Control System Acceptance Test. Attachment O (Control System Acceptance Test Criteria) provides general criteria to be included in the written protocol for the Control System Acceptance Test. Within fifteen (15) Business Days of completion of the Control System Acceptance Test, Company shall notify Seller in writing whether the Control System Acceptance Test(s) has been passed and, if so, the date upon which such Control System Acceptance Test(s) was passed. If any changes have been made to the technical specifications of the Facility or the design of the Facility in accordance with Section 5(f) of Attachment A (Description of Generation, Conversion and Storage Facility), such changes shall be reflected in an amendment to this Agreement, and the written protocol for the Control Systems Acceptance Test shall be based on the Facility as modified. Such amendment shall be executed prior to conducting the Control System Acceptance Test and Company shall have no obligation for any delay in performing the Control Systems Acceptance Test due to the need to complete and execute such amendment.
- (i) Facility Security and Maintenance. Seller is responsible for securing the Facility. Seller shall have personnel available to respond to all calls related to security incidents and shall take commercially reasonable efforts to prevent any security incidents. Seller is also responsible for maintaining the Facility,

including vegetation management, to prevent security breaches. Seller shall comply with all commercially reasonable requests of Company to update security and/or maintenance if required to prevent security breaches.

- (j) Demonstration of Facility. Company shall have the right at any time, other than during maintenance or other special conditions, including Force Majeure, communicated by Seller, to notify Seller in writing of Seller's failure, as observed by Company and set forth in such written notice, to meet the operational and performance requirements specified in Section 2.12 (Fast Frequency Response Performance Metric) of this Agreement, and Section 1(g) (Active Power Control Interface) and Section 3 (Performance Standards) of this Attachment B (Facility Owned by Seller), and to require documentation or testing to verify compliance with such requirements. Upon receipt of such notice, Seller shall promptly investigate the matter, implement corrective action and provide to Company, within thirty (30) Days of such notice or such longer time period agreed to in writing by Company, a written report of both the results of such investigation and the corrective action taken by Seller. If the Seller's report does not resolve the issues to Company's reasonable satisfaction, the Parties shall promptly commission a study to be performed by one of the engineering firms then included on the Qualified Independent Third-Party Consultants List attached to the Agreement as Attachment D (Consultants List) to evaluate the cause of the non-compliance and to make recommendations to remedy such non-compliance. Seller shall pay for the cost of the study. The study shall be completed within ninety (90) days, unless the selected consultant determines that such study cannot reasonably be completed within ninety (90) days, in which case, such longer commercially reasonable period of time as it takes the consultant to complete the study. The consultant shall send the study to Company and Seller. Seller (and/or its Third-Party consultants and contractors), at Seller's expense, shall take such action as the study shall recommend with the objective of resolving the non-compliance. Such recommendations shall be implemented by Seller to Company's reasonable satisfaction no later than forty-five (45) Days from the Day the completed study is issued by the consultant unless the consultant determines that such recommendation cannot reasonably be implemented within

forty-five (45) days, in which case, such longer commercially reasonable period of time to implement such recommendation as determined by the consultant. Failure to implement such recommendations within this period shall constitute a material breach of this Agreement. Unless the aforementioned written report and study are being completed, and any recommendations are being implemented, solely to address Seller's failure to satisfy the requirements of Section 3(o) (Round Trip Efficiency) of this Attachment B (Facility Owned by Seller), the Company shall have the right to derate the Facility and the Facility shall be deemed to be in Seller-Attributable Non-Generation status until the Seller's aforementioned written report has been completed, any subsequent study commissioned by the Parties has been completed and any recommendations to resolve the non-compliance have been implemented to Company's reasonable satisfaction.

2. Operating Procedures. **[NOTE: NUMERICAL SPECIFICATIONS IN THIS SECTION 2 MAY VARY DEPENDING ON THE SPECIFIC PROJECT AND THE RESULTS OF THE PROJECT SPECIFIC INTERCONNECTION REQUIREMENT STUDY.]**

- (a) Reviews of the Facility. Company may require periodic reviews of the Facility, maintenance records, available operating procedures and policies, and relay settings, and Seller shall implement changes Company deems necessary for parallel operation or to protect the Company System from damages resulting from the parallel operation of the Facility with the Company System.
- (b) Separation. Seller must separate from Company System whenever requested to do so by the Company System Operator pursuant to Article 8 (Company Dispatch) and Article 9 (Personnel and System Safety) of the Agreement.
- (c) Seller Logs. Logs shall be kept by Seller for information on unit availability including reasons for planned and forced outages; circuit breaker trip operations, relay operations, including target initiation and other unusual events. Company shall have the right to review these logs, especially in analyzing system disturbances. Seller shall maintain

such records for a period of not less than six (6) years.

- (d) Reclosing. Under no circumstances shall Seller, when separated from the Company System for any reason, reclose into the Company System without first obtaining specific approval to do so from the Company System Operator.
- (e) Reserved.
- (f) Reserved.
- (g) Critical Infrastructure Protection. Seller shall comply with the critical infrastructure protection requirements set forth in Section 1(b)(iii)G of this Attachment B (Facility Owned by Seller).
- (h) Allowed Operations. Facility shall be allowed to import or export net real power to the Company System only when the [\_\_\_\_\_] circuit is in normal operating configuration served by breaker [\_\_\_\_\_] at [\_\_\_\_\_] Substation. **[TO BE DETERMINED BY COMPANY BASED ON THE RESULTS AND REQUIREMENTS OF THE IRS]**

3. Performance Standards.

- (a) Reactive Power Control. Seller shall control its reactive power by automatic voltage regulation control. Seller shall automatically regulate voltage at a point, the point of regulation, between the Seller's generator terminal and the Point of Interconnection to be specified by Company, to within 0.5% of a voltage specified by the Company System Operator to the extent allowed by the Facility reactive power capabilities as defined in Section 3(b) (Reactive Amount) of this Attachment B (Facility Owned by Seller). **[FOR FACILITIES CONNECTED TO THE DISTRIBUTION SYSTEM, THESE REQUIREMENTS MAY BE CHANGED BY COMPANY UPON COMPLETION OF THE IRS.]**
- (b) Reactive Amount. **[THESE REQUIREMENTS MAY BE CHANGED BY COMPANY UPON COMPLETION OF THE IRS.]**
  - (i) Seller shall install sufficient equipment so that each \_\_\_\_\_ kVA generator **inverter** and each kVA energy storage unit online at the Facility will have the ability to deliver or receive, at its terminal, reactive power as illustrated in the

**[generator capability and energy storage unit]**  
curve[s] attached to this Agreement as Exhibit B-2  
(Generator and Energy Storage Capability Curve(s)).  
**[NOTE: THE IRS WILL DETERMINE IF ANY ADDITIONAL  
REACTIVE POWER RESOURCES WILL BE REQUIRED.]**

- (ii) The Facility shall contain equipment able to continuously and actively control the output of reactive power under automatic voltage regulation control reacting to system voltage fluctuations. The automatic voltage regulation response speed at the point of regulation shall be such that at least 90% of the initial voltage correction needed to reach the voltage control target will be achieved within 1 second following a step change.
- (iii) If the Facility does not operate in accordance with Section 3(b)(i) of this Attachment B (Facility Owned by Seller), Company may disconnect all or a part of Facility from Company System until Seller corrects its operation (such as by installing capacitors at Seller's expense).
- (c) Ramp Rates.
- (i) Seller shall ensure that the ramp rate of the Facility is less than the following limits for all conditions including start up, normal operations, Seller adjusting the Facility Actual Output, changes in the wind resource, and shut down for the following periods as calculated in accordance with Attachment C (Methods and Formulas For Measuring Performance Standards).
- Maximum Ramp Rate Upward of [\_\_] MW/minute for all periods. **[TO BE DETERMINED FOLLOWING IRS.]**
  - Maximum Ramp Rate Downward of 2 MW/minute for all periods other than periods for which such maximum is not operationally possible because of rapid loss of solar resource and the depletion of energy storage.
- (ii) Upon receiving a command from the Company active power control(s) described in Section 1(g)(viii) of this Attachment B (Facility Owned by Seller), Seller shall adjust the Facility's net real power

import or export at a ramp rate, as calculated in accordance with Attachment C (Methods and Formulas for Measuring Performance Standards), to be specified by the Company to the extent allowed by the wind resource and energy storage without exceeding such ramp rate and without intentional delay. Such ramp rate shall be in the range of [REDACTED] MW/min to [REDACTED] MW/min.

(iii) The Facility is allowed to exceed the maximum ramp rate limits in Section 3(c) (Ramp Rates) of this Attachment B (Facility Owned by Seller) when Facility net real power import or export is changed by the frequency response control described in Section 3(m) (Frequency Response) of this Attachment B (Facility Owned by Seller).

(d) Ride-Through Requirements.

In meeting the voltage and frequency ride-through requirements in this Attachment B Sections 3(e), 3(f), 3(i), and 3(j), the Facility shall not enter momentary cessation of operations within the voltage and frequency zones and time periods where the Facility must remain connected to the Company System. **[THIS PROVISION MAY BE ADJUSTED BY COMPANY UPON COMPLETION OF THE IRS IF MOMENTARY CESSATION IS NEEDED TO PREVENT EQUIPMENT DAMAGE DUE TO A POWER EQUIPMENT LIMITATION. DOCUMENTATION FROM THE EQUIPMENT MANUFACTURER OF SUCH LIMITATION SHALL BE PROVIDED TO COMPANY IN WRITING FOR THE OWNER'S RFP SUBMITTAL AND THE CONDUCT OF THE IRS.]**

(e) Undervoltage Ride-Through.

The Facility, as a whole, will meet the following undervoltage ride-through requirements during low voltage affecting one or more of the three voltage phases ("V" is the voltage of any three voltage phases at the Point of Interconnection). **[THESE VALUES MAY BE CHANGED BY COMPANY UPON COMPLETION OF THE IRS. WITHOUT LIMITATION, FOR A DISTRIBUTION-CONNECTED FACILITY, UPON COMPLETION OF THE IRS THE COMPANY MAY SPECIFY REQUIREMENTS FOR A MANDATORY DISCONNECTION FROM THE COMPANY SYSTEM.]**:

0.88 pu  $\leq$  V  $\leq$  1.00 pu      The Facility remains connected to the Company System.

- |                            |  |
|----------------------------|--|
| 0.70 pu $\leq$ V < 0.88 pu | The Facility may initiate disconnection from the Company System if the voltage remains in this range for more than 20 seconds. |
| 0.50 pu $\leq$ V < 0.70 pu | The Facility may initiate disconnection from the Company System if the voltage remains in this range for more than 10 seconds. |
| 0.00 pu $\leq$ V < 0.50 pu | The Facility may disconnection from the Company System if voltage remains in this range for more than 600 milliseconds.        |

Seller shall have sufficient capacity to fulfill the above mentioned requirements to ride-through the following sequences or combinations thereof **[THE ACTUAL CLEARING TIMES WILL BE DETERMINED BY COMPANY IN CONNECTION WITH THE IRS]:**

- Normally cleared 138 kV transmission faults cleared after 5 cycles with one reclose attempt, cleared in 5 cycles, 30 cycles after the initial fault was cleared. The voltage at the Point of Interconnection will recover above the 0.80 p.u. level for the 30 cycles between the initial clearing time and the reclosing time.
- Normally cleared 46kV subtransmission faults cleared in 7 cycles with one reclose attempt, cleared in 7 cycles, 23 cycles after the initial fault was cleared. The voltage at the Point of Interconnection will recover above the 0.80 p.u. level for the 23 cycles between the initial clearing time and the reclosing time.

(f) Over Voltage Ride-Through.

The overvoltage protection equipment at the Facility shall be set so that the Facility will meet the following overvoltage ride-through requirements during high voltage affecting one or more of the three voltage

phases (as described below) ("V" is the voltage of any of the three voltage phases at the Point of Interconnection). **[THESE VALUES MAY BE CHANGED BY THE COMPANY UPON COMPLETION OF THE IRS. WITHOUT LIMITATION, FOR A DISTRIBUTION-CONNECTED FACILITY, UPON COMPLETION OF THE IRS THE COMPANY MAY SPECIFY REQUIREMENTS FOR A MANDATORY DISCONNECTION FROM THE COMPANY SYSTEM AT  $V > 1.2$  pu. RIDE-THROUGH REQUIREMENTS FOR OTHER SYSTEMS WILL BE DETERMINED IN THE IRS.]**:

$1.00 \text{ pu} < V \leq 1.10 \text{ pu}$       The Facility remains connected to the Company System.

$1.10 \text{ pu} < V \leq 1.20 \text{ pu}$       The Facility may initiate disconnection from the Company System if voltage remains in this range for more 0.92 seconds.

$V > 1.2 \text{ pu}$       The Facility may initiate disconnection from the Company System immediately.

(g) [RESERVED].

(h) [RESERVED].

(i) Underfrequency ride-through.

The Facility shall meet the following underfrequency ride-through requirements during an underfrequency disturbance ("f" is the Company System frequency at the Point of Interconnection):

$57.0 \text{ Hz} \leq f \leq 60.0 \text{ Hz}$       The Facility remains connected to the Company System.

$56.0 \text{ Hz} \leq f \leq 57.0 \text{ Hz}$       The Facility may initiate disconnection from the Company System if frequency remains in this range for more than 20 seconds.

$f < 56.0 \text{ Hz}$       The Facility may initiate disconnection from the Company System immediately.

(j) Overfrequency ride-through.

The Facility will behave as specified below for overfrequency conditions ("f" is the Company System frequency at the Point of Interconnection):

60.0 Hz  $\leq$  f  $\leq$  63.0 Hz            The Facility remains connected to the Company System.

63.0 Hz  $\leq$  f  $\leq$  64.0 Hz            The Facility shall initiate disconnection from the Company System if frequency remains in this range for more than 20 seconds.

f > 64.0 Hz                            The Facility shall initiate disconnection from the Company System immediately.

(k) Voltage Flicker.

Any voltage flicker on the Company System caused by the Facility shall not exceed the limits stated in IEEE Standard 1453-2011, or latest version "Recommended Practice - Adoption of IEC 61000-4-15:2010, Electromagnetic compatibility (EMC) - Testing and measurement techniques - Flickermeter - Functional and design specifications".

(l) Harmonics.

Harmonic distortion at the Point of Interconnection caused by the Facility shall not exceed the limits stated in IEEE Standard 519-1992, or latest version "Recommended Practices and Requirements for Harmonic Control in Electrical Power Systems". Seller shall be responsible for the installation of any necessary controls or hardware to limit the voltage and current harmonics generated from the Facility to defined levels.

(m) Frequency Response.

Seller Facility shall provide a primary frequency response with a frequency droop characteristic reacting to system frequency fluctuations at the Point of Interconnection in both the overfrequency and underfrequency directions except to the extent such

response is not operationally possible because of the level of available solar resource and depletion of energy storage.

- (i) The Facility frequency response control shall adjust, without intentional delay and without regard to the ramp rate limits in Section 3(c) (Ramp Rates) of this Attachment B (Facility Owned by Seller), the Facility's net real power import or export when system frequency is not 60 Hz based on frequency deadband and frequency droop settings specified by the Company.
  - (ii) The Facility frequency response control shall be allowed to increase the net real power import or export above the Power Reference Set Point set under Section 1(g)(viii) of this Attachment B (Facility Owned by Seller) or further decrease the net real power import or export from the Power Reference Set Point in its operations.
  - (iii) The frequency deadband shall be settable in the range from +/-0.01 Hz to +/- 0.10 Hz and the frequency droop shall be settable in the range of 0.1% to 10%.
  - (iv) The Facility frequency response control shall be in continuous operation when the Facility is online and connected to the Company unless directed otherwise by the Company.
- (n) Grid Forming.

Facility inverters shall be capable of operating in grid forming mode supporting system operation under normal and emergency conditions without relying on the characteristics of synchronous machines. This includes operation as a current independent ac voltage source during normal and transient conditions (as long as no limits are reached within the inverter), and the ability to synchronize to other voltage sources or operate autonomously if a grid reference is unavailable.

- (i) Seller shall operate the Facility in grid forming mode only as directed by the System Operator, in its sole discretion.

(ii) The Facility shall include safeguards to prevent the unintentional switching of the Facility into and out of grid forming mode. The safeguards shall be approved in writing by the Company and implemented by the Seller in the Facility prior to conducting the CSAT.

(o) Round Trip Efficiency.

The round trip efficiency of the BESS as measured at the POI shall be not less than [ ] percent ([ ]%).  
[ND: The percentage for round trip efficiency should be taken from Seller's response to the RFP.]

(p) Fast Frequency Response.

[DRAFTING NOTE: This section only applies if Facility provides fast frequency response.]

The Facility shall provide a fast frequency response to rapidly inject or absorb energy in the event of a sudden and rapid system frequency disturbance.

(i) The Facility fast frequency response control shall adjust, without intentional delay and without regard to the ramp rate limits in Section 3(c) (Ramp Rates) of this Attachment B (Facility Owned by Seller), the Facility's net real power import or export based on the rate of change of frequency setting(s) and deadband specified by the Company.

(ii) The Facility output as adjusted by the Facility fast frequency response control shall be proportional to or discrete but dynamically sized to the severity of the disturbance.

(iii) The Facility output as adjusted by the Facility fast frequency response control shall reach the control's full commanded response as measured at the POI in 200 milliseconds or less from the initiation of the disturbance.

(iv) The Facility fast frequency response control shall be allowed to increase the net real power import or export above the Power Reference Set Point under

Section 1(g) (viii) of this Attachment B (Facility Owned by Seller) or further decrease the net real power import or export from the Power Reference Set Point in its operations. The fast frequency response control is not allowed to control the Facility net real power import or export to exceed the Maximum Power Import and Export Limits under Section 1(g) (viii) of this Attachment B (Facility Owned by Seller).

(v) The rate of change of frequency is proportional to the per unit generation-load mismatch and inversely proportional to the system inertial time constant. The Facility shall be capable of receiving a periodically updated signal from the Company EMS to assist in scaling the Facility fast frequency response. If the EMS signal becomes unavailable, the Facility shall be capable using a local look up table as a substitute.

(vi) The Facility fast frequency response control shall be in continuous operation when the Facility is online and connected to the Company System unless directed otherwise by the Company.

(vii) The Facility fast frequency response design shall be approved in writing by the Company and implemented by the Seller in the Facility prior to to conducting the CSAT.

4. Maintenance of Seller-Owned Interconnection Facilities.

- (a) Seller must address any Disconnection Event (as defined below) according to the requirements of this Section 4 (Maintenance of Seller-Owned Interconnection Facilities) of Attachment B (Facility Owned by Seller). For this purpose, a Disconnection Event is a disconnection from Company System of at least \_\_\_ MW **[TO BE DETERMINED BY COMPANY FOLLOWING THE IRS]** from the Facility over a "rolling 120-second period", (i) that is not the result of Company dispatch, frequency droop response, or isolation of the Facility resulting from designed protection fault clearing, and (ii) for which Company

does not issue for such disconnection the written notice for failure to meet operational and performance requirements as set forth in Section 1(j) (Demonstration of Facility) of this Attachment B (Facility Owned by Seller). A "rolling 120-second period" means a period that is comprised of 120 seconds and such rolling period will change as each new one (1) second elapses. With the elapse of each new one (1) second, the newest one (1) second would be added to the 120-second period, and the oldest one (1) second would no longer be included in the rolling 120-second period. Company's election to exercise its rights under Section 1(j) (Demonstration of Facility) shall not relieve Seller of its obligation to comply with the requirements of this Section 4 (Maintenance of Seller-Owned Interconnection Facilities) for any future Disconnection Event during the pendency of such election or thereafter.

- (b) For every Disconnection Event, Seller shall investigate the cause. Within three (3) Business Days of the Disconnection Event, Seller shall provide, in writing to Company, an incident report that summarizes the sequence of events and probable cause.
- (c) Within forty-five (45) Days of a Disconnection Event, Seller shall provide, in writing to Company, Seller's findings, data relied upon for such findings, and proposed actions to prevent reoccurrence of a Disconnection Event ("Proposed Actions"). Company may assist Seller in determining the causes of and recommendations to remedy or prevent a Disconnection Event ("Company's Recommendations"). Seller shall implement such Proposed Actions (as modified to incorporate the Company's Recommendations, if any) and Company's Recommendations (if any) in accordance with the time period agreed to by the Parties.
- (d) In the event Seller and Company disagree as to
  - (i) whether a Disconnection Event occurred, (ii) the sequence of events and/or probable cause of the Disconnection Event, (iii) the Proposed Actions, (iv) Company's Recommendations, and/or (v) the time period to implement the Proposed Actions and/or Company's Recommendations, then the Parties shall follow the procedure set forth in Section 5 (Expedited Dispute Resolution) of this Attachment B (Facility Owned by Seller).

- (e) Upon the fourth (4th) Disconnection Event (and each subsequent Disconnection Event) within any Contract Year, the Parties shall follow the procedures set forth in Section 4(a) and Section 4(d) of Attachment B (Facility Owned by Seller), to the extent applicable. If after following the procedures set forth in this Section 4 (Maintenance of Seller-Owned Interconnection Facilities) of Attachment B (Facility Owned by Seller), Seller and Company continue to have a disagreement as to (1) the probable cause of the Disconnection Event, (2) the Proposed Actions, (3) the Company's Recommendations, and/or (4) the time period to implement the Proposed Actions and/or the Company's Recommendations, then the Parties shall commission a study to be performed by a qualified independent Third-Party consultant ("Qualified Consultant") chosen from the Qualified Independent Third-Party Consultants List ("Consultants List") attached to the Agreement as Attachment D (Consultants List). Such study shall review the design of, review the operating and maintenance procedures dealing with, recommend modifications to, and determine the type of maintenance that should be performed on Seller-Owned Interconnection Facilities ("Study"). Seller and Company shall each pay for one-half of the total cost of the Study. The Study shall be completed within ninety (90) Days from such fourth Disconnection Event (and each subsequent Disconnection Event) within any Contract Year, unless otherwise reasonably agreed to in writing by Seller and Company. The Qualified Consultant shall send the Study to Company and Seller. Seller (and/or its Third-Party consultants and contractors), at Seller's expense, shall change the design of, change the operating and maintenance procedures dealing with, implement modifications to, and/or perform the maintenance on Seller-Owned Interconnection Facilities recommended by the Study. Such design changes, operating and maintenance procedure changes, modifications, and/or maintenance shall be completed no later than forty-five (45) Days from the Day the completed Study is issued by the Qualified Consultant, unless otherwise agreed to in writing by Company, such agreement not to be unreasonably withheld. Company shall have the right to derate the Facility to a level that maintains reliable operations in accordance with Good Engineering and Operating Practices, and the Facility shall be deemed to be in Seller-Attributable Non-Generation status, until the study has been

completed and the study's recommendations have been implemented by Seller to Company's reasonable satisfaction. Nothing in this provision shall affect Company's right to dispatch the Facility as provided for in this Agreement.

- (f) The Consultants List attached hereto as Attachment D (Consultants List) contains the names of engineering firms which both Parties agree are fully qualified to perform the Study. At any time, except when a Study is being conducted, either Party may remove a particular consultant from the Consultants List by giving written notice of such removal to the other Party. However, neither Party may remove a name or names from the Consultants List without approval of the other Party if such removal would leave the list without any names. Intended deletions shall be effective upon receipt of notice by the other Party, provided that such deletions do not leave the Consultants List without any names. Proposed additions to the Consultants List shall automatically become effective thirty (30) Days after notice is received by the other Party unless written objection is made by such other Party within said thirty (30) Day period. By mutual agreement between the Parties, a new name or names may be added to the Consultants List at any time.

5. Expedited Dispute Resolution.

If there is a disagreement between Company and Seller regarding (i) whether a Disconnection Event occurred, (ii) the sequence of events and/or probable cause of the Disconnection Event, (iii) the Proposed Actions, (iv) the Company's Recommendations, and (v) the time period to implement the Proposed Actions and/or the Company's Recommendations, then authorized representatives from Company and Seller, having full authority to settle the disagreement, shall meet in Hawai'i (or by telephone conference) and attempt in good faith to settle the disagreement. Unless otherwise agreed in writing by the Parties, the Parties shall devote no more than five (5) Business Days to settle the disagreement in good faith. In the event the Parties are unable to settle the disagreement after the expiration of the time period, then such disagreement shall constitute a Dispute for which either Party may pursue the dispute resolution procedure set forth in Section 28.2 (Dispute Resolution Procedures, Mediation) of this Agreement.

6. Modeling.

- (a) Seller's Obligation to Provide Models. Within 30 Days of Company's written request, but no later than the Commercial Operations Date, Seller shall provide detailed data regarding the design and location of the Facility, in a form reasonably satisfactory to Company, to allow the modeling of the WTGs and any other equipment within the Facility identified in the IRS which utilizes Source Code (such as energy storage system, STATCOM or DVAR equipment), including, but not limited to, integrated and validated power flow and transient stability models (such as PSS/E models), a short circuit model (such as an ASPEN model), and an electro-magnetic transient model (such as a PSCAD model) of the WTGs and any additional equipment identified in the IRS as set forth above, applied assumptions, and pertinent data sets (each a "Required Model" and collectively, the "Required Models"). Thereafter, during the Term, Seller shall provide working updates of any Required Model within 30 Days of (i) Company's written request, or (ii) Seller obtaining knowledge or notice that any Required Model has been modified, updated or superseded by the Source Code Owner.
- (b) Escrow Establishment. If, pursuant to Section 6(a) (Seller's Obligation to Provide Models) of this Attachment B (Facility Owned by Seller), the Required Models are provided to the Company in a form other than Source Code, Seller shall arrange for and ensure that the Source Code for the relevant Required Model is deposited into the Source Code Escrow as set forth below in Section 6(b)(i) (Source Code Escrow) of this Attachment B (Facility Owned by Seller) no later than the time periods set forth in Section 6(a) (Seller's Obligation to Provide Models) of this Attachment B (Facility Owned by Seller) for delivery of the Required Models. Seller shall be responsible for all costs associated with establishing and maintaining the Source Code Escrow. If, however, Seller is unable to deposit the required Source Code into the Source Code Escrow within the time periods set forth in Section 6(a) (Seller's Obligation to Provide Models), Seller shall, no later than such time periods, instead establish a monetary escrow as set forth below in Section 6(b)(ii)

(Monetary Escrow) of this Attachment B (Facility Owned by Seller).

(i) Source Code Escrow.

(A) Establishment of Source Code Escrow. If the Required Models are not provided to the Company in the form of Source Code pursuant to Section 6(a) of this Attachment B (Facility Owned by Seller), Seller shall: (a) arrange for and ensure the deposit of a copy of the current version of the Source Code and relevant documentation for all Required Models with the Source Code Escrow Agent under the terms and conditions of the Source Code Escrow Agreement, and (b) arrange for and ensure the update of the deposited Source Code and relevant documentation for Major Releases and Minor Releases of the Required Models as soon as reasonably possible after they are made generally available.

(B) Release Conditions. Company shall have the right to obtain from the Source Code Escrow Agent one copy of the escrowed Source Code for the Required Models, under the following conditions upon Company's request:

(i) A receiver, trustee, or similar officer is appointed, pursuant to federal, state or applicable foreign law, for the Source Code Owner;

(ii) Any voluntary or involuntary petition or proceeding is instituted, under (x) U.S. bankruptcy laws or (y) any other bankruptcy, insolvency or similar proceeding outside of the United States, by or against the Source Code Owner; or

(iii) Failure of the Source Code Owner to function as a going concern or operate in the ordinary course; or

(iv) Seller and the Source Code Owner fail to provide to Company the Required Models or updated Required Models, or, alternatively, fail to issue a Source Code LC, within the time periods set forth in Section 6(a) (Seller's Obligation to Provide Models) of this Attachment B (Facility Owned by Seller), Company gives written notice of such failure to Seller and the Source Code Owner, and Seller and Source Code Owner fail to remedy such breach within five (5) Days following receipt of such notice.

(C) Remedies. If Company has the right to obtain from the Source Code Escrow Agent one copy of the escrowed Source Code for the Required Models pursuant to Section 6(b)(i)(B) (Release Conditions) of Attachment B (Facility Owned by Seller), and Company finds that Seller failed to arrange for and ensure the update the Source Code Escrow with the modified and/or updated Source Code and relevant documentation for Major Releases and Minor Releases of the Required Models as provided in Section 6(b)(i) (Establishment of Source Code Escrow) of Attachment B (Facility Owned by Seller) or that the Source Code for the Required Models is incomplete or otherwise unusable, Seller shall be liable to Company for liquidated damages in the amount of \$500 per Day for each Day Seller fails to provide such Source Code to Company or such update to the Source Code to Company from the date such Major Release or Minor Release was first made available by the Source Code Owner to customers of the Source Code Owner. Failure to provide the updated Source Code of the Required Models within 30 Days' notice from Company of a breach of Section 6(b)(i)(A) (Establishment of Source Code Escrow) of Attachment B (Facility Owned by Seller); provided, that Seller has also failed to provide a satisfactory Source Code LC as set forth in Section 6(b)(ii) (Source Code Security) of this Attachment B (Facility Owned by Seller) shall constitute an Event of Default pursuant to Section 15.2(f) under the Agreement.

(D) Certification. The Source Code Escrow Agent shall release the Source Code of the Required Models to Company upon receipt of a signed statement by a representative of Company that reads substantially as follows:

The undersigned hereby certifies that (i) I am duly authorized to execute this document on behalf of Hawaiian Electric Company, Inc. ("Hawaiian Electric"), and (ii) Hawaiian Electric is entitled to a copy of the Source Code of the Required Models Pursuant to Section 6(b)(i)(B) (Release Conditions) of Attachment B (Facility Owned by Seller) of the Power Purchase Agreement dated as of \_\_\_\_\_, between \_\_\_\_\_, and Hawaiian Electric.

(E) Authorized Use. If Company becomes entitled to a release of the Source Code of the Required

Models from escrow, Company may thereafter correct, modify, update and enhance the Required Models for the sole purpose of providing itself the support and maintenance it otherwise would have been entitled to if it had been provided the Required Models by Seller under Section 6(a) (Seller's Obligation to Provide Models) of this Attachment B (Facility Owned By Seller) (the "Source Code Authorized Use").

(F) Confidentiality Obligations. Company shall keep the Source Code of the Required Models confidential pursuant to the confidentiality obligations of the Source Code Escrow Agreement. Company shall restrict access to the Source Code of the Required Models to those employees, independent contractors and consultants of Company who have agreed in writing to be bound by confidentiality and use obligations consistent with those specified in the Escrow Agreement, and who have a need to access the Source Code of the Required Models on behalf of Company to carry out their duties for the Authorized Use. Promptly upon Seller's request, Company shall provide Seller with the names and contact information of all individuals who have accessed the Source Code of the Required Models, and shall take all reasonable actions required to recover any such Source Code in the event of loss or misappropriation, or to otherwise prevent their unauthorized disclosure or use.

(ii) Source Code Security.

(A) Establishment of Source Code Security. If the Required Models and their relevant Source Code are not provided to the Company in the form of Source Code pursuant to Section 6(a) (Seller's Obligation to Provide Models) of this Attachment B (Facility Owned by Seller) and if the Seller is unable to arrange for and ensure the deposit of the Source Code into the Source Code Escrow established for the benefit of the Company pursuant to Section 6(b)(i) (Source Code Escrow) of this Attachment B (Facility Owned by Seller) then, no later than the time periods set forth in Section 6(a) (Seller's Obligation to Provide Models) of this Attachment B (Facility Owned by Seller) for delivery of the Required Models and Source Code, Seller shall provide an irrevocable standby letter of credit (the "Source Code LC") with no documentation requirement in the amount of Two Hundred Fifty Thousand Dollars (\$250,000) per Required Model (and its relevant Source Code) substantially in the form attached to this Agreement as Attachment M (Form of Letter of Credit) from a bank chartered in the United States with a

credit rating of "A-" or better from Standard & Poor's or A3 or better from Moody's. Such letter of credit shall be issued for a minimum term of one (1) year. Furthermore, at the end of each year the security shall be renewed for an additional one (1) year term so that at the time of such renewal, the remaining term of any such security shall not be less than one (1) year. The letter of credit shall include a provision for at least thirty (30) Days' advance notice to Company of any expiration or earlier termination of the letter of credit so as to allow Company sufficient time to exercise its rights under said security if Seller fails to extend or replace the security. In all cases, the reasonable costs and expenses of establishing, renewing, substituting, canceling, increasing, reducing, or otherwise administering the letter of credit shall be borne by Seller.

(B) Release Conditions. Company shall have the right to draw on the letter of credit the funds necessary to develop and recreate the Required Model or Required Models upon Company's request if Seller fails to provide the Company the Required Models or updated Required Models within the time periods set forth in Section 6(a) (Seller's Obligation to Provide Models) or Section 6(b)(i)(C) (Remedies) of this Attachment B (Facility Owned by Seller), Company gives written notice of such failure to Seller, and Seller fails to remedy such breach within five (5) Days following receipt of such notice (for a breach under Section 6(a) (Seller's Obligation to Provide Models), or within thirty (30) Days following receipt of such notice (for a breach under Section 6(b)(i)(C) (Remedies)).

(C) Extend Letter of Credit. If the letter of credit is not renewed or extended no later than thirty (30) Days prior to its expiration or earlier termination, Company shall have the right to draw immediately upon the full amount of the letter of credit and to place the proceeds of such draw (the "Proceeds"), at Seller's cost, in an escrow account in accordance with Section 6(b)(ii)(D) (Proceeds Escrow), until and unless Seller provides a substitute form of letter of credit meeting the requirements of this Section 6(b)(ii) (Source Code Security) of this Attachment B (Facility Owned by Seller).

(D) Proceeds Escrow. If Company draws on the letter of credit pursuant to Section 6(b)(ii)(C) (Extend Letter of Credit) of this Attachment B (Facility Owned by Seller), Company shall, in order to avoid comingling the

Proceeds, have the right but not the obligation to place the Proceeds in an escrow account as provided in this Section 6(b)(ii)(D) (Proceeds Escrow) of this Attachment B (Facility Owned by Seller) with a reputable escrow agent acceptable to Company ("Proceeds Escrow Agent") subject to an escrow agreement acceptable to Company (the "Proceeds Escrow Agreement"). Without limitation to the generality of the foregoing, a federally-insured bank shall be deemed to be a "reputable escrow agent." Company shall have the right to apply the Proceeds as necessary to recover amounts Company is owed pursuant to this Section 6 (Modeling) of this Attachment B (Facility Owned by Seller). To that end, the Proceeds Escrow Agreement governing such escrow account shall give Company the sole authority to draw from the account. Seller shall not be a party to such Proceeds Escrow Agreement and shall have no rights to the Proceeds. Upon full satisfaction of Seller's obligations under Section 6 (Modeling) of this Attachment B (Facility Owned by Seller), Company shall instruct the Proceeds Escrow Agent to remit to the bank that issued the letter of credit that was the source of the Proceeds the remaining balance (if any) of the Proceeds. If there is more than one escrow account with Proceeds, Company may, in its sole discretion, draw on such accounts in any sequence Company may select. Any failure to draw upon the Proceeds for any damages or other amounts due Company shall not prejudice Company's rights to recover such damages or amounts in any other manner.

(E) Seller's Obligation. If the letter of credit is not sufficient to cover Company's associated consultant fees, costs and expenses to develop and recreate the Required Models, Seller shall pay to Company the difference within ten (10) Days of Company's written notice to Seller.

(F) Model Verification. Seller shall work with the Company to validate the new Required Models developed by or on behalf of Company within sixty (60) Days of receiving such new Required Models. Seller shall also arrange for and ensure that Company may obtain new Required Models directly from the Source Code Owner in the event that Seller ceases to operate as a going concern or is subject to voluntary or involuntary bankruptcy and is unable or unwilling to obtain the new Required Models from the Source Code Owner.

(G) Certification. The terms of the letter of credit shall provide for a release of the funds, or in the event the funds have been placed into a Proceeds Escrow, the Escrow Agent shall release the necessary funds to Company upon receipt of a signed statement by a representative of Company that reads substantially as follows:

The undersigned hereby certifies that (i) I am duly authorized to execute this document on behalf of Hawaiian Electric Company, Inc. ("Hawaiian Electric"), and (ii) Hawaiian Electric is entitled to \$ \_\_\_\_\_, pursuant to Section 6(b)(ii)(B) (Release Conditions) of Attachment B (Facility Owned by Seller) of the Power Purchase Agreement dated as of \_\_\_\_\_, between \_\_\_\_\_, and Hawaiian Electric.

(H) Authorized Use. If Company becomes entitled to a draw of funds from the Source Code Security or a release of funds from the Proceeds Escrow, Company may thereafter use such funds to develop, recreate, correct, modify, update and enhance the Required Models for the sole purpose of providing itself the support and maintenance it otherwise would have been entitled to if it had been provided the Required Models by Seller under Section 6(a) (Seller's Obligation to Provide Models) of this Attachment B (Facility Owned by Seller).

(iii) Supplementary Agreement. The parties stipulate and agree that the escrow provisions in this Section 6(b) (Escrow Establishment) of Attachment B (Facility Owned by Seller) and the Source Code Escrow Agreement and Proceeds Escrow Agreement are "supplementary agreements" as contemplated in Section 365(n)(1)(B) of the Code. In any voluntary or involuntary bankruptcy proceeding involving Seller, failure by Company to assert its rights to "retain its rights" to the intellectual property encompassed by the Source Code or the funds in the Proceeds Escrow, pursuant to Section 365(n)(1)(B) of the Code, under an executory contract rejected in a bankruptcy proceeding, shall not be construed as an election to terminate the contract by Company under Section 365(n)(1)(A) of the Code.

7. Testing Requirements.

- (a) Testing Requirements. Once the Control System Acceptance Test has been successfully passed, Seller shall not replace and/or change the configuration of the Facility Control, WTG control settings and/or ancillary device controls, without prior written notice to Company. In the event of any such replacement and/or change, the relevant test(s) of the Control System Acceptance Test shall be redone and must be successfully passed before the replacement or altered equipment is allowed to be placed in normal operations. In the event that Company reasonably determines that such replacement and/or change of controls makes it inadvisable for the Facility to continue in normal operations without a further Control Systems Acceptance Test, the Facility shall be deemed to be in Seller-Attributable Non-Generation status until the new relevant tests of the Control System Acceptance Test have been successfully passed.
- (b) Periodic Testing. Seller shall coordinate periodic testing of the Facility with Company to ensure that the Facility is meeting the performance standards specified under this Agreement.

8. Data and Forecasting.

Seller shall provide Site, meteorological and production data in accordance with the terms of Article 6 (Forecasting) of this Agreement and the following requirements:

- (i) Physical Site Data: Seller shall provide Company with an accurate description of the physical Site, including but not limited to the following, which may not be changed during the Term without Company's prior written consent:
- A. Location Facility Map showing the layout of the Facility (coverage area or footprint), coordinates (latitude and longitude) and height above ground of each Wind Turbine hub.
  - B. Location (latitude and longitude) of each MMT and elevation (above ground) of each field measurement device for, e.g., air density, ambient air pressure and ambient air temperature, located at each MMT.

C. BESS technology and related auxiliary equipment, location and type.

(ii) Meteorological and Production Data:

- A. For facilities with a Contract Capacity greater than 1 MW, Seller shall install and maintain at least one multi-level MMT on the prevailing, upstream side of the Facility to elevate the field measurement devices for such other meteorological conditions that Company shall from time to time reasonably require (e.g., air density, ambient air temperature and ambient air pressure). At a minimum, such measuring devices shall be placed at approximately "hub height" of the Wind Turbines, typically using a boom extension off the MMT. Typically, additional measuring devices for such other meteorological conditions shall be placed on boom extensions off the MMT at appropriate heights above and below "hub height" as such "appropriate heights" are agreed to between Company and Seller. For facilities with a Contract Capacity of 5 MW and greater, Company may require Seller to install and maintain additional MMTs and additional field measurement devices.
- B. For purposes of calculating the Performance Index, the Seller shall provide (i) the wind speed and Actual WTGs Production at each WTG within the Facility and (ii) the data on the other meteorological conditions (e.g. air density, ambient air pressure and ambient air temperature) at approximately "hub height" at each MMT.
- C. Seller shall provide to Company, via SCADA communication and protocol acceptable to Company to support operations and forecasting needs at a continuous scan, all meteorological and production data required under this Agreement updated every 2 seconds.
- D. For facilities with a Contract Capacity greater than 1 MW, Seller shall arrange for a

dedicated 12 kV line to provide separate service from Company, or for such other independent, backup power source as approved by Company in writing, to temporarily store and record the meteorological data from both the nacelle anemometers at the WTGs and the field measuring devices at the MMTs. Any such backup power source must be capable of providing power for the field measurement devices for a reasonable period of time until primary power is restored. The same backup power source can serve multiple MMTs as needed by the Facility.

(iii) Units and Accuracy:

A. Units and accuracy of measured parameters to be provided to Company in real time shall be as shown in the Table below. These represent the minimum required accuracies.

**Table of Units and Accuracy of Meteorological and Production Data (Wind)**

Parameter	Data Source	Unit	Range	Accuracy
Wind speed at nacelle of each WTG	Cup or sonic anemometer	mph	0 to 134 mph	+/-1 mph
Wind direction at nacelle of each WTG	Vane, sonic device or equivalent	Degrees (from True North)	360°	+/-5°
Wind speed at MMT	Cup or sonic anemometer	mph	0 to 134 mph	+/-1 mph
Wind direction at MMT	Vane, sonic device or equivalent	Degrees (from True North)	360°	+/-5°
Ambient air temperature at MMT (hub height)*	Temperature probe	°C	-20 to +50 °C	+/-1 °C

\* Plus such other "appropriate heights" as provided in Section 8(ii) (A) of this Attachment B (Facility Owned by Seller).

Ambient air pressure at MMT (hub height)*	Piezoresistive transducer, barometer or equivalent	mbar	150 to 1150 mbar	+/-60 mbar (0 to +50°C)
Power production for each WTG	Measured at WTG	MW	Up to WTGS name plate	+/-0.1 MW
Set point for each WTG	Reported by Seller	MW	0 to WTGS name plate	Not applicable
Power production of Facility	Measured at Facility's analog transducer on Seller's side of POI	MW	Up to Allowed Capacity	The lesser of the tolerances of the telemetry equipment or 2% of measurement
Facility power production ratio	Ratio of Facility's power production (MW)/Allowed Capacity (MW)	%	0 to 100%	+/-0.1%
Power Possible	Seller's Model	MW	0 to Allowed Capacity	+/-4%

(iv) Status of WTGs for Purposes of Calculating Facility Availability:

For each WTG, Seller shall, unless agreed otherwise by Company and Seller in writing, provide to Company, via SCADA communication and protocol acceptable to Company at a continuous scan updated not less frequently than every 2 seconds, a signal as to whether such WTG is available or unavailable.

9. Technology Specific Requirements.

(a) Three-Phase Synchronous Generators.

The generating facility circuit breakers shall be 3-phase devices with electronic or electromechanical control. The Seller shall be responsible for properly synchronizing its generating facility with the Company

System by means of either a manual or automatic synchronizing function. Automatic synchronizing is required for all synchronous generators which have an short circuit current rating ("SCCR") greater than 5%. For a generating facility whose SCCR exceeds 5%, the Facility shall provide protective equipment suitable for detecting loss of synchronism and automatically disconnecting the generating facility from the Company System. Unless otherwise agreed to between the Company and Seller, synchronous generators shall automatically regulate power factor, not voltage, while operating in parallel with the Company System.

(b) Induction Generators.

- (i) Induction generators may be connected and brought up to synchronous speed (as an induction motor) if it can be demonstrated that the initial voltage drop measured at the Point of Interconnection is within the visible flicker limits as defined by IEEE 519-1992 (or latest version). The same requirements also apply to induction generation connected at or near synchronous speed because a similar voltage dip is present due to an inrush magnetizing current. The Facility shall submit number of starts per specific time period and maximum starting kVA draw data for the utility to verify that the voltage dip due to starting is within the visible flicker limits and does not degrade the normal voltage provided by the utility.
- (ii) Induction generators do not require separate synchronizing equipment. Starting or rapid load fluctuations on induction generators can adversely impact the Company System voltage. Corrective step-switched capacitors or other techniques may be necessary if the voltage fluctuations measured at the Point of Interconnection are not within the visible flicker limits as defined by IEEE 519-1992 (or latest version). These measures can, in turn, cause ferroresonance. If these measures (additional capacitors) are installed on Seller's side of the Point of Interconnection, the Company will review these measures and may require Seller to install additional protective relaying equipment. Company will determine whether

additional equipment is required to protect the Company System.

(c) Inverter Systems.

- (i) Direct current generators and non-power (i.e. other than 60 Hertz) alternating current generators can only be installed in parallel with the Company System using a non-islanding synchronous inverter. The design shall comply with the requirements of IEEE Std 1547-2003 (or latest version), except as described in Section 3 (Performance Standards) of this Attachment B (Facility Owned by Seller).
- (ii) Self-commutated inverters of the Company-interactive type shall synchronize to the Company System. Line-commutated, thyristor-based inverters are not recommended and will require additional technical study to determine harmonic and reactive power requirements. All interconnected inverter systems shall comply with the harmonic current limits of IEEE Std 519-1992 (or latest version).

(d) Battery Storage System.

The Battery Energy Storage System ("BESS") operational conditions ("Operational Conditions") shall be as follows: **[NOTE - Revise to be specific to RFP and allowing for grid charging]**

- (i) No more than     % of the BESS energy capacity can be charged from the grid prior to the fifth anniversary of the Commercial Operations Date. Thereafter, 100% of the BESS energy capacity can be charged from the grid. All charging from the grid will be at the direction of Company. **[DRAFTING NOTE: 5-YEAR LIMITATION ON GRID CHARGING WILL BE DELETED IF ITC RECAPTURE IS NOT APPLICABLE TO THE BESS.]**
- (ii) For Contract Years that are non-leap years, the BESS shall be discharged no more than BESS Rating x 365 MWh in each Contract Year. For Contract Years that are leap years, the BESS shall be discharged no more than BESS Rating x 366 MWh in each Contract Year.

- (iii) The BESS will not be required to discharge more energy than available relative to the available state of charge.
- (iv) The BESS may be called on to provide frequency droop response, frequency regulation response, and frequency regulation (AGC dispatch) under the following conditions:
  - A. Dispatch to the grid is limited to the interconnection limit minus the generation from the WTGs.

EXHIBIT B-1  
REQUIRED MODELS

PSS/E

ASPEN

PSCAD

EXHIBIT B-2  
GENERATOR AND ENERGY STORAGE CAPABILITY CURVE(S)

ATTACHMENT O  
CONTROL SYSTEM ACCEPTANCE TEST CRITERIA

**[THIS ATTACHMENT WILL NEED TO BE MODIFIED BASED ON THE TYPE AND DESIGN OF THE FACILITY AND THE RESULTS OF THE IRS]**

Final test criteria and procedures shall be agreed upon by Company and Seller no later than thirty (30) Days prior to conducting the Control System Acceptance Test ("CSAT") in accordance with Good Engineering and Operating Practices and with the terms of this Agreement. The Control System RTU Points List is necessary for the effective operation of the Company System and will be tested during the Control System Acceptance Test.

The Control System Acceptance Test is comprised of two parts, a set of onsite (at Facility) specific tests and a monitoring performance test. These tests may include the following:

On-site Tests:

1. SCADA Test to verify the status and analog telemetry, and if the remote controls between the Company's EMS and the Facility are working properly end-to-end.
2. Dispatch Test to verify if the Facility's active power limit controls and the Active Power Control Interface with the Company's EMS are working properly. The Test is generally conducted by setting different active power setpoints and limits and observing the proper dispatch of the appropriate ramp rate of the Facility's real power output.
3. Control Test for Voltage Regulation to verify the Facility can properly perform automatic voltage regulation as defined in this Agreement. Test is generally conducted by making small adjustments of the voltage setpoint and verifying by observation that the Facility regulates the voltage at the point of regulation to the setpoint by delivering/receiving reactive power to/from the Company System to maintain the applicable setpoint according to the reactive power control and the reactive amount requirements of Sections 3(a) (Reactive Power Control) and Section 3(b) (Reactive Amount) of Attachment B (Facility Owned by Seller) to this Agreement.
4. Frequency Regulation Control Test to verify the Facility provides a frequency droop response as defined in this Agreement. Test is generally conducted by making adjustments

of the frequency reference setting and verifying by observation that the Facility responds per droop and deadband settings.

~~55.~~ Fast Frequency Response Control Test to verify the Facility provides the fast frequency response required in this Agreement. Test is generally conducted by simulating rate of change of frequency and/or frequency inputs and verifying by observation that the Facility responds per design and settings. [DRAFTING NOTE: This test only applies if Facility provides fast frequency response.]

6. Loss-of-Communication Test to verify the Facility will properly shutdown upon the failure of the direct-transfer-trip communication system. Test is generally conducted by simulating a communications failure and observing the proper shutdown of the Facility.

~~67.~~ Round Trip Efficiency Test to verify that the round trip efficiency of the BESS is not less than [ ] percent ([ ]%). [ND: The round trip efficiency percentage will be taken from Seller's response to the RFP.]

~~78.~~ Capacity Test to verify the BESS Capacity Ratio.

Monitoring Test:

- a) The monitoring test requires the Facility to operate as it would in normal operations.
- b) To ensure useful and valid test data is collected, the monitoring test shall end when one of the following criteria is met:
  - A. The Facility's power production is greater than 85% of its Allowed Capacity, for at least four (4) hours in any continuous 24-hour CSAT period.
  - B. The recorded renewable energy resource at the Facility is above [600 W/m<sup>2</sup>] [a Measured Wind Speed of 9 meters per second] for at least eight (8) hours in any continuous 48-hour CSAT period.
  - C. 14 continuous Days from the start of the CSAT.
- c) At the end of the test, an evaluation period is selected based on the criteria that triggered the end of the test.
- d) The performance of the Facility during the period of a successfully completed monitoring test is evaluated for, e.g., voltage regulation, frequency response, dispatch

control, operating limits and ramp rate performance, to verify the performance meets the requirements of this Agreement. The Facility is considered to have complied with a requirement if the Facility was compliant with the requirement at least 99.0% of the time during the evaluation period and the Facility does not grossly violate the requirement when the Facility was in violation. The Parties understand and agree that these compliance conditions are limited only to determining whether the Facility successfully completes the CSAT monitoring test and are not for use in determining compliance during Commercial Operations, shall not be considered a waiver of any of the performance standards of Seller, all of which are hereby reserved, and shall not alleviate Seller from any of its obligations under the Agreement.

ATTACHMENT T  
MONTHLY REPORTING AND DISPUTE  
RESOLUTION BY INDEPENDENT AF EVALUATOR

1. Monthly Report. Commencing with the month during which the Commercial Operations Date is achieved, and for each calendar month thereafter during the Term, Seller shall provide to Company a Monthly Report in Excel, Lotus or such other format as Company may require, which Monthly Report shall include (i) the data for the calendar month in question populated into the form of "Monthly Report" below, (ii) the data for the BESS Measurement Period ending with the calendar month in question populated into the form of "BESS Measurement Period Report" below, and (iii) Seller's calculations of the performance metrics, other than the Fast Frequency Response Performance Metric, and any liquidated damages assessments for the LD Period ending with such calendar month as set forth below. Seller shall deliver such Monthly Report to Company by the fifth (5<sup>th</sup>) Business Day following the close of the calendar month in question. Seller shall deliver the Monthly Report electronically to the address provided by the Company. Company shall have the right to verify all data set forth in the Monthly Report by inspecting measurement instruments and reviewing Facility operating records. Upon Company's request, Seller shall promptly provide to Company any additional data and supporting documentation necessary for Company to audit and verify any matters in the Monthly Report.

Monthly Report

NAME OF IPP FACILITY: [Facility Name]

MONTHLY REPORT PERIOD: [Month Day, Year] to [Month Day, Year]

Enter the total number of hours for each WTG and state during the reporting period (to 2 decimal places).

TID	ACTH	FTH	MTH	PTH	OPTH	OMTH	OPTH
Turbine1							
Turbine2							
Turbine3							
...							

Enter the Actual Generation (MWh) for each WTG and state during the reporting period (to 2 decimal places).

TID	CTH	ERSDTH	OEFDTH	OEMPTH	OEPDTH	Env. Derate

Turbine1						
Turbine2						
Turbine3						
...						

Enter the Expected Generation (MWh) for each WTG and state during the reporting period (to 2 decimal places).

TID	CTH	ERSDTH	OEFDTH	OEMPTH	OEPDTH	Env. Derate
Turbine1						
Turbine2						
Turbine3						
...						

Calculated Pooled OMC Equipment Equivalent Availability Factor for the reporting period: \_\_\_\_\_

Calculated Performance Index for the reporting period: \_\_\_\_\_

### BESS Measurement Period Report

NAME OF IPP FACILITY: [Facility Name]

BESS MEASUREMENT PERIOD: [Month Day, Year] to [Month Day, Year]

Enter the applicable information from which the IPP is using to demonstrate satisfaction of the BESS Capacity Performance Metric during the reporting period. This can either be from a BESS Capacity Test performed during the period or taken from operational data reflecting the net output of the BESS.

Date/Time Start	Date/Time End	Total MWh delivered to the POI (A)	BESS Contract Capacity (MWh) (B)	BESS Capacity Ratio 100% x (A/B)

Enter the information for each ExcludedTime event during the reporting period. Dates and times should be entered to the nearest minute. Duration, size of reduction, maximum rated output, and equivalent hours should be rounded to 1 decimal place.

Date/Time Start (A)	Date/Time End (B)	Duration (hrs) (C) = (B - A)	Size of Reduction (MW) (D)	Maximum Rated Output (MW) (E)	Equivalent Hours (hrs) (C x D)/E

...					
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Calendar hours in the reporting period: \_\_\_\_\_

Total equivalent ExcludedTime for the reporting period (from above): \_\_\_\_\_

Period Hours (PH) in the reporting period: \_\_\_\_\_

PH from the last three (3) reporting periods: \_\_\_\_\_

PH for the last four (4) reporting periods: \_\_\_\_\_

Enter the information for each Outage during the reporting period. Dates and times should be entered to the nearest minute. Duration should be rounded to 1 decimal place.

Date/Time Start (A)	Date/Time End (B)	Duration (hrs) (B - A)
...		

Calendar hours in the reporting period: \_\_\_\_\_

Total Outage hours for the reporting period (from above): \_\_\_\_\_

Available Hours (AH) in the reporting period: \_\_\_\_\_

AH from the last three (3) reporting periods: \_\_\_\_\_

AH for the last four (4) reporting periods: \_\_\_\_\_

Enter the information for each Planned Deration event during the reporting period. Dates and times should be entered to the nearest minute. Duration, size of reduction, maximum rated output, and equivalent hours should be rounded to 1 decimal place.

Date/Time Start (A)	Date/Time End (B)	Duration (hrs) (C) = (B - A)	Size of Reduction (MW) (D)	Maximum Rated Output (MW) (E)	Equivalent Hours (hrs) (C x D)/E
...					

Total equivalent planned derated hours (EPDH) for the reporting period: \_\_\_\_\_

EPDH from the last three (3) reporting periods: \_\_\_\_\_

EPDH for the last four (4) reporting periods: \_\_\_\_\_

Enter the information for each Unplanned Deration event during the reporting period. Dates and times should be entered to the nearest minute. Duration, size of reduction, maximum rated output, and equivalent hours should be rounded to 1 decimal place.

Date/Time Start (A)	Date/Time End (B)	Duration (hrs) (C) = (B - A)	Size of Reduction (MW) (D)	Maximum Rated Output (MW) (E)	Equivalent Hours (hrs) (C x D)/E
...					

Total equivalent unplanned derated hours (EUDH) for the reporting period: \_\_\_\_\_

EUDH for the last three (3) reporting periods: \_\_\_\_\_

EUDH for the last four (4) reporting periods: \_\_\_\_\_

Enter the Available Hours, EPDH, EUDH, and Period Hours for the last four (4) reporting periods as calculated above.

AH (A)	EPDH (B)	EUDH (C)	PH (D)	BESS Annual Equivalent Availability Factor $100\% \times (A - B - C)/D$

Enter the information for each Forced Outage during the reporting period. Dates and times should be entered to the nearest minute. Duration should be rounded to 1 decimal place.

Date/Time Start (A)	Date/Time End (B)	Duration (hrs) (B - A)
...		

Total Forced Outage Hours (FOH) for the reporting period (from above): \_\_\_\_\_

FOH from the last three (3) reporting periods: \_\_\_\_\_

FOH for the last four (4) reporting periods: \_\_\_\_\_

Enter the FOH and EUDH for the last four (4) reporting periods as calculated above.

FOH (A)	EUDH (B)	BESS Annual Equivalent Forced Outage Factor $100\% \times (A + B)/8760$

2. Monthly Report Disagreements.

- (a) Notice of Disagreement With Monthly Report. Within ten (10) Business Days following the close of the calendar month in question, Seller shall provide to Company the Monthly Report for such calendar month and the LD Period, the PI Assessment Period and the BESS Measurement Period (if any) ending with such calendar month, as provided in Section 1 (Monthly Report) of this Attachment T (Monthly Reporting and Dispute Resolution by Independent AF Evaluator). Within ten (10) Business Days after Company's receipt of a Monthly Report, Company shall provide written notice to Seller of any Monthly Report Disagreement, including with respect to the data for the calendar month covered by such Monthly Report and Seller's calculation of, as applicable, (i) the Modified Pooled OMC Equipment Availability Factor for the LD Period ending with such calendar month, (ii) the PI Assessment Period ending with such Performance Index calendar month, or (iii) any of the BESS Capacity Ratio, the BESS Annual Equivalent Availability Factor or the BESS Equivalent Forced Outage Factor for the BESS Measurement Period (if any) ending with such calendar month ("Notice of Disagreement"). Together with any such Notice of Disagreement, the Company shall include its own calculations and other support for its position. If Company fails to provide a Notice of Disagreement within said 10-Business Day period, the Monthly Report provided by Seller shall be deemed to be accepted by Company and shall no longer be subject to dispute by Company or Seller.

- (b) Notice of Disagreement With BOP Benchmark Determination. If Seller disagrees with either (i) the BOP Benchmark derived by Company from, as applicable, the IE Energy Assessment Report, the Initial OEPR or any Subsequent OEPR or (ii) Company's claim that it is unable to reasonably derive a BOP Benchmark from, as applicable, the IE Energy Assessment Report or any written clarification issued by an OEPR Evaluator pursuant to either Section 2.7(b)(ii) (Commencing With the Third Contract Year) or Section 2.7(b)(iii) (Commencing With the First Subsequent OEPR and Thereafter) of this Agreement, Seller shall, within thirty (30) Days after receipt of Company's written notice of the BOP Benchmark pursuant to Section 2.7(b) (Determination of BOP Benchmark) of this Agreement, provide written notice to Company of Seller's disagreement with either (i) the BOP Benchmark derived by Company as aforesaid or (ii) Company's claim that it is unable to reasonably derive a BOP Benchmark ("BOP Benchmark Disagreement"). Together with such notice of disagreement ("Notice of BOP Benchmark Disagreement"), the Seller shall include its own calculation and other support for its position. If Seller fails to provide such notice within such 30-Day period, the BOP Benchmark designated in Company's written notice shall be deemed to be accepted by Seller and shall no longer be subject to dispute by Company or Seller. For avoidance of doubt, if Company claims that it is unable to reasonably derive a BOP Benchmark from, as applicable, the IE Energy Assessment Report or any written clarification issued by an OEPR Evaluator, Company shall be deemed to have designated a BOP Benchmark of **97%**.
- (c) Submission of Monthly Report Disagreement to Independent AF Evaluator. Upon issuance of a Notice of Disagreement, the Parties shall review the contents of the Monthly Report(s) together with such Notice of Disagreement and attempt to resolve such Monthly Report Disagreement. If the Parties are able to agree on a resolution of any Monthly Report Disagreement, the resulting corrected Monthly Report(s) in question shall be set forth in a writing executed by both Parties, following which (i) such corrected Monthly Reports shall no longer be subject to dispute by either Party and (ii) to the extent such resolution of such Monthly Report Disagreement affects future

Monthly Reports, such future Monthly Reports shall be prepared, and the Modified Pooled OMC Equipment Availability Factor, the Performance Index, the BESS Annual Equivalent Factor and the BESS Annual Equivalent Forced Outage Factor in such future Monthly Reports shall be calculated, in a manner consistent with such resolution. If the Parties are unable to resolve such Monthly Report Disagreement within ten (10) Business Days after Company's issuance of such Notice of Monthly Report Disagreement, either Party may, within five (5) Business Days after the end of such 10-Business Day period, submit the unresolved Monthly Report Disagreement to an Independent AF Evaluator for resolution. Notwithstanding anything to the contrary in this Section 2(c) (Submission of Monthly Report Disagreement to Independent AF Evaluator), once the Measured Power Curve has been (i) deemed to be accepted by Company pursuant to Section 3 (Measured Power Curve Disagreement) of this Attachment T (Monthly Reporting and Dispute Resolution by Independent AF Evaluator), (ii) resolved pursuant to Section 3(b) (Submission of MPC Disagreement to Independent AF Evaluator), or (iii) resolved pursuant to Section 4(d) (Written Decision of Independent AF Evaluator) of this Attachment T (Monthly Reporting and Dispute Resolution by Independent AF Evaluator), the issue of the Measured Power Curve may not be reopened by either Party in the guise of a Monthly Report Disagreement.

- (d) Submission of BOP Benchmark Disagreement to Independent AF Evaluator. Upon issuance of a notice of BOP Benchmark Disagreement, the Parties shall review, as applicable, the IE Energy Assessment Report, the Initial OEPR and any written clarification thereof issued by the OEPR Evaluator who prepared the Initial OEPR, and any Subsequent OEPR and any written clarification thereof issued by the OEPR Evaluator who prepared the Subsequent OEPR, together with such notice of BOP Benchmark Disagreement, and attempt to resolve such BOP Benchmark Disagreement. If the Parties are able to agree on a resolution of any BOP Benchmark Disagreement, the resulting corrected BOP Benchmark shall be set forth in writing executed by both Parties, following which such corrected BOP Benchmark shall constitute the BOP Benchmark for the Contract Years in question. If the Parties are unable

to resolve such BOP Benchmark Disagreement within thirty (30) Days after Seller's issuance of such notice of BOP Benchmark Disagreement, either Party may, within five (5) Business Days after the end of such 30-Day period, submit the unresolved BOP Benchmark Disagreement to an Independent AF Evaluator for resolution. The authority of the Independent AF shall be limited to deciding the following issues:

~~(i)~~1. \_\_\_\_\_ If Company derived a BOP Benchmark from, as applicable, the IE Energy Assessment, the Initial OEPR and/or any written clarification issued by the OEPR Evaluator who prepared the Initial OEPR or a Subsequent OEPR and/or any written clarification issued by the OEPR Evaluator who prepared such Subsequent OEPR, the authority of the Independent AF Evaluator shall be limited to deciding:

(aa) Is the BOP Benchmark derived by Company reasonably supported by the document from which it was derived as aforesaid?; and

(bb) If not, what is the BOP Benchmark that is best supported by such document?

~~(ii)~~2. \_\_\_\_\_ If Company claimed that is was unable to reasonably derive a BOP Benchmark from, as applicable, the IE Energy Assessment, the Initial OEPR and/or written clarification issued by the OEPR Evaluator who prepared the Initial OEPR or a Subsequent OEPR and/or any written clarification issued by the OEPR Evaluator who prepared such Subsequent OEPR, the authority of the Independent AF Evaluator shall be limited to deciding:

(aa) Was Company correct in claiming that a BOP Benchmark cannot be reasonably derived from the document in question; and

- (bb) If Company was not correct, what is the BOP Benchmark that is best supported by such document?

For avoidance of doubt, because **97%** is the BOP Benchmark that shall apply to any Contract Year for which a BOP Benchmark cannot be reasonably be derived from the applicable document as aforesaid, the Independent PBA Evaluator shall not have the authority to resolve a BOP Benchmark Dispute by performing an independent evaluation of the Facility to estimate, among other things, BOP electrical losses, in order to arrive at an independent determination of BOP efficiency.

3. Measured Power Curve Disagreements.

- (a) Notice of Disagreement With Determination of Measured Power Curve. Within ten (10) Business Days after the first day of the second Contract Year, Seller shall provide written notice to Company of the Measured Power Curve for each WTG as provided in Section 4 (Determination of Measured Power Curve) of this Attachment Q (Calculation of Certain Metrics). Within thirty (30) Days after Company's receipt of Seller's written notice of the Measured Power Curve for each WTG, Company shall provide written notice to Seller of any disagreement with any such determination ("MPC Disagreement"). Together with any such notice of disagreement ("Notice of MPC Disagreement"), the Company shall include its own calculations and other support of its position. If Company fails to provide a Notice of MPC Disagreement within said 30-Day period, the Measured Power Curve for each WTG as calculated by the Seller pursuant to the aforesaid Section 4 (Determination of Measured Power Curve) of Attachment Q (Calculation of Certain Metrics) shall be deemed to be accepted by Company and shall no longer be subject to dispute by Company or Seller.
- (b) Submission of MPC Disagreement to Independent AF Evaluator. Upon issuance of a Notice of MPC Disagreement, the Parties shall review the Measured Power Curve(s) in question together with such Notice of MPC Disagreement and attempt to resolve such MPC Disagreement. If the Parties are able to agree on a

resolution of such MPC Disagreement, the resulting Measured Power Curve for each WTG shall be set forth in a writing executed by both Parties, following which such Measured Power Curve for such WTG shall be deemed to be the Measured Power Curve for such WTG under this Agreement and shall no longer be subject to dispute by either Party. If the Parties are unable to agree on a written resolution of such MPC Disagreement within thirty (30) Days after Company's issuance of such notice of disagreement, either Party may submit the unresolved MPC Disagreement to an Independent AF Evaluator for resolution. If, within five (5) Business Days following the expiration of said 30-Day period, neither Party has submitted such MPC Disagreement to an Independent AF Evaluator, the Measured Power Curve for each WTG as calculated by Seller pursuant to Section 4 (Determination of Measured Power Curve) of Attachment Q (Calculation of Certain Metrics) shall be deemed to be accepted by Company and shall no longer be subject to dispute by Company or Seller.

4. Independent AF Evaluator Process.

- (a) Appointment of Independent AF Evaluator. If either Party decides to submit an unresolved MPC Disagreement, unresolved Monthly Report Disagreement or an unresolved BOP Benchmark Disagreement to an Independent AF Evaluator, it shall provide written notice to that effect (the "Submission Notice") to the other Party, which notice shall designate which of the engineering firms on the OEPR Consultants List is to act as the Independent AF Evaluator for purposes of resolving such dispute; provided, however, for purposes of facilitating consistency in the resolution of Monthly Report Disagreements, all Monthly Report Disagreements concerning the same Performance Metric arising out of any one or more of the twelve (12) Monthly Reports issued for a given Contract Year shall be submitted to the same Independent AF Evaluator unless such Independent AF Evaluator declines to accept any such submission(s). A Submission Notice must be provided within the 5-Business Day period provided in Section 2(c) (Submission of Monthly Report Disagreement to Independent AF Evaluator) or Section 2(d) (Submission of BOP Benchmark Disagreement to Independent AF Evaluator) of this Attachment T

(Monthly Reporting and Dispute Resolution by Independent AF Evaluator). A Submission Notice must be provided within whichever of the following time periods is applicable:

- (i) For any MPC Disagreement, within the 5-Business Day period provided in Section 3(b) (Submission of MPC Disagreement to Independent AF Evaluator);
- (ii) for any Monthly Report Disagreement, within the 5-Business Day period provided in Section 2(c) (Submission of Monthly Report Disagreement to Independent AF Evaluator); and
- (ii)
- (iii) for any BOP Benchmark Disagreement, within the 5-Business Day period provided in Section 2(d) (Submission of BOP Benchmark Disagreement to Independent AF Evaluator).

The Parties shall each pay fifty percent (50%) of the fees and expenses charged by the Independent AF Evaluator.

- (b) Eligibility for Appointment as Independent AF Evaluator. Both Parties agree that the engineering firms listed in Section 4(j) (Acceptable Persons and Entities) of Attachment U (Calculation and Adjustment of Net Energy Potential) are fully qualified to serve as Independent AF Evaluator. By mutual agreement between the Parties in writing, a name or names may be added to or removed from the OEPR Consultants List at any time. In no event shall there be less than three (3) names on the OEPR Consultants List.
- (c) Participation of Parties. Promptly following the issuance of a Submission Notice as provided in Section 4(a) (Appointment of Independent AF Evaluator) of this Attachment T (Monthly Reporting and Dispute Resolution by Independent AF Evaluator), Seller and Company shall provide the Independent AF Evaluator which such data as they consider to be material to the resolution of the disputed issue(s). Seller and Company shall also provide such additional data and

information as the Independent AF Evaluator may reasonably request. The Parties shall assist the Independent AF Evaluator throughout the process of resolving such dispute, including making key personnel and records available to the Independent AF Evaluator, but neither Party shall be entitled to participate in any meetings with personnel of the other Party or review of the other Party's records. However, the Independent AF Evaluator will have the right to conduct meetings, hearing or oral arguments in which both Parties are represented.

- (d) Written Decision of Independent AF Evaluator. The terms of engagement with the Independent AF Evaluator shall require the Independent AF Evaluator to issue its written decision resolving the disputed issues submitted to it within the applicable time period set forth below, which time periods are subject to any tolling that may be applicable pursuant to Section 4(e) (Sequence to Resolving Interrelated Disagreements) of this Attachment T (Monthly Reporting and Dispute Resolution by Independent AF Evaluator):
- (a) 30 Days as measured from the issuance of the Submission Notice; or (b) such other time period as the Parties may agree in writing. Unless otherwise agreed by the Parties in writing:
    - (i) for a MPC Disagreement, the written decision of the Independent AF Evaluator shall set forth the Measured Power Curve for the WTG in question;
    - (ii) for a Performance Metric Disagreement concerning the Modified Pooled OMC Equipment Availability Factor, the written decision of the Independent AF Evaluator shall set forth (aa) for the calendar month in question, the correct values for equation used in calculations under Section 1 (Modified Pooled OMC Equipment Availability Factor) of Attachment Q (Calculation of Certain Metrics) of this Agreement as determined by such Independent AF Evaluator if any such values were in dispute and (bb) for the LD Period ending with the calendar month in question, the Modified Pooled OMC Equipment Availability Factor for such LD Period as determined by such Independent AF Evaluator if such Modified Pooled OMC Equipment Availability Factor was in dispute;

- (iii) for a Performance Metric Disagreement concerning the Performance Factor, the written decision of the Independent AF Evaluator shall set forth (aa) the correct values of the equation to be used in the calculation under Section 2 (Performance Index) of Attachment Q (Calculation of Certain Metrics) that include such calendar month if any such values were in dispute, (bb) if a PI Test was conducted during the month in question, the correct data points from such PI Test to be used in the calculation of PI under Section 2.6(a) (Calculation of Performance Index) of this Agreement for the PI Assessment Periods that include the month preceding the month covered by the Monthly Report in question if any such data points were in dispute, and (cc) for the PI Assessment Period ending with the calendar month in question, the Performance Index if such Performance Index was in dispute;
- (iv) for a Performance Metric Disagreement concerning the BESS Capacity Ratio or the RTE Ratio, the written decision of the Independent AF Evaluator shall set forth the BESS Capacity Ratio and/or the RTE Ratio (as applicable) for the BESS Measurement Period ending with the calendar month in question;
- (v) for a Performance Metric Disagreement concerning the BESS Annual Equivalent Availability Factor, the written decision of the Independent AF Evaluator shall set forth (aa) the correct values to be used for AH, EPDH, EUDH and PH under Attachment X (BESS Annual Equivalent Availability Factor) for the calendar month in question if any such values were in dispute and (bb) the BESS Annual Equivalent Availability Factor for the BESS Measurement Period ending with the calendar month in question if such BESS Annual Equivalent Availability Factor was in dispute; ~~and~~
- (vi) for a Performance Metric Disagreement concerning the BESS Annual Equivalent Forced Outage Factor, the written decision of the Independent AF Evaluator shall set forth (aa) the correct values for FOH and EUDH under Attachment Y (BESS Annual

Equivalent Forced Outage Factor) for the calendar month in question if any such values were in dispute and (bb) the BESS Annual Equivalent Forced Outage Factor for the BESS Measurement Period ending with the calendar month in question if such BESS Annual Equivalent Forced Outage Factor was in dispute-; and

- (vii) for a BOP Benchmark Disagreement, the written decision shall: (aa) confirm that the BOP Benchmark derived by the Company was reasonably derived and state that such percentage constitutes the BOP Benchmark; or (bb) confirm the Company's conclusion that it is unable to reasonably derive a BOP Benchmark and state that **97%** is the BOP Benchmark; or (cc) disagree with the Company's conclusion that it is unable to reasonably derive a BOP Benchmark, state the percentage that is the best-supported BOP Benchmark, and state that such percentage constitutes the BOP Benchmark.

(e) Sequence for Resolving Interrelated Disagreements.

- (i) If an MPC Disagreement is unresolved at the time a Monthly Report Disagreement is submitted to an Independent AF Evaluator pursuant to Section 4(a) (Appointment of Independent AF Evaluator) of this Attachment T (Monthly Reporting and Dispute Resolution by Independent AF Evaluator), and the resolution of such MPC Disagreement is necessary to the resolution of such Monthly Report Disagreement, the time period for an Independent AF Evaluator to issue its written decision resolving such Monthly Report Disagreement shall be tolled until the resolution of such MPC Disagreement pursuant to either Section 3(b) (Submission of MPC Disagreement to Independent AF Evaluator) or Section 4(d) (Written Decision of Independent AF Evaluator) of this Attachment T (Monthly Reporting and Dispute Resolution by Independent AF Evaluator).
- (ii) If at the time a Performance Metric Disagreement is submitted to an Independent AF Evaluator pursuant to Section 4(a) (Appointment of

Independent AF Evaluator) of this Attachment T (Monthly Reporting and Dispute Resolution by Independent AF Evaluator) there are one or more other unresolved Performance Metric Disagreements concerning the same Performance Metric and the same LD Period that are pending before a different Independent AF Evaluator, and the resolution of such other Performance Metric Disagreement(s) is necessary to the resolution of the Performance Metric Disagreement that has been newly submitted to a new Independent AF Evaluator as aforesaid, the time period for such new Independent AF Evaluator to issue its written decision resolving such newly submitted Performance Metric Disagreement shall be tolled until such pending Performance Metric Disagreement(s) have been resolved. For avoidance of doubt, it is the intent of the Parties that disagreements over performance ratio data and calculations for a given calendar month or a given BESS Measurement Period shall (i) not be subject to resolution twice and (ii) once resolved, shall not be reopened.

- (f) Final, Conclusive and Binding. The Parties acknowledge the inherent uncertainty in calculating the Performance Metrics, and hereby assume the risk of such uncertainty and waive any right to dispute the qualification of the person or entity appointed as the Independent AF Evaluator pursuant to Section 4(a) (Appointment of Independent AF Evaluator) of this Attachment T (Monthly Reporting and Dispute Resolution by Independent AF Evaluator) and/or the appropriateness of the methodology used by Independent AF Evaluator in resolving such Performance Metric Disagreements. Without limitation to the generality of the preceding sentence, the decision of the Independent AF Evaluator as to each Performance Metric Disagreement submitted to an Independent AF Evaluator shall be final, conclusive and binding upon Company and Seller and shall not be subject to further dispute under Article 28 (Dispute Resolution) of the Agreement.

6.5. Periodic Review of Method of Calculating and Reporting Performance Metric. At least once per Contract Year, Company shall review the method of calculating and

reporting Performance Metric under this Agreement to determine if other variables should be incorporated into such calculations. Any revisions to the Performance Metric calculations in this Agreement shall be mutually agreed to by both Seller and Company.

7-6. Future Changes in Reporting Requirements. Seller shall reasonably cooperate with any Company requested revisions to the Monthly Report to include additional data that may be necessary from time to time to enable Company to comply with any new reporting requirements directed by the PUC or otherwise imposed under applicable Laws.

## **ARTICLE 4**

### **COMPENSATION; PERFORMANCE METRICS**

**[DRAFTING NOTE: For any projects which intend to meet the capacity need for Oahu and which propose a GCOD after March 2022 (but, in no event later than June 1, 2022), such projects shall be required to meet the availability and performance metrics of this Article 4 immediately as of GCOD (i.e., no seasoning period), and liquidated damages would be assessable for failure to satisfy such metrics without taking into account a seasoning period. Conforming revisions to be made based on a project's proposed GCOD and whether such project intends to meet the capacity need for Oahu.]**

#### **4.1. Lump Sum Payment.**

Commencing on the Commercial Operations Date, Company shall pay to Seller a monthly Lump Sum Payment in consideration for the availability of the Facility's Energy Storage Services to respond to Company Dispatch/Charge in accordance with this Agreement. For purposes of calculating the monthly Lump Sum Payment, the monthly Lump Sum Payment shall be adjusted downward to account for the time the Facility is not available for Company Dispatch/Charge because of a Force Majeure condition (a) at the Facility or (b) that otherwise delays or prevents the Seller from making the Facility available for Company Dispatch/Charge, as more fully set forth in **Attachment J** (Adjustment to Lump Sum Payment) to this Agreement.

#### **4.2. Performance Metrics.**

In order to provide Company with reasonable assurances of the Facility's capability to make the Energy Storage Services available for Company Dispatch/Charge: (a) the Capacity Performance Metric shall be used to confirm the capability of the Facility to discharge continuously for six (6) hours at Maximum Rated Output or to discharge continuously for a total energy (MWh) equal to the Contract Capacity if the test is conducted at less than Maximum Rated Output; (b) the EAF Performance Metric shall be used to determine whether the Facility is meeting its expected availability; (c) the EFOF Performance Metric shall be used to evaluate whether the Facility is experiencing excessive unplanned outages; and (d) the RTE Performance Metric shall be used to evaluate the Facility's storage efficiency. Seller shall design, operate and maintain the Facility in a manner consistent with the standard of care reasonably expected of an experienced owner/operator with the desire and financial resources necessary to design, operate and maintain the Facility to achieve the Performance Metrics all in accordance with Good Engineering and Operating Practices. The Performance Metrics set forth in **Section 4.3** (Capacity Performance Metric) through **Section 4.5** (Equivalent Forced Outage Factor Performance Metric) of this Agreement shall be interpreted consistent with the NERC GADS Data Reporting Instructions.

#### **4.3. Capacity Performance Metric.**

(a) **Capacity Test and Liquidated Damages.** During commissioning, and for each Measurement Period following the Commercial Operations Date, the Facility

shall be required to complete a Capacity Test, as more fully set forth in **Attachment T** (Facility Tests) to this Agreement. For each Measurement Period for which the Facility fails to demonstrate that it satisfies the Capacity Performance Metric, Seller shall pay, and Company shall accept, as liquidated damages for such shortfall, the amount set forth in the following table (on a progressive basis) upon proper demand at the end the Measurement Period in question:

<b>Capacity Ratio</b>	<b>Liquidated Damage Amount</b>
<u>Tier 1</u> 95.0% - 99.9%	For each one-tenth of one percent (0.001) that the Capacity Ratio is below 100% and is above 94.9%, an amount equal to one-tenth of one percent (0.001) of the Lump Sum Payment for the Measurement Period in question; plus
<u>Tier 2</u> 85.0% - 94.9%	For each one-tenth of one percent (0.001) that the Capacity Ratio is below 95% and is above 84.9%, an amount equal to one and a half-tenths of one percent (0.0015) of the Lump Sum Payment for the Measurement Period in question; plus
<u>Tier 3</u> 75.0% - 84.9%	For each one-tenth of one percent (0.001) that the Capacity Ratio is below 85% and is above 74.9%, an amount equal to two-tenths of one percent (0.002) of the Lump Sum Payment for the Measurement Period in question; plus
<u>Tier 4</u> 60.0% - 74.9%	For each one-tenth of one percent (0.001) that the Capacity Ratio is below 75% and is above 59.9%, an amount equal to two and a half-tenths of one percent (0.0025) of the Lump Sum Payment for the Measurement Period in question; plus
<u>Tier 5</u> 50.0% - 59.9%	For each one-tenth of one percent (0.001) that the Capacity Ratio is below 60% and is above 49.9%, an amount equal to three-tenths of one percent (0.003) of the Lump Sum Payment for the Measurement Period in question; plus
<u>Tier 6</u> 49.9% and below <b>("Lowest Capacity Bandwidth")</b>	For each one-tenth of one percent (0.001) that the Capacity Ratio is below 50%, an amount equal to three and a half-tenths of one percent (0.0035) of the Lump Sum Payment for the Measurement Period in question.

For purposes of determining liquidated damages under this **Section 4.3(a)** (Capacity Test and Liquidated Damages), the starting and end points for the duration of the period that the Facility discharges shall be rounded to the nearest MWh. Each Party agrees and acknowledges that (i) the damages that Company would incur if the Seller fails to achieve the Capacity Performance Metric for a Measurement Period would be difficult or impossible to calculate with certainty and (ii) the aforesaid liquidated damages are an appropriate approximation of such damages.

EXAMPLE: The following is an example calculation of liquidated damages for the Capacity Performance Metric and is included for illustrative purposes only. Assume the following:

The Maximum Rated Output for the Facility is 25 MW.

A Capacity Test was conducted and the Facility was measured to have discharged 97.5 MWh

Contract Capacity = 25 MW x 6 hours = 150 MWh

Capacity Ratio = MWh Discharged ÷ Contract Capacity = 97.5 MWh ÷ 150 MWh = 0.65

LD = [((1 - 0.950) x 1) + ((0.950 - 0.850) x 1.5) + ((0.850 - 0.750) x 2 + ((0.750 - 0.65) x 2.5)] x Lump Sum Payment for the Measurement Period in question

= 0.65 x Lump Sum Payment for the Measurement Period in question

**(b) Capacity Test Termination Rights.** The Parties acknowledge that, although the intent of the liquidated damages payable under **Section 4.3(a)** (Capacity Test and Liquidated Damages) is to compensate Company for the damages that Company would incur if the Facility fails to demonstrate satisfaction of the Capacity Performance Metric during a Measurement Period, such liquidated damages are not intended to compensate Company for the damages that Company would incur if a pattern of underperformance establishes a reasonable expectation that the Facility is likely to continue to substantially underperform the Company's expectations. Accordingly, and without limitation to Company's rights under said **Section 4.3(a)** (Capacity Test and Liquidated Damages) for those Measurement Periods during which the Facility fails to demonstrate satisfaction of the Capacity Performance Metric, substantial underperformance shall give rise to a termination right as set forth in this **Section 4.3(b)** (Capacity Test Termination Rights). If the Facility is in the Lowest Capacity Bandwidth for any two Measurement Periods during a 12-month period, an **[18-month]** cure period (the "**Capacity Cure Period**") will commence on the Day following the close of the second such Measurement Period. For each Measurement Period during such Capacity Cure Period, Capacity Tests shall continue to be conducted as set forth in **Attachment T** (Facility Tests) to demonstrate satisfaction of the Capacity Performance Metric during such Measurement Period, and liquidated damages paid and accepted as set forth in **Section 4.3(a)** (Capacity Test and Liquidated Damages); provided, however, that if the Seller fails to demonstrate satisfaction of the Capacity Performance Metric prior to the expiration of the Capacity Cure Period, such failure shall constitute an Event of Default under **Section 6.1(c)** of this Agreement for which Company shall have the rights (including but not limited to the termination rights) set forth in **Article 6** (Events of Default; Remedies; Termination).

#### **4.4. Equivalent Availability Factor Performance Metric.**

**(a) Annual Equivalent Availability Factor and Liquidated Damages.** For each Measurement Period following the Commercial Operations Date, an Annual Equivalent Availability Factor ("**Annual EAF**") shall be calculated as set forth in

**Attachment U** (Annual Equivalent Availability Factor). If the Annual EAF for such Measurement Period is less than **97%** (the “**EAF Performance Metric**”), Seller shall pay, and Company shall accept, as liquidated damages for such shortfall, the amount set forth in the following table (on a progressive basis) upon proper demand at the end the current Measurement Period:

<b>Annual Equivalent Availability Factor</b>	<b>Liquidated Damage Amount</b>
<u>Tier 1</u> 85.0% - 96.9%	For each one-tenth of one percent (0.001) by which the Annual EAF falls below 97% but equal to or above 85%, an amount equal to one-tenth of one percent (0.001) of the Lump Sum Payment for the Measurement Period in question; plus
<u>Tier 2</u> 80.0% - 84.9%	For each one-tenth of one percent (0.001) by which the Annual EAF falls below 85% but equal to or above 80%, an amount equal to two-tenths of one percent (0.002) of the Lump Sum Payment for the Measurement Period in question; plus
<u>Tier 3</u> 75.0% - 79.9%	For each one-tenth of one percent (0.001) by which the Annual EAF falls below 80% but equal to or above 75%, an amount equal to three-tenths of one percent (0.003) of the Lump Sum Payment for the Measurement Period in question; plus
<u>Tier 4</u> Below 75.0%	For each one-tenth of one percent (0.001) by which the Annual EAF falls below 75%, an amount equal to four-tenths of one percent (0.004) of the Lump Sum Payment for the Measurement Period in question.

Such liquidated damages shall be due within thirty (30) Days after the first to occur of the end of such Measurement Period or the end of Term. In the event Seller fails to pay Company amounts of liquidated damages due under this **Section 4.4(a)** (Annual Equivalent Availability Factor and Liquidated Damages) within thirty (30) Days of receipt of Company’s written demand, Company may, without limitation to any other remedy Company may have, set-off such amounts due against payments it is otherwise obligated to make under this Agreement.

For purposes of determining liquidated damages under this **Section 4.4(a)** (Annual Equivalent Availability Factor and Liquidated Damages), the Annual EAF for the Measurement Period in question shall be rounded to the nearest one-tenth of one percent (0.001). Each Party agrees and acknowledges that (i) the damages that Company would incur if the Seller fails to achieve the EAF Performance Metric for a Measurement Period would be difficult or impossible to calculate with certainty and (ii) the aforesaid liquidated damages are an appropriate approximation of such damages.

**(b) Annual Equivalent Availability Factor Termination Rights.** The Parties acknowledge that, although the intent of the liquidated damages payable under **Section 4.4(a)** (Annual Equivalent Availability Factor and Liquidated Damages) is to compensate Company for the damages that Company would incur if the Seller fails to

achieve the EAF Performance Metric for a Measurement Period, such liquidated damages are not intended to compensate Company for the damages that Company would incur if a pattern of underperformance establishes a reasonable expectation that the Facility is likely to continue to substantially underperform the EAF Performance Metric. Accordingly, and without limitation to Company's rights under said **Section 4.4(a)** (Annual Equivalent Availability Factor and Liquidated Damages) for those Measurement Periods during which the Seller failed to achieve the EAF Performance Metric, the failure of the Seller to achieve, for each of four (4) consecutive Measurement Periods, an Annual EAF of not less than **75%** shall constitute an Event of Default under **Section 6.1(d)** of this Agreement for which Company shall have the rights (including but not limited to the termination rights) set forth in **Article 6** (Events of Default; Remedies; Termination); provided, however, that if a Measurement Period for which the aforementioned 75% threshold is not achieved falls within a Capacity Cure Period, such Measurement Period shall be excluded from the calculation of the aforementioned "four (4) consecutive Measurement Periods" if the failure to achieve the aforementioned 75% threshold was the result of unavailability caused by the process of carrying out the repairs to or replacements of the Facility and/or Storage Unit(s) necessary to remedy the failure of the Facility to achieve the Capacity Performance Metric.

**4.5. Equivalent Forced Outage Factor Performance Metric.**

**(a) Annual Equivalent Forced Outage Factor and Liquidated Damages.**

For each Measurement Period following the Commercial Operations Date, the Facility shall maintain an Annual Equivalent Forced Outage Factor ("**Annual EFOF**") of not more than 4% (the "**EFOF Performance Metric**") as calculated as set forth in **Attachment V** (Annual Equivalent Forced Outage Factor). If the EFOF for such Measurement Period exceeds the EFOF Performance Metric, Seller shall pay, and Company shall accept, as liquidated damages for exceeding the EFOF Performance Metric, the amount set forth in the following table (on a progressive basis) upon proper demand by the Company at the end of the Measurement Period in question:

<b>Annual Equivalent Forced Outage Factor</b>	<b>Liquidated Damage Amount</b>
0.0% - 4.0%	-0-
4.1% - 6.9%	For each one-tenth of one percent (0.001) that the Annual EFOF is above 4.0% but less than 7.0%, an amount equal to two-tenths of one percent (0.002) of the Lump Sum Payment for the Measurement Period in question; plus
7.0% and above	For each one-tenth of one percent (0.001) that the Annual EFOF is above 6.9%, an amount equal to four-tenths of one percent (0.004) of the Lump Sum Payment for the Measurement Period in question.

Such liquidated damages shall be due within thirty (30) Days after the first to occur of the end of such Measurement Period or the end of Term. In the event Seller fails to pay Company amounts of liquidated damages due under this **Section 4.5(a)** (Annual Equivalent Forced Outage Factor and Liquidated Damages) within thirty (30) Days of

receipt of Company's written demand, Company may set-off such amounts due against payments it is otherwise obligated to make under this Agreement.

For purposes of determining liquidated damages under this **Section 4.5(a)** (Annual Equivalent Forced Outage Factor and Liquidated Damages), the Annual EFOF for the Measurement Period in question shall be rounded to the nearest one-tenth of one percent (0.001). Each Party agrees and acknowledges that (i) the damages that Company would incur if the Seller fails to achieve the EFOF Performance Metric for a Measurement Period would be difficult or impossible to calculate with certainty and (ii) the aforesaid liquidated damages are an appropriate approximation of such damages.

For example, if the Annual EFOF was 4.1% as calculated in the example in **Attachment V** (Annual Equivalent Forced Outage Factor) attached hereto and the Lump Sum Payment for the Measurement Period in question is \$1,000,000, the liquidated damages would be \$2,000, calculated as follows:

$$\begin{aligned} 4.1\% - 4.0\% &= 0.1\% \\ \$1,000,000 \times .002 &= \$2,000 \\ \$2,000 \times 1 &= \$2,000 \end{aligned}$$

**(b) Annual Equivalent Forced Outage Factor Termination Rights.** The Parties acknowledge that, although the intent of the liquidated damages payable under **Section 4.5(a)** (Annual Equivalent Forced Outage Factor and Liquidated Damages) is to compensate Company for the damages that Company would incur if the Seller fails to achieve the EFOF Performance Metric for a Measurement Period, such liquidated damages are not intended to compensate Company for the damages that Company would incur if a pattern of underperformance establishes a reasonable expectation that the Facility is likely to continue to substantially underperform the EFOF Performance Metric. Accordingly, and without limitation to Company's rights under said **Section 4.5(a)** (Annual Equivalent Forced Outage Factor and Liquidated Damages) for those Measurement Periods during which the Seller failed to achieve the EFOF Performance Metric, the failure of the Seller to maintain, for each of four (4) consecutive Measurement Periods, an Annual EFOF of less than **7.0%** shall constitute an Event of Default under **Section 6.1(e)** of this Agreement for which Company shall have the rights (including but not limited to the termination rights) set forth in **Article 6** (Events of Default; Remedies; Termination).

#### **4.6. Round Trip Efficiency Test; Liquidated Damages; Termination Rights.**

**(a) RTE Test and Liquidated Damages.** For each Measurement Period following the Commercial Operations Date, the Facility shall be required to complete a RTE Test or otherwise demonstrate satisfaction of the RTE Performance Metric, as more fully set forth in **Attachment T** (Facility Tests) to this Agreement. For each Measurement Period for which the Facility fails to demonstrate that it satisfies the RTE Performance Metric, Seller shall pay, and Company shall accept, as liquidated damages for such shortfall, in the amount to be calculated as provided in this **Section 4.6(a)** (RTE Test and Liquidated Damages), upon proper demand at the end the Measurement Period in question.

The RTE Performance Metric is     % as measured at the Point of Interconnection.  
**[DRAFTING NOTE: PERCENTAGE TO BE TAKEN FROM RESPONSE TO RFP.]**

The liquidated damages threshold (“**LDT**”) is equal to the RTE Performance Metric minus 2 percentage points.

The Selected RTE Test is the RTE Test that came closest to satisfying the RTE Performance Metric during the BESS Measurement Period in question.

Seller shall be liable for liquidated damages if:

$$(PM - RTE R \quad * 100 > 2\%$$

Where:

PM = RTE Performance Metric stated as percentage

RTE Ratio = RTE Ratio from Selected RTE Test stated as percentage

For each percentage point by which the RTE Ratio is below the LDT, Seller shall pay, and Company shall accept, liquidated damages in an amount equal to two-tenths of one percent (0.002) of the Lump Sum Payment for the Measurement Period in question.

Each Party agrees and acknowledges that (i) the damages that Company would incur if the Seller fails to achieve the RTE Performance Metric for a Measurement Period would be difficult or impossible to calculate with certainty and (ii) the aforesaid liquidated damages are an appropriate approximation of such damages.

**(b) RTE Test Termination Rights.** The Parties acknowledge that, although the intent of the liquidated damages payable under **Section 4.6(a)** (RTE Test and Liquidated Damages) is to compensate Company for the damages that Company would incur if the Facility fails to demonstrate satisfaction of the RTE Performance Metric during a Measurement Period, such liquidated damages are not intended to compensate Company for the damages that Company would incur if a pattern of underperformance establishes a reasonable expectation that the Facility is likely to continue to substantially underperform the Company’s expectations. Accordingly, and without limitation to Company’s rights under said **Section 4.6(a)** (RTE Test and Liquidated Damages) for those Measurement Periods during which the Facility fails to demonstrate satisfaction of the RTE Performance Metric, substantial underperformance shall give rise to a termination right as set forth in this **Section 2.11(b)** (RTE Test Termination Rights). If the RTE Ratio for the Selected RTE Test for the Measurement Period in question is more than 15 percentage points below the RTE Performance Metric for any two Measurement Periods during a 12-month period, an **18-month** cure period (the “**RTE Cure Period**”) will commence on the Day following the close of the second such Measurement Period. For each Measurement Period during such RTE Cure Period, RTE Tests shall continue to be conducted as set forth in **Attachment T** (Facility Tests) and liquidated damages paid and accepted as set forth in **Section 4.6(a)** (RTE Test and Liquidated Damages); provided, however, that if Seller fails to demonstrate satisfaction of the RTE Performance Metric prior to the expiration

of the RTE Cure Period, such failure shall constitute an Event of Default under **Section 6.1(f)** of this Agreement for which Company shall have the rights (including but not limited to the termination rights) set forth in **Article 6** (Events of Default; Remedies; Termination).

#### **4.7. Fast Frequency Response Performance Metric.**

**[DRAFTING NOTE: This section only applies if Facility provides fast frequency response]**

##### **(a) Fast Frequency Response Criteria and Liquidated Damages.**

Following the Commercial Operations Date, the Facility shall respond appropriately to frequency disturbances in the Company System by operating in a manner consistent with standards and parameters established for Fast Frequency Response. With respect to such frequency disturbances in the Company System, the Facility shall be required to meet all of the following minimum frequency performance criteria (collectively, the “Fast Frequency Response Performance Metric”):

- (i) Perform per design approved by Company [DRAFTING NOTE: To be elaborated upon based on Facility design];**
- (ii) When control is activated, achieve 95% to 105% of control commanded full response at the POI within 200 msec of the initiation of the disturbance; and**
- (iii) Meet all other requirements listed in Section 3(p) (Fast Frequency Response) of Attachment B (Facility Owned by Seller).**

Company will review historical operational data to determine the Facility’s fast frequency response following disturbances and satisfaction of the Fast Frequency Response Performance Metric. To the extent the historical operational data is insufficient or otherwise lacking for purposes of determining the Facility’s satisfaction of the Fast Frequency Response Performance Metric, Company shall review Facility’s performance under structured test conditions no less than once per Contract Year.

After the first Contract Year:

(1) for each instance of the Facility failing to satisfy the Fast Frequency Response Performance Metric, Seller shall pay, and Company shall accept, as liquidated damages for such failure, an amount equal to 25% of the FFR Allocated Portion of the Lump Sum Payment upon proper demand by Company; and

(2) in the event poor Facility fast frequency response performance requires disabling the fast frequency response controls, as determined by Company in its sole discretion (e.g., in the event a Facility response to Company System frequency outside of the FFR deadband contributes to frequency error or worsens the disturbance), Seller shall pay and Company shall accept, as liquidated damages for such underperformance, an amount equal to 100% of the FFR Allocated Portion of the Lump Sum Payment upon proper demand by Company, and Seller shall not be entitled to receive further payments of the FFR Allocated Portion of the Lump Sum Payment while the Facility fast frequency response controls remain disabled to allow

Seller to perform corrective actions on the Facility to Company's reasonable satisfaction.

Such liquidated damages shall be due within thirty (30) Days of Company's written demand. In the event Seller fails to pay Company amounts of liquidated damages due under this **Section 4.7(a)** (Fast Frequency Response Criteria and Liquidated Damages) within thirty (30) Days of receipt of Company's written demand, Company may set-off such amounts due against payments it is otherwise obligated to make under this Agreement.

Company agrees that, when evaluating performance under this **Section 4.7** (Fast Frequency Response Performance Metric), the available State of Charge shall be taken into consideration and Seller shall not be held to the criteria set forth in this **Section 4.7** (Fast Frequency Response Performance Metric) if there is insufficient charged capacity available for the appropriate response.

**(b) Performance Deficiencies; Fast Frequency Response Performance Factor Termination Rights.** With respect to any Facility response under this **Section 4.7** (Fast Frequency Response Performance Metric), Company will notify Seller of any discrepancies in the Facility response, and Seller shall respond to and cure all such performance deficiencies in accordance with **Section 1(j)** (Demonstration of Facility) of **Attachment B** (Facility Owned by Seller). The Parties acknowledge that, although the intent of the liquidated damages payable under **Section 4.7(a)** (Fast Frequency Response Criteria and Liquidated Damages) is to compensate Company for the damages that Company would incur if the Facility fails to respond appropriately to Company System frequency, such liquidated damages are not intended to compensate Company for the damages that Company would incur if a pattern of underperformance establishes a reasonable expectation that the Facility is likely to continue to substantially underperform. Accordingly, and without limitation to Company's rights under said **Section 4.7(a)** (Fast Frequency Response Criteria and Liquidated Damages), in the event Seller fails to comply with the terms of **Section 1(j)** (Demonstration of Facility) of **Attachment B** (Facility Owned by Seller), such event shall constitute an Event of Default under **Section 6.2(f)** of this Agreement for which Company shall have the rights (including but not limited to the termination rights) set forth in **Article 6** (Events of Default; Remedies; Termination).

#### **4.7.4.8. Payment of Liquidated Damages for Failure to Achieve Performance Metrics; Limitation on Liquidated Damages.**

**(a) Payment of Liquidated Damages.** With respect to the liquidated damages payable under **Section 4.3(a)** (Capacity Test and Liquidated Damages), **Section 4.4(a)** (Annual Equivalent Availability Factor and Liquidated Damages), **Section 4.5(a)** (Annual Equivalent Forced Outage Factor and Liquidated Damages) and **Section 4.6(a)** (RTE Test and Liquidated Damages) and **Section 4.7(a)** (Fast Frequency Response Criteria and Liquidated Damages) **[SUBJECT TO REMOVAL PER SECTION 4.7 DRAFTING NOTE]** (collectively, the "**Performance Metrics LDs**"), Company shall have the right, at any time on or after the LD Assessment Date for the liquidated damages in question, at Company's option, to set-off such liquidated

damages from the amounts to be paid to Seller under **Section 4.1** (Lump Sum Payment) of this Agreement or, to draw such liquidated damages from the Operating Period Security, as follows:

(i) if the Facility fails to achieve the Capacity Performance Metric for a Measurement Period, Company shall have the right to set-off or draw the amount of liquidated damages owed for such failure as calculated as provided in **Section 4.3(a)** (Capacity Test and Liquidated Damages);

(ii) if the Quarterly Report for the Measurement Period in question shows a failure to achieve one or more of the Performance Metrics required for such period, and Company does not submit a Notice of Disagreement with respect to such Quarterly Report, Company shall have the right to set-off or draw the amount of liquidated damages owed for such failure as calculated as provided in **Section 4.4(a)** (Annual Equivalent Availability Factor and Liquidated Damages), **Section 4.5(a)** (Annual Equivalent Forced Outage Factor and Liquidated Damages) and **Section 4.6(a)** (RTE Test and Liquidated Damages), as applicable;

(iii) in all cases in which Company submits a Notice of Disagreement for a given Quarterly Report, Company shall have the right to set-off or draw all or any portion of the amount of liquidated damages for the Measurement Period in question, as applicable, as calculated on the basis of the shortfall(s) in the achievement of the Performance Metric(s) in question, as shown in such Notice of Disagreement; and

(iv) in the event of any disagreement as to the liquidated damages owed under clause (i) and (ii) above:

(A) if the amount set-off or drawn by the Company exceeds the amount of liquidated damages for such Measurement Period that are eventually found to be payable for the LD Period in question as determined under **Section 2** (Quarterly Report Disagreements) of **Attachment S** (Quarterly Reporting and Dispute Resolution by Independent Evaluator) to this Agreement, Company shall promptly (and in no event more than forty-five (45) Business Days from the date of such determination) repay such excess to Seller together with, unless the Parties otherwise agree in writing, interest from the date of Company's set-off or draw until the date that such excess is repaid to Seller at the average Prime Rate for such period; and

(B) if Company does not exercise its rights to set-off or draw liquidated damages for such Measurement Period, or does not set-off or draw the full amount of the liquidated damages for such period eventually found to be payable for the LD Period in question as determined under **Section 2** (Quarterly Report Disagreements) of **Attachment S** (Quarterly Reporting and Dispute Resolution by Independent Evaluator) to this Agreement, Seller shall promptly, upon such determination as aforesaid, pay to Company the amount of liquidated damages that are found to be owing together with, unless otherwise agreed by the Parties in writing, interest on the amount of such liquidated damages that went unpaid from the applicable LD Assessment Date for such liquidated damages until the date such liquidated damages are paid to Company in full at the average Prime Rate for such period, and Company shall have the right, at its option, to set-off such interest for the amounts to be paid to Seller under **Section 4.1** (Lump Sum Payment) of this

Agreement or to draw from the Operating Period Security.

Any delay by Company in exercising its rights to set-off liquidated damages and/or interest from the amounts to be paid to Seller under **Section 4.1** (Lump Sum Payment) of this Agreement, or to draw such liquidated damages and/or interest from the Operating Period Security, shall not constitute a waiver by Company of its right to do so.

**(b) Limitation on Liquidated Damages.** Notwithstanding any other provision of this Agreement to the contrary, the aggregate liquidated damages paid by Seller during each Contract Year for the Performance Metrics LDs, such payments by Seller to include but not be limited to any set-offs or draws made by Company during such Contract Year pursuant to **Section 4.78(a)** (Payment of Liquidated Damages), shall not exceed the total of the twelve (12) monthly Lump Sum Payments payable during such Contract Year pursuant to **Section 4.1** (Lump Sum Payment) and **Section 5.4** (Payment Procedures). For avoidance of doubt: A monthly Lump Sum Payment that is invoiced by Seller to Company pursuant to **Section 5.3** (Seller's Preparation of the Monthly Invoice and Quarterly Report) for, e.g., the twelfth (12<sup>th</sup>) calendar month of Contract Year N but is paid during Contract Year N+1 as provided in **Section 5.4** (Payment Procedures) shall, for purposes of determining the limitation on Performance Metrics LDs under this **Section 4.78(b)** (Limitation on Liquidated Damages), be included in the total of the twelve (12) monthly Lump Sum Payments payable during Contract Year N+1. As a result of the foregoing, the total of the monthly Lump Sum Payments used to establish the limitation on Performance Metrics LDs for the initial Contract Year under this **Section 4.78(b)** (Limitation on Liquidated Damages) will be less than twelve (12). The Parties acknowledge that, because the monthly Lump Sum Payment is subject to adjustment (including downward adjustment) as provided in **Section 4.1** (Lump Sum Payment), it is possible that a downward adjustment in some or all of the monthly Lump Sum Payments payable during a Contract Year might cause the Performance Metrics LDs paid by Seller during the course of such Contract Year to exceed the limitation on the Performance Metrics LDs for such Contract Year established at the close of such Contract Year pursuant to the first sentence of this **Section 4.78(b)** (Limitation on Liquidated Damages). In such case, Company shall promptly upon the determination that the Performance Metrics LDs paid during the course of such Contract Year exceeded the limitation on Performance Metrics LDs for such Contract Year (and in no event more than forty-five (45) Business Days from the end of such Contract Year) repay such excess amount to Seller without interest.

**[This Attachment will be revised to reflect the results of the IRS]**

**ATTACHMENT B**  
**FACILITY OWNED BY SELLER**

**1. The Facility.**

**(a) Drawings, Diagrams, Lists, Settings and As-Built.**

**(i) Single-Line Drawing, Interface Block Diagram, Relay List, Relay Settings and Trip Scheme.** A preliminary single-line drawing (including notes), Interface Block Diagram, relay list, relay settings, and trip scheme of the Facility shall, after Seller has obtained prior written consent from Company, be attached to this Agreement on the Execution Date as **Attachment E** (Single-Line Drawing and Interface Block Diagram) and **Attachment F** (Relay List and Trip Scheme). A final single-line drawing (including notes), Interface Block Diagram, relay list and trip scheme of the Facility shall, after having obtained prior written consent from Company, be labeled the “Final” Single-Line Drawing, the “Final” Interface Block Diagram and the “Final” Relay List and Trip Scheme and shall supersede **Attachment E** (Single-Line Drawing and Interface Block Diagram) and **Attachment F** (Relay List and Trip Scheme) to this Agreement and shall be made a part hereof on the Commercial Operations Date. After the Commercial Operations Date, no changes shall be made to the “Final” Single-Line Drawing, the “Final” Interface Block Diagram and the “Final” Relay List and Trip Scheme without the prior written consent of Seller and Company. The single-line drawing shall expressly identify the Point of Interconnection of Facility to Company System.

**(ii) As-Built.** Seller shall provide final as-built drawings of the Seller-Owned Interconnection Facilities within 30 Days of the successful completion of the Acceptance Test.

**(iii) No Material Changes.** Seller agrees that no material changes or additions to the Facility as reflected in the “Final” Single-Line Drawing (including notes), the “Final” Interface Block Diagram, and the “Final” Relay List and Trip Scheme shall be made without Seller first having obtained prior written consent from Company. The foregoing are subject to changes and additions as part of any Performance Standards Modifications. If Company directs any changes in or additions to the Facility, records and operating procedures that are not part of any Performance Standards Modifications, Company shall specify such changes or additions to Seller in writing, and, except in the case of an emergency, Seller shall have the opportunity to review and comment upon any such changes or additions in advance.

**(b) Certain Specifications for the Facility.**

**(i)** Seller shall furnish, install, operate and maintain the Facility, including breakers, relays, switches, synchronizing equipment, monitoring equipment and control and protective devices approved by Company as suitable for parallel operation of the Facility with Company System. The Facility shall be accessible at all times to authorized Company personnel.

(ii) The Facility shall include:

**[LIST OF THE FACILITY**

**Examples may include, but are not limited to:**

- **Seller-Owned Interconnection Facilities**
- **Substation**
- **Control and monitoring facilities**
- **Transformers**
- **Energy storage system equipment (as described in Attachment A)**
- **“Lockable” cabinets or housings suitable for the installation of the Company-Owned Interconnection Facilities located on the Site**
- **Relays and other protective devices**
- **Leased telephone line and/or equipment to facilitate microwave communication]**

(iii) The Facility shall comply with the following **[includes excerpts of language that may be requested by Company]**:

**(A)** Seller shall install a \_\_\_ kV gang operated, load breaking, lockable disconnect switch and all other items for its switching station (relaying, control power transformers, high voltage circuit breaker). Bus connection shall be made to a manually and automatically (via protective relays) operated high-voltage circuit breaker. The high-voltage circuit breaker shall be fitted with bushing style current transformers for metering and relaying. Downstream of the high-voltage circuit breaker, a structure shall be provided for metering transformers. From the high-voltage circuit breaker, another bus connection shall be made to another pole mounted disconnect switch, with surge protection.

**(B)** Seller shall provide within the Seller-Owned Interconnection Facilities a separate, fenced area with separate access for Company. Seller shall provide all conduits, structures and accessories necessary for Company to install the Revenue Metering Package. Seller shall also provide, within such area, space for Company to install its communications, SCADA equipment (remote terminal unit or equivalent) and certain relaying if necessary for the interconnection. Seller shall also provide AC and DC source lines as specified by Company. Seller shall provide a telephone line for Company-owned meters. Seller shall work with Company to determine an acceptable location and size of the fenced-in area. Seller shall provide an acceptable demarcation cabinet on its side of the fence where Seller and Company wiring will connect/interface.

**(C)** Seller shall ensure that the Seller-Owned Interconnection Facilities have a lockable cabinet for switching station relaying equipment. Seller shall select and install relaying equipment acceptable to Company. At a minimum, the relaying equipment will provide over and under frequency (81), negative phase sequence (46), under voltage (27), over voltage (59), ground over voltage (59G), over current functions (50/51) and direct transfer trip. Seller shall install protective relays

that operate a lockout relay, which in turn will trip the main circuit breaker.

**(D)** Seller shall configure the relay protection system to provide overpower protection to enable the Facility to comply with the Allowed Capacity limitation.

**(E)** Seller's equipment also shall provide at a minimum:

**(1)** Interface with Company's Telemetry and Control, or designated communications and control interface, to provide telemetry of electrical quantities such as total Facility net MW, MVar, power factor, voltages, currents, and other quantities as identified by the Company;

**(2)** Interface with Company's Telemetry and Control, or designated communications and control interface, to provide status for circuit breakers, reactive devices, switches, and other equipment as identified by the Company;

**(3)** Interface with Company's Telemetry and Control, or designated communications and control interface, to provide control to incrementally raise and lower the voltage target at the point of regulation operating in automatic voltage regulation control. If Company's Telemetry and Control, or designated communications and control interface, is unavailable, due to loss of communication link, Telemetry and Control failure, or other event resulting in loss of the remote control by Company, provision must be made for Seller to be able to institute via local controls, within thirty (30) minutes (or such other period as Company accepts in writing) of the verbal directive by the Company System Operator, such change in voltage regulation target as directed by the Company System Operator;

**(4)** Interface with Company's Telemetry and Control, or designated communications and control interface, to provide active power control to set level of net real power import or export from the Facility, to change the level of net real power import or export from the Facility, and to enable, disable, dispatch and/or schedule other aspects of the energy storage system real power and energy operations; and

**(5)** Interface with Company's Telemetry and Control, or designated communications and control interface, to provide telemetry of inverter availability and energy storage system state and status. Unless agreed otherwise by Company and Seller in writing, Seller shall provide such telemetry to Company via SCADA communication and protocol acceptable to Company at a continuous scan updated not less frequently than every 2 seconds.

**(F)** If Seller adds, deletes and/or changes any of its equipment, or changes its design in a manner that would change the characteristics of the equipment and specifications used in the IRS, Seller shall be required to obtain Company's prior written approval. If an analysis to revise parts of the IRS is required, Seller shall be responsible for the cost of revising those parts of the IRS, and modifying and paying for the cost of the modifications to the Facility and/or the Company-Owned Interconnection Facilities based on the revisions to the IRS.

**(G) Critical Infrastructure Protection.**

**(1) Documentation.** Seller shall submit documentation describing the approach, methodology and design to provide physical and cyber security with its submittal of the design drawings pursuant to **Section 1(c)** (Design Drawings, Bill of Materials, Relay Settings and Fuse Selection) of **Attachment B** (Facility Owned by Seller) which shall be at least sixty (60) Days prior to the Acceptance Test.

- The design shall meet industry standards and best practices, as indicated by NERC CIP guidelines and requirements for critical generation facilities. The system shall be designed with the criteria to meet applicable industry standards and guidelines (at the time of this writing, NERC CIP, or any future standard adopted by the industry in its place), compliance requirements and identify areas that are not consistent with NERC CIP guidelines and requirements.

- The cyber-security documentation shall include a block diagram of the control system with all external connections clearly described.

- Seller shall provide such additional information as Company may reasonably request as part of a security posture assessment.

- Company shall be notified in advance when there is any condition that would compromise physical or cyber security, or if any breaches in security, or security incidents are detected.

**(2) Malware.** Seller shall (consistent with the following sentence) ensure that no malware or similar items are coded or introduced into any aspect of the Facility, Interconnection Facilities, the Company Systems interfacing with the Facility and Interconnection Facilities, and any of Seller's critical control systems or processes used by Seller to provide energy, including the information, data and other materials delivered by or on behalf of Seller to Company, (collectively, the "**Environment**"). Seller will continue to review, analyze and implement improvements to and upgrades of its Malware prevention and correction programs and processes that are commercially reasonable and consistent with the then current technology industry's standards and, in any case, not less robust than the programs and processes implemented by Seller with respect to its own information systems. If Malware is found to have been introduced into the Environment, Seller will promptly notify Company and Seller shall take immediate action to eliminate and remediate the effects of the Malware, at Seller's expense. Seller shall not modify or otherwise take corrective action with respect to the Company Systems except at Company's request. Seller will promptly report to Company the nature and status of all Malware elimination and remediation efforts.

**(3) Security Breach.** In the event that Seller discovers or is notified of a breach, potential breach of security, or security incident at Seller's Facility or of Seller's systems, Seller shall immediately (a) notify Company of such potential, suspected or actual security breach, whether or not such breach has

compromised any of Company's confidential information, (b) investigate and promptly remediate the effects of the breach, whether or not the breach was caused by Seller, (c) cooperate with Company with respect to any such breach or unauthorized access or use; (d) comply with all applicable privacy and data protection laws governing Company's or any other individual's or entity's data; and (e) to the extent such breach was caused by Seller, provide Company with reasonable assurances satisfactory to Company that such breach, potential breach, or security incident shall not recur. Seller shall provide documentation to Company evidencing the length and impact of the breach. Any remediation of any such breach will be at Seller's sole expense.

**(4) Monitoring and Audit.** Seller shall provide information on available audit logs and reports relating to cyber and physical and security. Company may audit Seller's records to ensure Seller's compliance with the terms of this **Section 1(b)(iii)(G)** (Critical Infrastructure Protection) of this **Attachment B** (Facility Owned by Seller), provided that Company has provided reasonable notice to Seller and any such records of Seller's will be treated by Company as confidential.

**(H)** The Facility shall, a minimum, satisfy the wind load and seismic load requirements of the International Building Code and any more stringent requirements imposed under applicable Laws.

**(c) Design Drawings, Bill of Material, Relay Settings and Fuse Selection.** Seller shall provide to Company for its review the design drawings, Bill of Material, relay settings and fuse selection for the Facility, and Company shall have the right, but not the obligation, to specify the type of electrical equipment, the interconnection wiring, the type of protective relaying equipment, including, but not limited to, the control circuits connected to it and the disconnecting devices, and the settings that affect the reliability and safety of operation of Company's and Seller's interconnected system. Seller shall provide the relay settings and protection coordination study, including fuse selection and AC/DC Schematic Trip Scheme (part of design drawings), for the Facility to Company during the 60% design. Company, at its option, may, with reasonable frequency, witness Seller's operation of control, synchronizing, and protection schemes and shall have the right to periodically re-specify the settings. Seller shall utilize relay settings prescribed by Company, which may be changed over time as Company System requirements change.

**(d) Disconnect Device.** Seller shall provide a manually operated disconnect device which provides a visible break to separate Facility from Company System. Such disconnect device shall be lockable in the OPEN position and be readily accessible to Company personnel at all times.

**(e) Other Equipment.** Seller shall install, own and maintain the infrastructure associated with the Revenue Metering Package, including but not limited to all enclosures (meter cabinets, meter pedestals, meter sockets, pull boxes, and junction boxes, along with their grounding/bonding connections), CT/PT mounting structures, conduits and ductlines, enclosure support structures, ground buses, pads, test switches, terminal blocks, isolation relays, telephone surge suppressors, and analog phone lines (one per meter), subject to Company's review and approval. **[COMPANY TO REVISE THIS SECTION 1(e) PRIOR TO EXECUTION FOR**

**SPECIFICS OF THE PROJECT.]**

**(f) Maintenance Plan.** Seller shall maintain Seller-Owned Interconnection Facilities in accordance with Good Engineering and Operating Practices and the following maintenance plan:

Transmission line: \_\_\_\_\_

\_\_\_\_\_ kV Facility switching station: \_\_\_\_\_

Relay protection equipment: \_\_\_\_\_

\_\_\_\_\_

Other equipment as identified: \_\_\_\_\_

Seller shall furnish to Company a copy of records documenting such maintenance, within thirty (30) Days of completion of such maintenance work.

**(g) Active Power Control Interface.**

**(i)** Seller shall provide and maintain in good working order all equipment, computers and software associated with the control system (the “**Active Power Control Interface**”) necessary to interface the Facility active power controls with the Company System Operations Control Center for real power and energy control of the Facility by the Company System Operator. The Active Power Control Interface will be used to control the net real power and energy import and export from the Facility as required under this **Attachment B** (Facility Owned by Seller). The implementation of the Active Power Control Interface will allow Company System Operator to control the net real power and energy import and export from the entire Facility, up to Power Possible, remotely from the Company System Operations Control Center through control signals from the Company System Operations Control Center.

**(ii)** Company shall review and provide prior written approval of the design for the Active Power Control Interface to ensure compatibility with Company’s SCADA and EMS systems. In order to ensure such continued compatibility, Seller shall not materially change the approved design without Company’s prior review and prior written approval.

**(iii)** The Active Power Control Interface shall include, but not be limited to, a demarcation cabinet, ancillary equipment and software necessary for Seller to connect to Company’s Telemetry and Control, located in Company’s portion of the Facility switching station which shall provide the control signals to the Facility and send feedback status to the Company System Operations Control Center. The control type shall be analog output (set point) controls.

**(iv)** The Active Power Control Interface shall also include provision for feedback points from the Facility indicating when the Company System Operator active power controls are in effect and the analog value of the controls received from the Company. The Facility shall provide the feedback to the Company SCADA system within 2 seconds of receiving the respective control signal from the Company.

(v) Seller shall provide an analog input to the Company's Telemetry and Control for the MW input or output of the individual generating units, and an analog signal for the total MW input or output at the Point of Interconnection.

(vi) The Active Power Control Interface shall provide for remote control of the net real power and energy input and output of the Facility by the Company at all times. If the Active Power Control Interface is unavailable or disabled, the Facility shall not import or export net real power from or to Company and the Facility shall be deemed to be in Seller-Attributable Unavailability status, unless the Company, in its sole discretion, agrees to supply or accept electric energy and Seller and Company agree on an alternate means of dispatch. Notwithstanding the foregoing, if Seller fails to provide such remote control features (whether temporarily or throughout the Term) and fails to discontinue importing or exporting electric energy to Company as required by this **Section 1(g)(vi)**, then, notwithstanding any other provision of this **Attachment B** (Facility Owned by Seller), Company shall have the right to derate or disconnect the entire Facility during those periods that such control features are not provided and the Facility shall be deemed to be in Seller-Attributable Unavailability status for such periods.

- If all local and remote active power controls become unavailable or fail, the Facility shall immediately disconnect from the Company System.
- If the direct transfer trip is unavailable due to loss of communication link, Telemetry and Control failure, or other event resulting in the loss of the remote control by Company, provision must be made for Seller to shutdown the Facility and open and lockout the main circuit breaker.

(vii) The Facility will respond to the active power control requests.  
**[THESE REQUIREMENTS MAY BE CHANGED BY COMPANY FOLLOWING COMPLETION OF THE IRS]**

(viii) The Active Power Control Interface shall accept the following active power control(s) from the Company SCADA and EMS systems:

- Maximum Power Import and Export Limits: The Facility is not allowed to exceed these settings under any circumstances. The frequency response control specified in **Section 3(m)** (Frequency Response) of **Attachment B** (Facility Owned by Seller) is not allowed to increase the Facility's net real power import or export above the Import and Export limits, respectively.

- Power Reference Set Point: The Facility is to import or export active power at this level to the extent allowed by the energy storage and is not allowed to exceed this setting when system frequency is within the deadband determined in **Section 3(m)(iii)** of **Attachment B** (Facility Owned by Seller). When system frequency exceeds the deadband determined in **Section 3(m)(iii)** of **Attachment B** (Facility Owned by Seller), the Facility's net real power import or export is allowed to exceed this setting or be further reduced below this setting when commanded by the frequency response control specified in **Section 3(m)** (Frequency Response) of **Attachment B** (Facility Owned by Seller).

- Any additional remote controls necessary to enable, disable, dispatch and/or schedule the energy storage system real power and energy operations mutually agreed upon in writing by the Parties.

- Inverter Enable/Disable Control: The Facility shall include an inverter Enable/Disable control. When Disable is selected, the Facility shall ramp down, shutdown, and leave offline its inverters. When Enable is selected, the Facility inverters start up, ramp up, and remain in normal operations.

**(ix)** Seller shall not override Company's active power controls without first obtaining specific approval to do so from the Company System Operator.

**(x)** The requirements of the Active Power Control Interface may be modified as mutually agreed upon in writing by the Parties.

**(h) Control System Acceptance Test Procedures.**

**(i) Conditions Precedent.** The following conditions precedent must be satisfied prior to conducting the Control System Acceptance Test:

- Successful completion of the Acceptance Test;
- Facility has been successfully energized;
- All of the Facility's generators have been fully synchronized;
- The control system computer has been programmed for normal operations; and
- All equipment that is relied upon for normal operations (including ancillary devices such as capacitors/inductors, fire protection, HVAC systems, statcom, etc.) shall have been commissioned and be operating within normal parameters.

**(ii) Facility Energy Storage System Units and Inverters.** Unless all of the Facility's energy storage system units and inverters are available for the duration of the Control System Acceptance Test, the Control System Acceptance Test will have to be re-run from the beginning unless Seller demonstrates to the satisfaction of the Company that the test results attained with less than all of the Facility's energy storage system units and inverters are consistent with the results that would have been attained if all of the Facility's energy storage system units and inverters had been available for the duration of the test.

**(iii) Procedures.** The Control System Acceptance Test will be conducted on Business Days during normal working hours on a mutually agreed upon schedule. No Control System Acceptance Test will be scheduled during the final twenty-one (21) Days of a calendar year. No later than thirty (30) Days prior to conducting the Control System Acceptance Test, Company and Seller shall agree on a written protocol setting out the detailed procedure and criteria for passing the Control System Acceptance Test. **Attachment O** (Control System Acceptance Test Criteria)

provides general criteria to be included in the written protocol for the Control System Acceptance Test. Within fifteen (15) Business Days of completion of the Control System Acceptance Test, Company shall notify Seller in writing whether the Control System Acceptance Test(s) has been passed and, if so, the date upon which such Control System Acceptance Test(s) was passed. If any changes have been made to the technical specifications of the Facility or the design of the Facility in accordance with **Section 8(b) of Attachment A** (Description of Storage Facility), such changes shall be reflected in an amendment to this Agreement, and the written protocol for the Control Systems Acceptance Test shall be based on the Facility as modified. Such amendment shall be executed prior to conducting the Control System Acceptance Test and Company shall have no obligation for any delay in performing the Control Systems Acceptance Test due to the need to complete and execute such amendment.

**(i) Facility Security and Maintenance.** Seller is responsible for securing the Facility. Seller shall have personnel available to respond to all calls related to security incidents and shall take commercially reasonable efforts to prevent any security incidents. Seller is also responsible for maintaining the Facility, including vegetation management, to prevent security breaches. Seller shall comply with all commercially reasonable requests of Company to update security and/or maintenance if required to prevent security breaches.

**(j) Demonstration of Facility.** Company shall have the right at any time, other than during maintenance or other special conditions, including Force Majeure, communicated by Seller, to notify Seller in writing of Seller's failure, as observed by Company and set forth in such written notice, to meet the operational and performance requirements specified in Section 4.7 (Fast Frequency Response Performance Metric) of this Agreement, and Section 1(g) (Active Power Control Interface) and **Section 3** (Performance Standards) of this **Attachment B** (Facility Owned by Seller), and to require documentation or testing to verify compliance with such requirements. Upon receipt of such notice, Seller shall promptly investigate the matter, implement corrective action and provide to Company, within thirty (30) Days of such notice, a written report of both the results of such investigation and the corrective action taken by Seller; provided, that, if thirty (30) Days is not a reasonable time period to investigate the matter, implement corrective action and provide such written report, Seller shall complete the foregoing within such longer commercially reasonable period of time agreed to by the Parties in writing. If Seller's report does not resolve the issue to Company's reasonable satisfaction, the Parties shall promptly commission a study to be performed by one of the engineering firms then included on the Consultants List to evaluate the cause of the non-compliance and to make recommendations to remedy such non-compliance. Seller shall pay for the cost of the study. The study shall be completed within ninety (90) Days, unless the selected consultant determines such study cannot reasonably be completed within ninety (90) Days, in which case, such longer period of time as the selected consultant determines is necessary to complete such study shall apply. The consultant shall send the study to Company and Seller. Seller and/or its third-party consultants and contractors), at Seller's expense, shall take such action as the study shall recommend with the objective of resolving the non-compliance. Such recommendations shall be implemented by Seller to Company's reasonable satisfaction no later than forty-five (45) Days from the Day the completed study is issued by the consultant, unless provided that such recommendations cannot reasonably be implemented within forty-

five (45) Days, in which case, Seller shall implement such recommendations within such longer commercially reasonable period of time agreed to by the Parties in writing. Failure to implement such recommendations within this period shall constitute a material breach of this Agreement. Unless the aforementioned written report and study are being completed, and any recommendations are being implemented, solely to address Seller's failure to satisfy the requirements of **Section 3(w)** (Round Trip Efficiency) of this **Attachment B** (Facility Owned by Seller), the Company shall have the right to declare the Facility derated and in Seller-Attributable Unavailability status until the Seller's aforementioned written report has been completed, any subsequent study commissioned by the Parties has been completed and any recommendations to resolve the non-compliance have been implemented to Company's reasonable satisfaction.

**2. Operating Procedures. [NOTE: NUMERICAL SPECIFICATIONS IN THIS SECTION 2 MAY VARY DEPENDING ON THE SPECIFIC FACILITY AND THE RESULTS OF THE FACILITY-SPECIFIC IRS.]**

**(a) Reviews of the Facility.** Company may require periodic reviews of the Facility, maintenance records, available operating procedures and policies, and relay settings, and Seller shall implement changes Company deems necessary for parallel operation or to protect the Company System from damages resulting from the parallel operation of the Facility with the Company System.

**(b) Separation.** Seller must separate from the Company System whenever requested to do so by the Company System Operator pursuant to **Article 12** (Dispatching and Charging the Facility; Scheduling) and **Article 16** (Personnel and System Safety) of the Agreement.

**(c) Seller Logs.** Logs shall be kept by Seller for information on unit availability including reasons for planned and forced outages; circuit breaker trip operations, relay operations, including target initiation and other unusual events. Company shall have the right to review these logs, especially in analyzing system disturbances. Seller shall maintain such records for a period of not less than six (6) years.

**(d) Reclosing.** Under no circumstances shall Seller, when separated from the Company System for any reason, reclose into the Company System without first obtaining specific approval to do so from the Company System Operator.

**(e) Reserved.**

**(f) Reserved.**

**(g) Critical Infrastructure Protection.** Seller shall comply with the critical infrastructure protection requirements set forth in **Section 1(b)(iii)(G)** of this **Attachment B** (Facility Owned by Seller).

**(h) Allowed Operations.** Facility shall be allowed to import or export net real power to the Company System only when the [\_\_\_\_\_] circuit is in normal operating configuration served by breaker [\_\_\_\_\_] at [\_\_\_\_\_] Substation. **[TO BE**

**DETERMINED BY COMPANY BASED ON THE RESULTS AND REQUIREMENTS OF THE IRS.]**

**3. Performance Standards.**

**(a) Reactive Power Control.** Seller shall control its reactive power by automatic voltage regulation control. Seller shall automatically regulate voltage at a point, the point of regulation, between the Seller's generator terminal and the Point of Interconnection to be specified by Company, to within 0.5% of a voltage specified by the Company System Operator to the extent allowed by the Facility reactive power capabilities as defined in **Section 3(b)** (Reactive Amount) of this **Attachment B** (Facility Owned by Seller). **[FOR FACILITIES CONNECTED TO THE DISTRIBUTION SYSTEM, THESE REQUIREMENTS MAY BE CHANGED BY COMPANY UPON COMPLETION OF THE IRS.]**

**(b) Reactive Amount. [THESE REQUIREMENTS MAY BE CHANGED BY COMPANY UPON COMPLETION OF THE IRS.]**

**(i)** Seller shall install sufficient equipment so that each \_\_\_\_\_ kVA energy storage unit inverter online at the Facility will have the ability to deliver or receive, at its terminal, reactive power as illustrated in the **[energy storage unit]** curve(s) attached to this Agreement as **Exhibit B-2** (Energy Storage Capability Curve(s)). **[NOTE: THE IRS WILL DETERMINE IF ANY ADDITIONAL REACTIVE POWER RESOURCES WILL BE REQUIRED.]**

**(ii)** The Facility shall contain equipment able to continuously and actively control the output of reactive power under automatic voltage regulation control reacting to system voltage fluctuations. The automatic voltage regulation response speed at the point of regulation shall be such that at least 90% of the initial voltage correction needed to reach the voltage control target will be achieved within one (1) second following a step change.

**(iii)** If the Facility does not operate in accordance with **Section 3(b)(i)** of this **Attachment B** (Facility Owned by Seller), Company may disconnect all or a part of Facility from Company System until Seller corrects its operation (such as by installing capacitors at Seller's expense).

**(c) Ramp Rates.**

**(i)** The Facility in start up, normal operations including when executing a command from the Company active power controls, and shut down shall adjust its net real power import or export at a ramp rate, as calculated in accordance with **Attachment C** (Methods and Formulas for Measuring Performance Standards), to be specified by the Company without intentional delay. Such ramp rate shall be in the range of \_\_\_\_ MW/min to \_\_\_\_ MW/min.

**(ii)** The Facility is allowed to exceed the Company-specified ramp rate when Facility net real power import or export is changed by the frequency response control described in **Section 3(m)** (Frequency Response) of this **Attachment B** (Facility Owned by Seller).

**(d) Ride-Through Requirements.** In meeting the voltage and frequency ride-through requirements in **Section 3(e)** (Undervoltage Ride-Through), **Section 3(f)** (Over Voltage Ride-Through), **Section 3(i)** (Underfrequency Ride-Through), and **Section 3(j)** (Overfrequency Ride-Through) of this **Attachment B** (Facility Owned by Seller), the Facility shall not enter momentary cessation of operations within the voltage and frequency zones and time periods where the Facility must remain connected to the Company System. **[THIS PROVISION MAY BE ADJUSTED BY COMPANY UPON COMPLETION OF THE IRS IF MOMENTARY CESSATION IS NEEDED TO PREVENT EQUIPMENT DAMAGE DUE TO A POWER EQUIPMENT LIMITATION. DOCUMENTATION FROM THE EQUIPMENT MANUFACTURER OF SUCH LIMITATION SHALL BE PROVIDED TO COMPANY IN WRITING FOR THE OWNER'S RFP SUBMITTAL AND THE CONDUCT OF THE IRS.]**

**(e) Undervoltage Ride-Through.** The Facility, as a whole, will meet the following undervoltage ride-through requirements during low voltage affecting one or more of the three voltage phases ("V" is the voltage of any three voltage phases at the Point of Interconnection). **[THESE VALUES MAY BE CHANGED BY COMPANY UPON COMPLETION OF THE IRS. WITHOUT LIMITATION, FOR A DISTRIBUTION-CONNECTED FACILITY, UPON COMPLETION OF THE IRS THE COMPANY MAY SPECIFY REQUIREMENTS FOR A MANDATORY DISCONNECTION FROM THE COMPANY SYSTEM.]**:

$0.88 \text{ pu} \leq V \leq 1.00 \text{ pu}$	The Facility remains connected to the Company System.
$0.70 \text{ pu} \leq V < 0.88 \text{ pu}$	The Facility may initiate disconnection from the Company System if the voltage remains in this range for more than 20 seconds.
$0.50 \text{ pu} \leq V < 0.70 \text{ pu}$	The Facility may initiate disconnection from the Company System if the voltage remains in this range for more than 10 seconds.
$0.00 \text{ pu} \leq V < 0.50 \text{ pu}$	The Facility may disconnection from the Company System if voltage remains in this range for more than 600 milliseconds.

Seller shall have sufficient capacity to fulfill the above-mentioned requirements to ride-through the following sequences or combinations thereof **[THE ACTUAL CLEARING TIMES WILL BE DETERMINED BY COMPANY IN CONNECTION WITH THE IRS]**:

- Normally cleared 138 kV transmission faults cleared after 5 cycles with one reclose attempt, cleared in 5 cycles, 30 cycles after the initial fault was cleared. The voltage at the Point of Interconnection will recover above the 0.80 p.u. level for the 30 cycles between the initial clearing time and the reclosing time.
- Normally cleared 46 kV subtransmission faults cleared in 7 cycles with one reclose attempt, cleared in 7 cycles, 23 cycles after the initial fault was cleared. The voltage at the Point of Interconnection will recover above the 0.80 p.u.

level for the 23 cycles between the initial clearing time and the reclosing time.

**(f) Over Voltage Ride-Through.** The overvoltage protection equipment at the Facility shall be set so that the Facility will meet the following overvoltage ride-through requirements during high voltage affecting one or more of the three voltage phases (as described below) (“V” is the voltage of any of the three voltage phases at the Point of Interconnection). **[THESE VALUES MAY BE CHANGED BY THE COMPANY UPON COMPLETION OF THE IRS. WITHOUT LIMITATION, FOR A DISTRIBUTION-CONNECTED FACILITY, UPON COMPLETION OF THE IRS THE COMPANY MAY SPECIFY REQUIREMENTS FOR A MANDATORY DISCONNECTION FROM THE COMPANY SYSTEM AT  $V > 1.2$  pu. RIDE-THROUGH REQUIREMENTS FOR OTHER SYSTEMS WILL BE DETERMINED IN THE IRS.]**

$1.00 \text{ pu} < V \leq 1.10 \text{ pu}$  The Facility remains connected to the Company System.

$1.10 \text{ pu} < V \leq 1.20 \text{ pu}$  The Facility may initiate disconnection from the Company System if voltage remains in this range for more than 0.92 seconds.

$V > 1.20 \text{ pu}$  The Facility may initiate disconnection from the Company System immediately.

**(g) Reserved.**

**(h) Reserved.**

**(i) Underfrequency Ride-Through.** The Facility shall meet the following underfrequency ride-through requirements during an underfrequency disturbance (“f” is the Company System frequency at the Point of Interconnection):

$57.0 \text{ Hz} \leq f \leq 60.0 \text{ Hz}$  The Facility remains connected to the Company System.

$56.0 \text{ Hz} \leq f \leq 57.0 \text{ Hz}$  The Facility may initiate disconnection from the Company System if frequency remains in this range for more than twenty (20) seconds.

$f < 56.0 \text{ Hz}$  The Facility may initiate disconnection from the Company System immediately.

**(j) Overfrequency Ride-Through.** The Facility will behave as specified below for overfrequency conditions (“f” is the Company System frequency at the Point of Interconnection):

$60.0 \text{ Hz} \leq f \leq 63.0 \text{ Hz}$  The Facility remains connected to the Company System.

$63.0 \text{ Hz} < f < 64.0 \text{ Hz}$  The Facility shall initiate disconnection from the Company System if frequency remains in this range

for more than 20 seconds.

$f > 64.0 \text{ Hz}$

The Facility shall initiate disconnection from the Company System immediately.

**(k) Voltage Flicker.** Any voltage flicker on the Company System caused by the Facility shall not exceed the limits stated in IEEE Standard 1453-2011, or latest version “Recommended Practice – Adoption of IEC 61000-4-15:2010, Electromagnetic compatibility (EMC) – Testing and measurement techniques – Flickermeter – Functional and design specifications.”

**(l) Harmonics.** Harmonic distortion at the Point of Interconnection caused by the Facility shall not exceed the limits stated in IEEE Standard 519-1992, or latest version “Recommended Practices and Requirements for Harmonic Control in Electrical Power Systems.” Seller shall be responsible for the installation of any necessary controls or hardware to limit the voltage and current harmonics generated from the Facility to defined levels.

**(m) Frequency Response.** Seller Facility shall provide a primary frequency response with a frequency droop characteristic reacting to system frequency fluctuations at the Point of Interconnection in both the overfrequency and underfrequency directions except to the extent such response is not operationally possible because of the depletion of energy storage.

**(i)** The Facility frequency response control shall adjust, without intentional delay and without regard to the ramp rate limits in **Section 3(c)** (Ramp Rates) of this **Attachment B** (Facility Owned by Seller), the Facility’s net real power import or export when system frequency is not 60 Hz based on frequency deadband and frequency droop settings specified by the Company.

**(ii)** The Facility frequency response control shall be allowed to increase the net real power import or export above the Power Reference Set Point set under **Section 1(g)(viii)** of this **Attachment B** (Facility Owned by Seller) or further decrease the net real power import or export from the Power Reference Set Point in its operations.

**(iii)** The frequency deadband shall be settable in the range from +/- 0.01 Hz to +/- 0.10 Hz and the frequency droop shall be settable in the range of 0.1% to 10%

**(iv)** The Facility frequency response control shall be in continuous operation when the Facility is online and connected to the Company unless directed otherwise by the Company.

**(n) Grid Forming.** Seller Facility inverters shall be capable of operating in grid forming mode supporting system operation under normal and emergency conditions without relying on the characteristics of synchronous machines. This includes operation as a current independent ac voltage source during normal and transient conditions (as long as no limits are reached within the inverter), and the ability to synchronize to other voltage sources or operate autonomously if a grid

reference is unavailable.

(i) Seller shall operate the Facility in grid forming mode only as directed by the System Operator, in its sole discretion.

(ii) The Facility shall include safeguards to prevent the unintentional switching of the Facility into and out of grid forming mode. The safeguards shall be approved in writing by Company and implemented by Seller in the Facility prior to conducting the CSAT.

(o) **Round Trip Efficiency.** The round trip efficiency of the BESS as measured at the Point of Interconnection shall be not less than [ ] percent ([ ]%). [Note – The percentage for round trip efficiency shall be taken from Seller's RFP Proposal.]

**(p) Fast Frequency Response.** [DRAFTING NOTE: This section only applies if Facility provides fast frequency response.] Seller Facility shall provide a fast frequency response to rapidly inject or absorb energy in the event of a sudden and rapid system frequency disturbance.

(i) The Facility fast frequency response control shall adjust, without intentional delay and without regard to the ramp rate limits in **Section 3(c)** (Ramp Rates) of this **Attachment B** (Facility Owned by Seller), the Facility's net real power import or export based on the rate of change of frequency setting(s) and deadband specified by the Company.

(ii) The Facility fast frequency response shall be proportional to or discrete but dynamically sized to the severity of the disturbance.

(iii) The Facility output as adjusted by the Facility fast frequency response control as measured at the POI shall reach the control's full commanded response in 200 milliseconds or less from the initiation of the disturbance.

(iv) The Facility fast frequency response control shall be allowed to increase the net real power import or export above the Power Reference Set Point under **Section 1(g)(viii)** of this **Attachment B** (Facility Owned by Seller) or further decrease the net real power import or export from the Power Reference Set Point in its operations. The fast frequency response control is not allowed to control the Facility net real power import or export to exceed the Maximum Power Import and Export Limits under **Section 1(g)(viii)** of this **Attachment B** (Facility Owned by Seller).

(v) The rate of change of frequency is proportional to the per unit generation-load mismatch and inversely proportional to the system inertial time constant. The Facility shall be capable of receiving a periodically updated signal from the Company EMS to assist in scaling the Facility fast frequency response. If the EMS signal becomes unavailable, the Facility shall be capable using a local look up table as a substitute.

(vi) The Facility fast frequency response control shall be in continuous operation when the Facility is online and connected to the Company unless directed

otherwise by the Company.

(vii) The Facility fast frequency response design shall be approved in writing by the Company and implemented by the Seller in the Facility prior to conducting the CSAT.

#### **4. Maintenance of Seller-Owned Interconnection Facilities.**

(a) Seller must address any Disconnection Event (as defined below) according to the requirements of this **Section 4** (Maintenance of Seller-Owned Interconnection Facilities) of **Attachment B** (Facility Owned by Seller). For this purpose, a “**Disconnection Event**” is a disconnection from Company System of at least \_\_\_ MW [**TO BE DETERMINED BY COMPANY FOLLOWING THE IRS**] from the Facility over a “rolling 120-second period,” (i) that is not the result of Company dispatch, frequency droop response, or isolation of the Facility resulting from designed protection fault clearing, and (ii) for which Company does not issue for such disconnection the written notice for failure to meet operational and performance requirements as set forth in **Section 1(j)** (Demonstration of Facility) of this **Attachment B** (Facility Owned by Seller). A “rolling 120-second period” means a period that is comprised of 120 seconds and such rolling period will change as each new one (1) second elapses. With the elapse of each new one (1) second, the newest one (1) second would be added to the 120-second period, and the oldest one (1) second would no longer be included in the rolling 120-second period. Company’s election to exercise its rights under **Section 1(j)** (Demonstration of Facility) shall not relieve Seller of its obligation to comply with the requirements of this **Section 4** (Maintenance of Seller-Owned Interconnection Facilities) for any future Disconnection Event during the pendency of such election or thereafter.

(b) For every Disconnection Event from the Company System, Seller shall investigate the cause. Within three (3) Business Days of the Disconnection Event, Seller shall provide, in writing to Company, an incident report that summarizes the sequence of events and probable cause of the Disconnection Event.

(c) Within forty-five (45) Days of a Disconnection Event, Seller shall provide, in writing to Company, Seller’s findings, data relied upon for such findings, and proposed actions to prevent reoccurrence of a Disconnection Event (“**Proposed Actions**”). Company may assist Seller in determining the causes of and recommendations to remedy or prevent a Disconnection Event (“**Company’s Recommendations**”). Seller shall implement such Proposed Actions (as modified to incorporate the Company’s Recommendations, if any) and Company’s Recommendations (if any) in accordance with the time period agreed to by the Parties.

(d) In the event Seller and Company disagree as to (i) whether a Disconnection Event occurred, (ii) the sequence of events and/or probable cause of the Disconnection Event, (iii) the Proposed Actions, (iv) Company’s Recommendations, and/or (v) the time period to implement the Proposed Actions and/or Company’s Recommendations, then the Parties shall follow the procedure set forth in **Section 5** (Expedited Dispute Resolution) of this **Attachment B** (Facility Owned by Seller).

(e) Upon the fourth (4<sup>th</sup>) Disconnection Event (and each subsequent

Disconnection Event) within any Contract Year, the Parties shall follow the procedures set forth in **Section 4(a)** and **Section 4(d)** of **Attachment B** (Facility Owned by Seller), to the extent applicable. If after following the procedures set forth in this **Section 4** (Maintenance of Seller-Owned Interconnection Facilities) of **Attachment B** (Facility Owned by Seller), Seller and Company continue to have a disagreement as to (i) the probable cause of the Disconnection Event, (ii) the Proposed Actions, (iii) the Company's Recommendations, and/or (iv) the time period to implement the Proposed Actions and/or the Company's Recommendations, then the Parties shall commission a study to be performed by a qualified independent third-party consultant ("**Qualified Consultant**") chosen from the Qualified Independent Third-Party Consultants List ("**Consultants List**") attached to the Agreement as **Attachment D** (Consultants List). Such study shall review the design of, review the operating and maintenance procedures dealing with, recommend modifications to, and determine the type of maintenance that should be performed on Seller-Owned Interconnection Facilities ("**Study**"). Seller and Company shall each pay for one-half of the total cost of the Study. The Study shall be completed within ninety (90) Days from such fourth Disconnection Event (and each subsequent Disconnection Event) within any Contract Year, unless the Qualified Consultant determines the Study cannot reasonably be completed within ninety (90) Days, in which case, such longer period of time as the Qualified Consultant determines is necessary to complete the Study shall apply. The Qualified Consultant shall send the Study to Company and Seller. Seller (and/or its third-party consultants and contractors), at Seller's expense, shall change the design of, change the operating and maintenance procedures dealing with, implement modifications to, and/or perform the maintenance on Seller-Owned Interconnection Facilities recommended by the Study. Such design changes, operating and maintenance procedure changes, modifications, and/or maintenance shall be completed no later than forty-five (45) Days from the Day the completed Study is issued by the Qualified Consultant, unless such design changes, operating and maintenance procedure changes, modifications, and/or maintenance cannot reasonably be completed within forty-five (45) Days, in which case, Seller shall complete the foregoing within such longer commercially reasonable period of time agreed to by the Parties in writing. Company shall have the right to derate the Facility to a level that maintains reliable operations in accordance with Good Engineering and Operating Practices, and the Facility shall be deemed to be in Seller-Attributable Unavailability status, until the study has been completed and the study's recommendations have been implemented by Seller to Company's reasonable satisfaction. Nothing in this provision shall affect Company's right of Company Dispatch/Charge as provided for in this Agreement.

**(f)** The Consultants List attached hereto as **Attachment D** (Consultants List) contains the names of engineering firms which both Parties agree are fully qualified to perform the Study. At any time, except when a Study is being conducted, either Party may remove a particular consultant from the Consultants List by giving written notice of such removal to the other Party. However, neither Party may remove a name or names from the Consultants List without approval of the other Party if such removal would leave the list without any names. Intended deletions shall be effective upon receipt of notice by the other Party, provided that such deletions do not leave the Consultants List without any names. Proposed additions to the Consultants List shall automatically become effective thirty (30) Days after notice is received by the other Party unless written objection is made by such other Party within said thirty (30) Day

period. By mutual agreement between the Parties, a new name or names may be added to the Consultants List at any time.

**5. Expedited Dispute Resolution.** If there is a disagreement between Company and Seller regarding (a) whether a Disconnection Event occurred, (b) the sequence of events and/or probable cause of the Disconnection Event, (c) the Proposed Actions, (d) the Company's Recommendations, and (e) the time period to implement the Proposed Actions and/or the Company's Recommendations, then authorized representatives from Company and Seller, having full authority to settle the disagreement, shall meet in Hawai'i (or by telephone conference) and attempt in good faith to settle the disagreement. Unless otherwise agreed in writing by the Parties, the Parties shall devote no more than five (5) Business Days to settle the disagreement in good faith. In the event the Parties are unable to settle the disagreement after the expiration of the time period, then such disagreement shall constitute a Dispute for which either Party may pursue the dispute resolution procedure set forth in **Section 26.2** (Dispute Resolution Procedures) of this Agreement.

**6. Modeling.**

**(a) Seller's Obligation to Provide Models.** Within thirty (30) Days of Company's written request, but no later than the Commercial Operations Date, Seller shall provide detailed data regarding the design and location of the Facility, in a form reasonably satisfactory to Company, to allow the modeling of the inverters and any other equipment within the Facility identified in the IRS which utilizes Source Code (such as energy storage system, STATCOM or DVAR equipment), including, but not limited to, integrated and validated power flow and transient stability models (such as PSS/E models), a short circuit model (such as an ASPEN model), and an electro-magnetic transient model (such as a PSCAD model) of the inverters and any additional equipment identified in the IRS as set forth above, applied assumptions, and pertinent data sets (each a "**Required Model**" and collectively, the "**Required Models**"). Thereafter, during the Term, Seller shall provide working updates of any Required Model within thirty (30) Days of (i) Company's written request, or (ii) Seller obtaining knowledge or notice that any Required Model has been modified, updated or superseded by the Source Code Owner.

**(b) Escrow Establishment.** If, pursuant to **Section 6(a)** (Seller's Obligation to Provide Models) of this **Attachment B** (Facility Owned by Seller), the Required Models are provided to the Company in a form other than Source Code, Seller shall arrange for and ensure that the Source Code for the relevant Required Model is deposited into the Source Code Escrow as set forth below in **Section 6(b)(i)** (Source Code Escrow) of this **Attachment B** (Facility Owned by Seller) no later than the time periods set forth in **Section 6(a)** (Seller's Obligation to Provide Models) of this **Attachment B** (Facility Owned by Seller) for delivery of the Required Models. Seller shall be responsible for all costs associated with establishing and maintaining the Source Code Escrow. If, however, Seller is unable to deposit the required Source Code into the Source Code Escrow within the time periods set forth in **Section 6(a)** (Seller's Obligation to Provide Models), Seller shall, no later than such time periods, instead establish a monetary escrow as set forth below in **Section 6(b)(ii)** (Monetary Escrow) of this **Attachment B** (Facility Owned by Seller).

**(i) Source Code Escrow.**

**(A) Establishment of Source Code Escrow.** If the Required Models are not provided to the Company in the form of Source Code pursuant to **Section 6(a)** of this **Attachment B** (Facility Owned by Seller), Seller shall: (1) arrange for and ensure the deposit of a copy of the current version of the Source Code and relevant documentation for all Required Models with the Source Code Escrow Agent under the terms and conditions of the Source Code Escrow Agreement, and (2) arrange for and ensure the update of the deposited Source Code and relevant documentation for Major Releases and Minor Releases of the Required Models as soon as reasonably possible after they are made generally available.

**(B) Release Conditions.** Company shall have the right to obtain from the Source Code Escrow Agent one copy of the escrowed Source Code for the Required Models, under the following conditions upon Company's request:

**(1)** A receiver, trustee, or similar officer is appointed, pursuant to federal, state or applicable foreign law, for the Source Code Owner;

**(2)** Any voluntary or involuntary petition or proceeding is instituted, under (a) U.S. bankruptcy laws or (b) any other bankruptcy, insolvency or similar proceeding outside of the United States, by or against the Source Code Owner;

**(3)** Failure of the Source Code Owner to function as a going concern or operate in the ordinary course; or

**(4)** Seller and the Source Code Owner fail to provide to Company the Required Models or updated Required Models, or, alternatively, fail to issue a Source Code LC, within the time periods set forth in **Section 6(a)** (Seller's Obligation to Provide Models) of this **Attachment B** (Facility Owned by Seller), Company gives written notice of such failure to Seller and the Source Code Owner, and Seller and Source Code Owner fail to remedy such breach within five (5) Days following receipt of such notice.

**(C) Remedies.** If Company has the right to obtain from the Source Code Escrow Agent one copy of the escrowed Source Code for the Required Models pursuant to **Section 6(b)(i)(B)** (Release Conditions) of **Attachment B** (Facility Owned by Seller), and Company finds that Seller failed to arrange for and ensure the update the Source Code Escrow with the modified and/or updated Source Code and relevant documentation for Major Releases and Minor Releases of the Required Models as provided in **Section 6(b)(i)** (Establishment of Source Code Escrow) of **Attachment B** (Facility Owned by Seller) or that the Source Code for the Required Models is incomplete or otherwise unusable, Seller shall be liable to Company for liquidated damages in the amount of \$500 per Day for each Day Seller fails to provide such Source Code to Company or such update to the Source Code to Company from the date such Major Release or Minor Release was first made available by the Source Code Owner to customers of the Source Code Owner. Failure to provide the updated Source Code of the Required Models within 30 Days' notice from Company of a breach of **Section 6(b)(i)(A)** (Establishment of Source Code Escrow) of **Attachment B** (Facility

Owned by Seller); provided, that Seller has also failed to provide a satisfactory Source Code LC as set forth in **Section 6(b)(ii)** (Source Code Security) of this **Attachment B** (Facility Owned by Seller) shall constitute an Event of Default pursuant to **Section 6.2(f)** under the Agreement.

**(D) Certification.** The Source Code Escrow Agent shall release the Source Code of the Required Models to Company upon receipt of a signed statement by a representative of Company that reads substantially as follows:

The undersigned hereby certifies that (i) I am duly authorized to execute this document on behalf of Hawaiian Electric Company, Inc. ("**Hawaiian Electric**"), and (ii) Hawaiian Electric is entitled to a copy of the Source Code of the Required Models Pursuant to **Section 6(b)(i)(B)** (Release Conditions) of **Attachment B** (Facility Owned by Seller) of the Energy Storage Power Purchase Agreement dated as of \_\_\_\_\_, between \_\_\_\_\_, and Hawaiian Electric.

**(E) Authorized Use.** If Company becomes entitled to a release of the Source Code of the Required Models from escrow, Company may thereafter correct, modify, update and enhance the Required Models for the sole purpose of providing itself the support and maintenance it otherwise would have been entitled to if it had been provided the Required Models by Seller under **Section 6(a)** (Seller's Obligation to Provide Models) of this **Attachment B** (Facility Owned by Seller) (the "**Source Code Authorized Use**").

**(F) Confidentiality Obligations.** Company shall keep the Source Code of the Required Models confidential pursuant to the confidentiality obligations of the Source Code Escrow Agreement. Company shall restrict access to the Source Code of the Required Models to those employees, independent contractors and consultants of Company who have agreed in writing to be bound by confidentiality and use obligations consistent with those specified in the Escrow Agreement, and who have a need to access the Source Code of the Required Models on behalf of Company to carry out their duties for the Authorized Use. Promptly upon Seller's request, Company shall provide Seller with the names and contact information of all individuals who have accessed the Source Code of the Required Models, and shall take all reasonable actions required to recover any such Source Code in the event of loss or misappropriation, or to otherwise prevent their unauthorized disclosure or use.

**(ii) Source Code Security.**

**(A) Establishment of Source Code Security.** If the Required Models and their relevant Source Code are not provided to the Company in the form of Source Code pursuant to **Section 6(a)** (Seller's Obligation to Provide Models) of this **Attachment B** (Facility Owned by Seller) and if the Seller is unable to arrange for and ensure the deposit of the Source Code into the Source Code Escrow established for the benefit of the Company pursuant to **Section 6(b)(i)** (Source Code Escrow) of this **Attachment B** (Facility Owned by Seller) then, no later than the time periods set forth in **Section 6(a)** (Seller's Obligation to Provide Models) of this **Attachment B** (Facility Owned by Seller) for delivery of the Required Models and Source Code, Seller shall

provide an irrevocable standby letter of credit (the “**Source Code LC**”) with no documentation requirement in the amount of Two Hundred Fifty Thousand Dollars (\$250,000) per Required Model (and its relevant Source Code) substantially in the form attached to this Agreement as **Attachment M** (Form of Letter of Credit) from a bank chartered in the United States with a credit rating of “A-” or better from Standard & Poor’s or A3 or better from Moody’s. Such letter of credit shall be issued for a minimum term of one (1) year. Furthermore, at the end of each year the security shall be renewed for an additional one (1) year term so that at the time of such renewal, the remaining term of any such security shall not be less than one (1) year. The letter of credit shall include a provision for at least thirty (30) Days’ advance notice to Company of any expiration or earlier termination of the letter of credit so as to allow Company sufficient time to exercise its rights under said security if Seller fails to extend or replace the security. In all cases, the reasonable costs and expenses of establishing, renewing, substituting, canceling, increasing, reducing, or otherwise administering the letter of credit shall be borne by Seller.

**(B) Release Conditions.** Company shall have the right to draw on the letter of credit the funds necessary to develop and recreate the Required Model or Required Models upon Company’s request if Seller fails to provide the Company the Required Models or updated Required Models within the time periods set forth in **Section 6(a)** (Seller’s Obligation to Provide Models) or **Section 6(b)(i)(C)** (Remedies) of this **Attachment B** (Facility Owned by Seller), Company gives written notice of such failure to Seller, and Seller fails to remedy such breach within five (5) Days following receipt of such notice for a breach under **Section 6(a)** (Seller’s Obligation to Provide Models), or within thirty (30) Days following receipt of such notice for a breach under **Section 6(b)(i)(C)** (Remedies).

**(C) Extend Letter of Credit.** If the letter of credit is not renewed or extended no later than thirty (30) Days prior to its expiration or earlier termination, Company shall have the right to draw immediately upon the full amount of the letter of credit and to place the proceeds of such draw (the “**Proceeds**”), at Seller’s cost, in an escrow account in accordance with **Section 6(b)(ii)(D)** (Proceeds Escrow), until and unless Seller provides a substitute form of letter of credit meeting the requirements of this **Section 6(b)(ii)** (Source Code Security) of this **Attachment B** (Facility Owned by Seller).

**(D) Proceeds Escrow.** If Company draws on the letter of credit pursuant to **Section 6(b)(ii)(C)** (Extend Letter of Credit) of this **Attachment B** (Facility Owned by Seller), Company shall, in order to avoid comingling the Proceeds, have the right but not the obligation to place the Proceeds in an escrow account as provided in this **Section 6(b)(ii)(D)** (Proceeds Escrow) of this **Attachment B** (Facility Owned by Seller) with a reputable escrow agent acceptable to Company (“**Proceeds Escrow Agent**”), subject to an escrow agreement acceptable to Company (“**Proceeds Escrow Agreement**”). Without limitation to the generality of the foregoing, a federally-insured bank shall be deemed to be a “reputable escrow agent.” Company shall have the right to apply the Proceeds as necessary to recover amounts Company is owed pursuant to this **Section 6** (Modeling) of this **Attachment B** (Facility Owned by Seller). To that end, the Proceeds Escrow Agreement governing such escrow account shall give Company the sole authority to draw from the account. Seller shall not be a party to such Proceeds Escrow Agreement and shall have no rights to the Proceeds. Upon full

satisfaction of Seller's obligations under **Section 6** (Modeling) of this **Attachment B** (Facility Owned by Seller), Company shall instruct the Proceeds Escrow Agent to remit to the bank that issued the letter of credit that was the source of the Proceeds the remaining balance (if any) of the Proceeds. If there is more than one escrow account with Proceeds, Company may, in its sole discretion, draw on such accounts in any sequence Company may select. Any failure to draw upon the Proceeds for any damages or other amounts due Company shall not prejudice Company's rights to recover such damages or amounts in any other manner.

**(E) Seller's Obligation.** If the letter of credit is not sufficient to cover Company's associated consultant fees, costs and expenses to develop and recreate the Required Models, Seller shall pay to Company the difference within ten (10) Days of Company's written notice to Seller.

**(F) Model Verification.** Seller shall work with the Company to validate the new Required Models developed by or on behalf of Company within sixty (60) Days of receiving such new Required Models. Seller shall also arrange for and ensure that Company may obtain new Required Models directly from the Source Code Owner in the event that Seller ceases to operate as a going concern or is subject to voluntary or involuntary bankruptcy and is unable or unwilling to obtain the new Required Models from the Source Code Owner.

**(G) Certification.** The terms of the letter of credit shall provide for a release of the funds, or in the event the funds have been placed into a Proceeds Escrow, the Proceeds Escrow Agent shall release the necessary funds to Company upon receipt of a signed statement by a representative of Company that reads substantially as follows:

The undersigned hereby certifies that (i) I am duly authorized to execute this document on behalf of Hawaiian Electric Company, Inc. ("**Hawaiian Electric**"), and (ii) Hawaiian Electric is entitled to \$\_\_\_\_\_, pursuant to **Section 6(b)(ii)(B)** (Release Conditions) of **Attachment B** (Facility Owned by Seller) of the Energy Storage Power Purchase Agreement dated as of \_\_\_\_\_, between \_\_\_\_\_, and Hawaiian Electric.

**(H) Authorized Use.** If Company becomes entitled to a draw of funds from the Source Code Security or a release of funds from the Proceeds Escrow, Company may thereafter use such funds to develop, recreate, correct, modify, update and enhance the Required Models for the sole purpose of providing itself the support and maintenance it otherwise would have been entitled to if it had been provided the Required Models by Seller under **Section 6(a)** (Seller's Obligation to Provide Models) of this **Attachment B** (Facility Owned by Seller) (the "**Proceeds Authorized Use**").

**(iii) Supplementary Agreement.** The parties stipulate and agree that the escrow provisions in this **Section 6(b)** (Escrow Establishment) of **Attachment B** (Facility Owned by Seller), and the Source Code Escrow Agreement and Proceeds Escrow Agreement are "supplementary agreements" as contemplated in 11 U.S.C. § 365(n)(1)(B). In any voluntary or involuntary bankruptcy proceeding involving Seller,

failure by Company to assert its rights to “retain its rights” to the intellectual property encompassed by the Source Code or the funds in the Proceeds Escrow, pursuant to 11 U.S.C. § 365(n)(1)(B), under an executory contract rejected in a bankruptcy proceeding, shall not be construed as an election to terminate the contract by Company under 11 U.S.C. § 365(n)(1)(A).

**7. Testing Requirements.**

**(a) Testing Requirements.** Once the Control System Acceptance Test has been successfully passed, Seller shall not replace and/or change the configuration of the Facility Control, inverter control settings, energy storage system controls and/or ancillary device controls, without prior written notice to Company. In the event of any such replacement and/or change, if after review, it is determined by the Company to have potential impact on the prior testing, the relevant test(s) of the Control System Acceptance Test shall be redone and must be successfully passed before the replacement or altered equipment is allowed to be placed in normal operations. In the event that Company reasonably determines that such replacement and/or change of controls makes it inadvisable for the Facility to continue in normal operations without a further Control Systems Acceptance Test, the Facility shall be deemed to be in Seller-Attributable Unavailability status until the new relevant tests of the Control System Acceptance Test have been successfully passed.

**(b) Periodic Testing.** Seller shall coordinate periodic testing of the Facility with Company to ensure that the Facility is meeting the performance standards specified under this Agreement.

**8. Reserved.**

**9. Technology Specific Requirements.**

**(a) Reserved.**

**(b) Reserved.**

**(c) Inverter Systems.**

**(i)** Direct current generators and non-power (i.e. other than 60 Hertz) alternating current generators can only be installed in parallel with the Company System using a non-islanding synchronous inverter. The design shall comply with the requirements of IEEE Std 1547-2003 (or latest version), except as described in **Section 3** (Performance Standards) of this **Attachment B** (Facility Owned by Seller), unless alternate designs are approved by Company.

**(ii)** Self-commutated inverters of the Company-interactive type shall synchronize to the Company System. Line-commutated, thyristor-based inverters are not recommended and will require additional technical study to determine harmonic and reactive power requirements. All interconnected inverter systems shall comply with the harmonic current limits of IEEE Std 519-1992 (or latest version).

**(d) Battery Energy Storage System.** The operating parameters of the

Facility shall be as follows:

(i) No more than [\_\_\_]% of the BESS energy capacity can be charged from the grid prior to the fifth anniversary of the Commercial Operations Date. Thereafter, 100% of the BESS energy capacity can be charged from the grid.

**[DRAFTING NOTE: 5-YEAR LIMITATION ON GRID CHARGING WILL BE DELETED IF INVESTMENT TAX CREDIT RECAPTURE IS NOT APPLICABLE TO THE BESS]**

(ii) For Contract Years that are non-leap years, the Facility shall be discharged no more than the Contract Capacity multiplied by 365 Days in each such Contract Year. For Contract Years that are leap years, the Facility shall be discharged no more than the Contract Capacity multiplied by 366 Days in each such Contract Year.

(iii) The Facility will not be required to discharge more energy than available relative to the available State of Charge.

**EXHIBIT B-1**  
**REQUIRED MODELS**

PSS/E

ASPEN

PSCAD

**EXHIBIT B-2**  
**ENERGY STORAGE CAPABILITY CURVE(S)**

## **ATTACHMENT O**

### **CONTROL SYSTEM ACCEPTANCE TEST CRITERIA**

**[This Attachment to be modified based on the type/design of the Facility and the results of the IRS]**

Final test criteria and procedures shall be agreed upon by Company and Seller no later than thirty (30) Days prior to conducting the Control System Acceptance Test in accordance with Good Engineering and Operating Practices and with the terms of this Agreement. The Control System Telemetry and Control List is necessary for the effective operation of the Company System and will be tested during the Control System Acceptance Test.

The Control System Acceptance Test is comprised of two parts, a set of onsite (at Facility) specific tests and a monitoring performance test. These tests may include the following:

On-site Tests (Between Facility and Company Dispatch Center):

1. SCADA Test to verify the status and analog telemetry, and if the remote controls between the Company's EMS and the Facility are working properly end-to-end.
- ~~2. Meter Test to verify the status and analog telemetry between Company's revenue meter data acquisition system and the Facility's revenue meters are working properly end-to-end.~~
- 3.2. Dispatch Test to verify if the Facility's active power controls and the Active Power Control Interface with the Company's EMS are working properly. This test is generally conducted by setting different active power setpoints and limits and observing the proper dispatch of the appropriate ramp rate of the Facility's real power output.
- 4.3. Control Test for Voltage Regulation to verify the Facility can properly perform automatic voltage regulation as defined in this Agreement. This test is generally conducted by making small adjustments of the voltage setpoint and verifying by observation that the Facility regulates the voltage at the point of regulation to the setpoint by delivering/receiving reactive power to/from the Company System to maintain the applicable setpoint according to the reactive power control and the reactive amount requirements of **Section 3** (Performance Standards) of **Attachment B** (Facility Owned by Seller) to this Agreement.
- 5.4. Frequency Regulation Control Test to verify the Facility provides a frequency droop response as defined in this Agreement. This test is generally conducted by making adjustments of the frequency reference setting and verifying by observation that the Facility responds per droop and deadband settings.
- 6.5. Test other controls defined in this Agreement or mutually agreed upon in writing by the Parties to enable, disable, dispatch and/or schedule the energy storage system real power and energy operations.

6. Fast Frequency Response Control Test to verify the Facility provides the fast frequency response required in this Agreement. Test is generally conducted by simulating rate of change of frequency and/or frequency inputs and verifying by observation that the Facility responds per design and settings. **[DRAFTING NOTE: This test only applies if Facility provides fast frequency response.]**
7. Loss-of-Communication Test to verify the Facility will properly shutdown upon the failure of the direct-transfer-trip communication system. This test is generally conducted by simulating a communications failure and observing the proper shutdown of the Facility.
8. Round Trip Efficiency Test, as described in **Attachment T** (Facility Tests) to verify that the round trip efficiency of the BESS is not less than [\_\_\_\_\_] percent ([\_\_]%). [Note – The round trip efficiency percentage will be taken from Seller’s RFP Proposal.]
9. Capacity Test to verify the Capacity Ratio.

Monitoring Test:

- (a) The monitoring test requires the Facility to operate as it would in normal operations.
- (b) To ensure useful and valid test data is collected, the monitoring test shall end seven (7) continuous Days from the start of the Monitoring Test.
- (c) The performance of the Facility during the period of a successfully completed monitoring test is evaluated for, e.g., voltage regulation, frequency response, dispatch control, operating limits and ramp rate performance, to verify the performance meets the requirements of this Agreement.

**ATTACHMENT S**  
**QUARTERLY REPORTING AND DISPUTE RESOLUTION BY**  
**INDEPENDENT EVALUATOR**

**1. Quarterly Report.** Commencing with the month during which the Commercial Operations Date is achieved, and for each Measurement Period thereafter during the Term, Seller shall provide to Company a Quarterly Report in Excel, Lotus or such other format as Company may require, which Quarterly Report shall include (a) the data for the Measurement Period in question populated into the form of “Quarterly Report” below; and (b) Seller’s calculations of the Performance Metrics, other than the Fast Frequency Response Performance Metric, and any liquidated damages assessments for the LD Period ending with such Measurement Period as set forth below. Seller shall deliver such Quarterly Report to Company by the fifth (5<sup>th</sup>) Business Day following the close of the Measurement Period in question. Seller shall deliver the Quarterly Report electronically to the address provided by the Company. Company shall have the right to verify all data set forth in the Quarterly Report by inspecting measurement instruments and reviewing Facility operating records. Upon Company's request, Seller shall promptly provide to Company any additional data and supporting documentation necessary for Company to audit and verify any matters in the Quarterly Report.

**QUARTERLY REPORT**

NAME OF IPP FACILITY: [Facility Name]

QUARTERLY REPORT PERIOD: [Month Day, Year] to [Month Day, Year]

Enter the applicable information from which the IPP is using to demonstrate satisfaction of the Capacity Performance Metric during the reporting period. This can either be from a Capacity Test performed during the period or taken from operational data reflecting the net output of the BESS.

Date/Time Start	Date/Time End	Total MWh delivered to the POI (A)	BESS Contract Capacity (MWh) (B)	BESS Capacity Ratio 100% x (A ÷ B)

Enter the applicable information from which the IPP is using to demonstrate satisfaction of the RTE Performance Metric during the reporting period. This can either be from a RTE Test performed during the period or taken from operational data reflecting the net output of the BESS.

Date/Time Start	Date/Time End	Total MWh delivered to the POI during Capacity Test (A)	Charging Energy measured at POI (MWh) (B)	RTE Ratio 100% x (A ÷ B)

Enter the information for each ExcludedTime event during the reporting period. Dates and times should be entered to the nearest minute. Duration, size of reduction, maximum rated output, and equivalent hours should be rounded to 1 decimal place.

Date/Time Start (A)	Date/Time End (B)	Duration (hrs) (C) = (B - A)	Size of Reduction (MW) (D)	Maximum Rated Output (MW) (E)	Equivalent Hours (hrs) (C x D) ÷ E
...					

Calendar hours in the reporting period: \_\_\_\_\_

Total equivalent ExcludedTime for the reporting period (from above): \_\_\_\_\_

Period Hours (PH) in the reporting period: \_\_\_\_\_

PH from the last three (3) reporting periods: \_\_\_\_\_

PH for the last four (4) reporting periods: \_\_\_\_\_

Enter the information for each Outage during the reporting period. Dates and times should be entered to the nearest minute. Duration should be rounded to 1 decimal place.

Date/Time Start (A)	Date/Time End (B)	Duration (hrs) (B - A)
...		

Calendar hours in the reporting period: \_\_\_\_\_

Total Outage hours for the reporting period (from above): \_\_\_\_\_

Available Hours (AH) in the reporting period: \_\_\_\_\_

AH from the last three (3) reporting periods: \_\_\_\_\_

AH for the last four (4) reporting periods: \_\_\_\_\_

Enter the information for each Planned Deration event during the reporting period. Dates and times should be entered to the nearest minute. Duration, size of reduction, maximum rated output, and equivalent hours should be rounded to 1 decimal place.

Date/Time Start (A)	Date/Time End (B)	Duration (hrs) (C) = (B - A)	Size of Reduction (MW) (D)	Maximum Rated Output (MW) (E)	Equivalent Hours (hrs) (C x D) ÷ E
...					

Total equivalent planned derated hours (EPDH) for the reporting period: \_\_\_\_\_

EPDH from the last three (3) reporting periods: \_\_\_\_\_

EPDH for the last four (4) reporting periods: \_\_\_\_\_

Enter the information for each Unplanned Deration event during the reporting period. Dates and times should be entered to the nearest minute. Duration, size of reduction, maximum rated output, and equivalent hours should be rounded to 1 decimal place.

Date/Time Start (A)	Date/Time End (B)	Duration (hrs) (C) = (B - A)	Size of Reduction (MW) (D)	Maximum Rated Output (MW) (E)	Equivalent Hours (hrs) (C x D) ÷ E
...					

Total equivalent unplanned derated hours (EUDH) for the reporting period: \_\_\_\_\_

EUDH from the last three (3) reporting periods: \_\_\_\_\_

EUDH for the last four (4) reporting periods: \_\_\_\_\_

Enter the Available Hours, EPDH, EUDH, and Period Hours for the last four (4) reporting periods as calculated above.

AH (A)	EPDH (B)	EUDH (C)	PH (D)	BESS Annual Equivalent Availability Factor 100% x (A - B - C) ÷ D

Enter the information for each Forced Outage during the reporting period. Dates and times should be entered to the nearest minute. Duration should be rounded to 1 decimal place.

Date/Time Start (A)	Date/Time End (B)	Duration (hrs) (B - A)
...		

Total Forced Outage Hours (FOH) for the reporting period (from above): \_\_\_\_\_

FOH from the last three (3) reporting periods: \_\_\_\_\_

FOH for the last four (4) reporting periods: \_\_\_\_\_

Enter the FOH and EUDH for the last four (4) reporting periods as calculated above.

FOH (A)	EUDH (B)	BESS Annual Equivalent Forced Outage Factor

		100% x (A + B) ÷ 8760

**2. Quarterly Report Disagreements.**

**(a) Notice of Disagreement With Quarterly Report.** Within ten (10) Business Days following the close of the Measurement Period in question, Seller shall provide to Company the Quarterly Report for the LD Period and the Measurement Period in question, as provided in **Section 1** (Quarterly Report) of this **Attachment S** (Quarterly Reporting and Dispute Resolution by Independent Evaluator). Within ten (10) Business Days after Company’s receipt of a Quarterly Report, Company shall provide written notice to Seller of any Quarterly Report Disagreement, including with respect to the data for the Measurement Period covered by such Quarterly Report and Seller’s calculation of, as applicable, any of the Capacity Ratio, the RTE Ratio, the Annual EAF or the Annual EFOF for the Measurement Period in question (“**Notice of Disagreement**”). Together with any such Notice of Disagreement, the Company shall include its own calculations and other support for its position. If Company fails to provide a Notice of Disagreement within said 10-Business Day period, the Quarterly Report provided by Seller shall be deemed to be accepted by Company and shall no longer be subject to dispute by Company or Seller.

**(b) Submission of Quarterly Report Disagreement to Independent Evaluator.** Upon issuance of a Notice of Disagreement, the Parties shall review the contents of the Quarterly Report(s) together with such Notice of Disagreement and attempt to resolve such Quarterly Report Disagreement. If the Parties are able to agree on a resolution of any Quarterly Report Disagreement, the resulting corrected Quarterly Report(s) in question shall be set forth in a writing executed by both Parties, following which (i) such corrected Quarterly Reports shall no longer be subject to dispute by either Party and (ii) to the extent such resolution of such Quarterly Report Disagreement affects future Quarterly Reports, such future Quarterly Reports shall be prepared, and the Annual EAF and the Annual EFOF in such future Quarterly Reports shall be calculated, in a manner consistent with such resolution. If the Parties are unable to resolve such Quarterly Report Disagreement within ten (10) Business Days after Company's issuance of such Notice of Quarterly Report Disagreement, either Party may, within five (5) Business Days after the end of such 10-Business Day period, submit the unresolved Quarterly Report Disagreement to an Independent Evaluator for resolution.

**(c) Appointment of Independent Evaluator.** If either Party decides to submit an unresolved Quarterly Report Disagreement to an Independent Evaluator, it shall provide written notice to that effect (the “**Submission Notice**”) to the other Party, which notice shall designate which of the engineering firms on the Consultants List is to act as the Independent Evaluator for purposes of resolving such dispute; provided, however, for purposes of facilitating consistency in the resolution of Quarterly Report Disagreements, all Quarterly Report Disagreements concerning the same Performance Metric arising out of any one or more of the twelve (12) Quarterly Reports issued for a given Contract Year shall be submitted to the same Independent Evaluator unless such Independent Evaluator declines to accept any such submission(s). A Submission Notice must be provided within the 5-Business Day period provided in **Section 2(b)**

(Submission of Quarterly Report Disagreement to Independent Evaluator) of this **Attachment S** (Quarterly Reporting and Dispute Resolution by Independent Evaluator). The Parties shall each pay fifty percent (50%) of the fees and expenses charged by the Independent Evaluator.

**(d) Eligibility for Appointment as Independent Evaluator.** Both Parties agree that the engineering firms listed in **Attachment D** (Consultants List) are fully qualified to serve as Independent Evaluator. By mutual agreement between the Parties in writing, a name or names may be added to or removed from the OEPR Consultants List at any time. In no event shall there be less than three (3) names on the Consultants List.

**(e) Participation of Parties.** Promptly following the issuance of a Submission Notice as provided in **Section 2(c)** (Appointment of Independent Evaluator) of this **Attachment S** (Quarterly Reporting and Dispute Resolution by Independent Evaluator), Seller and Company shall provide the Independent Evaluator which such data as they consider to be material to the resolution of the disputed issue(s). Seller and Company shall also provide such additional data and information as the Independent Evaluator may reasonably request. The Parties shall assist the Independent Evaluator throughout the process of resolving such dispute, including making key personnel and records available to the Independent Evaluator, but neither Party shall be entitled to participate in any meetings with personnel of the other Party or review of the other Party's records. However, the Independent Evaluator will have the right to conduct meetings, hearing or oral arguments in which both Parties are represented.

**(f) Written Decision of Independent Evaluator.** The terms of engagement with the Independent Evaluator shall require the Independent Evaluator to issue its written decision resolving the disputed issues submitted to it within the applicable time period set forth below, which time periods are subject to any tolling that may be applicable pursuant to **Section 2(g)** (Sequence to Resolving Interrelated Disagreements) of this **Attachment S** (Quarterly Reporting and Dispute Resolution by Independent Evaluator): (a) 30 Days as measured from the issuance of the Submission Notice; or (b) such other time period as the Parties may agree in writing. Unless otherwise agreed by the Parties in writing:

**(i)** for a Performance Metric Disagreement concerning the Capacity Ratio or the RTE Ratio, the written decision of the Independent Evaluator shall set forth the Capacity Ratio and/or RTE Ratio (as applicable) for the Measurement Period in question, as applicable;

**(ii)** for a Performance Metric Disagreement concerning the Annual EAF, the written decision of the Independent Evaluator shall set forth (aa) the correct values to be used for AH, EPDH, EUDH and PH under **Attachment U** (Annual Equivalent Availability Factor) for the Measurement Period in question if any such values were in dispute and (bb) the Annual EAF for the Measurement Period in question if such Annual EAF was in dispute; and

**(iii)** for a Performance Metric Disagreement concerning the Annual EFOF, the written decision of the Independent Evaluator shall set forth (aa) the correct

values for FOH and EUDH under **Attachment V** (Annual Equivalent Forced Outage Factor) for the Measurement Period in question if any such values were in dispute and (bb) the Annual EFOF for the Measurement Period in question if such Annual EFOF was in dispute.

**(g) Sequence for Resolving Interrelated Disagreements.** If at the time a Performance Metric Disagreement is submitted to an Independent Evaluator pursuant to **Section 2(c)** (Appointment of Independent Evaluator) of this **Attachment S** (Quarterly Reporting and Dispute Resolution by Independent Evaluator) there are one or more other unresolved Performance Metric Disagreements concerning the same Performance Metric and the same LD Period that are pending before a different Independent Evaluator, and the resolution of such other Performance Metric Disagreement(s) is necessary to the resolution of the Performance Metric Disagreement that has been newly submitted to a new Independent Evaluator as aforesaid, the time period for such new Independent Evaluator to issue its written decision resolving such newly submitted Performance Metric Disagreement shall be tolled until such pending Performance Metric Disagreement(s) have been resolved. For avoidance of doubt, it is the intent of the Parties that disagreements over performance ratio data and calculations for a given Measurement Period shall (i) not be subject to resolution twice and (ii) once resolved, shall not be reopened.

**(h) Final, Conclusive and Binding.** The Parties acknowledge the inherent uncertainty in calculating the Performance Metrics, and hereby assume the risk of such uncertainty and waive any right to dispute the qualification of the person or entity appointed as the Independent Evaluator pursuant to **Section 2(c)** (Appointment of Independent Evaluator) of this **Attachment S** (Quarterly Reporting and Dispute Resolution by Independent Evaluator) and/or the appropriateness of the methodology used by Independent Evaluator in resolving such Performance Metric Disagreements. Without limitation to the generality of the preceding sentence, the decision of the Independent Evaluator as to each Performance Metric Disagreement submitted to an Independent Evaluator shall be final, conclusive and binding upon Company and Seller and shall not be subject to further dispute under **Article 26** (Dispute Resolution) of the Agreement.

**3. Periodic Review of Method of Calculating and Reporting Performance Metric.** At least once per Contract Year, Company shall review the method of calculating and reporting Performance Metrics under this Agreement to determine if other variables should be incorporated into such calculations. Any revisions to the Performance Metric calculations in this Agreement shall be mutually agreed to by both Seller and Company.

**4. Future Changes in Reporting Requirements.** Seller shall reasonably cooperate with any Company requested revisions to the Quarterly Report to include additional data that may be necessary from time to time to enable Company to comply with any new reporting requirements directed by the PUC or otherwise imposed under applicable Laws.

ARTICLE 2  
PURCHASE AND SALE OF ENERGY AND DISPATCHABILITY;  
RATE FOR PURCHASE AND SALE; BILLING AND PAYMENT

- 2.1 Purchase and Sale of Electric Energy, Dispatchability of Facility and Availability of the BESS. Subject to the other provisions of this Agreement, Company shall, by a Lump Sum Payment, pay for: (i) the Actual Output produced by the Facility and delivered to the Point of Interconnection in response to Company Dispatch of the Facility; (ii) the availability of the Facility's Net Energy Potential for Company Dispatch in accordance with this Agreement; and (iii) the availability of the BESS. Included in such purchase and sale are all of the Environmental Credits associated with the electric energy. Company will not reimburse Seller for any taxes or fees imposed on Seller including, but not limited to, State of Hawai'i general excise tax. **[Drafting Note: For PPA with energy payment, use the following in lieu of the above:** Subject to the other provisions of this Agreement: (i) Company shall, by an Energy Payment, pay for the Actual Output produced by the Facility and delivered to the Point of Interconnection in response to Company Dispatch of the Facility; and (ii) Company shall, by a Lump Sum Payment, pay for the availability of the Facility's Net Energy Potential and the availability of the BESS to respond to Company Dispatch in accordance with this Agreement. Included in such purchase and sale of electric energy and such purchase and sale of dispatchability are all of the Environmental Credits associated with the electric energy. Company will not reimburse Seller for any taxes or fees imposed on Seller including, but not limited to, State of Hawai'i general excise tax.]
- 2.2 **[Drafting Note: If there is no Energy Payment, replace this paragraph with [RESERVED]]** Payment for Electric Energy. Commencing on the Commercial Operations Date, in exchange for the electric energy delivered to the Point of Interconnection in response to Company Dispatch, Seller will be paid an Energy Payment on a monthly basis as provided in Section 1 (Price for Purchase of Electric Energy) of Attachment J (Company Payments for Energy, Dispatchability and Availability of BESS) to this Agreement.
- 2.3 Lump Sum Payment. Commencing on the Commercial Operations Date, Company shall pay to Seller a monthly Lump Sum Payment

as provided in Section 2 (Lump Sum Payment for Purchase of Dispatchability) of Attachment J (Company Payments for Energy, Dispatchability and Availability of BESS) to this Agreement. As more fully set forth in Section 3 (Calculation of Lump Sum Payment) of said Attachment J (Company Payments for Energy, Dispatchability and Availability of BESS), the monthly Lump Sum Payment shall be calculated and adjusted to reflect changes in the estimate of the Facility's Net Energy Potential as such estimate is revised from time to time as more fully set forth in Attachment U (Calculation and Adjustment of Net Energy Potential) to this Agreement. For purposes of calculating the monthly Lump Sum Payment, the monthly Lump Sum Payment shall be adjusted downward to account for the time the Facility inverter(s) are not available for Company Dispatch because of a Force Majeure condition (i) at the Facility or (ii) that otherwise delays or prevents the Seller from making the Facility inverter(s) in question available for Company Dispatch, as more fully set forth in Section 3.iv of Attachment J (Company Payments for Energy, Dispatchability and Availability of BESS) to this Agreement.

2.4 Assurance of Capability of Facility to Deliver Net Energy Potential and Availability of BESS.

- (a) Design, Operation and Maintenance to Achieve Required Performance Metrics; Charging of BESS. In order to provide Company with reasonable assurance that, subject to the Renewable Resource Variability, the Facility's Net Energy Potential will be available for Company Dispatch: (i) the PV System Equivalent Availability Factor Performance Metric shall be used to evaluate the availability of the PV System for dispatch by Company; (ii) the Guaranteed Performance Ratio ("GPR") Performance Metric shall be used to evaluate the efficiency of the PV System; (iii) the BESS Capacity Performance Metric shall be used to confirm the capability of the BESS to discharge continuously for four (4) hours at Maximum Rated Output or to discharge continuously for a total energy (MWh) equal to the BESS Contract Capacity if the test is conducted at less than Maximum Rated Output; (iv) the BESS EAF Performance Metric shall be used to determine whether the BESS is meeting its expected availability; and (v) the BESS EFOF Performance Metric shall be used to evaluate whether the

BESS is experiencing excessive unplanned outages. Whenever the PV System potential output is in excess of the Company Dispatch, the excess energy from the PV System shall be used to maximize the BESS State of Charge so long as this does not conflict with the operating parameters of the BESS set forth in Section 9(d) (Battery Energy Storage System) of Attachment B (Facility Owned by Seller) to this Agreement. Seller shall design, operate and maintain the Facility in a manner consistent with the standard of care reasonably expected of an experienced owner/operator with the desire and financial resources necessary to design, operate and maintain the Facility to achieve the Performance Metrics. The foregoing is without limitation to Seller's other obligations under this Agreement, including the obligation to operate the Facility in accordance with Good Engineering and Operating Practices. The Performance Metrics set forth in Section 2.5 (PV System Equivalent Availability Factor; Liquidated Damages; Termination Rights) through Section 2.9 (BESS Annual Equivalent Forced Outage Factor; Liquidated Damages) of this Agreement shall be interpreted consistent with the North American Electric Reliability Corporation Generating Availability Data System ("NERC GADS") Data Reporting Instructions.

(b) [Reserved]

2.5 PV System Equivalent Availability Factor; Liquidated Damages; Termination Rights.

(a) Calculation of the PV System Equivalent Availability Factor. Following the end of each LD Period, the PV System Equivalent Availability Factor shall be calculated for such LD Period as follows:

$$\text{PV System Equivalent Availability Factor} = 100\% \cdot \frac{\text{Period Hours (PH)}}{24 \cdot \text{Days}}$$

where:

Period Hours (PH) is the total number of hours in the LD Period counting twenty-four (24) hours per day minus ExcludedTime. In a normal year, PH = 8,760 minus

ExcludedTime, and in a leap year  $PH = 8,784$  minus ExcludedTime.

Available Hours (AH) is the number of hours that the PV System is not on Outage. It is the sum of all Service Hours (SH) + Reserve Shutdown Hours (RSH).

An "Outage" exists whenever the entire PV System is not online producing electric energy and is not in a Reserve Shutdown state, resulting from Seller-Attributable Non-Generation but excluding ExcludedTime.

Service Hours (SH) is the number of hours during the LD Period the PV System is online and producing electric energy to meet Company Dispatch and/or to maintain the BESS State of Charge.

Reserve Shutdown Hours (RSH) is the number of hours the PV System was available to the Company System but not providing electric energy or is offline for reasons other than Seller-Attributable Non-Generation, or is offline due to insufficient irradiance levels based on the inverter manufacturer's minimum irradiance level for production. All hours except for ExcludedTime between 7:00 pm and 6:00 am will be considered RSH. The PV System will be considered RSH in these hours, even if the system would otherwise be in an outage or derated state.

A "Deration" exists if the Facility is available for Company Dispatch, but at less than full potential output for the given irradiance conditions. Derations include only periods of Seller-Attributable Non-Generation and derations by Company pursuant to Section 8.3 (Company Rights of Dispatch). Derations do not include periods of ExcludedTime. Each individual Deration is transformed into equivalent full outage hour(s). For Derations due to inverter outages, this is calculated by multiplying the actual duration of the derating (hours) by the number of inverters in the PV System offline and dividing by the total number of inverters in the PV System. For Derations by Company pursuant to Section 8.3 (Company Rights of Dispatch), this is calculated by the size of the Deration (in MW) divided by the Contract

Capacity. For avoidance of doubt, if the Facility is in an Outage it cannot also be in a Deration.

Equivalent Planned Derated Hours (EPDH) includes Planned Derations (PD) and Maintenance Derations (D4). A Planned Deration is when the PV System experiences a Deration scheduled well in advance and for a predetermined duration. A Maintenance Deration is a Deration that can be deferred beyond the end of the next weekend (Sunday at midnight or before Sunday turns into Monday) but requires a reduction in capacity before the next Planned Deration (PD). Each individual Deration is transformed into equivalent full outage hour(s).

Equivalent Unplanned Derated Hours (EUDH): An Unplanned Deration (Forced Deration) occurs when the PV System experiences a Deration that requires a reduction in availability before the end of the nearest following weekend. Unplanned Derations include those due to Seller-Attributable Non-Generation. Each individual Unplanned Deration is transformed into equivalent full outage hour(s). For Derations due to inverter outages, this is calculated by multiplying the actual duration of the Deration (in hours) by the number of inverters in the PV System offline and dividing by the total number of inverters in the PV System. For Derations by Company pursuant to Section 8.3 (Company Rights of Dispatch) this is calculated by the size of the deration (in MW) divided by the Contract Capacity. These equivalent hour(s) are then summed.

ExcludedTime is unavailability as a result of the PV System or a portion of the PV System being unavailable due to Force Majeure. The hours and/or equivalent hours of ExcludedTime shall not be added to Available Hours and shall be subtracted from Period Hours. This is calculated by multiplying the actual duration of the event that counts as ExcludedTime (in hours) by the number of inverters in the PV System offline and dividing by the total number of inverters in the PV System. These equivalent hour(s) are then summed.

The effect of Force Majeure is taken into account in calculating the PV System Equivalent Availability Factor over the 12 calendar month LD Period as follows: When





**97.9%** and below For each one-tenth of one percent (0.001) by which the PV System Equivalent Availability Factor for such LD Period falls below the PV System Equivalent Availability Factor Performance Metric, an amount equal to 0.001917 of the Applicable Period Lump Sum Payment for the last calendar month of such LD Period.

For purposes of determining liquidated damages under the preceding formula, the amount by which the PV System Equivalent Availability Factor for the LD Period in question falls below the applicable threshold shall be rounded to the nearest one-tenth of one percent (0.001). Each Party agrees and acknowledges that (i) the damages that Company would incur if the Seller fails to achieve the PV System Equivalent Availability Factor Performance Metric for a LD Period would be difficult or impossible to calculate with certainty and (ii) the aforesaid liquidated damages are an appropriate approximation of such damages.

EXAMPLE: The following is an example calculation of liquidated damages for the PV System Equivalent Availability Factor Performance Metric and is included for illustrative purposes only. Assume the monthly Lump Sum Payment is \$1,000,000 and the PV System Equivalent Availability Factor is 96.9% as calculated in the example in Section 2.5(a) (Calculation of the PV System Equivalent Availability Factor) above.

The liquidated damages would be calculated as follows:

Applicable Period Lump Sum Payment = \$1,000,000

$\$1,000,000 \times .001917 = \$1,917$

$98.0\% - 96.9\% = 1.1\%$

$1.1\%/0.1\% = 11$

$\$1,917 \times 11 = \$21,087$

- (c) PV System Equivalent Availability Factor Termination Rights. The Parties acknowledge that, although the intent of the liquidated damages payable under Section 2.5(b) (PV System Equivalent Availability Factor Performance Metric and Liquidated Damages) is to compensate Company for the damages that Company would incur if the Seller fails to achieve the PV System Equivalent Availability Factor Performance Metric for a LD Period, such liquidated damages are not intended to compensate Company for the damages that Company would incur if a pattern of underperformance establishes a reasonable expectation that the PV System is likely to continue to substantially underperform the PV System Equivalent Availability Factor Performance Metric. Accordingly, and without limitation to Company's rights under said Section 2.5(b) (PV System Equivalent Availability Factor Performance Metric and Liquidated Damages) for those LD Periods during which the Seller failed to achieve the PV System Equivalent Availability Factor Performance Metric, the failure of the Facility to achieve a PV System Equivalent Availability Factor of not less than **84%** for each of three consecutive Contract Years shall constitute an Event of Default under Section 15.1(b) of this Agreement for which Company shall have the rights (including but not limited to the termination rights) set forth in Article 15 (Events of Default) and Article 16 (Damages in the Event of Termination by Company).

2.6 Measured Performance Ratio; Liquidated Damages; Termination Rights.

(a) Calculation of Measured Performance Ratio.

- (i) The Measured Performance Ratio ("MPR") represents the PV System's measured AC power output compared to its theoretical DC power output as adjusted for the plane of array irradiance conditions measured at the Site [**Drafting Note: May require revision for DC output**]. The gross PV System output in MW and MVAR will be measured at such point mutually agreed to by the Parties on the Facility's single-line diagram attached hereto as Attachment E (Single-Line Drawing and Interface Block Diagram).



$G_{POA}$  = POA irradiance from calibrated reference cells  
 [W/m<sup>2</sup>]

$T_a$  = ambient temperature [°C]

$WS$  = the measured wind speed corrected to a measurement height of 10 meters [m/s]

$a$  = empirical constant reflecting the increase of module temperature with sunlight

$b$  = empirical constant reflecting the effect of wind speed on the module temperature [s/m]

$e$  = Euler's constant and the base for the natural logarithm.

<b>Table 2. Empirical Convective Heat Transfer Coefficients</b> <b>Module Type</b>	<b>Mount</b>	<b>a</b>	<b>b</b>
Glass/cell/glass	Open rack	-3.47	-0.0594
Glass/cell/glass	Close-roof mount	-2.98	-0.0471
Glass/cell/polymer sheet	Open rack	-3.56	-0.0750
Glass/cell/polymer sheet	Insulated back	-2.81	-0.0455
Polymer/thin-film/steel	Open rack	-3.58	-0.1130

- (iii) The time periods used in the foregoing calculation shall be only periods during which, for the entire 15-minute interval, the PV System output is allowed to convert all irradiance to gross AC power and is not offline due to insufficient irradiance levels based on the inverter minimum requirements for production. Data points that will be excluded are limited to data points where: (A) the  $G_{POA}$  is below minimum threshold, (B)  $G_{POA}$  above the maximum threshold (C) the PV System is in RSH, (D) when there is a EUDH or EPDH, (E) the PV System was not allowed to convert the full DC output to AC



adjusted to remove the expected contribution of the unavailable inverter(s).

(v) For each MPR Assessment Period that includes one or more months for which a MPR Test was performed, the data points collected during said MPR Test for such month(s) shall be used together with the data points for months for which an MPR Test was not conducted to calculate the MPR for the MPR Assessment Period in question using the formula set forth in Section 2(a)(ii) above. The result of the calculation based on the MPR Test shall be the MPR for the MPR Assessment Period in question.

(vi) EXAMPLE: The following is an example of a Measured Performance Ratio calculation and is included for illustrative purposes only. Assume the following:

1. Facility with 120,000 panels with a standard test condition rating of 300 W
2.  $P_{DCSTC} = 120,000 \times 300 \text{ W} = 36 \text{ MW}$
3. For illustrative purposes only, 4 hours of data which met the criteria specified in 2.6(a)(iii) have been recorded over the MPR Assessment Period. It should be noted that all available operational data that meets the criteria specified in Section 2.6(a)(iii) shall be included in the actual calculation.:

Time Period	Average Measured Plane of Array Irradiance (W/m <sup>2</sup> )	Average Measured Gross AC Power at Inverters (MW)	Average Measured Ambient Temperature (C)	Average Measured Wind Speed (m/s)
1	690	16	27	3
2	350	11	26	8
...	...	...	...	...
i	750	19	29	7



and corresponding power output) is provided to Company in accordance with Section 1(c) (NEP IE Estimate and Company-Designated NEP Estimate) of Attachment U (Calculation and Adjustment of Net Energy Potential), the GPR Performance Metric shall be the GPR set forth in the IE Energy Assessment Report, provided that such GPR is justified by such supporting data and consistent with the manufacturer's minimum irradiance level for production and point of power measurement specified in Section 2.6(a)(ii). In the event that the IE Assessment Report includes the supporting data (plane of array irradiance and corresponding power output) relied upon in arriving at the NEP IE Estimate, but does not set forth a GPR, the GPR Performance Metric shall be calculated using such supporting data and the Measured Performance Ratio formula in Section 2.6(a)(ii) of this Agreement. Within 30 Days of Company's receipt of the IE Energy Assessment Report together with the aforementioned supporting data, Company shall provide written notice to Seller of either (aa) the GPR Performance Metric derived from such supporting data or (bb) Company's inability to reasonably derive a GPR Performance Metric from such supporting data, in which case the GPR Performance Metric shall be **0.85**.

- (ii) Commencing With Initial OEPR. For the period commencing with the first Day of the calendar month following the establishment of the NEP OEPR Estimate for the Initial OEPR (as provided in Section 2 (Initial OEPR) and Sections 4(g) (Review of the First OEPR Evaluator Report) and (h) (Review of the Second OEPR Evaluator Report) of Attachment U (Calculation and Adjustment of Net Energy Potential) to this Agreement) through the end of the calendar month during which the NEP OEPR Estimate for the first Subsequent OEPR is established as provided in Section 3 (Subsequent OEPRs) and Sections 4(g) (Review of the First OEPR Evaluator Report) and (h) (Review of the Second OEPR Evaluator Report) of Attachment U (Calculation and Adjustment of Net Energy Potential) to this Agreement, the GPR Performance Metric shall be the

GPR as established through the Initial OEPR process as aforementioned. If no GPR has been established through the Initial OEPR process, the GPR Performance Metric shall be **0.85**.

(iii) Commencing With the First Subsequent OEPR and Thereafter. Commencing with the establishment of the NEP OEPR Estimate for the first Subsequent OEPR as provided in Section 3 (Subsequent OEPRs) and Sections 4(g) (Review of the First OEPR Evaluator Report) and (h) (Review of the Second OEPR Evaluator Report) of Attachment U (Calculation and Adjustment of Net Energy Potential) to this Agreement, for each period commencing with the first Day of the calendar month following the establishment of the NEP OEPR Estimate for a Subsequent OEPR (including but not limited to the first Subsequent OEPR) through the end of the calendar month during which the NEP OEPR Estimate is established for the next Subsequent OEPR, the GPR Performance Metric shall be the GPR established for the applicable Subsequent OEPR. If no GPR has been established through the then applicable Subsequent OEPR process, the GPR Performance Metric shall be **0.85**.

(c) GPR Performance Metric and Liquidated Damages. For each MPR Assessment Period, a Measured Performance Ratio shall be calculated as provided in Section 2.6(a) (Calculation of Measured Performance Ratio) of this Agreement. In the event the MPR is less than **95%** of the GPR Performance Metric as adjusted by the degradation factor set forth below, Seller shall pay, and Company shall accept, as liquidated damages for Seller's failure to achieve the GPR Performance Metric for such MPR Assessment Period, an amount calculated in accordance with the following formula:

<u>Tier</u>	<u>Measured Performance Ratio</u>	<u>Amount of Liquidated Damages Per MPR Assessment Period</u>
<b>Tier 1</b>	<b>GPR Performance Metric x DF x</b>	For each one-tenth of one percent (0.001) by which the Measured Performance

	<p>0.95 &gt;  <b>Measured          Performance          Ratio <math>\geq</math> GPR          Performance          Metric x DF x          0.90</b></p>	<p>Ratio for such MPR          Assessment Period falls          below the upper limit of          the bandwidth specified in          this subparagraph, an          amount equal to one-tenth          of one percent (0.001) of          the MPR Assessment Period          Lump Sum Payment. The          upper end of the          aforementioned bandwidth is          equal to the product of the          GPR Performance Metric, the          applicable degradation          factor (DF), and 95%. The          lower limit of the          aforementioned bandwidth          consists of and includes          the product of the GPR          Performance Metric, the          applicable degradation          factor (DF), and 90%; plus</p>
<p><b>Tier          2</b></p>	<p><b>GPR          Performance          Metric x DF x          0.90 &gt;          Measured          Performance          Ratio <math>\geq</math> GPR          Performance          Metric x DF x          0.80</b></p>	<p>For each one-tenth of one          percent (0.001) by which          the Measured Performance          Ratio for such MPR          Assessment Period falls          below the upper limit of          the bandwidth specified in          this subparagraph, an          amount equal to two-tenths          of one percent (0.002) of          the MPR Assessment Period          Lump Sum Payment. The          upper end of the          aforementioned bandwidth is          equal to the product of the          GPR Performance Metric, the          applicable degradation          factor (DF), and 90%. The          lower limit of the          aforementioned bandwidth          consists of and includes          the product of the GPR</p>





Lower limit of the Tier 2 bandwidth =  $0.8 \times 0.9921 \times 0.9$   
= 0.714

LD =  $[(0.848 - 0.804) \times 1) + ((0.804 - 0.714) \times 2) +$   
 $((0.714 - 0.694) \times 4)] \times$  MPR Assessment Period Lump Sum  
Payment  
= 0.304 x MPR Assessment Period Lump Sum Payment

- (d) MPR Termination Rights. The Parties acknowledge that, although the intent of the liquidated damages payable under Section 2.6(c) (GPR Performance Metric and Liquidated Damages) is to compensate Company for the damages that Company would incur if the Seller fails to achieve the GPR Performance Metric for a MPR Assessment Period, such liquidated damages are not intended to compensate Company for the damages that Company would incur if a pattern of underperformance establishes a reasonable expectation that the Facility is likely to continue to substantially underperform the GPR Performance Metric. Accordingly, and without limitation to Company's rights under said Section 2.6(c) (GPR Performance Metric and Liquidated Damages) for those MPR Assessment Periods during which the Seller failed to achieve the GPR Performance Metric, the failure of the PV System to achieve, for each of three consecutive Contract Years, a Measured Performance Ratio of not less than the Tier 2 Bandwidth for such Contract Year shall constitute an Event of Default under Section 15.1(c) of this Agreement for which Company shall have the rights (including but not limited to the termination rights) set forth in Article 15 (Events of Default) and Article 16 (Damages in the Event of Termination by Company).

## 2.7 BESS Capacity Test; Liquidated Damages; Termination Rights.

- (a) BESS Capacity Test and Liquidated Damages. For each BESS Measurement Period following the Commercial Operations Date, the BESS shall be required to complete a BESS Capacity Test, as more fully set forth in Attachment W (BESS Tests) to this Agreement. For each BESS Measurement Period for which the BESS fails to demonstrate that it satisfies the BESS Capacity Performance Metric, Seller shall pay, and Company shall accept, as liquidated damages for such shortfall, the

amount set forth in the following table (on a progressive basis) upon proper demand at the end the BESS Measurement Period in question:

<b>BESS Capacity Ratio</b>	<b>Liquidated Damage Amount</b>
Tier 1 95.0% - 99.9%	For each one-tenth of one percent (0.001) that the BESS Capacity Ratio is below 100% and is equal to or greater than 95.0%, an amount equal to one-tenth of one percent (0.001) of the BESS Allocated Portion of the Lump Sum Payment for the BESS Measurement Period in question; plus
Tier 2 85.0% - 94.9%	For each one-tenth of one percent (0.001) that the BESS Capacity Ratio is below 95% and is above 84.9%, an amount equal to one and a half-tenths of one percent (0.0015) of the BESS Allocated Portion of the Lump Sum Payment for the BESS Measurement Period in question; plus
Tier 3 75.0% - 84.9%	For each one-tenth of one percent (0.001) that the BESS Capacity Ratio is below 85% and is above 74.9%, an amount equal to two-tenths of one percent (0.002) of the BESS Allocated Portion of the Lump Sum Payment for the BESS Measurement Period in question; plus
Tier 4 60.0% - 74.9%	For each one-tenth of one percent (0.001) that the

	BESS Capacity Ratio is below 75% and is above 59.9%, an amount equal to two and a half-tenths of one percent (0.0025) of the BESS Allocated Portion of the Lump Sum Payment for the BESS Measurement Period in question; plus
Tier 5 50.0% - 59.9%	For each one-tenth of one percent (0.001) that the BESS Capacity Ratio is below 60% and is above 49.9%, an amount equal to three-tenths of one percent (0.003) of the BESS Allocated Portion of the Lump Sum Payment for the BESS Measurement Period in question; plus
Tier 6 49.9% and below ("Lowest BESS Capacity Bandwidth")	For each one-tenth of one percent (0.001) that the BESS Capacity Ratio is below 50%, an amount equal to three and a half-tenths of one percent (0.0035) of the BESS Allocated Portion of the Lump Sum Payment for the BESS Measurement Period in question.

For purposes of determining liquidated damages under this Section 2.7(a) (BESS Capacity Test and Liquidated Damages), the starting and end points for the duration of the period that the BESS discharges shall be rounded to the nearest MWh. Each Party agrees and acknowledges that (i) the damages that Company would incur if the Seller fails to achieve the BESS Capacity Performance Metric for a BESS Measurement Period would be difficult or impossible to calculate with certainty and (ii) the aforesaid liquidated damages are an appropriate approximation of such damages.

EXAMPLE: The following is an example calculation of liquidated damages for the BESS Capacity Performance Metric and is included for illustrative purposes only. Assume the following:

The Maximum Rated Output for the BESS is 25 MW.

A BESS Capacity Test was conducted and the BESS was measured to have discharged 65 MWh

BESS Contract Capacity = 25 MW x 4 hours = 100 MWh  
BESS Capacity Ratio = MWh Discharged/BESS Contract Capacity = 65 MWh/100 MWh = 0.65

$LD = [(1 - 0.950) \times 1] + [(0.950 - 0.850) \times 1.5] + [(0.850 - 0.750) \times 2] + [(0.750 - 0.65) \times 2.5] \times \text{BESS Allocated Portion of the Lump Sum Payment for the BESS Measurement Period in question}$   
= 0.65 x BESS Allocated Portion of the Lump Sum Payment for the BESS Measurement Period in question

- (b) BESS Capacity Test Termination Rights. The Parties acknowledge that, although the intent of the liquidated damages payable under Section 2.7(a) (BESS Capacity Test and Liquidated Damages) is to compensate Company for the damages that Company would incur if the BESS fails to demonstrate satisfaction of the BESS Capacity Performance Metric during a BESS Measurement Period, such liquidated damages are not intended to compensate Company for the damages that Company would incur if a pattern of underperformance establishes a reasonable expectation that the BESS is likely to continue to substantially underperform the Company's expectations. Accordingly, and without limitation to Company's rights under said Section 2.7(a) (BESS Capacity Test and Liquidated Damages) for those BESS Measurement Periods during which the BESS fails to demonstrate satisfaction of the BESS Capacity Performance Metric, substantial underperformance shall give rise to a termination right as set forth in this Section 2.7(b) (BESS Capacity Test Termination Rights). If the BESS is in the Lowest BESS Capacity Bandwidth for any two BESS Measurement Periods during a 12-month period, an 18-month cure period (the "BESS Capacity Cure Period") will commence on the Day

following the close of the second such BESS Measurement Period. For each BESS Measurement Period during such BESS Capacity Cure Period, BESS Capacity Tests shall continue to be conducted as set forth in Attachment W (BESS Tests) and liquidated damages paid and accepted as set forth in Section 2.7(a) (BESS Capacity Test and Liquidated Damages); provided, however, that if the Seller fails to demonstrate satisfaction of the BESS Capacity Performance Metric prior to the expiration of the BESS Capacity Cure Period, such failure shall constitute an Event of Default under Section 15.1(d) of this Agreement for which Company shall have the rights (including but not limited to the termination rights) set forth in Article 15 (Events of Default) and Article 16 (Damages in the Event of Termination by Company).

2.8 BESS Annual Equivalent Availability Factor; Liquidated Damages; Termination Rights.

(a) BESS Annual Equivalent Availability Factor and Liquidated Damages. For each BESS Measurement Period following the Commercial Operations Date, a BESS Annual Equivalent Availability Factor shall be calculated as set forth in Attachment X (BESS Annual Equivalent Availability Factor). If the BESS Annual Equivalent Availability Factor for such BESS Measurement Period is less than **97%** (the "BESS EAF Performance Metric"), Seller shall pay, and Company shall accept, as liquidated damages for such shortfall, the amount set forth in the following table (on a progressive basis) upon proper demand at the end the current BESS Measurement Period:

<b>BESS Annual Equivalent Availability Factor</b>	<b>Liquidated Damage Amount</b>
Tier 1  85.0% - 96.9%	For each one-tenth of one percent (0.001) by which the BESS Annual Equivalent Availability Factor falls below 97% but equal to or above 85%, an amount equal to one-tenth of one percent (0.001) of the BESS Allocated Portion of the Lump Sum

	Payment for the BESS Measurement Period in question; plus
Tier 2 80.0% - 84.9%	For each one-tenth of one percent (0.001) by which the BESS Annual Equivalent Availability Factor falls below 85% but equal to or above 80%, an amount equal to two-tenths of one percent (0.002) of the BESS Allocated Portion of the Lump Sum Payment for the BESS Measurement Period in question; plus
Tier 3 75.0% - 79.9%	For each one-tenth of one percent (0.001) by which the BESS Annual Equivalent Availability Factor falls below 80% but equal to or above 75%, an amount equal to three-tenths of one percent (0.003) of the BESS Allocated Portion of the Lump Sum Payment for the BESS Measurement Period in question; plus
Tier 4 Below 75.0%	For each one-tenth of one percent (0.001) by which the BESS Annual Equivalent Availability Factor falls below 75%, an amount equal to four-tenths of one percent (0.004) of the BESS Allocated Portion of the Lump Sum Payment for the BESS Measurement Period in question.

Such liquidated damages shall be due within thirty (30) Days after the first to occur of the end of such BESS Measurement Period or the end of Term. In the event Seller fails to pay Company amounts of liquidated damages due under this Section 2.8(a) (BESS Annual Equivalent Availability Factor and Liquidated Damages)

within thirty (30) Days of receipt of Company's written demand, Company may, without limitation to any other remedy Company may have, set-off such amounts due against payments it is otherwise obligated to make under this Agreement.

For purposes of determining liquidated damages under this Section 2.8(a) (BESS Annual Equivalent Availability Factor and Liquidated Damages), the BESS Annual Equivalent Availability Factor for the BESS Measurement Period in question shall be rounded to the nearest one-tenth of one percent (0.001). Each Party agrees and acknowledges that (i) the damages that Company would incur if the Seller fails to achieve the BESS EAF Performance Metric for a BESS Measurement Period would be difficult or impossible to calculate with certainty and (ii) the aforesaid liquidated damages are an appropriate approximation of such damages.

- (b) BESS Annual Equivalent Availability Factor Termination Rights. The Parties acknowledge that, although the intent of the liquidated damages payable under Section 2.8(a) (BESS Annual Equivalent Availability Factor and Liquidated Damages) is to compensate Company for the damages that Company would incur if the Seller fails to achieve the BESS EAF Performance Metric for a BESS Measurement Period, such liquidated damages are not intended to compensate Company for the damages that Company would incur if a pattern of underperformance establishes a reasonable expectation that the BESS is likely to continue to substantially underperform the BESS EAF Performance Metric. Accordingly, and without limitation to Company's rights under said Section 2.8(a) (BESS Annual Equivalent Availability Factor and Liquidated Damages) for those BESS Measurement Periods during which the Seller failed to achieve the BESS EAF Performance Metric, the failure of the Seller to achieve, for each of four consecutive BESS Measurement Periods, a BESS Annual Equivalent Availability Factor of not less than **75%** shall constitute an Event of Default under Section 15.1(e) of this Agreement for which Company shall have the rights (including but not limited to the termination rights) set forth in Article 15 (Events of Default) and Article 16 (Damages in the Event of Termination by Company); provided, however, that if a

BESS Measurement Period for which the aforementioned 75% threshold is not achieved falls within a BESS Capacity Cure Period, such BESS Measurement Period shall be excluded from the calculation of the aforementioned "four consecutive BESS Measurement Periods" if the failure to achieve the aforementioned 75% threshold was the result of unavailability caused by the process of carrying out the repairs to or replacements of the BESS necessary to remedy the failure of the BESS to achieve the BESS Capacity Performance Metric.

2.9 BESS Annual Equivalent Forced Outage Factor; Liquidated Damages.

For each BESS Measurement Period following the Commercial Operations Date, the BESS shall maintain a BESS Annual Equivalent Forced Outage Factor of not more than 4% (the "BESS EFOF Performance Metric") as calculated as set forth in Attachment Y (BESS Annual Equivalent Forced Outage Factor). If the BESS Annual Equivalent Forced Outage Factor for such BESS Measurement Period exceeds the BESS EFOF Performance Metric, Seller shall pay, and Company shall accept, as liquidated damages for exceeding the BESS EFOF Performance Metric, the amount set forth in the following table (on a progressive basis) upon proper demand by the Company at the end of the BESS Measurement Period in question:

<b>BESS Annual Equivalent Forced Outage Factor</b>	<b>Liquidated Damage Amount</b>
0.0% - 4.0%	-0-
4.1% - 6.9%	For each one-tenth of one percent (0.001) that the BESS Annual Equivalent Forced Outage Factor is above 4.0% but less than 7.0%, an amount equal to two-tenths of one percent (0.002) of the BESS Allocated Portion of the Lump Sum Payment for the BESS Measurement Period in question; plus
7.0% and above	For each one-tenth of one percent (0.001) that the

	<p>BESS Annual Equivalent Forced Outage Factor is above 6.9%, an amount equal to four-tenths of one percent (0.004) of the BESS Allocated Portion of the Lump Sum Payment for the BESS Measurement Period in question</p>
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Such liquidated damages shall be due within thirty (30) Days after the first to occur of the end of such BESS Measurement Period or the end of Term. In the event Seller fails to pay Company amounts of liquidated damages due under this Section 2.9 (BESS Annual Equivalent Forced Outage Factor; Liquidated Damages) within thirty (30) Days of receipt of Company's written demand, Company may set-off such amounts due against payments it is otherwise obligated to make under this Agreement.

For purposes of determining liquidated damages under this Section 2.9 (BESS Annual Equivalent Forced Outage Factor; Liquidated Damages), the BESS Annual Equivalent Forced Outage Factor for the BESS Measurement Period in question shall be rounded to the nearest one-tenth of one percent (0.001). Each Party agrees and acknowledges that (i) the damages that Company would incur if the Seller fails to achieve the BESS EFOF Performance Metric for a BESS Measurement Period would be difficult or impossible to calculate with certainty and (ii) the aforesaid liquidated damages are an appropriate approximation of such damages.

For example, if the BESS Equivalent Annual Forced Outage Factor was 4.1% as calculated in the example in Attachment Y (BESS Annual Equivalent Forced Outage Factor) attached hereto and the BESS Allocated Portion of the Lump Sum Payment for the BESS Measurement Period in question is \$1,000,000, the liquidated damages would be \$2,000, calculated as follows:

$$\begin{aligned}
4.1\% - 4.0\% &= 0.1\% \\
0.1\%/0.1 &= 1 \\
\$1,000,000 \times .002 &= \$2,000 \\
\$2,000 \times 1 &= \$2,000
\end{aligned}$$



Each Party agrees and acknowledges that (i) the damages that Company would incur if the Seller fails to achieve the RTE Performance Metric for a BESS Measurement Period would be difficult or impossible to calculate with certainty and (ii) the aforesaid liquidated damages are an appropriate approximation of such damages.

- (b) RTE Test Termination Rights. The Parties acknowledge that, although the intent of the liquidated damages payable under Section 2.10(a) (RTE Test and Liquidated Damages) is to compensate Company for the damages that Company would incur if the BESS fails to demonstrate satisfaction of the RTE Performance Metric during a BESS Measurement Period, such liquidated damages are not intended to compensate Company for the damages that Company would incur if a pattern of underperformance establishes a reasonable expectation that the BESS is likely to continue to substantially underperform the Company's expectations. Accordingly, and without limitation to Company's rights under said Section 2.10(a) (RTE Test and Liquidated Damages) for those BESS Measurement Periods during which the BESS fails to demonstrate satisfaction of the RTE Performance Metric, substantial underperformance shall give rise to a termination right as set forth in this Section 2.10(b) (RTE Test Termination Rights). If the RTE Ratio for the Selected RTE Test for the BESS Measurement Period in question is more than 15 percentage points below the RTE Performance Metric for any two BESS Measurement Periods during a 12-month period, an **18-month** cure period (the "RTE Cure Period") will commence on the Day following the close of the second such BESS Measurement Period. For each BESS Measurement Period during such RTE Cure Period, RTE Tests shall continue to be conducted as set forth in Attachment W (BESS Tests) and liquidated damages paid and accepted as set forth in Section 2.10(a) (RTE Test and Liquidated Damages); provided, however, that if the Seller fails to demonstrate satisfaction of the RTE Performance Metric prior to the expiration of the RTE Cure Period, such failure shall constitute an Event of Default under Section 15.1(g) of this Agreement for which Company shall have the rights (including but not limited to the termination rights) set forth in Article 15 (Events of Default) and Article 16 (Damages in the Event of Termination by Company).

2.11 Fast Frequency Response Performance Metric. [DRAFTING NOTE: SECTION 2.11 APPLIES ONLY TO PROJECTS THAT INCLUDE CONTINGENCY STORAGE IN THEIR PROPOSALS. IT WILL BE REMOVED FROM PROJECTS THAT DO NOT INCLUDE CONTINGENCY STORAGE.]

(a) Fast Frequency Response Criteria and Liquidated Damages. Following the Commercial Operations Date, the Facility shall respond appropriately to frequency disturbances in the Company System by operating in a manner consistent with standards and parameters established for Fast Frequency Response. With respect to such frequency disturbances in the Company System, the Facility shall be required to meet all of the following minimum frequency performance criteria (collectively, the "Fast Frequency Response Performance Metric"):

- (i) The time between a step change in frequency and the response is no more than 1.3 times the target ~~response~~ reaction time;
- (ii) The resource achieves at least 63% of the new steady state active power output within the rise time;
- (iii) The resource achieves at least 70% of the new steady state active power target within the settling time; ~~and~~
- ~~(iv)~~ (iv) Overshoot does not exceed 5% of the final steady state active power; and
- (v) The new steady-state active power output is within the settling band.

Company will review historical operational data to determine the Facility's fast frequency response following disturbances and satisfaction of the Fast Frequency Response Performance Metric. In accordance with Section 8(v) (Data Collection) of Attachment B (Facility Owned by Seller), Seller shall provide such high resolution data from the Facility requested by Company to assist in the review. To the extent the historical operational data is insufficient or otherwise lacking for purposes of determining the Facility's satisfaction of the Fast Frequency Response Performance Metric, Company shall review Facility's performance under

structured test conditions no less than once per Contract Year.

After the first Contract Year:

- (1) for each instance of the Facility ~~fails~~-failing to satisfy the Fast Frequency Response Performance Metric, Seller shall pay, and Company shall accept, as liquidated damages for such failure, an amount equal to 25% of the FFR Allocated Portion of the ~~monthly~~ Lump Sum Payment upon proper demand by Company; and
- (2) in the event poor Facility fast frequency response performance requires ~~disconnection from the Company System~~disabling the fast frequency response controls, as determined by Company in its sole discretion (e.g., in the event a Facility response to Company System frequency outside of the FFR deadband contributes to frequency error or worsens the disturbance), Seller shall pay and Company shall accept, as liquidated damages for such underperformance, an amount equal to 100% of the ~~monthly FFR~~ Allocated Portion of the Lump Sum Payment upon proper demand by Company, and Seller shall not be entitled to receive further payments of the FFR Allocated Portion of the Lump Sum Payments while the Facility fast frequency response controls remains ~~disconnected from the Company System~~disabled to allow Seller to perform corrective actions on the Facility to Company's reasonable satisfaction.

Such liquidated damages shall be due within thirty (30) Days of Company's written demand.

Company agrees that, when evaluating performance under this Section 2.11 (Fast Frequency Response Performance Metric), the available State of Charge shall be taken into consideration and Seller shall not be held to the criteria set forth in this Section 2.11 (Fast Frequency Response Performance Metric) if there is insufficient charged capacity available for the appropriate response.

(b) Performance Deficiencies; Fast Frequency Response Performance Factor Termination Rights. With respect to any Facility response under this Section 2.11 (Fast Frequency Response Performance Metric), Company will notify Seller of any discrepancies in the Facility response, and Seller shall respond to and cure all such performance deficiencies in accordance with Section 1(j) (Demonstration of Facility) of Attachment B (Facility Owned by Seller). The Parties acknowledge that, although the intent of the liquidated damages payable under Section 2.11(a) (Fast Frequency Response Criteria and Liquidated Damages) is to compensate Company for the damages that Company would incur if the Facility fails to respond appropriately to Company System frequency, such liquidated damages are not intended to compensate Company for the damages that Company would incur if a pattern of underperformance establishes a reasonable expectation that the Facility is likely to continue to substantially underperform. Accordingly, and without limitation to Company's rights under said Section 2.11(a) (Fast Frequency Response Criteria and Liquidated Damages), in the event Seller fails to comply with the terms of Section 1(j) (Demonstration of Facility) of Attachment B (Facility Owned by Seller), such event shall constitute an Event of Default under Section 15.2(f) of this Agreement for which Company shall have the rights (including but not limited to the termination rights) set forth in Article 15 (Events of Default) and Article 16 (Damages in the Event of Termination).

2.12 Payment of Liquidated Damages for Failure to Achieve Performance Metrics; Limitation on Liquidated Damage.

(a) Payment of Liquidated Damages. With respect to the liquidated damages payable under Section 2.5(b) (PV System Equivalent Availability Factor Performance Metric and Liquidated Damages), Section 2.6(c) (GPR Performance Metric and Liquidated Damages), Section 2.7(a) (BESS Capacity Test and Liquidated Damages), Section 2.8(a) (BESS Annual Equivalent Availability Factor and Liquidated Damages), Section 2.9 (BESS Annual Equivalent Forced Outage Factor; Liquidated Damages) and Section 2.10 (BESS Round Trip Efficiency; Liquidated Damages; Termination Rights) and Section 2.11 (Fast Frequency

Response Performance Metric) **[SUBJECT TO REMOVAL PER SECTION 2.11 DRAFTING NOTE]** (collectively, the "Performance Metrics LDs"), Company shall have the right, at any time on or after the LD Assessment Date for the liquidated damages in question, at Company's option, to set-off such liquidated damages from the amounts to be paid to Seller under Section 2.3 (Lump Sum Payment) of this Agreement or, to draw such liquidated damages from the Operating Period Security, as follows:

- (i) if the BESS fails to achieve the BESS Capacity Performance Metric for a BESS Measurement Period, the Company shall have the right to set-off or draw the amount owed for such failure as calculated as provided in Section 2.7(a) (BESS Capacity Test and Liquidated Damages); and
- (ii) if the Monthly Report for the calendar month, MPR Assessment Period, or BESS Measurement Period in question, as applicable, shows a failure to achieve one or more of the Performance Metrics required for the LD Period in question, the MPR Measurement Period in question, or the BESS Measurement Period in question, as applicable, and Company does not submit a Notice of Disagreement with respect to such Monthly Report, the Company shall have the right to set-off or draw the amount of liquidated damages owed for such failure as calculated as provided in Section 2.5(b) (PV System Equivalent Availability Factor Performance Metric and Liquidated Damages), Section 2.6(c) (GPR Performance Metric and Liquidated Damages), Section 2.8(a) (BESS Annual Equivalent Availability Factor and Liquidated Damages), Section 2.9 (BESS Annual Equivalent Forced Outage Factor; Liquidated Damages), Section 2.10 (BESS Round Trip Efficiency Test; Liquidated Damages; Termination Rights) and Section 2.11 (Fast Frequency Response Performance Metric) **[SUBJECT TO REMOVAL PER SECTION 2.11 DRAFTING NOTE]**, as applicable;
- (iii) in all cases in which Company submits a Notice of Disagreement for a given Monthly Report, Company shall have the right to set-off or draw all or any portion of the amount of liquidated damages for the

calendar month in question, MPR Assessment Period in question, or BESS Measurement Period in question, as applicable, as calculated on the basis of the shortfall(s) in the achievement of the Performance Metric(s) in question, as shown in such Notice of Disagreement; and

- (iv) in the event of any disagreement as to the liquidated damages owed under clause (i) and (iii) above:
  - (aa) if the amount set-off or drawn by the Company exceeds the amount of liquidated damages for such calendar month, BESS Measurement Period or MPR Assessment Period that are eventually found to be payable for the LD Period in question as determined under Section 2 (Monthly Report Disagreements) of Attachment T (Monthly Reporting and Dispute Resolution by Independent AF Evaluator) to this Agreement, Company shall promptly (and in no event more than forty-five (45) Business Days from the date of such determination) repay such excess to Seller together with, unless the Parties otherwise agree in writing, interest from the date of Company's set-off or draw until the date that such excess is repaid to Seller at the average Prime Rate for such period; and
  - (bb) if Company does not exercise its rights to set-off or draw liquidated damages for such calendar month, BESS Measurement Period or MPR Assessment Period, or does not set-off or draw the full amount of the liquidated damages for such calendar month, BESS Measurement Period or MPR Assessment Period that are eventually found to be payable for the LD Period, BESS Measurement Period or MPR Assessment Period in question as determined under Section 2 (Monthly Report Disagreements) of Attachment T (Monthly Reporting and Dispute Resolution by Independent AF Evaluator) to this Agreement, Seller shall promptly, upon such determination as aforesaid, pay to Company the amount of liquidated damages that are found to be owing

together with, unless otherwise agreed by the Parties in writing, interest on the amount of such liquidated damages that went unpaid from the applicable LD Assessment Date for such liquidated damages until the date such liquidated damages are paid to Company in full at the average Prime Rate for such period, and Company shall have the right, at its option, to set-off such interest for the amounts to be paid to Seller under Section 2.3 (Lump Sum Payment) of this Agreement or to draw from the Operating Period Security.

Any delay by Company in exercising its rights to set-off liquidated damages and/or interest from the amounts to be paid to Seller under Section 2.3 (Lump Sum Payment) of this Agreement or to draw such liquidated damages and/or interest from the Operating Period Security shall not constitute a waiver by Company of its right to do so.

- (b) Limitation on Liquidated Damages. Notwithstanding any other provision of this Agreement to the contrary, the aggregate liquidated damages paid by Seller during each Contract Year for the Performance Metrics LDs, such payments by Seller to include but not be limited to any set-offs or draws made by Company during such Contract Year pursuant to Section 2.12(a) (Payment of Liquidated Damages), shall not exceed the total of the twelve (12) monthly Lump Sum Payments payable during such Contract Year pursuant to Section 2.3 (Lump Sum Payment) and Section 2.17 (Payment Procedures). For avoidance of doubt: A monthly Lump Sum Payment that is invoiced by Seller to Company pursuant to Section 2.16 (Seller's Preparation of the Monthly Invoice) for, e.g., the twelfth (12<sup>th</sup>) calendar month of Contract Year N but is paid during Contract Year N+1 as provided in Section 2.17 (Payment Procedures) shall, for purposes of determining the limitation on Performance Metrics LDs under this Section 2.12(b) (Limitation on Liquidated Damages), be included in the total of the twelve (12) monthly Lump Sum Payments payable during Contract Year N+1. As a result of the foregoing, the total of the monthly Lump Sum Payments used to establish the limitation on Performance Metrics LDs for the initial Contract Year under this Section 2.12(b) (Limitation

on Liquidated Damages) will be less than twelve (12). The Parties acknowledge that, because the monthly Lump Sum Payment is subject to adjustment (including downward adjustment) as provided in Section 2.3 (Lump Sum Payment), it is possible that a downward adjustment in some or all of the monthly Lump Sum Payments payable during a Contract Year might cause the Performance Metrics LDs paid by Seller during the course of such Contract Year to exceed the limitation on the Performance Metrics LDs for such Contract Year established at the close of such Contract Year pursuant to the first sentence of this Section 2.12(b) (Limitation on Liquidated Damages). In such case, Company shall promptly upon the determination that the Performance Metrics LDs paid during the course of such Contract Year exceeded the limitation on Performance Metrics LDs for such Contract Year (and in no event more than forty-five (45) Business Days from the end of such Contract Year) repay such excess amount to Seller without interest.

- 2.13 No Payments Prior to Commercial Operations Date. Prior to the Commercial Operations Date, Company may accept test energy delivered by Seller in accordance with Section 4 (Test Energy) of Attachment J (Company Payments for Energy, Dispatchability and Availability of BESS). Company shall not be obligated to pay for any test energy accepted prior to the Commercial Operations Date.
- 2.14 Sales of Electric Energy by Company to Seller. Sales of electric energy by Company to Seller shall be governed by an applicable rate schedule filed with the PUC and not by this Agreement, except with respect to the reactive amount adjustment (if any) referred to in Attachment B (Facility Owned by Seller).
- 2.15 [Reserved] **[Drafting Note: Use the following if PPA has energy payment: Company's Obligation to Provide Certain Data.** By the fifth (5<sup>th</sup>) Business Day of each calendar month, Company shall provide Seller or its designated agent with the appropriate data for Seller to compute the amount to be paid for the electric energy purchased by Company in the preceding calendar month as determined in accordance with this Agreement.]

- 2.16 Seller's Preparation of the Monthly Invoice. By the tenth (10<sup>th</sup>) Business Day of each calendar month, Seller shall submit to Company an invoice that separately states the following for the preceding month: (i) the Actual Output during this period; (ii) the monthly Lump Sum Payment for this period; and (iii) the monthly metering charge as set forth in Article 7 (Seller Payments) of this Agreement. **[Drafting Note: Add the following subclause if PPA has energy payment: "(iv) the charge for electric energy purchased by Company, as set forth in Attachment J (Company Payments for Energy, Dispatchability and Availability of BESS) of this Agreement."]**
- 2.17 Payment Procedures. By the twentieth (20<sup>th</sup>) Business Day of each calendar month following the month during which the invoice was submitted (i.e., by the twentieth (20<sup>th</sup>) Business Day of the second calendar month following the calendar month covered by the invoice in question), (but, except as otherwise provided in the following sentence, no later than the last Business Day of that month if there are less than twenty (20) Business Days in that month), Company shall, subject to Company's right to set-off liquidated damages as provided in Section 2.12 (Payment of Liquidated Damages for Failure to Achieve Performance Metrics; Limitation on Liquidated Damages) of this Agreement, make payment on such invoice, or provide to Seller an itemized statement of its objections to all or any portion of such invoice and pay any undisputed amount. Notwithstanding the foregoing, the Day by which the Company shall make payment to Seller hereunder shall be increased by one (1) Day for each Day that Seller is delinquent in providing to the Company either: (i) the Monthly Report for the calendar month in question pursuant to Section 1 (Monthly Report) of Attachment T (Monthly Reporting and Dispute Resolution by Independent AF Evaluator) to this Agreement; or (ii) the information required under Section 2.16 (Seller's Preparation of the Monthly Invoice) of this Agreement. **[Drafting Note: If PPA has energy payment, replace language starting from subclause "(ii)" with the following: "(ii) the information required under Section 2.16 (Seller's Preparation of the Monthly Invoice) of this Agreement. However, if Company is not timely in providing data required in Section 2.15 (Company's Obligation to Provide Certain Data) and this directly causes Seller to be unable to deliver its invoice in accordance with the time frame set forth in Section 2.16 (Seller's**

Preparation of the Monthly Invoice), then Company shall still meet the payment date of the twentieth (20<sup>th</sup>) Business Day of the month following the month during which the invoice was submitted. If Seller is unable to provide a complete invoice for the reasons set forth in the preceding sentence, an estimated payment, subject to reconciliation with the complete invoice, may be made by Company as an interim provision until a complete invoice can be prepared by Seller and received by Company." ]

- 2.18 Late Payments. Notwithstanding all or any portion of such invoice in dispute, and subject to the provisions of Section 2.12(a)(iii) of this Agreement (to the extent applicable), interest shall accrue on any invoiced amount that remains unpaid following the twentieth (20<sup>th</sup>) Business Day of each calendar month (or the last Business Day of that month if there are less than twenty Business Days in that month), or following the due date for such payment if extended pursuant to Section 2.17 (Payment Procedures), at the average daily Prime Rate for the period commencing on the Day following the Day such payment is due until the invoiced amounts (or amounts due to Seller if determined to be less than the invoiced amounts) are paid in full. Partial payments shall be applied first to outstanding interest and then to outstanding invoice amounts.
- 2.19 Adjustments to Invoices After Payment. In the event adjustments are required to correct inaccuracies in an invoice after payment, the Party requesting adjustment shall recompute and include in the Party's request the principal amounts due during the period of the inaccuracy together with the amount of interest from the date that such invoice was payable until the date that such recomputed amount is paid at the average daily Prime Rate for the period. The difference between the amount paid and that recomputed for the invoice, along with the allowable amount of interest, shall either be (i) paid to Seller or set-off by Company, as appropriate, in the next invoice payment to Seller, or (ii) objected to by the Party responsible for such payment within thirty (30) Days following its receipt of such request. If the Party responsible for such payment objects to the request, then the Parties shall work together in good faith to resolve the objection. If the Parties are unable to resolve the objection, the matter shall, except to the extent otherwise provided in Section 28.3 (Exclusions), be

resolved pursuant to Article 28 (Dispute Resolution). All claims for adjustments shall be waived for any amounts that were paid or should have been payable more than thirty-six (36) months preceding the date of receipt of any such request.

- 2.20 Company's Billing Records. Seller, after giving reasonable advance written notice to Company, shall have the right to review all billing, metering and related records necessary to verify the accuracy of payments relating to the Facility during Company's normal working hours on Business Days. Company shall maintain such records for a period of not less than thirty-six (36) months. **[Drafting Note: If PPA has energy payment, replace this section with the following: Company's Billing Records. Seller, after giving reasonable advance written notice to Company, shall have the right to review all billing, metering and related records necessary to verify the accuracy of the data provided by Company pursuant to Section 2.15 (Company's Obligation to Provide Certain Data) and payments relating to the Facility during Company's normal working hours on Business Days. Company shall maintain such records for a period of not less than thirty-six (36) months.]**

**[ATTACHMENT B WILL BE REVISED TO REFLECT  
THE RESULTS OF IRS]**

ATTACHMENT B  
FACILITY OWNED BY SELLER

1. The Facility.

(a) Drawings, Diagrams, Lists, Settings and As-Builts.

- (i) Single-Line Drawing, Interface Block Diagram, Relay List, Relay Settings and Trip Scheme. A preliminary single-line drawing (including notes), Interface Block Diagram, relay list, relay settings, and trip scheme of the Facility shall, after Seller has obtained prior written consent from Company, be attached to this Agreement on the Execution Date as Attachment E (Single-Line Drawing and Interface Block Diagram) and Attachment F (Relay List and Trip Scheme). A final single-line drawing (including notes), Interface Block Diagram, relay list and trip scheme of the Facility shall, after having obtained prior written consent from Company, be labeled the "Final" Single-Line Drawing, the "Final" Interface Block Diagram and the "Final" Relay List and Trip Scheme and shall supersede Attachment E (Single-Line Drawing and Interface Block Diagram) and Attachment F (Relay List and Trip Scheme) to this Agreement and shall be made a part hereof on the Commercial Operations Date. After the Commercial Operations Date, no changes shall be made to the "Final" Single-Line Drawing, the "Final" Interface Block Diagram and the "Final" Relay List and Trip Scheme without the prior written consent of Seller and Company. The single-line drawing shall expressly identify the Point of Interconnection of Facility to Company System.
- (ii) As-Builts. Seller shall provide final as-built drawings of the Seller-Owned Interconnection Facilities within 30 Days of the successful completion of the Acceptance Test.
- (iii) Modeling. Seller shall provide the models as set forth in Exhibit B-1.

(iv) No Material Changes. Seller agrees that no material changes or additions to the Facility as reflected in the "Final" Single-Line Drawing (including notes), the "Final" Interface Block Diagram and the "Final" Relay List and Trip Scheme, shall be made without Seller first having obtained prior written consent from Company. The foregoing are subject to changes and additions as part of any Performance Standards Modifications. If Company directs any changes in or additions to the Facility, records and operating procedures that are not part of any Performance Standards Modifications, Company shall specify such changes or additions to Seller in writing, and, except in the case of an emergency, Seller shall have the opportunity to review and comment upon any such changes or additions in advance.

(b) Certain Specifications for the Facility.

(i) Seller shall furnish, install, operate and maintain the Facility including breakers, relays, switches, synchronizing equipment, monitoring equipment and control and protective devices approved by Company as suitable for parallel operation of the Facility with Company System. The Facility shall be accessible at all times to authorized Company personnel.

(ii) The Facility shall include:

**[LIST OF THE FACILITY**

**Examples may include, but are not limited to:**

- **Seller-Owned Interconnection Facilities**
- **Substation**
- **Control and monitoring facilities**
- **Transformers**
- **Generating and BESS equipment (as described in Attachment A)**
- **"Lockable" cabinets or housings suitable for the installation of the Company-Owned Interconnection Facilities located on the Site**
- **Relays and other protective devices**

- **Leased telephone line and/or equipment to facilitate microwave communication]**

(iii) The Facility shall comply with the following **[includes excerpts of language that may be requested by Company]**:

- A. Seller shall install a \_\_\_\_ kV gang operated, load breaking, lockable disconnect switch and all other items for its switching station (relaying, control power transformers, high voltage circuit breaker). Bus connection shall be made to a manually and automatically (via protective relays) operated high-voltage circuit breaker. The high-voltage circuit breaker shall be fitted with bushing style current transformers for metering and relaying. Downstream of the high-voltage circuit breaker, a structure shall be provided for metering transformers. From the high-voltage circuit breaker, another bus connection shall be made to another pole mounted disconnect switch, with surge protection.
- B. Seller shall provide within the Seller-Owned Interconnection Facilities a separate, fenced area with separate access for Company. Seller shall provide all conduits, structures and accessories necessary for Company to install the Revenue Metering Package. Seller shall also provide within such area, space for Company to install its communications, supervisory control and data acquisition ("SCADA") equipment (remote terminal unit or equivalent) and certain relaying if necessary for the interconnection. Seller shall also provide AC and DC source lines as specified by Company. Seller shall provide a telephone line for Company-owned meters. Seller shall work with Company to determine an acceptable location and size of the fenced-in area. Seller shall provide an acceptable demarcation cabinet on its side of the fence where Seller and Company wiring will connect/interface.
- C. Seller shall ensure that the Seller-Owned Interconnection Facilities have a lockable

cabinet for switching station relaying equipment. Seller shall select and install relaying equipment acceptable to Company. At a minimum the relaying equipment will provide over and under frequency (81) negative phase sequence (46), under voltage (27), over voltage (59), ground over voltage (59G), over current functions (50/51) and direct transfer trip (if required). The settings shall be consistent with the requirements for over/under frequency and voltage ride-through. Seller shall install protective relays that operate a lockout relay, which in turn will trip the main circuit breaker and not allow it to be reclosed without reset.

D. [RESERVED].

E. Seller's equipment also shall provide at a minimum:

- (i) Interface with Company's Telemetry and Control, or designated communications and control interface, to provide telemetry of electrical quantities such as total Facility net MW, MVar, power factor, voltages, currents, and other quantities as identified by the Company;
- (ii) Interface with Company's Telemetry and Control, or designated communications and control interface, to provide status for circuit breakers, reactive devices, switches, and other equipment as identified by the Company;
- (iii) Interface with Company's Telemetry and Control, or designated communications and control interface, to provide control to incrementally raise and lower the voltage target at the point of regulation operating in automatic voltage regulation control;
- (iv) Interface with Company's Telemetry and Control, or designated communications and control interface, to provide active power

control to requirements of this Agreement. More than one interface may be required if Facility energy components, such as a BESS and variable generation resource are controlled separately by the Company (as in grid-charging BESS);

(v) Interface with Company's Telemetry and Control, or designated communications and control interface, for the Company to specify control system modes of operation and parameters, for remotely configurable parameters and operating states required under this Agreement;

(vi) For Variable Energy Facilities: Interface with Company's Telemetry and Control, or designated communications and control interface, to provide telemetry of inverter availability and meteorological and production data required under Section 8 (Data and Forecasting) of this Attachment B (Facility Owned by Seller) and the Facility's Power Possible.

(vii) Provision for Loss of Telemetry and Control: If Company's Telemetry and Control, or designated communications and control interface, is unavailable, due to loss of communication link, Telemetry and Control failure, or other event resulting in loss of the remote control by Company, provision must be made for Seller to be able to institute via local controls, within 5 minutes (or such other period as Company accepts in writing) of the verbal directive by the Company System Operator, such change in voltage regulation target and real power export or import as directed by the Company System Operator.

F. If Seller adds, deletes and/or changes any of its equipment, or changes its design in a manner that would change the characteristics of the equipment and specifications used in the IRS, Seller shall be required to obtain

Company's prior written approval. If an analysis to revise parts of the IRS is required, Seller shall be responsible for the cost of revising those parts of the IRS, and modifying and paying for the cost of the modifications to the Facility and/or the Company-Owned Interconnection Facilities based on the revisions to the IRS.

G. Critical Infrastructure Protection.

- (i) Documentation. Seller shall submit documentation describing the approach, methodology and design to provide physical and cyber security with its submittal of the design drawings pursuant to Section 1(c) (Design Drawings, Bill of Materials, Relay Settings and Fuse Selection) of Attachment B (Facility Owned by Seller) which shall be at least sixty (60) Days prior to the Acceptance Test.
- The design shall meet industry standards and best practices, as indicated by NERC CIP guidelines and requirements for critical generation facilities. The system shall be designed with the criteria to meet applicable industry standards and guidelines (at the time of this writing, NERC CIP, or any future standard adopted by the industry in its place) compliance requirements and identify areas that are not consistent with NERC CIP guidelines and requirements.
  - The cyber-security documentation shall include a block diagram of the control system with all external connections clearly described.
  - Seller shall provide such additional information as Company may reasonably request as part of a

security posture assessment.

- Company shall be notified in advance when there is any condition that would compromise physical or cyber security, or if any breaches in security, or security incidents are detected.

(ii) Malware. Seller shall (consistent with the following sentence) ensure that no malware or similar items are coded or introduced into any aspect of the Facility, Interconnection Facilities, the Company Systems interfacing with the Facility and Interconnection Facilities, and any of Seller's critical control systems or processes used by Seller to provide energy, including the information, data and other materials delivered by or on behalf of Seller to Company, (collectively, the "Environment"). Seller will continue to review, analyze and implement improvements to and upgrades of its Malware prevention and correction programs and processes that are commercially reasonable and consistent with the then current technology industry's standards and, in any case, not less robust than the programs and processes implemented by Seller with respect to its own information systems. If Malware is found to have been introduced into the Environment, Seller will promptly notify Company and Seller shall take immediate action to eliminate and remediate the effects of the Malware, at Seller's expense. Seller shall not modify or otherwise take corrective action with respect to the Company Systems except at Company's request. Seller will promptly report to Company the nature and status of all Malware elimination and remediation efforts.

(iii) Security Breach. In the event that Seller discovers or is notified of a breach, potential breach of security, or security incident at Seller's Facility or of Seller's systems, Seller shall immediately (i) notify Company of such potential, suspected or actual security breach, whether or not such breach has compromised any of Company's confidential information; (ii) investigate and promptly remediate the effects of the breach, whether or not the breach was caused by Seller; (iii) cooperate with Company with respect to any such breach or unauthorized access or use; (iv) comply with all applicable privacy and data protection laws governing Company's or any other individual's or entity's data; and (v) to the extent such breach was caused by Seller, provide Company with reasonable assurances satisfactory to Company that such breach, potential breach, or security incident shall not recur. Seller shall provide documentation to Company evidencing the length and impact of the breach. Any remediation of any such breach will be at Seller's sole expense.

(iv) Monitoring and Audit. Seller shall provide information on available audit logs and reports relating to cyber and physical and security. Company may audit Seller's records to ensure Seller's compliance with the terms of this Section 1(b)(iii)G (Critical Infrastructure Protection) of this Attachment B (Facility Owned by Seller), provided that Company has provided reasonable notice to Seller and any such records of Seller's will be treated by Company as confidential.

H.

Available Power Production.

- (i) Variable Energy Systems. Seller's available power production considering equipment and resource availability (Power Possible) will be determined at any given time using the best-available data and methods for an accurate representation of the amount of active power at the Point of Interconnection.
  
- (ii) Variable Energy Systems Paired with Storage Operated through a Single Active Power Control Interface. For variable energy systems paired with storage operated through a single active power control interface (i.e., charging indirectly controlled through dispatch), Seller's available power production considering equipment and resource availability and state of charge of the storage (Power Possible) will be determined at any given time using the best-available data and methods for an accurate representation of the amount of active power at the Point of Interconnection. Telemetry will be provided to indicate state of charge, including available estimated duration at the current dispatch given state of charge and forecast production.
  
- (iii) Storage Directly Controlled by the Company. Seller's available power production considering state of charge (Power Possible) will be supplied as an accurate representation of the amount of maximum and minimum (negative) available active power at the Point of Interconnection and the duration available at the current dispatch. If the Facility allows for allocation of capacity to different modes of operation (i.e., reservation of capacity for regulation or contingency response), then the available capacity in each allocated region shall be reported individually and controlled separately through separately designated

dispatch or active power control interface.

- I. For variable resources where Power Possible is derived, in part or in whole, from a measured available variable energy source such as solar or wind: To the extent available, the Parties shall use Seller's real time Power Possible communicated to Company through the SCADA System except to the extent that the Potential Energy does not accurately reflect the actual available active power at the Point of Interconnection (plus or minus 0.1 MW). During those periods of time when the SCADA derived Power Possible is unavailable or does not accurately represent the available power production considering equipment and resource availability, the Parties shall use the best available data obtained through commercially reasonable methods to determine the Power Possible. Follow up actions to resolve the discrepancy will be as provided in Section 1(j) (Demonstration of Facility) of this Attachment B (Facility Owned by Seller).
- J. Seller shall reserve space within the Site for possible future installation of Company-owned meteorological equipment (such as SODAR and irradiance monitors) and AC and DC source lines for such equipment. In the event Company decides to install such meteorological equipment: (i) Seller shall work with Company to determine an acceptable location for such equipment and any associated wiring, interface or other components; and (ii) Company shall pay for the needed equipment, and installation of such equipment, unless otherwise agreed to by the Parties. Company and Seller shall use commercially reasonable efforts to facilitate installation and minimize interference with the operation of the Facility.
- K. The Facility shall, at a minimum, satisfy the wind load and seismic load requirements of the International Building Code and any more stringent requirements imposed under applicable Laws.

- (c) Design Drawings, Bill of Material, Relay Settings and Fuse Selection. Seller shall provide to Company for its review the design drawings, Bill of Material, relay settings and fuse selection for the Facility, and Company shall have the right, but not the obligation, to specify the type of electrical equipment, the interconnection wiring, the type of protective relaying equipment, including, but not limited to, the control circuits connected to it and the disconnecting devices, and the settings that affect the reliability and safety of operation of Company's and Seller's interconnected system. Seller shall provide the relay settings and protection coordination study, including fuse selection and AC/DC Schematic Trip Scheme (part of design drawings), for the Facility to Company during the 60% design. Company, at its option, may, with reasonable frequency, witness Seller's operation of control, synchronizing, and protection schemes and shall have the right to periodically re-specify the settings. Seller shall utilize relay settings prescribed by Company, which may be changed over time as Company System requirements change.
- (d) Disconnect Device. Seller shall provide a manually operated disconnect device which provides a visible break to separate Facility from Company System. Such disconnect device shall be lockable in the OPEN position and be readily accessible to Company personnel at all times.
- (e) Other Equipment. Seller shall install, own and maintain the infrastructure associated with the Revenue Metering Package, including but not limited to all enclosures (meter cabinets, meter pedestals, meter sockets, pull boxes, and junction boxes, along with their grounding/bonding connections), CT/PT mounting structures, conduits and ductlines, enclosure support structures, ground buses, pads, test switches, terminal blocks, isolation relays, telephone surge suppressors, and analog phone lines (one per meter), subject to Company's review and approval.
- (f) Maintenance Plan. Seller shall maintain Seller-Owned Interconnection Facilities in accordance with Good Engineering and Operating Practices.

(g) Active Power Control Interface. [COMPANY TO REVISE THIS SECTION BASED ON SPECIFICS OF THE PROJECT.]

- (i) Seller shall provide and maintain in good working order all equipment, computers and software associated with the control system (the "Active Power Control Interface") necessary to interface the Facility active power controls with the Company System Operations Control Center for real power control of the Facility by the Company System Operator.

The detailed design will be tailored to the specific resource type and configuration to achieve the functional requirements of the Facility.

The Active Power Control Interface will be used to control the net real power export (or import, as applicable) from the Facility for load following, system balancing, energy arbitrage, and/or supplemental frequency control as required under this Attachment B (Facility Owned by Seller).

For variable resources paired with storage: The implementation of the Active Power Control Interface will allow the Company System Operator to control the net real power export (or import, as applicable) from the entire Facility remotely from the Company System Operations Control Center through control signals from the Company System Operations Control Center. The Facility will maintain the power level specified by the Company through the variable resource and BESS available energy, subject to the availability of resource and BESS State of Charge.

For facilities with grid charging storage, the Active Power Control interface may also direct the charging/discharging of energy from the BESS.

The Facility real power output (or import, if storage charging is enabled) will automatically adjust to a change in frequency in accordance

with the frequency response requirements provided in this Attachment B (Facility Owned by Seller).

- (ii) Company shall review and provide prior written approval of the design for the Active Power Control Interface to ensure compatibility with Company's centralized control systems and use of Facility available energy and storage capabilities. To ensure such continued compatibility, Seller shall not materially change the approved design without Company's prior review and written approval. This will include design description and parameters for the Seller's control system(s), which determine provision of net real power from the variable resource System (i.e., wind or PV) and/or the BESS storage, and charging of the BESS storage, in response to the Active Power Control signal or signals.
- (iii) The Active Power Control Interface shall include, but not be limited to, a demarcation cabinet, ancillary equipment and software necessary for Seller to connect to Company's Telemetry and Control, located in Company's portion of the Facility switching station which shall provide the control signals to the Facility and send feedback status to the Company System Operations Control Center. The control type shall be analog output (set point) or raise/lower controls and will be established by the Company prior to final design approval.
- (iv) The Active Power Control Interface shall also include provision for feedback points from the Facility indicating when active power target in MW for the Active Power Control signal(s). The Facility shall provide the MW target feedback to the Company SCADA system immediately upon receiving the respective control signal from the Company.
- (v) Seller shall provide to the telemetry interface analogs for the gross production of the energy resource(s) at the Facility (for example, DC or AC MW production of the variable resource generator(s), depending on design; gross DC MW of

the BESS, etc.). Seller shall also provide the total net AC MW production at the Point of Interconnection.

- (vi) The Active Power Control Interface shall provide for remote control of the real power output of the Facility by the Company at all times. If the Active Power Control Interface is unavailable or disabled, the Facility may not export electric energy to Company and the Facility shall be deemed to be in Seller-Attributable Non-Generation status, unless the Company, in its sole discretion, agrees on an alternate means of dispatch. If Seller fails to provide such remote control capability (whether temporarily or throughout the Term), then, notwithstanding any other provision of this Attachment B (Facility Owned by Seller), Company shall have the right to derate or disconnect the entire Facility during those periods that such control capability is not provided and the Facility shall be deemed to be in Seller-Attributable Non-Generation status for such periods.
- (vii) The rate at which the Facility changes net real power in response to the active power control shall not be less than the greater of 2 MW per minute or 10% of the Facility capacity per minute, and shall make available through agreed parameters, such faster ramp as the installed equipment can support. The Facility's Active Power Control Interface will be used by Company to control the rate at which electric energy is changed to achieve the active power limit for load-following and regulation. The Facility will respond to the active power control request immediately with an echo of the set point and measurable change within the 4 second control cycle.
- (viii) The Facility shall accept the following controls related to active power and frequency response to or from the Company centralized control system:
- Power Reference Setpoint from Company (based on the input to the Facility, from the Active Power Control Interface): The

Facility output shall match this setting from the Variable Resource and/or BESS so long as it can be supported by the variable resource and/or BESS State of Charge (Power Possible does not change). This net output should be accurate within +/- 0.1 MW under normal frequency conditions. This setpoint will be modified as appropriate in the controls by the appropriate frequency response consistent with Section 1(g)(xi) (Active Power - Frequency Response (DROOP)), Section 1(g)(xii) (Dynamic Active Power - Frequency Performance), and **[FOR FACILITIES WITH STORAGE]** Section 1(g)(xiii) (Alternate Active Power / Frequency Response Modes) of this Attachment B (Facility Owned by Seller).

- For variable energy resources: The Facility shall include Variable Resource Enable/Disable control. When "Disable" is selected, the Facility shall ramp down, shutdown, and leave offline variable resource generators. When "Enable" is selected, the Facility variable resource generators can start up, ramp up, and remain in normal operations subject to Company active power dispatch.
- From Company: Frequency Response Mode (DROOP, FFR, isochronous) state (where alternate modes of operation are required).
- From Seller:
  - [For Facilities with a BESS and where required]: Capacity allocation to each mode of operation where ability to allocate capacity to different modes of operation is required (e.g., to allocate a portion of capacity to fast frequency response) and telemetered data and controls necessary to determine state of charge and gross MW and Mvar

- contribution, etc., operationally required for each segmented use.
- o Power Possible (Available maximum capacity): See above, instantaneous limit for available energy, represents max level the Facility can produce under present resource, BESS State of Charge (if applicable) and equipment conditions. This is used as upper limit for Company Dispatch.
  - o For variable energy resources, maximum level the variable generation resources can produce under present variable resource and equipment conditions.
  - o Minimum Sustained Limit: Minimum output level the Facility can be reduced to continuously without delay (ecomn). For projects with BESS: If BESS charging from the grid is permitted, and charging capacity is available, this will be a negative value.
  - o Minimum Transient Limit (for frequency response, regulation) (lfcmn). For projects with BESS: If BESS charging from the grid is permitted, and charging capacity is available, this will be a negative value.
  - o Maximum Dispatchable Ramp Rate: Controlled ramp rate available for controlled changes in output.
  - o For projects with a BESS, Seller shall also provide the following:
    - BESS potential (BESS State of Charge and projected number of hours at present dispatch, minimum dispatch, and maximum dispatch).
    - Frequency Response Mode (DROOP, FFR, isochronous) state (where

alternate modes of operation are required).

- Capacity allocation to each mode of operation (to allow FFR and Droop allocation).

(ix) Seller shall not override Company's active power controls without first obtaining specific approval to do so from the Company System Operator unless there is a system emergency. Disabling of the remote Active Power Control shall initiate telemetry notification to the Company.

(x) The requirements of the Active Power Control Interface may be modified as mutually agreed upon in writing by the Parties.

**Active Power Communications between Company and Seller**

Company will receive and send AGC Set-Point and related data through the communications interface in accordance with Company standards. The data points covered under this Agreement, as described below, may overlap with data requirements described elsewhere.

**AGC Data Points to be sent from Seller to Company via SCADA**

The following data points will be transmitted via SCADA from Seller to Company and represent Facility level data **[Note: May be modified based on resource type and Facility requirements]**:

<u>Description</u>	<u>Units</u>
AGC Set-Point (echo)	MW
Power demand	MW
Actual power	MW
Power Possible	MW
Actual reactive power	Mvars
Average Voltage	Kv

Variable Generation potential	MW
[Wind only] Number of turbines online and running	Integer
BESS State of Charge	Pct
[PV only] Inverters online	Integer
Facility duration at current output	HRS
AGC Status	Remote/Local
[For facilities with alternate modes of frequency response] Indication of Frequency Response Mode	Integer FFR, Droop, ISOCH

**Response times and limitations of Facility in regards to Active Power Control**

The following protocols outline the expectations for responding to the AGC Set-Point.

Frequency of Changes. Company may send a new AGC Set-Point to the Facility at up to the AGC control cycle (present 4 seconds).

Range of AGC Set-Point. The range of set point values can be between 0% and 100% of Power Possible. For projects offering grid-charging storage, negative set-point values may be required.

**Backup Communications**

In the event of an AGC failure, Company and Seller shall communicate via telephone, or other method mutually agreeable between the Parties, in order to correct the failure.

(xi) Active Power - Frequency Response (DROOP).

The Facility shall provide a primary frequency response with a frequency droop characteristic

reacting to system frequency at the Point of Interconnection in both the overfrequency and underfrequency directions except as limited by the minimum and maximum available capacity and energy potential at the time of the event including BESS state of charge. This response must be timely and sustained rather than injected for a short period and then withdrawn. For over-frequency events, response may include absorption through charging (as applicable under the terms of this Agreement). Seller shall provide minimum operational limits for each online resource and the Facility for primary frequency response.

Frequency will be calculated over a period of time (e.g., three to six cycles, or other period as specified by Company), and filtered to take control action on the fundamental frequency component of the calculated signal. Calculated frequency may not be susceptible to spikes caused by phase jumps on the Company system.

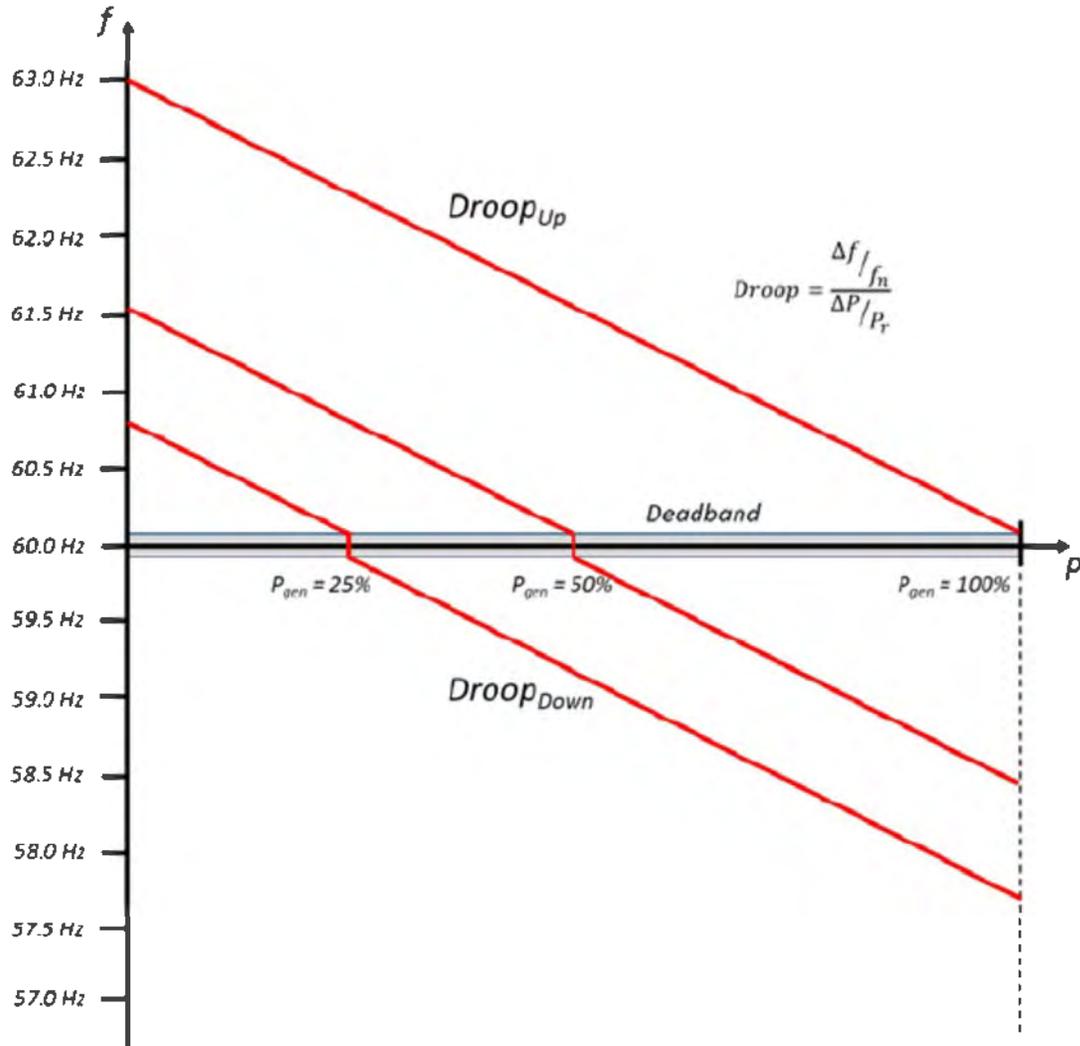
The active power-frequency control system, and overall response of the inverter-based resource (plant), must meet the following performance aspects (see figure below):

The active power-frequency control system shall have an adjustable proportional droop characteristic with a default value of [4%] percent. The droop setting shall permit a setting from 0.1% to 10%. This setting shall be changed upon Company's written request as necessary for grid droop response coordination. The droop setting shall be tunable and may be specified during commissioning. The droop shall be a permanent value based on Pmax (maximum nominal active power output of the plant) and Pmin (typically 0 for an inverter based resource). This keeps the proportional droop constant across the full range of operation. The curve for an inverter-based BESS may include the negative active power quadrant of this curve. The droop response must include the capability to respond in both the upward (underfrequency) and downward (overfrequency) directions. Frequency droop will be based on the difference between maximum

nameplate active power output ( $P_{max}$ ) and zero output ( $P_{min}$ ) such that the [4%] percent droop line is always constant for a resource.

Seller shall make commercially reasonable efforts to provide frequency response without a deadband, but in any case, not to exceed  $\pm 0.0166$  Hz. If the active power-frequency control system has a deadband, it shall be a nonstep deadband that is adjustable between 0 Hz and the full frequency range of the droop characteristic with a default value not to exceed  $\pm 0.036$  Hz. (Nonstep deadband is where the change in active power output starts from zero deviation on either side of the deadband.) (Frequency deadband is the range of frequencies in which the unit does not change active power output.)

Inverter-based resources may consider a small hysteresis characteristic where linear droop meets any deadband to reduce dithering of inverter output when operating near the edges of the deadband. The hysteresis range may not exceed  $\pm 0.005$  Hz on either side of the deadband. If measurement resolution is not sufficient to measure this frequency, hysteresis may not be used.



**Active Power - Frequency Control Characteristic**

Nominal System Frequency is 60.00 Hz.

The closed-loop dynamic response of the active power-frequency control system of the overall inverter-based resources, as measured at the POI must have the capability to meet or exceed the performance specified in below. Seller shall ensure that the models and parameters for the resources and control equipment are consistent with those provided during the IRS process and that any updates have been provided to the Company reflecting currently implemented settings and configuration.

(xii) Dynamic Active Power-Frequency Performance.

For a step change in frequency at the point of measure of the inverter-based resource **[NOTE - MAY BE ADJUSTED AS THE RESULT OF IRS]**:

Reaction time: The time between a step change in frequency and the time when the resource active power output begins responding to the change shall be less than 500 Ms, or as otherwise specified by Company.<sup>1</sup>

Rise time: The time when the resource has reached 90% of the new steady-state (target) active power output shall be less than 4 seconds, or as otherwise specified by Company.<sup>2</sup>

Settling Time: Time in which the resource has entered into, and remains within, the settling band of the new steady-state active power (target) output shall be less than 10 seconds, or as otherwise specified by Company.

Overshoot: Percentage of the rated active power output that the resource can exceed while reaching the settling band shall be less than 5% or as otherwise specified by Company.<sup>3</sup>

Settling Band: Percentage of rated active power output that the resource should settle to within the settling time shall be less than 2.5%.

When operating in parallel with the Company System, the Facility shall operate with its primary frequency response control in automatic operation and in accordance with Company directions. Notification of changes in the status of the frequency response controls and, where applicable, mode of operation must be provided to the Company System Operator immediately through SCADA telemetry indication.

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<sup>1</sup> Time between step change in frequency and the time to 10 percent of new steady-state value can be used as a proxy for determining this time.

<sup>2</sup> Percentage based on final (expected) settling value.

<sup>3</sup> Percentage based on final (expected) settling value.

The Facility frequency response control shall adjust, without intentional delay and without regard to the ramp rate limits in Section 3(c) (Ramp Rates) of this Attachment B (Facility Owned by Seller), the Facility's net real power export based on frequency deadband and frequency droop settings specified by the Company.

The Facility frequency response control shall increase the net real power export above the Power Reference Setpoint set under Section 1(g)(viii) of this Attachment B (Facility Owned by Seller) or further decrease the net real power export from the Power Reference Limit in its operations in accordance with the frequency response settings.

The Facility frequency response control shall be in continuous operation unless directed otherwise by the Company.

(xiii) **[FOR FACILITIES WITH STORAGE]**. Alternate Active Power/ Frequency Response Modes. The Facility will provide the capability to supply isochronous or fast frequency response modes of operation, in addition to normal droop, which can be set remotely or locally. The control design shall allow for a bumpless transfer between modes of operation.

A. Fast Frequency Response (FFR): This mode of operation will permit the Facility to respond to system frequency disturbances with a fast charge/discharge response in accordance with the fast frequency response droop settings. In this mode of operation, the Facility frequency response is configured to provide fast frequency response, as an alternative setting to the typical steady-state frequency response. When in this mode of operation, the frequency droop characteristics are configured to charge or discharge with a different set of parameters to allow for a faster and larger proportional charge and discharge in response to frequency changes outside of the configurable deadband. The initial parameter settings will be specified by Company following the IRS, and additional

tuning and adjustment of configurable parameters may be required based on review of response to actual system events. When in FFR mode, when system frequency is within the fast frequency response deadband, the Facility will operate to maintain a percentage state of charge, which is configurable on Company request (i.e., 50%), managed at a charging/discharging rate also specified by Company.

(1) When in FFR mode the active power-frequency control system shall have an adjustable FFR proportional droop characteristic with a default value of [1%] percent. The FFR droop setting shall permit a setting from 0.1% to 5%. This setting shall be changed upon Company's written request as necessary for fast frequency response coordination. The FFR droop shall be a permanent value based on Pmax (maximum nominal active power output of the plant) and Pmin (typically 0 for an inverter-based resource). This keeps the proportional droop constant across the full range of operation. The curve for an inverter-based BESS may include the negative active power quadrant of this curve. The droop response must include the capability to respond in both the upward (underfrequency) and downward (overfrequency) directions. Frequency droop will be based on the difference between maximum nameplate active power output (Pmax) and zero output (Pmin) such that the [1%] percent droop line is always constant for a resource.

(2) When in FFR mode the active power-frequency control system shall have an adjustable frequency deadband with a default value of 0.3 Hz. The deadband setting shall permit a setting from 0.1 Hz to 1 Hz. This setting shall be changed upon Company's written request

as necessary for fast frequency response coordination. The deadband setting shall be tunable and may be specified during commissioning. It shall be a nonstep deadband such that the change in active power output starts from zero deviation on either side of the deadband. (Frequency deadband is the range of frequencies in which the unit does not change active power output.)

(3) FFR-1 Performance Requirements - Expected FFR Active Power-Frequency Performance. For a step change in frequency at the point of measure of the FFR resource:

Reaction time: The time between a step change in frequency and the time when the resource active power output begins responding to the change shall be less than 50 milliseconds, or as otherwise specified by Company.<sup>4</sup>

Rise time: The time when the resource has reached 90% of the new steady-state (target) active power output shall be less than 0.133 seconds, or as otherwise specified by Company.<sup>5</sup>

Settling Time: Time in which the resource has entered into, and remains within, the settling band of the new steady-state active power (target) output shall be less than 500 milliseconds, or as otherwise specified by Company.

Overshoot: Percentage of the rated active power output that the resource can exceed while reaching the

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<sup>4</sup> Time between step change in frequency and the time to 10 percent of new steady-state value can be used as a proxy for determining this time.

<sup>5</sup> Percentage based on final (expected) settling value.

settling band shall be less than 5% or as otherwise specified by Company.<sup>6</sup>

Settling Band: Percentage of rated active power output that the resource should settle to within the settling time shall be less than 2.5%.

A.B. Isochronous / Black Start: The Facility will be capable of operating in a zero droop (isochronous) mode of operation. When in this mode of operation, the frequency droop characteristic will be configured as needed to keep system frequency at a target. In a black start configuration, the target shall be 60 Hz. If isochronous is specified while in operation, the target shall be initialized to the grid frequency and the target increased or decreased from the Company System through the control interface.

(h) Control System Acceptance Test Procedures.

(i) Conditions Precedent. The following conditions precedent must be satisfied prior to conducting the Control System Acceptance Test:

- Successful Completion of the Acceptance Test.
- Facility has been successfully energized.
- All of the Facility's generators (as applicable) have been fully commissioned.
- The control system computer has been programmed for normal operations.
- All equipment that is relied upon for normal operations (including ancillary devices such as capacitors/inductors, energy storage device, statcom, etc.) shall have been commissioned and be operating within normal parameters.

(ii) Facility Energy Equipment. In the event that all or any portion of the Facility's energy equipment is not available for the duration of

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<sup>6</sup> Percentage based on final (expected) settling value.

the Control System Acceptance Test, the Control System Acceptance Test will have to be re-run from the beginning unless Seller demonstrates to the satisfaction of the Company that the test results attained are consistent with the results that would have been attained if all of the equipment had been available for the duration of the test.

- (iii) Procedures. The Control System Acceptance Test will be conducted on Business Days during normal working hours on a mutually agreed upon schedule. No Control System Acceptance Test will be scheduled during the final 21 Days of a calendar year. No later than thirty (30) Days prior to conducting the Control System Acceptance Test, Company and Seller shall agree on a written protocol setting out the detailed procedure and criteria for passing the Control System Acceptance Test. Attachment O (Control System Acceptance Test Criteria) provides general criteria to be included in the written protocol for the Control System Acceptance Test. Within fifteen (15) Business Days of completion of the Control System Acceptance Test, Company shall notify Seller in writing whether the Control System Acceptance Test(s) has been passed and, if so, the date upon which such Control System Acceptance Test(s) was passed. If any changes have been made to the technical specifications of the Facility or the design of the Facility in accordance with Section 5(f) of Attachment A (Description of Generation, Conversion and Storage Facility), such changes shall be reflected in an amendment to this Agreement, and the written protocol for the Control Systems Acceptance Test shall be based on the Facility as modified. Such amendment shall be executed prior to conducting the Control System Acceptance Test and Company shall have no obligation for any delay in performing the Control Systems Acceptance Test due to the need to complete and execute such amendment.

- (i) Facility Security and Maintenance. Seller is responsible for securing the Facility. Seller shall have personnel available to respond to all calls related

to security incidents and shall take commercially reasonable efforts to prevent any security incidents. Seller is also responsible for maintaining the Facility, including vegetation management, to prevent security breaches. Seller shall comply with all commercially reasonable requests of Company to update security and/or maintenance if required to prevent security breaches.

- (j) Demonstration of Facility. Company shall have the right at any time, other than during maintenance or other special conditions, communicated by Seller, to notify Seller in writing of Seller's failure, as observed by Company and set forth in such written notice, to meet the operational and performance requirements specified in Section 2.11 (Fast Frequency Response Performance Metric) of this Agreement, and Section 1(b)(iii)(I), Section 1(g) (Active Power Control Interface) and Section 3 (Performance Standards) of this Attachment B (Facility Owned by Seller), and to require documentation or testing to verify compliance with such requirements. Upon receipt of such notice, Seller shall promptly investigate the matter, implement corrective action and provide to Company, within thirty (30) Days of such notice, a written report of both the results of such investigation and the corrective action taken by Seller; provided, that, if thirty (30) Days is not a reasonable time period to investigate the matter, implement corrective action and provide such written report, Seller shall complete the foregoing within such longer commercially reasonable period of time agreed to by the Parties in writing. If the Seller's report does not resolve the issue to Company's reasonable satisfaction, the Parties shall promptly commission a study to be performed by one of the engineering firms then included on the Qualified Independent Third-Party Consultants List attached to the Agreement as Attachment D (Consultants List) to evaluate the cause of the non-compliance and to make recommendations to remedy such non-compliance. Seller shall pay for the cost of the study. The study shall be completed within ninety (90) Days, unless the selected consultant determines such study cannot reasonably be completed within ninety (90) Days, in which case, such longer period of time as the selected consultant determines is necessary to complete such study shall apply. The consultant shall send the study to Company and Seller. Seller (and/or its Third-Party consultants and contractors), at Seller's expense,

shall take such action as the study shall recommend with the objective of resolving the non-compliance. Such recommendations shall be implemented by Seller to Company's reasonable satisfaction no later than forty-five (45) Days from the Day the completed study is issued by the consultant, unless such recommendations cannot reasonably be implemented within forty-five (45) Days, in which case, Seller shall implement such recommendations within such longer commercially reasonable period of time agreed to by the Parties in writing. Failure to implement such recommendations within this period shall constitute a material breach of this Agreement. Unless the aforementioned written report and study are being completed, and any recommendations are being implemented, solely to address Seller's failure to satisfy the requirements of Section 3(w) (Round Trip Efficiency) of this Attachment B (Facility Owned by Seller), the Company shall have the right to declare the Facility derated and in Seller-Attributable Non-Generation status until the Seller's aforementioned written report has been completed, any subsequent study commissioned by the Parties has been completed and any recommendations to resolve the non-compliance have been implemented to Company's reasonable satisfaction.

2. Operating Procedures. **[NOTE: NUMERICAL SPECIFICATIONS IN THIS SECTION 2 MAY VARY DEPENDING ON THE SPECIFIC PROJECT AND THE RESULTS OF THE PROJECT-SPECIFIC INTERCONNECTION REQUIREMENT STUDY.]**

- (a) Reviews of the Facility. Company may require periodic reviews of the Facility, maintenance records, available operating procedures and policies, and relay settings, and Seller shall implement changes Company deems necessary for parallel operation or to protect the Company System from damages resulting from the parallel operation of the Facility with the Company System.
- (b) Separation. Seller must separate from Company System whenever requested to do so by the Company System Operator pursuant to Article 8 (Company Dispatch) and Article 9 (Personnel and System Safety) of the Agreement.

- (c) Seller Logs. Logs shall be kept by Seller for information on unit availability including reasons for planned and forced outages; circuit breaker trip operations, relay operations, including target initiation and other unusual events. Company shall have the right to review these logs, especially in analyzing system disturbances. Seller shall maintain such records for a period of not less than six (6) years.
- (d) Reclosing and Return to Service. Under no circumstances shall Seller, when separated from the Company System for any reason, including during tripping during disturbances or due to equipment failure, reclose into the Company System without first obtaining specific approval to do so from the Company System Operator. Ramp rates, behavior and mode of operation upon return to service shall conform to verbal instructions from the System Operator or Active Power control from Company. Following "system black" conditions, the Facility shall not attempt to automatically reconnect to the grid (unless directed by the Company System Operator) so as to not interfere with blackstart procedures.
- (e) Reserved.
- (f) Reserved.
- (g) Critical Infrastructure Protection. Seller shall comply with the critical infrastructure protection requirements set forth in Section 1(b)(iii)(G) of this Attachment B (Facility Owned by Seller).
- (j) Allowed Operations. Facility shall be allowed to export energy to the Company System only when the [\_\_\_\_\_] circuit is in normal operating configuration served by breaker [\_\_\_\_\_] at [\_\_\_\_\_] Substation. **[TO BE DETERMINED BY COMPANY BASED ON THE RESULTS AND REQUIREMENTS OF THE IRS]**

3. Performance Standards.

- (a) Reactive Power Control. Seller shall control its reactive power by automatic voltage regulation control. Seller shall automatically regulate voltage at a point, the point of regulation, between the Seller's generator

terminal and the Point of Interconnection to be specified by Company, to within 0.5% of a voltage or power factor specified by the Company System Operator to the extent allowed by the Facility reactive power capabilities as defined in Section 3(b) (Reactive Power Characteristics) of this Attachment B (Facility Owned by Seller).

(b) Reactive Power Characteristics. **[THESE REQUIREMENTS MAY BE CHANGED BY COMPANY UPON COMPLETION OF THE IRS.]**

- (i) The Facility must deliver power up to the Allowed Capacity (MW) at a power factor between 95% lagging and 95% leading to the Company System as illustrated in the **[generator capability]** curve(s) attached to this Agreement as Exhibit B-2, which represents the Facility Composite (Generator and Energy Storage Capability Curve(s)). Facilities with a BESS with grid charging can operate with negative active power. These facilities shall provide automatic voltage control within their reactive capability while acting as a load (charging, negative active power generation). The automatic voltage control aspects of a BESS shall be seamless across the transition from acting as a generating resource to acting as a load. The Facility must be capable of automatically adjusting reactive control to maintain the bus voltage at the Point of Interconnection to meet the scheduled voltage set point target specified by the Company System Operator and be capable of supplying reactive power at the leading/lagging 0.95 power factor at all active power outputs down to zero active power. The voltage target will be specified remotely by the Company System Operator through the SCADA/EMS. The Facility's voltage set point target must reflect the Company voltage set point target controlled from the SCADA/EMS, without delay. The Facility should not normally operate on a fixed var or fixed power factor unless agreed by Company. The voltage setpoint target and present Facility minimum and maximum reactive power limits based on the Facility Composite capability curve shall be provided to the Company EMS through Company's Telemetry and Control.

- (ii) The Facility shall contain equipment able to continuously and actively control the output of reactive power under automatic voltage regulation control reacting to system voltage changes. The response requirements are differentiated for large and small signal disturbance performance characteristics. Small signal disturbances are those that reflect normal variations under non-disturbance conditions, the continuous operation range for voltage ride through:  $0.80 \text{ pu} \leq V \leq 1.00 \text{ pu}$  at the point of interconnection. Large disturbance is where the voltage at the point of interconnection falls outside the continuous operating range.
- (iii) For small signal disturbances, reaction time between the step change in voltage and the reactive power change shall be less than 500 msec (no intentional time delay). The automatic voltage regulation response speed at the point of regulation shall be such that at least 90% of the initial voltage correction needed to reach the voltage control target will be achieved within 1 second following a step change. The percentage of rated reactive power output that the resource can exceed while reaching the settling band shall be less than five percent (5%).
- (iv) Large disturbances: Large disturbances are characterized by voltage falling outside of the continuous operating range. The Facility shall adhere to the following characteristics for large disturbances:

The response of each generating resource over its full operating range and for all expected grid conditions should be stable. The dynamic performance of each resource should be tuned to provide this stable response. Company will work with Seller to ensure during the interconnection process that each resource supports Company System reliability and provides a stable transient response to grid events. **[Note - The performance specifications described here may need to be modified based on studies performed for specific interconnections to provide a stable response.]**

Inverter-based resources shall operate in closed loop automatic voltage control at all times to support voltage regulation and voltage stability. Either the individual inverters or the plant-level closed loop automatic voltage controller must operate with a relatively fast response characteristic to mitigate steady-state voltage issues from causing dynamic voltage collapse. The plant-level controller may send voltage or reactive power set point changes to the individual inverters relatively fast, or the inverters will respond locally (depending on control architecture).

For a large disturbance step in voltage, measured at the inverter terminals, where voltage falls outside the continuous operating range, the positive sequence component of the inverter reactive current response must meet the performance specifications set forth below. These parameters may be adjusted following additional study and/or operational testing and performance.

Reaction time: Time between the step change in voltage and when the resource reactive power output begins responding to the change. The reaction time shall be less than 16 msec.

Rise time: Time between a step change in control signal input and when the reactive power output changes by 90 percent of its final value. The rise time shall be less than 100 msec.

Overshoot: Percentage of rated reactive current output that the resource can exceed when reaching the settling band. Overshoot will be determined following the IRS such that any overshoot in reactive power response does not cause Company System voltages to exceed acceptable voltage limits. The magnitude of the dynamic response may be requested to be reduced based on stability studies or actual operational data review.

If the Facility does not operate in accordance with Section 3(b) of this Attachment B (Facility Owned by Seller), Company may disconnect all or a part of Facility from Company System until Seller corrects its operation (such as by installing supplemental

reactive power equipment or additional control modifications, at Seller's expense).

(c) Ramp Rates.

Seller shall ensure that the ramp rate of the Facility is less 2 MW a minute for all conditions other than those under control of the Company System Operator and/or those due to desired frequency response, including start up, depletion of storage charge and resource, locally controlled startup and shut down.

(d) Ride Through.

Ride-Through requires that the resource continues to inject current within the "No Trip" zone of the voltage and frequency ride-through requirements. Unless approved during the Interconnection Requirements Study analysis, resources should not use "momentary cessation" within the ride-through regions for any of the ride-through requirements in this Attachment B (Facility Owned by Seller).

(e) Undervoltage Ride-Through.

The Facility, as a whole, will meet the following undervoltage ride-through requirements during low voltage affecting one or more of the three voltage phases ("V" is the voltage of any three voltage phases at the Point of Interconnection). For alarm conditions the Facility shall not disconnect from the Company System unless the Facility's equipment is at risk of damage. This is necessary in order to coordinate with the existing Company System. **[THESE VALUES MAY BE CHANGED BY COMPANY UPON COMPLETION OF THE IRS. WITHOUT LIMITATION, FOR A DISTRIBUTION-CONNECTED FACILITY, UPON COMPLETION OF THE IRS THE COMPANY MAY SPECIFY REQUIREMENTS FOR A MANDATORY DISCONNECTION FROM THE COMPANY SYSTEM.]**:

0.80 pu  $\leq$  V  $\leq$  1.00 pu      The Facility remains connected to the Company System and in continuous operation.

0.00 pu  $\leq$  V < 0.80 pu      The Facility remains connected to the Company System and in

continuous operation for a minimum of 600 milliseconds per event (while "V" remains in this range). The Facility may initiate an alarm if "V" remains in this range for more than 600 milliseconds; the duration of the event is measured from the point at which the voltage drops below 0.80 pu and ends when the voltage is at or above 0.80 pu. The 600 milliseconds represents a delayed clearing time of 30 cycles plus breaker opening time.

Protective Undervoltage Relaying (27) shall be set to alarm only to meet the above ride-through requirements, and shall not initiate a disconnect from the Company System unless Seller reasonably determines based upon Good Engineering and Operating Practices that the Facility's equipment is at risk of damage. This is necessary in order to coordinate with the existing Company System.

Seller shall have sufficient capacity to fulfill the above mentioned requirements to ride-through subsequent events 300 cycles or more apart, between which the voltage at the POI recovers above 0.80 pu. **[THE ACTUAL RIDE-THROUGH TIMES WILL BE DETERMINED BY COMPANY IN CONNECTION WITH THE IRS]**

(f) Over Voltage Ride-Through.

The overvoltage protection equipment at the Facility shall be set so that the Facility will meet the following overvoltage ride-through requirements during high voltage affecting one or more of the three voltage phases (as described below) ("V" is the voltage of any of the three voltage phases at the Point of Interconnection). For alarm conditions the Facility should not disconnect from the Company System unless the Facility's equipment is at risk of damage. This is necessary in order to coordinate with the existing Company System. **[THESE VALUES MAY BE CHANGED BY THE COMPANY UPON COMPLETION OF THE IRS. WITHOUT LIMITATION,**

**FOR A DISTRIBUTION-CONNECTED FACILITY, UPON COMPLETION OF THE IRS THE COMPANY MAY SPECIFY REQUIREMENTS FOR A MANDATORY DISCONNECTION FROM THE COMPANY SYSTEM AT  $V > 1.2$  pu. RIDE-THROUGH REQUIREMENTS FOR OTHER SYSTEMS WILL BE DETERMINED IN THE IRS.] :**

$1.00 \text{ pu} < V \leq 1.10 \text{ pu}$       The Facility remains connected to the Company System.

$1.10 \text{ pu} < V \leq 1.15 \text{ pu}$       The Facility remains connected to the Company System and in continuous operation no less than 30 seconds; the duration of the event is measured from the point at which the voltage increases at or above 1.1 pu and ends when voltage is at or below 1.1 pu.

$V > 1.15 \text{ pu}$       The Facility remains connected to the Company System and in continuous operation for as long as possible as allowed by the equipment operational limitations.

Protective Overvoltage Relaying (59) shall be set to alarm only to meet the above ride-through requirements, and shall not initiate a disconnect from the Company System immediately unless Seller reasonably determines based upon Good Engineering and Operating Practices that the Facility's equipment is at risk of damage. This is necessary in order to coordinate with the existing Company System.

(g) Transient Stability Ride-Through.

The Facility shall be designed such that the transient stability of Company System is maintained for normally cleared and secondarily cleared faults. The Facility will be required to remain connected through anticipated rates of change of frequency **[TO BE PROVIDED UPON COMPLETION OF IRS]**

(h) [RESERVED]

(i) Underfrequency Ride-Through.

The Facility shall meet the following underfrequency ride-through requirements during an underfrequency disturbance, and export of power shall continue with output adjusted as appropriate for Facility droop response consistent with Section 1(g)(xi) (Active Power - Frequency Response (DROOP)), Section 1(g)(xii) (Dynamic Active Power - Frequency Performance), and **[FOR FACILITIES WITH STORAGE]** Section 1(g)(xiii) (Alternate Active Power / Frequency Response Modes) of this Attachment B (Facility Owned by Seller) ("f" is the Company System frequency at the Point of Interconnection):

$57.0 \text{ Hz} \leq f \leq 60.0 \text{ Hz}$                       The Facility remains connected to the Company System and in continuous operation.

$56.0 \text{ Hz} \leq f < 57.0 \text{ Hz}$                       The Facility remains connected to the Company System and in continuous operation for at least six (6) seconds per event. The duration of the event is from the point at which the frequency is below 57 Hz and ends when the frequency is at or above 57 Hz. The Facility may initiate an alarm if frequency remains in this range for more than six (6) seconds.

$f < 56.0 \text{ Hz}$                                       The Facility remains connected to the Company System and in continuous operation for the duration allowed by the equipment operational limitations. The Facility may initiate an alarm immediately.

Protective Underfrequency Relaying (81U) shall be set to alarm only to meet the above ride-through requirements, and shall not initiate a disconnect from the Company System unless Seller reasonably determines based upon Good Engineering and Operating Practices that the

Facility's equipment is at risk of damage. This is necessary in order to coordinate with the existing Company System.

Any tripping on calculated frequency should be based on accurately calculated and filtered frequency measurement over a time frame of minimum six cycles, or other period as specified by the Company, and should not use an instantaneously calculated value.

(j) Overfrequency Ride-Through.

The Facility will behave as specified below for overfrequency conditions, and export of power shall continue with output adjusted as appropriate for Facility droop response consistent with Section 1(g)(xi) (Active Power - Frequency Response (DROOP)), Section 1(g)(xii) (Dynamic Active Power - Frequency Performance), and **[FOR FACILITIES WITH STORAGE]** Section 1(g)(xiii) (Alternate Active Power / Frequency Response Modes) ("f" is the Company System frequency at the Point of Interconnection):

60.0 Hz < f ≤ 61.5 Hz                      The Facility remains connected to the Company System and in continuous operation.

61.5 Hz < f ≤ 63.0 Hz                      The Facility remains connected to the Company System for at least ten (10) seconds. After ten seconds, the Facility may initiate an alarm and the Facility remains connected and producing power for the duration allowed by the equipment operational limitations. The duration of condition is from the point at which the frequency is above 61.5 Hz and ends when the frequency is at or below 63.0 Hz.

f > 63.0 Hz                                      The Facility remains connected to the Company System for the duration allowed by the

equipment operational  
limitations. The Facility may  
initiate an alarm immediately.

Protective Overfrequency Relaying (810) shall be set to alarm only to meet the above ride-through requirements, and shall not initiate a disconnect from the Company System unless Seller reasonably determines based upon Good Engineering and Operating Practices that the Facility's equipment is at risk of damage. This is necessary in order to coordinate with the existing Company System.

Any tripping on calculated frequency should be based on accurately calculated and filtered frequency measurement over a time frame of minimum six cycles, or other period as specified by the Company, and should not use an instantaneously calculated value.

(k) Successive Faults.

If the resource necessitates tripping to protect from the cumulative effects of those successive faults, in a period of time to ensure safety and equipment integrity, the constraint and time periods should be provided for inclusion in the interconnection study. For all cases, at a minimum, the ride-through requirements shall be met for two ride-through events within two seconds to allow for the Company's transmission automatic reclosing attempt. **[Note - this requirement may be modified based on the results of the IRS.]**

(l) Rate of Change of Frequency ("ROCOF").

The inverter-based resources in the Facility shall not use rate-of-change-of-frequency protection unless an equipment limitation exists that requires the inverter to trip on high ROCOF. Any ROCOF tripping must be approved by Company.

(m) Phase Angle Shift Ride-Through.

The Facility equipment shall ride through phase angle shift of up to ([ ]) **[Note - requirements will depend on Facility]**. Inverter phase lock loop (PLL) loss of synchronism shall not cause the inverter to trip or enter momentary cessation within the voltage and

frequency ride-through region. Inverters must be capable of riding through temporary loss of synchronism, and regain synchronism, without causing a trip or momentary cessation of the resource.

(n) DC Protection.

If the Facility requires DC reverse current protection, such protection must be coordinated with the inverter equipment module ratings and set to operate for short circuits on the DC side. DC reverse current protection shall not operate for transient overvoltage or for AC-side faults.

(o) Voltage Flicker.

Any voltage flicker on the Company System caused by the Facility shall not exceed the limits stated in IEEE Standard 1453-2011, or latest version "Recommended Practice - Adoption of IEC 61000-4-15:2010, Electromagnetic compatibility (EMC) - Testing and measurement techniques - Flickermeter - Functional and design specifications".

(p) Harmonics.

Harmonic distortion at the Point of Interconnection caused by the Facility shall not exceed the limits stated in IEEE Standard 519-1992, or latest version "Recommended Practices and Requirements for Harmonic Control in Electrical Power Systems". Seller shall be responsible for the installation of any necessary controls or hardware to limit the voltage and current harmonics generated from the Facility to defined levels.

(q) Grid Forming Capabilities.

**[NOTE APPLICABILITY BASED ON RESOURCE TYPE AND DESIGN, FOR INVERTER BASED RESOURCES]** Seller Facility inverters shall be capable of operating in grid forming mode supporting system operation under normal and emergency conditions without relying on the characteristics of synchronous machines. This includes operation as a current independent ac voltage source during normal and transient conditions (as long as no limits are reached within the inverter) and the ability to synchronize to other voltage sources or operate autonomously if a grid reference is unavailable.

- (i) Seller shall operate the Facility in grid forming mode only as directed by the Company System Operator, in its sole discretion. Such mode of operation shall be indicated to the Company System Operator through telemetry.
- (ii) The Facility shall include safeguards to prevent the unintentional switching of the Facility into and out of grid forming mode. The safeguards shall be approved in writing by the Company and implemented by the Seller prior to control system testing.

(r) Black Start Capability.

**[NOTE - APPLICABILITY BASED ON RESOURCE TYPE AND DESIGN, FOR INVERTER BASED RESOURCES]** [For synchronous machines, require capability to operate in isochronous control and black start.] The BESS shall be capable of grid forming inverter capability so it can generate its own AC waveform rather than relying on a grid voltage to synchronize and maintain frequency. Further, inverter-based resources shall ensure they have sufficient energy storage to maintain power injection to the grid during system restoration (i.e., have power available when and if called upon). Inverter based facilities should be capable of support as a black start cranking path to start synchronous generators for restoration.

(s) Provision of Synthetic Inertia. **[TO BE DETERMINED BASED ON IRS.]**

(t) Generator Step-Up Transformer Impedance.

The generator step-up transformer impedance shall be between [ ] percent and [ ] percent, inclusive, on transformer OA rating. **[NOTE: THESE VALUES WILL BE BASED ON THE RESULTS OF THE IRS.]**

(u) Control Systems and Auxiliary Equipment.

The power source for control systems and auxiliary equipment required for normal operation of the Facility shall be designed to be immune from system transients in accordance with the Public Utilities Commission of the State of Hawaii tariff for Maui Electric Company, Ltd. Rule No. 2, Character of Service (Revised Sheet No. 5, effective Oct. 20, 1991) and Section 3.2(A)(6) (Facility

Protection and Control Equipment) to meet the performance during under/over voltage and under/over frequency conditions pursuant to Section 3(e), Section 3(f), Section 3(i) and Section 3(j) of this Attachment B (Facility Owned by Seller).

(v) Frequency Response.

Seller shall comply with the requirements of Section 1(g)(xi) (Frequency Response (DROOP)), Section 1(g)(xii) (Dynamic Active Power - Frequency Performance), and **[FOR FACILITIES WITH STORAGE]** Section 1(g)(xiii) (Alternate Active Power / Frequency Response Modes) of this Attachment B (Facility Owned by Seller).

(w) Round Trip Efficiency.

The round trip efficiency of the BESS as measured at the POI shall be not less than [ ] percent ([ ]%).  
[Drafting Note: The percentage for round trip efficiency should be taken from Seller's response to the RFP.]

4. Maintenance of Seller-Owned Interconnection Facilities.

- (a) Seller must address any Disconnection Event (as defined below) according to the requirements of this Section 4 (Maintenance of Seller-Owned Interconnection Facilities) of Attachment B (Facility Owned by Seller). For the purposes of this Section 4 (Maintenance of Seller-Owned Interconnection Facilities), a "Disconnection Event" is the removal of [7.5 MW] [or 100% of capacity for facilities with capacity less than 7.5 MW] or more from Company System and/or disconnection of the Facility from the Company's System (i) that is not the result of Company dispatch, frequency droop response, or isolation of the Facility resulting from designed protection fault clearing, and (ii) for which Company does not issue the written notice for failure to meet operational and performance requirements as set forth in Section 1(j) (Demonstration of Facility) of this Attachment B (Facility Owned by Seller). Company's election to exercise its rights under Section 1(j) (Demonstration of Facility) shall not relieve Seller of its obligation to comply with the requirements of this Section 4 (Maintenance of Seller-Owned Interconnection Facilities)

for any future Disconnection Event during the pendency of such election or thereafter.

- (b) For every Disconnection Event from the Company System, Seller shall investigate the cause. Within three (3) Business Days, Seller shall provide, in writing to Company, an incident report that summarizes the sequence of events and probable cause.
- (c) Within forty-five (45) Days of a Disconnection Event, Seller shall provide, in writing to Company, Seller's findings, data relied upon for such findings, and proposed actions to prevent reoccurrence of a Disconnection Event ("Proposed Actions"). Company may assist Seller in determining the causes of and recommendations to remedy or prevent a Disconnection Event ("Company's Recommendations"). Seller shall implement such Proposed Actions (as modified to incorporate the Company's Recommendations, if any) and Company's Recommendations (if any) in accordance with the time period agreed to by the Parties.
- (d) In the event Seller and Company disagree as to (i) whether a Disconnection Event occurred, (ii) the sequence of events and/or probable cause of the Disconnection Event, (iii) the Proposed Actions, (iv) Company's Recommendations, and/or (v) the time period to implement the Proposed Actions and/or Company's Recommendations, then the Parties shall follow the procedure set forth in Section 5 (Expedited Dispute Resolution) of this Attachment B (Facility Owned by Seller).
- (e) Upon the fourth (4th) Disconnection Event (and each subsequent Disconnection Event) within any Contract Year, the Parties shall follow the procedures set forth in Section 4(a) and Section 4(d) of Attachment B (Facility Owned by Seller), to the extent applicable. If after following the procedures set forth in this Section 4 (Maintenance of Seller-Owned Interconnection Facilities) of Attachment B (Facility Owned by Seller), Seller and Company continue to have a disagreement as to (1) the probable cause of the Disconnection Event, (2) the Proposed Actions, (3) the Company's Recommendations, and/or (4) the time period to implement the Proposed Actions and/or the Company's Recommendations, then the Parties shall commission a study to be performed by a

qualified independent Third-Party consultant ("Qualified Consultant") chosen from the Qualified Independent Third-Party Consultants List ("Consultants List") attached to the Agreement as Attachment D (Consultants List). Such study shall review the design of, review the operating and maintenance procedures dealing with, recommend modifications to, and determine the type of maintenance that should be performed on Seller-Owned Interconnection Facilities ("Study"). Seller and Company shall each pay for one-half of the total cost of the Study. The Study shall be completed within ninety (90) Days from such fourth Disconnection Event (and each subsequent Disconnection Event) within any Contract Year, unless the Qualified Consultant determines the Study cannot reasonably be completed within ninety (90) Days, in which case, such longer period of time as the Qualified Consultant determines is necessary to complete the Study shall apply. The Qualified Consultant shall send the Study to Company and Seller. Seller (and/or its Third-Party consultants and contractors), at Seller's expense, shall change the design of, change the operating and maintenance procedures dealing with, implement modifications to, and/or perform the maintenance on Seller-Owned Interconnection Facilities recommended by the Study. Such design changes, operating and maintenance procedure changes, modifications, and/or maintenance shall be completed no later than forty-five (45) Days from the Day the completed Study is issued by the Qualified Consultant, unless such design changes, operating and maintenance procedure changes, modifications, and/or maintenance cannot reasonably be completed within forty-five (45) Days, in which case, Seller shall complete the foregoing within such longer commercially reasonable period of time agreed to by the Parties in writing. . Company shall have the right to derate the Facility to a level that maintains reliable operations in accordance with Good Engineering and Operating Practices, and the Facility shall be deemed to be in Seller-Attributable Non-Generation status, until the study has been completed and the study's recommendations have been implemented by Seller to Company's reasonable satisfaction. Nothing in this provision shall affect Company's right to dispatch the Facility as provided for in this Agreement.

(f) The Consultants List attached hereto as Attachment D (Consultants List) contains the names of engineering firms which both Parties agree are fully qualified to perform the Study. At any time, except when a Study is being conducted, either Party may remove a particular consultant from the Consultants List by giving written notice of such removal to the other Party. However, neither Party may remove a name or names from the Consultants List without approval of the other Party if such removal would leave the list without any names. Intended deletions shall be effective upon receipt of notice by the other Party, provided that such deletions do not leave the Consultants List without any names. Proposed additions to the Consultants List shall automatically become effective thirty (30) Days after notice is received by the other Party unless written objection is made by such other Party within said thirty (30) Day period. By mutual agreement between the Parties, a new name or names may be added to the Consultants List at any time.

5. Expedited Dispute Resolution.

If there is a disagreement between Company and Seller regarding (i) whether a Disconnection Event occurred, (ii) the sequence of events and/or probable cause of the Disconnection Event, (iii) the Proposed Actions, (iv) the Company's Recommendations, and (v) the time period to implement the Proposed Actions and/or the Company's Recommendations, then authorized representatives from Company and Seller, having full authority to settle the disagreement, shall meet in Hawai'i (or by telephone conference) and attempt in good faith to settle the disagreement. Unless otherwise agreed in writing by the Parties, the Parties shall devote no more than five (5) Business Days to settle the disagreement in good faith. In the event the Parties are unable to settle the disagreement after the expiration of the time period, then such disagreement shall constitute a Dispute for which either Party may pursue the dispute resolution procedure set forth in Section 28.2 (Dispute Resolution Procedures, Mediation) of this Agreement.

6. Modeling.

(a) Seller's Obligation to Provide Models. Within 30 Days of Company's written request, but no later than the Commercial Operations Date, Seller shall provide

detailed data regarding the design and location of the Facility, in a form reasonably satisfactory to Company, to allow the modeling of the inverters and any other equipment within the Facility identified in the IRS which utilizes Source Code (such as energy storage system, STATCOM or DVAR equipment), including, but not limited to, integrated and validated power flow and transient stability models (such as PSS/E models), a short circuit model (such as an ASPEN model), and an electro-magnetic transient model (such as a PSCAD model) of the inverters and any additional equipment identified in the IRS as set forth above, applied assumptions, and pertinent data sets (each a "Required Model" and collectively, the "Required Models"). Thereafter, during the Term, Seller shall provide working updates of any Required Model within 30 Days of (i) Company's written request, or (ii) Seller obtaining knowledge or notice that any Required Model has been modified, updated or superseded by the Source Code Owner.

- (b) Escrow Establishment. If, pursuant to Section 6(a) (Seller's Obligation to Provide Models) of this Attachment B (Facility Owned by Seller), the Required Models are provided to the Company in a form other than Source Code, Seller shall arrange for and ensure that the Source Code for the relevant Required Model is deposited into the Source Code Escrow as set forth below in Section 6(b)(i) (Source Code Escrow) of this Attachment B (Facility Owned by Seller) no later than the time periods set forth in Section 6(a) (Seller's Obligation to Provide Models) of this Attachment B (Facility Owned by Seller) for delivery of the Required Models. Seller shall be responsible for all costs associated with establishing and maintaining the Source Code Escrow. If, however, Seller is unable to deposit the required Source Code into the Source Code Escrow within the time periods set forth in Section 6(a) (Seller's Obligation to Provide Models), Seller shall, no later than such time periods, instead establish a monetary escrow as set forth below in Section 6(b)(ii) (Monetary Escrow) of this Attachment B (Facility Owned by Seller).

- (i) Source Code Escrow.

(A) Establishment of Source Code Escrow. If the Required Models are not provided to the Company in the

form of Source Code pursuant to Section 6(a) of this Attachment B (Facility Owned by Seller), Seller shall: (a) arrange for and ensure the deposit of a copy of the current version of the Source Code and relevant documentation for all Required Models with the Source Code Escrow Agent under the terms and conditions of the Source Code Escrow Agreement, and (b) arrange for and ensure the update of the deposited Source Code and relevant documentation for Major Releases and Minor Releases of the Required Models as soon as reasonably possible after they are made generally available.

(B) Release Conditions. Company shall have the right to obtain from the Source Code Escrow Agent one copy of the escrowed Source Code for the Required Models, under the following conditions upon Company's request:

(i) A receiver, trustee, or similar officer is appointed, pursuant to federal, state or applicable foreign law, for the Source Code Owner;

(ii) Any voluntary or involuntary petition or proceeding is instituted, under (x) U.S. bankruptcy laws or (y) any other bankruptcy, insolvency or similar proceeding outside of the United States, by or against the Source Code Owner; or

(iii) Failure of the Source Code Owner to function as a going concern or operate in the ordinary course; or

(iv) Seller and the Source Code Owner fail to provide to Company the Required Models or updated Required Models, or, alternatively, fail to issue a Source Code LC, within the time periods set forth in Section 6(a) (Seller's Obligation to Provide Models) of this Attachment B (Facility Owned by Seller), Company gives written notice of such failure to Seller and the Source Code Owner, and Seller and Source Code Owner fail to remedy such breach within five (5) Days following receipt of such notice.

(C) Remedies. If Company has the right to obtain from the Source Code Escrow Agent one copy of the escrowed Source Code for the Required Models pursuant to Section 6(b) (i) (B) (Release Conditions) of Attachment B (Facility Owned by Seller), and Company finds that Seller failed to arrange for and ensure the update the Source Code Escrow with the modified and/or updated Source Code and

relevant documentation for Major Releases and Minor Releases of the Required Models as provided in Section 6(b)(i) (Establishment of Source Code Escrow) of Attachment B (Facility Owned by Seller) or that the Source Code for the Required Models is incomplete or otherwise unusable, Seller shall be liable to Company for liquidated damages in the amount of \$500 per Day for each Day Seller fails to provide such Source Code to Company or such update to the Source Code to Company from the date such Major Release or Minor Release was first made available by the Source Code Owner to customers of the Source Code Owner. Failure to provide the updated Source Code of the Required Models within 30 Days' notice from Company of a breach of Section 6(b)(i)(A) (Establishment of Source Code Escrow) of Attachment B (Facility Owned by Seller); provided, that Seller has also failed to provide a satisfactory Source Code LC as set forth in Section 6(b)(ii) (Source Code Security) of this Attachment B (Facility Owned by Seller) shall constitute an Event of Default pursuant to Section 15.2(f) under the Agreement.

(D) Certification. The Source Code Escrow Agent shall release the Source Code of the Required Models to Company upon receipt of a signed statement by a representative of Company that reads substantially as follows:

The undersigned hereby certifies that (i) I am duly authorized to execute this document on behalf of Maui Electric Company, Limited ("Maui Electric"), and (ii) Maui Electric is entitled to a copy of the Source Code of the Required Models Pursuant to Section 6(b)(i)(B) (Release Conditions) of Attachment B (Facility Owned by Seller) of the Power Purchase Agreement dated as of \_\_\_\_\_, between \_\_\_\_\_, and Maui Electric.

(E) Authorized Use. If Company becomes entitled to a release of the Source Code of the Required Models from escrow, Company may thereafter correct, modify, update and enhance the Required Models for the sole purpose of providing itself the support and maintenance it otherwise would have been entitled to if it had been provided the Required Models by Seller under Section 6(a) (Seller's Obligation to Provide Models) of this Attachment B (Facility Owned by Seller) (the "Source Code Authorized Use").

(F) Confidentiality Obligations. Company shall keep the Source Code of the Required Models confidential pursuant to the confidentiality obligations of the Source Code Escrow Agreement. Company shall restrict access to the Source Code of the Required Models to those employees, independent contractors and consultants of Company who have agreed in writing to be bound by confidentiality and use obligations consistent with those specified in the Escrow Agreement, and who have a need to access the Source Code of the Required Models on behalf of Company to carry out their duties for the Authorized Use. Promptly upon Seller's request, Company shall provide Seller with the names and contact information of all individuals who have accessed the Source Code of the Required Models, and shall take all reasonable actions required to recover any such Source Code in the event of loss or misappropriation, or to otherwise prevent their unauthorized disclosure or use.

(ii) Source Code Security.

(A) Establishment of Source Code Security.

If the Required Models and their relevant Source Code are not provided to the Company in the form of Source Code pursuant to Section 6(a) (Seller's Obligation to Provide Models) of this Attachment B (Facility Owned by Seller) and if the Seller is unable to arrange for and ensure the deposit of the Source Code into the Source Code Escrow established for the benefit of the Company pursuant to Section 6(b)(i) (Source Code Escrow) of this Attachment B (Facility Owned by Seller) then, no later than the time periods set forth in Section 6(a) (Seller's Obligation to Provide Models) of this Attachment B (Facility Owned by Seller) for delivery of the Required Models and Source Code, Seller shall provide an irrevocable standby letter of credit (the "Source Code LC") with no documentation requirement in the amount of Two Hundred Fifty Thousand Dollars (\$250,000) per Required Model (and its relevant Source Code) substantially in the form attached to this Agreement as Attachment M (Form of Letter of Credit) from a bank chartered in the United States with a credit rating of "A-" or better from Standard & Poor's or A3 or better from Moody's. Such letter of credit shall be issued for a minimum term of one (1) year. Furthermore, at the end of each year the security shall be renewed for an additional one (1) year term so that at the time of such renewal, the remaining term of any such security shall not be less than one (1) year. The letter of credit shall include a provision for at least thirty (30) Days' advance notice to

Company of any expiration or earlier termination of the letter of credit so as to allow Company sufficient time to exercise its rights under said security if Seller fails to extend or replace the security. In all cases, the reasonable costs and expenses of establishing, renewing, substituting, canceling, increasing, reducing, or otherwise administering the letter of credit shall be borne by Seller.

(B) Release Conditions. Company shall have the right to draw on the letter of credit the funds necessary to develop and recreate the Required Model or Required Models upon Company's request if Seller fails to provide the Company the Required Models or updated Required Models within the time periods set forth in Section 6(a) (Seller's Obligation to Provide Models) or Section 6(b)(i)(C) (Remedies) of this Attachment B (Facility Owned by Seller), Company gives written notice of such failure to Seller, and Seller fails to remedy such breach within five (5) Days following receipt of such notice for a breach under Section 6(a) (Seller's Obligation to Provide Models, or within thirty (30) Days following receipt of such notice for a breach under Section 6(b)(i)(C) (Remedies).

(C) Extend Letter of Credit. If the letter of credit is not renewed or extended no later than thirty (30) Days prior to its expiration or earlier termination, Company shall have the right to draw immediately upon the full amount of the letter of credit and to place the proceeds of such draw (the "Proceeds"), at Seller's cost, in an escrow account in accordance with Section 6(b)(ii)(D) (Proceeds Escrow), until and unless Seller provides a substitute form of letter of credit meeting the requirements of this Section 6(b)(ii) (Source Code Security) of this Attachment B (Facility Owned by Seller).

(D) Proceeds Escrow. If Company draws on the letter of credit pursuant to Section 6(b)(ii)(C) (Extend Letter of Credit) of this Attachment B (Facility Owned by Seller), Company shall, in order to avoid comingling the Proceeds, have the right but not the obligation to place the Proceeds in an escrow account as provided in this Section 6(b)(ii)(D) (Proceeds Escrow) of this Attachment B (Facility Owned by Seller) with a reputable escrow agent acceptable to Company ("Proceeds Escrow Agent") subject to an escrow agreement acceptable to Company ("Proceeds Escrow Agreement"). Without limitation to the generality of the foregoing, a federally-insured bank shall be deemed to be a

"reputable escrow agent." Company shall have the right to apply the Proceeds as necessary to recover amounts Company is owed pursuant to this Section 6 (Modeling) of this Attachment B (Facility Owned by Seller). To that end, the Proceeds Escrow Agreement governing such escrow account shall give Company the sole authority to draw from the account. Seller shall not be a party to such Proceeds Escrow Agreement and shall have no rights to the Proceeds. Upon full satisfaction of Seller's obligations under Section 6 (Modeling) of this Attachment B (Facility Owned by Seller), Company shall instruct the Proceeds Escrow Agent to remit to the bank that issued the letter of credit that was the source of the Proceeds the remaining balance (if any) of the Proceeds. If there is more than one escrow account with Proceeds, Company may, in its sole discretion, draw on such accounts in any sequence Company may select. Any failure to draw upon the Proceeds for any damages or other amounts due Company shall not prejudice Company's rights to recover such damages or amounts in any other manner.

(E) Seller's Obligation. If the letter of credit is not sufficient to cover Company's associated consultant fees, costs and expenses to develop and recreate the Required Models, Seller shall pay to Company the difference within ten (10) Days of Company's written notice to Seller.

(F) Model Verification. Seller shall work with the Company to validate the new Required Models developed by or on behalf of Company within sixty (60) Days of receiving such new Required Models. Seller shall also arrange for and ensure that Company may obtain new Required Models directly from the Source Code Owner in the event that Seller ceases to operate as a going concern or is subject to voluntary or involuntary bankruptcy and is unable or unwilling to obtain the new Required Models from the Source Code Owner.

(G) Certification. The terms of the letter of credit shall provide for a release of the funds, or in the event the funds have been placed into a Proceeds Escrow, the Escrow Agent shall release the necessary funds to Company upon receipt of a signed statement by a representative of Company that reads substantially as follows:

The undersigned hereby certifies that (i) I am duly authorized to execute this document on behalf of Maui Electric Company, Limited ("Maui Electric"), and (ii) Maui Electric is entitled to \$ \_\_\_\_\_, pursuant to Section 6(b)(ii)(B) (Release Conditions) of Attachment B (Facility Owned by Seller) of the Power Purchase Agreement dated as of \_\_\_\_\_, between \_\_\_\_\_, and Maui Electric.

(H) Authorized Use. If Company becomes entitled to a draw of funds from the Source Code Security or a release of funds from the Proceeds Escrow, Company may thereafter use such funds to develop, recreate, correct, modify, update and enhance the Required Models for the sole purpose of providing itself the support and maintenance it otherwise would have been entitled to if it had been provided the Required Models by Seller under Section 6(a) (Seller's Obligation to Provide Models) of this Attachment B (Facility Owned by Seller).

(iii) Supplementary Agreement. The parties stipulate and agree that the escrow provisions in this Section 6(b) (Escrow Establishment) of Attachment B (Facility Owned by Seller) and the Source Code Escrow Agreement and Proceeds Escrow Agreement are "supplementary agreements" as contemplated in Section 365(n)(1)(B) of the Code. In any voluntary or involuntary bankruptcy proceeding involving Seller, failure by Company to assert its rights to "retain its rights" to the intellectual property encompassed by the Source Code or the funds in the Proceeds Escrow, pursuant to Section 365(n)(1)(B) of the Code, under an executory contract rejected in a bankruptcy proceeding, shall not be construed as an election to terminate the contract by Company under Section 365(n)(1)(A) of the Code.

7. Testing Requirements.

(a) Testing Requirements. Once the Control System Acceptance Test has been successfully passed, Seller shall not replace and/or change the configuration of the Facility Control, inverter control settings and/or ancillary device controls, without prior written notice to Company. In the event of any such replacement and/or change, the relevant test(s) of the Control System

Acceptance Test shall be redone and must be successfully passed before the replacement or altered equipment is allowed to be placed in normal operations. In the event that Company reasonably determines that such replacement and/or change of controls makes it inadvisable for the Facility to continue in normal operations without a further Control Systems Acceptance Test, the Facility shall be deemed to be in Seller-Attributable Non-Generation status until the new relevant tests of the Control System Acceptance Test have been successfully passed.

- (b) Periodic Testing. Seller shall coordinate periodic testing of the Facility with Company to ensure that the Facility is meeting the performance standards specified under this Agreement.

8. Data and Forecasting.

Seller shall provide Site, meteorological and production data in accordance with the terms of Article 6 (Forecasting) of this Agreement and the following requirements:

- (i) Physical Site Data: Seller shall provide Company with an accurate description of the physical Site, including but not limited to the following, **[as appropriate to Facility resource type(s) and use of storage]** which may not be changed during the Term without Company's prior written consent:
- A. Location Facility Map showing the layout of the Facility (coverage area or footprint) and the coordinates (latitude and longitude), elevation (above ground), orientation angle and direction (north-east-south-west plane) of arrays/concentrators.
  - B. Location (latitude and longitude) and elevation (above ground) of each MMS and each field measurement device located on such MMS.
  - C. Inverter type, power rating, array configuration to inverters and DC rating of the Facility at the following standard test conditions: irradiance of 1000 W/m<sup>2</sup>, air mass 1.5, and cell temperature 25° C.

- D. Solar generation technology employed at the Facility with temperature dependence, mounting and module type.
- E. BESS technology and related auxiliary equipment, location and type.

(ii) Meteorological and Production Data:

- A. Seller shall install and maintain a minimum of one MMS for facilities with a Contract Capacity of less than 5 MW and a coverage area of not more than one square kilometer.
- B. Seller shall install and maintain a minimum of two MMS for facilities that have either (i) a DC rating of the Facility of 5 MW or greater or (ii) a coverage area greater than one square kilometer.
- C. Placement of each MMS should account for the microclimate of the area and Facility coverage area and shall be oriented with respect to the primary wind direction.
- D. For purposes of calculating the Measured Performance Ratio, the Seller shall provide (i) Plane of Array irradiance, (ii) back of panel temperature at array height, and (iii) the power production at the transducer on the Seller's side of the Point of Interconnection.
- E. Seller shall provide to Company, via SCADA communication and protocol acceptable to Company to support operations and forecasting needs at a continuous scan, all meteorological and production data required under this Agreement updated every 2 seconds.
- F. Seller shall arrange for a dedicated distribution voltage line to provide separate service from Company, or for such other independent, backup power source as approved by Company in writing, to temporarily store and record the meteorological data from the field measuring devices at the MMSs. Any such backup power source must be capable of providing power for the field measurement

devices for a reasonable period of time until primary power is restored. The same backup power source can serve multiple MMSs as needed by the Facility.

(iii) Units and Accuracy:

- A. The Table below shows minimum required solar irradiance measurements for various types of solar generation technology. **[DRAFTING NOTE: VALUES NEED TO BE INSERTED INTO TABLE.]** This value may not be derived.

Solar Technology	Direct Normal Irradiance	Global Irradiance (GHI)	Plane of Array Irradiance (POA)
Flat Plate (fixed horizontal, fixed angle, tracking, roof mounted)		X	X

- B. Units and accuracy of measured parameters to be provided to Company in real time shall be as shown in the Table below. These represent the minimum required accuracies.

**Table of Units and Accuracy of  
Meteorological and Production Data (PV)**

Parameter	Data Source	Unit	Range	Accuracy
Global Horizontal Irradiance at MMS	Pyranometer or equivalent	W/m <sup>2</sup>	0 to 1500 W/m <sup>2</sup>	Secondary standard per ISO 9060 or ≤ 3% from 100 W/m <sup>2</sup> to 1500 W/m <sup>2</sup> if using a PV Reference Cell
Plane of Array Irradiance on same axis as array	Pyranometer or equivalent	W/m <sup>2</sup>	0 to 1500 W/m <sup>2</sup>	Secondary standard per ISO 9060 or ≤ 3% from 100 W/m <sup>2</sup> to 1500 W/m <sup>2</sup> if using a PV Reference Cell
Back of Panel temperature at array height	Temperature probe	°C	-20 to +50 °C	+/-1 °C
Power production of Facility	Measured at POI	MW	Up to Capacity	+/-0.1 MW
Inverters available	Seller's system	digital	Up to the number of installed inverters	
	Ratio of inverters online/number of inverters	%	0 to 100%	
Power Possible	Seller's Model	MW	0 to Allowed Capacity	+/-0.1 MW

Power production of Facility	Measured at Facility's analog transducer on Seller's side of POI	MW	Up to Allowed Capacity	The lesser of the tolerances of the /telemetry equipment or 2% of measurement
Facility power production ratio	Ratio of Facility's power production (MW)/Allowed Capacity (MW)	%	0 to 100%	+/-0.1 %
Inverters Available	NA	NA	Up to the number installed inverters	
Facility Inverter Availability	Ratio of inverters online/number of inverters	%	0 to 100%	
Power Possible	Seller's Model	MW	0 to Allowed Capacity	+/-0.1 MW

(iv) Status of Inverters for Purposes of Calculating Facility Availability:

For each inverter, Seller shall, unless agreed otherwise by Company and Seller in writing, provide to Company, via SCADA communication and protocol acceptable to Company at a continuous scan updated not less frequently than every 2 seconds, a signal as to whether such inverter is available or unavailable, and on or offline.

(v) Data Collection.

**[NOTE COMPANY TO UPDATE REQUIREMENTS; WILL BE SPECIFIC TO FACILITY EQUIPMENT AND RESOURCE TYPE]**

High Resolution Data: Seller shall install and make available to the Company time stamped and sequential data recordings for all inverter-based resources (and all generating resources) to perform event analysis and verify Facility performance during steady state and transient disturbance events. This will include a time-synchronized phasor measurement unit at the

Facility, and access to multiple sources to provide sufficient clarity as to any abnormal response or behavior within the Facility, including Facility control settings and static values, SCADA data, sequence of events recording (SER) data, dynamic disturbance recorder (DDR) data, and inverter fault codes and inverter-level dynamic recordings. This data will be used to review the Facility response to system dynamics, such as the frequency response (normal droop and FFR), reactive response, etc.

Plant Data: **[Note: specific requirements below are representative of variable energy resources and will be tailored to the Facility resource type(s) and geographic arrangement]**

Seller shall install at least three (3) meteorological tower(s), spaced so as to provide the data points set forth below for the entire Facility. At least two months prior to the Commercial Operation Date, Seller shall deliver to Company a report showing (i) manufacturer, model and year of all energy equipment (panels, inverters, energy storage devices, turbine generators), and meteorological instrumentation, and (ii) the latitude and longitude of the center of the energy equipment (i.e., solar panels for every inverter, wind turbines) and every meteorological tower. Beginning upon COD, Seller shall transmit and provide to Company the real-time data set forth below, refreshed as frequently as allowed by the SCADA system, not to exceed sixty (60) second intervals:

- Three (3) data points from each inverter or wind turbine:
  - Inverter/turbine generation (MW)
  - Inverter/turbine availability
  - Inverter/turbine on/offline status
- Two (2) data points from each meteorological tower (solar resources):
  - Global horizontal solar irradiance (instantaneous solar intensity, full sky)
  - Plane of array solar irradiance (instantaneous solar intensity at the current angle of the PV array)

- Five data points from each Meteorological Tower (wind resources):
  - o Wind Speed \*\* (mps)
  - o Wind Direction\*\* (degrees relative to true north)
  - o Temperature (Celsius)
  - o Pressure (mb)
  - o Air Density (kg/m3)

In addition to the other requirements for data collection, if required by Company, a Facility with wind turbines shall install, maintain and operate at least one meteorological tower that is installed at hub height and is placed upstream of the prevailing wind path to provide meteorological data through a means agreed by the Company. The data stream from this meteorological tower to the Company's System must be reliable and include battery back-up at the meteorological tower and a local source of electricity to power the data collection and communication from the Facility to Company during transmission outages.

Seller shall provide a map and key for each inverter or wind turbine sufficient to allow Company to correlate the data received through Company's data historian system to each individual resource.

9. Technology Specific Requirements.

(a) [RESERVED]

(b) [RESERVED]

(c) Inverter Systems.

- (i) Direct current generators and non-power (i.e., other than 60 Hertz) alternating current generators can only be installed in parallel with the Company System using a non-islanding synchronous inverter unless alternate designs are approved by the Company. The design shall comply with the

requirements of IEEE Std 1547-2003 (or latest version), except as described in Section 3 (Performance Standards) of this Attachment B (Facility Owned by Seller).

- (ii) Self-commutated inverters of the Company-interactive type shall synchronize to the Company System. Line-commutated, thyristor-based inverters are not recommended and will require additional technical study to determine harmonic and reactive power requirements. All interconnected inverter systems shall comply with the harmonic current limits of IEEE Std 519-1992 (or latest version).
- (d) Battery Energy Storage System. The operating parameters of the BESS for facilities with paired storage shall be as follows:
  - (i) For facilities with variable energy and paired storage: The BESS shall directly charge storage from the variable resource when the Company Active Power Dispatch is for less than the available resource energy.
  - (ii) No more than [ ]% of the BESS energy capacity can be charged from the grid prior to the fifth (5th) anniversary of the Commercial Operations Date. Thereafter, 100% of the BESS energy capacity can be charged from the grid. **[DRAFTING NOTE: 5-YEAR LIMITATION ON GRID CHARGING WILL BE DELETED IF ITC RECAPTURE IS NOT APPLICABLE TO THE BESS.]**
  - (iii) The BESS will not be required to discharge more energy than available relative to the available state of charge.
  - (iv) For storage used primarily for energy shifting, the BESS shall be designed for an average annual use of 365 cycle(s) (a cycle is a discharge equal to the portion of the BESS Contract Capacity allocated for energy shifting, and sufficient charging to return the BESS to 100% State of Charge)
  - (v) For contingency storage, the BESS storage technology shall be procured based on required

charging/discharging duty for the provision of disturbance frequency response. This response will require fast response outside of a specified frequency deadband ~~(setable between 0.1 and 0.5 Hz)~~, in accordance with specified droop and time parameters. **(Historical frequency data for 2 second data resolution samples will be provided to bidders.) (Assumptions and associated restrictions on charging/discharging duty to be supplied by bidders).**

11. Operating Committee and Operating Procedures.

Company and Seller shall each appoint one representative and one alternate representative to act as the operating committee in matters relating to the Parties' performance obligations under this Agreement and to develop operating arrangements for the generation, delivery and receipt of renewable energy from the Facility.

The operating committee may develop mutually agreeable written operating procedures consistent with the requirements of this Agreement, to address matters such as day-to-day communications; key personnel; operations-center interface; metering, telemetering, telecommunications, and data acquisition procedures; operations and maintenance scheduling and reporting; reports; operations log; testing procedures; and such other matters as may be mutually agreed upon by the operating committee.

The operating committee shall review the requirements for Active Power Control, the data collection and telemetry, and control system parameters from time to time after the date hereof and may agree on modifications thereto to the extent necessary or convenient for operation of the Facility in accordance with this Agreement.

The operating committee shall have authority to act in all technical and day-to-day operational matters relating to performance of this Agreement and to attempt to resolve potential disputes, provided, however, that except as explicitly provided herein, the operating committee shall have no authority to amend or waive any provision of this Agreement.

EXHIBIT B-1  
MODELING REQUIREMENTS

1. Steady State and Dynamic Model Requirements and As-built Data to be provided by Seller. The expected steady state power flow and dynamic models will be provided by the Seller during the interconnection study process in the format compatible with the analytical tools used by the Company. Depending upon Facility design, different representations may be required for steady state and dynamic simulations. Seller will work with Company to derive a complex equivalent model if it is required to meet interconnection study needs. The as-built data and models will be provided by Seller immediately upon commissioning with sufficient information to demonstrate that the as-built parameters match the model. Any changes to plant settings that affect its response and impact to the Company System are required to be studied prior to those changes taking effect. The modeling will include all necessary control settings such that the correct capabilities, flags, and settings can be represented in a base case. Where such parameters are settable according to this Agreement, the initial models will be configured with parameters mutually agreed with Company for the interconnection study analysis. This includes, but is not limited to:
  - Plant Type: A description of the resource type (e.g., storage, solar PV or wind power resource) used as a flag to ensure that the inverter-based resource is accurately represented in the base case, where applicable.
  - Active and Reactive Capability: The overall plant "composite capability curve" shall be provided by Seller for performance purposes. That same curve will be used for accurately modeling the P-Q capability in power flow studies.
  - Plant-Level Voltage Control Settings: Information on the plant voltage control mode to ensure correct voltage control flags and set points are set accordingly in the software tools.
  - The voltage control set point at the POI is provided by the Company. Seller shall provide a description of the coordination of any plant-level shunt compensation

(static or dynamic) to ensure it can be accurately represented in the power flow base case.

The models provided by Seller should accurately reflect the contractual requirements established under this Agreement.

2. Positive Sequence Stability Modeling. Seller shall provide a positive sequence stability model representation which provides sufficient detailed modeling for necessary reliability studies, as specified by Company. **[Note - language to be revised based on proposed Facility.]** For example, the following are typical requirements for plants with inverter equipment:
  - Inverter-Level Controller Model: This represents the overall control of the inverter as an energy or generating resource.
  - Electrical Control Model: This represents the detailed electrical controls of the resource, including large disturbance behavior.
  - Plant-Level Controller Model: This represents control of multiple individual inverters and/or generators within the plant
3. Short Circuit Modeling. Seller will provide appropriate and accurate models to Company to support short circuit studies. **[Company to specify requirements based on specific Facility]**
4. Electromagnetic Transient Modeling. Company will require an electromagnetic transient ("EMT") model for the Facility. Seller shall provide Company with an EMT model for the IRS and an updated EMT model after the Facility has been commissioned. These models are in addition to the positive sequence stability models required for interconnection-wide modeling purposes. In addition, Seller shall provide Company with evidence that the expected (and commissioned) EMT model reasonably matches the positive sequence dynamic models provided. This should include a benchmarking report provided by the inverter OEM.

EXHIBIT B-2  
GENERATOR AND ENERGY STORAGE CAPABILITY CURVE(S)

ATTACHMENT T  
MONTHLY REPORTING AND DISPUTE  
RESOLUTION BY INDEPENDENT AF EVALUATOR

1. Monthly Report. Commencing with the month during which the Commercial Operations Date is achieved, and for each calendar month thereafter during the Term, Seller shall provide to Company a Monthly Report in Excel, Lotus or such other format as Company may require, which Monthly Report shall include (i) the data for the calendar month in question populated into the form of "Monthly Report" below, (ii) the data for the BESS Measurement Period ending with the calendar month in question populated into the form of "BESS Measurement Period Report" below, and (iii) Seller's calculations of the performance metrics, other than the Fast Frequency Response Performance Metric, and any liquidated damages assessments for the LD Period ending with such calendar month as set forth below. Seller shall deliver such Monthly Report to Company by the fifth (5<sup>th</sup>) Business Day following the close of the calendar month in question. Seller shall deliver the Monthly Report electronically to the address provided by the Company. Company shall have the right to verify all data set forth in the Monthly Report by inspecting measurement instruments and reviewing Facility operating records. Upon Company's request, Seller shall promptly provide to Company any additional data and supporting documentation necessary for Company to audit and verify any matters in the Monthly Report.

Monthly Report

NAME OF IPP FACILITY: [Facility Name]  
MONTHLY REPORT PERIOD: [Month Day, Year] to [Month Day, Year]

BESS Measurement Period Report

NAME OF IPP FACILITY: [Facility Name]  
BESS MEASUREMENT PERIOD: [Month Day, Year] to [Month Day, Year]

Enter the applicable information from which the IPP is using to demonstrate satisfaction of the BESS Capacity Performance Metric during the reporting period. This can either be from a BESS Capacity Test performed during the period or taken from operational data reflecting the net output of the BESS.

Date/Time Start	Date/Time End	Total MWh delivered to the POI (A)	BESS Contract Capacity (MWh) (B)	BESS Capacity Ratio 100% x (A/B)

Enter the information for each ExcludedTime event during the reporting period. Dates and times should be entered to the nearest minute. Duration, size of reduction, maximum rated output, and equivalent hours should be rounded to 1 decimal place.

Date/Time Start (A)	Date/Time End (B)	Duration (hrs) (C) = (B-A)	Size of Reduction (MW) (D)	Maximum Rated Output (MW) (E)	Equivalent Hours (hrs) (C x D)/E
...					

Calendar hours in the reporting period: \_\_\_\_\_

Total equivalent ExcludedTime for the reporting period (from above): \_\_\_\_\_

Period Hours (PH) in the reporting period: \_\_\_\_\_

PH from the last three (3) reporting periods: \_\_\_\_\_

PH for the last four (4) reporting periods: \_\_\_\_\_

Enter the information for each Outage during the reporting period. Dates and times should be entered to the nearest minute. Duration should be rounded to 1 decimal place.

Date/Time Start (A)	Date/Time End (B)	Duration (hrs) (B-A)
...		

Calendar hours in the reporting period: \_\_\_\_\_

Total Outage hours for the reporting period (from above): \_\_\_\_\_

Available Hours (AH) in the reporting period: \_\_\_\_\_

AH from the last three (3) reporting periods: \_\_\_\_\_

AH for the last four (4) reporting periods: \_\_\_\_\_

Enter the information for each Planned Deration event during the reporting period. Dates and times should be entered to the nearest minute. Duration, size of reduction, maximum rated output, and equivalent hours should be rounded to 1 decimal place.

Date/Time Start (A)	Date/Time End (B)	Duration (hrs) (C) = (B-A)	Size of Reduction (MW) (D)	Maximum Rated Output (MW) (E)	Equivalent Hours (hrs) (C x D)/E
...					

Total equivalent planned derated hours (EPDH) for the reporting period: \_\_\_\_\_

EPDH from the last three (3) reporting periods: \_\_\_\_\_

EPDH for the last four (4) reporting periods: \_\_\_\_\_

Enter the information for each Unplanned Deration event during the reporting period. Dates and times should be entered to the nearest minute. Duration, size of reduction, maximum rated output, and equivalent hours should be rounded to 1 decimal place.

Date/Time Start (A)	Date/Time End (B)	Duration (hrs) (C) = (B-A)	Size of Reduction (MW) (D)	Maximum Rated Output (MW) (E)	Equivalent Hours (hrs) (C x D)/E
...					

Total equivalent unplanned derated hours (EUDH) for the reporting period: \_\_\_\_\_

EUDH from the last three (3) reporting periods: \_\_\_\_\_

EUDH for the last four (4) reporting periods: \_\_\_\_\_

Enter the Available Hours, EPDH, EUDH, and Period Hours for the last four (4) reporting periods as calculated above.

AH (A)	EPDH (B)	EUDH (C)	PH (D)	BESS Annual Equivalent Availability Factor $100\% \times (A - B - C)/D$

Enter the information for each Forced Outage during the reporting period. Dates and times should be entered to the nearest minute. Duration should be rounded to 1 decimal place.

Date/Time Start (A)	Date/Time End (B)	Duration (hrs) (B-A)
...		

Total Forced Outage Hours (FOH) for the reporting period (from above): \_\_\_\_\_

FOH from the last three (3) reporting periods: \_\_\_\_\_

FOH for the last four (4) reporting periods: \_\_\_\_\_

Enter the FOH and EUDH for the last four (4) reporting periods as calculated above.

FOH (A)	EUDH (B)	BESS Annual Equivalent Forced Outage Factor $100\% \times (A + B)/8760$

2. Monthly Report Disagreements.

- (a) Notice of Disagreement With Monthly Report. Within ten (10) Business Days following the close of the calendar month in question, Seller shall provide to Company the Monthly Report for such calendar month and the LD Period, the MPR Assessment Period and the BESS Measurement Period (if any) ending with such calendar month, as provided in Section 1 (Monthly Report) of this Attachment T (Monthly Reporting and Dispute Resolution by Independent AF Evaluator). Within ten (10) Business Days after Company's receipt of a Monthly Report, Company shall provide written notice to Seller of any Monthly Report Disagreement, including with respect to the data for the calendar

month covered by such Monthly Report and Seller's calculation of, as applicable, (i) the PV System Equivalent Availability Factor for the LD Period ending with such calendar month, (ii) the MPR for the MPR Assessment Period ending with such calendar month, or (iii) any of the BESS Capacity Ratio, the BESS Annual Equivalent Availability Factor or the BESS Equivalent Forced Outage Factor for the BESS Measurement Period (if any) ending with such calendar month ("Notice of Disagreement"). Together with any such Notice of Disagreement, the Company shall include its own calculations and other support for its position. If Company fails to provide a Notice of Disagreement within said 10-Business Day period, the Monthly Report provided by Seller shall be deemed to be accepted by Company and shall no longer be subject to dispute by Company or Seller.

(b) [Reserved]

(c) Submission of Monthly Report Disagreement to Independent AF Evaluator. Upon issuance of a Notice of Disagreement, the Parties shall review the contents of the Monthly Report(s) together with such Notice of Disagreement and attempt to resolve such Monthly Report Disagreement. If the Parties are able to agree on a resolution of any Monthly Report Disagreement, the resulting corrected Monthly Report(s) in question shall be set forth in a writing executed by both Parties, following which (i) such corrected Monthly Reports shall no longer be subject to dispute by either Party and (ii) to the extent such resolution of such Monthly Report Disagreement affects future Monthly Reports, such future Monthly Reports shall be prepared, and the PV System Equivalent Availability Factor, the MPR, the BESS Annual Equivalent Factor and the BESS Annual Equivalent Forced Outage Factor in such future Monthly Reports shall be calculated, in a manner consistent with such resolution. If the Parties are unable to resolve such Monthly Report Disagreement within ten (10) Business Days after Company's issuance of such Notice of Monthly Report Disagreement, either Party may, within five (5) Business Days after the end of such 10-Business Day period, submit the unresolved Monthly Report Disagreement to an Independent AF Evaluator for resolution.

- (d) [Reserved]
- (e) Appointment of Independent AF Evaluator. If either Party decides to submit an unresolved Monthly Report Disagreement to an Independent AF Evaluator, it shall provide written notice to that effect (the "Submission Notice") to the other Party, which notice shall designate which of the engineering firms on the OEPR Consultants List is to act as the Independent AF Evaluator for purposes of resolving such dispute; provided, however, for purposes of facilitating consistency in the resolution of Monthly Report Disagreements, all Monthly Report Disagreements concerning the same Performance Metric arising out of any one or more of the twelve (12) Monthly Reports issued for a given Contract Year shall be submitted to the same Independent AF Evaluator unless such Independent AF Evaluator declines to accept any such submission(s). A Submission Notice must be provided within the 5-Business Day period provided in Section 2(c) (Submission of Monthly Report Disagreement to Independent AF Evaluator) of this Attachment T (Monthly Reporting and Dispute Resolution by Independent AF Evaluator). The Parties shall each pay fifty percent (50%) of the fees and expenses charged by the Independent AF Evaluator.
- (f) Eligibility for Appointment as Independent AF Evaluator. Both Parties agree that the engineering firms listed in Section 4(j) (Acceptable Persons and Entities) of Attachment U (Calculation and Adjustment of Net Energy Potential) are fully qualified to serve as Independent AF Evaluator. By mutual agreement between the Parties in writing, a name or names may be added to or removed from the OEPR Consultants List at any time. In no event shall there be less than three (3) names on the OEPR Consultants List.
- (g) Participation of Parties. Promptly following the issuance of a Submission Notice as provided in Section 2(e) (Appointment of Independent AF Evaluator) of this Attachment T (Monthly Reporting and Dispute Resolution by Independent AF Evaluator), Seller and Company shall provide the Independent AF Evaluator which such data as they consider to be material to the resolution of the disputed issue(s). Seller and

Company shall also provide such additional data and information as the Independent AF Evaluator may reasonably request. The Parties shall assist the Independent AF Evaluator throughout the process of resolving such dispute, including making key personnel and records available to the Independent AF Evaluator, but neither Party shall be entitled to participate in any meetings with personnel of the other Party or review of the other Party's records. However, the Independent AF Evaluator will have the right to conduct meetings, hearing or oral arguments in which both Parties are represented.

- (h) Written Decision of Independent AF Evaluator. The terms of engagement with the Independent AF Evaluator shall require the Independent AF Evaluator to issue its written decision resolving the disputed issues submitted to it within the applicable time period set forth below, which time periods are subject to any tolling that may be applicable pursuant to Section 2(i) (Sequence to Resolving Interrelated Disagreements) of this Attachment T (Monthly Reporting and Dispute Resolution by Independent AF Evaluator):
- (a) 30 Days as measured from the issuance of the Submission Notice; or (b) such other time period as the Parties may agree in writing. Unless otherwise agreed by the Parties in writing:
    - (i) for a Performance Metric Disagreement concerning the PV System Equivalent Availability Factor, the written decision of the Independent AF Evaluator shall set forth (aa) for the calendar month in question, the correct values for AH, EPDH, EUDH and PH to be used in calculations under Section 2.5 (PV System Equivalent Availability Factor; Liquidated Damages; Termination Damages) of this Agreement as determined by such Independent AF Evaluator if any such values were in dispute and (bb) for the LD Period ending with the calendar month in question, the PV System Equivalent Availability Factor for such LD Period as determined by such Independent AF Evaluator if such PV System Equivalent Availability Factor was in dispute;
    - (ii) for a Performance Metric Disagreement concerning the MPR, the written decision of the Independent

AF Evaluator shall set forth (aa) the correct data points from the operational data set for the calendar month in question to be used in the calculation of MPR under Section 2.6(a) (Calculation of Measured Performance Ratio) for the MPR Assessment Periods that include such calendar month if any such data points were in dispute, (bb) if a MPR Test was conducted during the month in question, the correct data points from such MPR Test to be used in the calculation of MPR under Section 2.6(a) (Calculation of Measured Performance Ratio) of this Agreement for the MPR Assessment Periods that include the month preceding the month covered by the Monthly Report in question if any such data points were in dispute and (cc) for the MPR Assessment Period ending with the calendar month in question, the Measured Performance Ratio if such Measured Performance Ratio was in dispute;

- (iii) for a Performance Metric Disagreement concerning the BESS Capacity Ratio, the written decision of the Independent AF Evaluator shall set forth the BESS Capacity Ratio for the BESS Measurement Period ending with the calendar month in question;
- (iv) for a Performance Metric Disagreement concerning the BESS Annual Equivalent Availability Factor, the written decision of the Independent AF Evaluator shall set forth (aa) the correct values to be used for AH, EPDH, EUDH and PH under Attachment X (BESS Annual Equivalent Availability Factor) for the calendar month in question if any such values were in dispute and (bb) the BESS Annual Equivalent Availability Factor for the BESS Measurement Period ending with the calendar month in question if such BESS Annual Equivalent Availability Factor was in dispute; and
- (v) for a Performance Metric Disagreement concerning the BESS Annual Equivalent Forced Outage Factor, the written decision of the Independent AF Evaluator shall set forth (aa) the correct values for FOH and EUDH under Attachment Y (BESS Annual Equivalent Forced Outage Factor) for the calendar month in question if any such values were in

dispute and (bb) the BESS Annual Equivalent Forced Outage Factor for the BESS Measurement Period ending with the calendar month in question if such BESS Annual Equivalent Forced Outage Factor was in dispute.

~~(vi) for a Performance Metric Disagreement concerning the Fast Frequency Response Performance Metric, the written decision of the Independent AF Evaluator shall set forth [DRAFTING NOTE: TO BE DEVELOPED IF PPA SECTION 2.12 (FAST FREQUENCY RESPONSE PERFORMANCE METRIC) IS RETAINED.]~~

- (i) Sequence for Resolving Interrelated Disagreements. If at the time a Performance Metric Disagreement is submitted to an Independent AF Evaluator pursuant to Section 2(e) (Appointment of Independent AF Evaluator) of this Attachment T (Monthly Reporting and Dispute Resolution by Independent AF Evaluator) there are one or more other unresolved Performance Metric Disagreements concerning the same Performance Metric and the same LD Period that are pending before a different Independent AF Evaluator, and the resolution of such other Performance Metric Disagreement(s) is necessary to the resolution of the Performance Metric Disagreement that has been newly submitted to a new Independent AF Evaluator as aforesaid, the time period for such new Independent AF Evaluator to issue its written decision resolving such newly submitted Performance Metric Disagreement shall be tolled until such pending Performance Metric Disagreement(s) have been resolved. For avoidance of doubt, it is the intent of the Parties that disagreements over performance ratio data and calculations for a given calendar month or a given BESS Measurement Period shall (i) not be subject to resolution twice and (ii) once resolved, shall not be reopened.
- (j) Final, Conclusive and Binding. The Parties acknowledge the inherent uncertainty in calculating the Performance Metrics, and hereby assume the risk of such uncertainty and waive any right to dispute the qualification of the person or entity appointed as the Independent AF Evaluator pursuant to Section 2(e) (Appointment of Independent AF Evaluator) of this Attachment T (Monthly Reporting and Dispute Resolution

by Independent AF Evaluator) and/or the appropriateness of the methodology used by Independent AF Evaluator in resolving such Performance Metric Disagreements. Without limitation to the generality of the preceding sentence, the decision of the Independent AF Evaluator as to each Performance Metric Disagreement submitted to an Independent AF Evaluator shall be final, conclusive and binding upon Company and Seller and shall not be subject to further dispute under Article 28 (Dispute Resolution) of the Agreement.

3. Periodic Review of Method of Calculating and Reporting Performance Metric. At least once per Contract Year, Company shall review the method of calculating and reporting Performance Metric under this Agreement to determine if other variables should be incorporated into such calculations. Any revisions to the Performance Metric calculations in this Agreement shall be mutually agreed to by both Seller and Company.
4. Future Changes in Reporting Requirements. Seller shall reasonably cooperate with any Company requested revisions to the Monthly Report to include additional data that may be necessary from time to time to enable Company to comply with any new reporting requirements directed by the PUC or otherwise imposed under applicable Laws.

ARTICLE 2

PURCHASE AND SALE OF ENERGY AND DISPATCHABILITY;  
RATE FOR PURCHASE AND SALE; BILLING AND PAYMENT

- 2.1 Purchase and Sale of Electric Energy, Dispatchability of Facility and Availability of the BESS. Subject to the other provisions of this Agreement, Company shall, by a Lump Sum Payment, pay for: (i) the Actual Output produced by the Facility and delivered to the Point of Interconnection in response to Company Dispatch of the Facility; (ii) the availability of the Facility's Net Energy Potential for Company Dispatch in accordance with this Agreement; and (iii) the availability of the BESS. Included in such purchase and sale are all of the Environmental Credits associated with the electric energy. Company will not reimburse Seller for any taxes or fees imposed on Seller including, but not limited to, State of Hawai'i general excise tax. **[Drafting Note: For PPA with energy payment, use the following in lieu of the above:** Subject to the other provisions of this Agreement: (i) Company shall, by an Energy Payment, pay for the Actual Output produced by the Facility and delivered to the Point of Interconnection in response to Company Dispatch of the Facility; and (ii) Company shall, by a Lump Sum Payment, pay for the availability of the Facility's Net Energy Potential and the availability of the BESS to respond to Company Dispatch in accordance with this Agreement. Included in such purchase and sale of electric energy and such purchase and sale of dispatchability are all of the Environmental Credits associated with the electric energy. Company will not reimburse Seller for any taxes or fees imposed on Seller including, but not limited to, State of Hawai'i general excise tax.]
- 2.2 [Drafting Note: If there is no Energy Payment, replace this paragraph with [RESERVED]] Payment for Electric Energy. Commencing on the Commercial Operations Date, in exchange for the electric energy delivered to the Point of Interconnection in response to Company Dispatch, Seller will be paid an Energy Payment on a monthly basis as provided in Section 1 (Price for Purchase of Electric Energy) of Attachment J (Company Payments for Energy, Dispatchability and Availability of BESS) to this Agreement.
- 2.3 Lump Sum Payment. Commencing on the Commercial Operations Date, Company shall pay to Seller a monthly Lump Sum Payment as provided in Section 2 (Lump Sum Payment for Purchase of Dispatchability) of Attachment J (Company Payments for

Energy, Dispatchability and Availability of BESS) to this Agreement. As more fully set forth in Section 3 (Calculation of Lump Sum Payment) of said Attachment J (Company Payments for Energy, Dispatchability and Availability of BESS), the monthly Lump Sum Payment shall be calculated and adjusted to reflect changes in the estimate of the Facility's Net Energy Potential as such estimate is revised from time to time as more fully set forth in Attachment U (Calculation and Adjustment of Net Energy Potential) to this Agreement. For purposes of calculating the monthly Lump Sum Payment, the monthly Lump Sum Payment shall be adjusted downward to account for the time the Facility WTG(s) are not available for Company Dispatch because of a Force Majeure condition (i) at the Facility or (ii) that otherwise delays or prevents the Seller from making the Facility WTG(s) in question available for Company Dispatch, as more fully set forth in Section 3.iv of Attachment J (Company Payments for Energy, Dispatchability and Availability of BESS) to this Agreement.

2.4 Assurance of Capability of Facility to Deliver Net Energy Potential and Availability of BESS.

- (a) Design, Operation and Maintenance to Achieve Required Performance Metrics; Charging of BESS. In order to provide Company with reasonable assurance that, subject to the Renewable Resource Variability, the Facility's Net Energy Potential will be available for Company Dispatch: (i) the Modified Pooled OMC Equipment Availability Factor Performance Metric shall be used to evaluate the availability of the WTGs for dispatch by Company; (ii) the Guaranteed Performance Index ("GPI") Performance Metric shall be used to evaluate the efficiency of the WTGs; (iii) the BOP Efficiency Ratio Performance Metric shall be used to evaluate the efficiency of the BOP; (iv) the BESS Capacity Performance Metric shall be used to confirm the capability of the BESS to discharge continuously for four (4) hours at Maximum Rated Output or to discharge continuously for a total energy (MWh) equal to the BESS Contract Capacity if the test is conducted at less than Maximum Rated Output; (v) the BESS EAF Performance Metric shall be used to determine whether the BESS is meeting its expected availability; and (vi) the BESS EFOF Performance Metric shall be used to evaluate whether the BESS is experiencing excessive unplanned outages. Whenever the WTGs potential output is in excess of the Company Dispatch, the excess energy from the WTGs shall

be used to maximize the BESS State of Charge so long as this does not conflict with the operating parameters of the BESS set forth in Section 9(d) (Battery Energy Storage System) of Attachment B (Facility Owned by Seller) to this Agreement. Seller shall design, operate and maintain the Facility in a manner consistent with the standard of care reasonably expected of an experienced owner/operator with the desire and financial resources necessary to design, operate and maintain the Facility to achieve the Performance Metrics. The foregoing is without limitation to Seller's other obligations under this Agreement, including the obligation to operate the Facility in accordance with Good Engineering and Operating Practices. The Performance Metrics set forth in Section 2.5 (Modified Pooled OMC Equipment Availability Factor; Liquidated Damages; Termination Rights) through Section 2.10 (BESS Annual Equivalent Forced Outage Factor; Liquidated Damages) of this Agreement shall be interpreted consistent with the North American Electric Reliability Corporation Generating Availability Data System ("NERC GADS") Data Reporting Instructions.

(b) [Reserved]

2.5 Modified Pooled OMC Equipment Availability Factor; Liquidated Damages; Termination Rights.

(a) Calculation of the Modified Pooled OMC Equipment Availability Factor. Following the end of each LD Period, the Modified Pooled OMC Equipment Availability Factor shall be calculated for such LD Period as set forth in Section 1 (Modified Pooled OMC Equipment Availability Factor ("MPXEEAF")) of Attachment Q (Calculation of Certain Metrics).

(b) Modified Pooled OMC Equipment Availability Factor Performance Metric and Liquidated Damages. For each LD Period, a Modified Pooled OMC Equipment Availability Factor shall be calculated as provided in accordance with Section 1 (Modified Pooled OMC Equipment Availability Factor ("MPXEEAF")) of Attachment Q (Calculation of Certain Metrics) to this Agreement. In the event the Modified Pooled OMC Equipment Availability Factor is less than **97%** (the "Modified Pooled OMC Equipment Availability Factor Performance Metric") for

any LD Period, Seller shall be subject to liquidated damages as set forth in this Section 2.5(b) (Modified Pooled OMC Equipment Availability Factor Performance Metric and Liquidated Damages). For avoidance of doubt, because the Modified Pooled OMC Equipment Availability Factor is calculated over an LD Period of 12 calendar months, the first month for which liquidated damages would be calculated under this Section 2.5(b) (Modified Pooled OMC Equipment Availability Factor Performance Metric and Liquidated Damages) would be the last calendar month of the initial Contract Year. If the Modified Pooled OMC Equipment Availability Factor for a LD Period is less than the Modified Pooled OMC Equipment Availability Factor Performance Metric, Seller shall pay, and Company shall accept, as liquidated damages for Seller's failure to achieve the Modified Pooled OMC Equipment Availability Factor Performance Metric for such LD Period, an amount calculated in accordance with the following formula:

<u>Modified Pooled OMC Equipment Availability Factor</u>	<u>Amount of Liquidated Damages Per Calendar Month</u>
<b>96.9%</b> and below	For each one-tenth of one percent (0.001) by which the Modified Pooled OMC Equipment Availability Factor for such LD Period falls below the Modified Pooled OMC Equipment Availability Factor Performance Metric, an amount equal to 0.001 of the Applicable Period Lump Sum Payment for the last calendar month of such LD Period.

For purposes of determining liquidated damages under the preceding formula, the amount by which the Modified Pooled OMC Equipment Availability Factor for the LD Period in question falls below the applicable threshold shall be rounded to the nearest one-tenth of one percent (0.001). Each Party agrees and acknowledges that (i) the damages that Company would incur if the Seller fails to achieve the Modified Pooled OMC Equipment Availability Factor Performance Metric for a LD Period would be difficult or impossible to calculate with

certainty and (ii) the aforesaid liquidated damages are an appropriate approximation of such damages.

- (c) Modified Pooled OMC Equipment Availability Factor Termination Rights. The Parties acknowledge that, although the intent of the liquidated damages payable under Section 2.5(b) (Modified Pooled OMC Equipment Availability Factor Performance Metric and Liquidated Damages) is to compensate Company for the damages that Company would incur if the Seller fails to achieve the Modified Pooled OMC Equipment Availability Factor Performance Metric for a LD Period, such liquidated damages are not intended to compensate Company for the damages that Company would incur if a pattern of underperformance establishes a reasonable expectation that the Facility is likely to continue to substantially underperform the Modified Pooled OMC Equipment Availability Factor Performance Metric. Accordingly, and without limitation to Company's rights under said Section 2.5(b) (Modified Pooled OMC Equipment Availability Factor Performance Metric and Liquidated Damages) for those LD Periods during which the Seller failed to achieve the Modified Pooled OMC Equipment Availability Factor Performance Metric, the failure of the Facility to achieve a Modified Pooled OMC Equipment Availability Factor of not less than **84%** for each of three consecutive Contract Years shall constitute an Event of Default under Section 15.1(b) of this Agreement for which Company shall have the rights (including but not limited to the termination rights) set forth in Article 15 (Events of Default) and Article 16 (Damages in the Event of Termination by Company).

2.6 Performance Index; Liquidated Damages; Termination Rights.

- (a) Calculation of Performance Index.
- (i) The Performance Index represents the efficiency of the WTG's conversion of the wind resource to electricity by comparing the calculated Expected Generation at the WTGs to the measured Actual Generation at the WTGs during Contact Hours excluding periods where the operational state is categorized as ERSDTH, oEFDTH, oEMPTH, oEPDTH or Environmental Derate.

- (ii) Following the end of each PI Assessment Period, the Performance Index shall be calculated for such PI Assessment Period (using the previous 12 months of data) as set forth in Section 2 (Performance Index) of Attachment Q (Calculation of Certain Performance Metrics) to this Agreement.
  
- (iii) PI Test. In the event that the set of operational data points under Attachment Q (Calculation of Certain Performance Metrics) that is available for any month to calculate the PI cannot be validated to Company's reasonable satisfaction or in the event there were not at least 16 such data points during such month that could be used to calculate the PI, the Company shall have the right to perform a test ("PI Test") to collect the data points for such month to be used to calculate the PI in lieu of the use of operational data for such month. The Company shall retain sole discretion as to when to conduct the PI Test, and the PI Test may be conducted at any point during the month following the month for which Company was either unable to validate the set of operational data points for such month or there were not at least 24 data points available during such month. The PI Test shall have a minimum duration of four (4) hours and shall run until at least 16 data points are collected that meet the criteria set forth in Attachment Q (Calculation of Certain Performance Metrics). During an PI Test, the PI shall be calculated from the data points collected during said PI Test using the formula set forth in Attachment Q. To the extent possible, the Company shall schedule the PI Test for a period where all WTGs are available and weather conditions are expected to be optimum allowing the WTG System to generate at near full capacity for the duration of the PI Test (if possible). The result of the calculation based on the PI Test shall be the PI for the PI Assessment Period in question.
  
- (iv) For each PI Assessment Period that includes one or more months for which a PI Test was performed, the data points collected during said PI Test for such month(s) shall be used together with the data points for months for which a PI Test was not conducted to calculate the PI for the PI Assessment

Period in question using the formula set forth in Section 2.6(a)(iii) above. The result of the calculation based on the PI Test shall be the PI for the PI Assessment period in question.

- (b) GPI Metric and Liquidated Damages. For each PI Assessment Period, a Performance Index shall be calculated as provided in Section 2 (Performance Index) of Attachment Q (Calculation of Certain Metrics) to this Agreement. In the event the PI is less than 97% (the "GPI Metric"), Seller shall pay, and Company shall accept, as liquidated damages for Seller's failure to achieve the GPI Metric for such PI Assessment Period, an amount calculated in accordance with the following formula:

<u>Tier</u>	<u>Facility PI</u>	<u>Amount of Liquidated Damages Per Calendar Month</u>
Tier 1	97.0% > PI > or equal to 90.0%	For each one tenth of one percent (0.001) by which the Performance Index for such PI Assessment Period falls below 97% and is above 89.9%, an amount equal to one tenth of one percent (0.001) of the PI Assessment Period Lump Sum Payment; plus
Tier 2	90.0% > PI > or equal to 80.0%	For each one tenth of one percent (0.001) by which the Performance Index for such PI Assessment Period falls below 90.0% and is above 79.9%, an amount equal to two tenths of one percent (0.002) of the PI Assessment Period Lump Sum Payment; plus
Tier 3	Below 80.0%	For each one tenth of one percent (0.001) by which the Performance Index for such PI Assessment Period falls below 80.0%, an amount equal to four tenths of one percent (0.004) of the PI Assessment Period Lump Sum Payment.

- (c) PI Termination Rights. The Parties acknowledge that, although the intent of the liquidated damages payable

under Section 2.6(b) (GPI Metric and Liquidated Damages) is to compensate Company for the damages that Company would incur if the Seller fails to achieve the GPI Metric for a PI Assessment Period, such liquidated damages are not intended to compensate Company for the damages that Company would incur if a pattern of underperformance establishes a reasonable expectation that the Facility is likely to continue to substantially underperform the GPI Metric. Accordingly, and without limitation to Company's rights under said Section 2.6(b) (GPI Metric and Liquidated Damages) for those PI Assessment Periods during which the Seller failed to achieve the GPI Metric, the failure of the Facility to achieve, for each of three consecutive Contract Years, a Performance Index of not less than the Tier 2 Bandwidth for such Contract Year shall constitute an Event of Default under Section 15.1(c) of this Agreement for which Company shall have the rights (including but not limited to the termination rights) set forth in Article 15 (Events of Default) and Article 16 (Damages in the Event of Termination by Company).

2.7 BOP Efficiency Ratio; Liquidated Damages; Termination Rights.  
**[DRAFTING NOTE: THE SECTION ON BOP EFFICIENCY RATIO WILL BE REVISED FOR PROJECTS THAT INCLUDE A BESS.]**

- (a) Calculation of Annual BOP Efficiency Ratio. The BOP Efficiency Ratio represents the efficiency of the BOP by comparing the measured Actual Generation at the WTGs to the Actual Output at the Point of Interconnection. Following the end of each Contract Year, Company shall calculate the BOP Efficiency Ratio for such Contract Year as follows:

$$\text{BOP Efficiency Ratio} = \frac{\text{Actual Output (at POI) for such Contract Year}}{\text{Actual Generation at WTGs for such Contract Year}}$$

(b) Determination of BOP Benchmark.

- (i) First Two Contract Years. If a copy of the IE Energy Assessment Report is not provided to Company, the BOP Benchmark for the first two Contract Years shall be **97%**. If a copy of the IE Energy Assessment Report is provided to Company,

the BOP Benchmark shall be derived from the IE Energy Assessment Report on the basis of the estimated electrical losses for the BOP used in the IE Energy Assessment Report in arriving at the NEP IE Estimate. Within 30 Days of Company's receipt of the IE Energy Assessment Report, Company shall provide written notice to Seller of either (aa) the BOP Benchmark derived from the IE Energy Assessment Report or (bb) Company's inability to reasonably derive a BOP Benchmark from the IE Energy Assessment, in which case the BOP Benchmark shall be **97%**.

- (ii) Commencing With Third Contract Year. For the third Contract Year through the end of the Contract Year preceding the Contract Year during which the first Subsequent OEPR is issued, the BOP Benchmark shall be derived from the Initial OEPR on the basis of the estimated electrical losses for the BOP used in the Initial OEPR in arriving at the Initial OEPR's NEP OEPR Estimate. Within 30 Days of Company's receipt of the Initial OEPR, Company shall either (i) provide written notice to Seller of the BOP Benchmark derived from the Initial OEPR or (ii) if Company is unable to reasonably derive a BOP Benchmark from the Initial OEPR, deliver a written request to the OEPR Evaluator (with a copy to Seller) that such OEPR Evaluator issue, within 30 Days, a written clarification of the Initial OEPR specifying the BOP Benchmark. If such request for clarification is made to the OEPR Evaluator, within 10 Business Days following the expiration of the 30-Day period provided for receipt of such OEPR Evaluator's reply, Company shall provide written notice to Seller of either (i) the BOP Benchmark derived from such written clarification by the OEPR Evaluator or (ii) the designation of **97%** as the BOP Benchmark due to either the failure of the OEPR Evaluator to issue a written clarification or, if a written clarification was issued, the inability of Company to reasonably derive a BOP Benchmark on the basis of such written clarification.
- (iii) Commencing With the First Subsequent OEPR and Thereafter. For any Contract Year during which a Subsequent OEPR is issued through the end of the Contract Year preceding the Contract Year during

which the next Subsequent OEPR is issued, the BOP Benchmark shall be derived from the first of the two Subsequent OEPRs referenced in this sentence on the basis of the estimated electrical losses for the BOP used in such Subsequent OEPR in arriving at such Subsequent OEPR's NEP Estimate. Within 30 Days of Company's receipt of such Subsequent OEPR, Company shall either (i) provide written notice to Seller of the BOP Benchmark derived from such Subsequent OEPR or (ii) if Company is unable to reasonably derive a BOP Benchmark from such Subsequent OEPR, deliver a written request to the OEPR Evaluator (with a copy to Seller) that such OEPR Evaluator issue, within 30 Days, a written clarification of such Subsequent OEPR specifying the BOP Benchmark. If such request for clarification is made to the OEPR Evaluator, within 10 Business Days following the expiration of the 30-Day period provided for the receipt of such OEPR Evaluator reply, Company shall provide written notice to Seller of either (i) the BOP Benchmark derived from such written clarification by the OEPR Evaluator or (ii) the designation of **97%** as the BOP Benchmark due to either the failure of the OEPR Evaluator to issue a written clarification or, if a written clarification was issued, the inability of Company to reasonably derive a BOP Benchmark on the basis of such written clarification.

- (iv) Disagreement Over Determination of BOP Benchmark. Any disagreement over the determination of the BOP Benchmark shall be resolved as set forth in Section 2(b) (Notice of Disagreement with BOP Benchmark Determination) of Attachment T (Monthly Reporting and Dispute Resolution by Independent AF Evaluator) to this Agreement.
  
- (c) BOP Benchmark and Liquidated Damages. For each Contract Year, Seller shall achieve a BOP Efficiency Ratio, as calculated as provided in Section 2.7(a) (Calculation of Annual BOP Efficiency Ratio) of this Agreement, of not less than the BOP Benchmark. If the BOP Efficiency Ratio for a Contract Year is less than the BOP Benchmark, Seller shall pay, and Company shall accept, as liquidated damages for Seller's failure to achieve

the BOP Benchmark for such Contract Year, an amount calculated in accordance with the following formula:

Amount of Liquidated Damages Per Contract Year

For each one-tenth of one percent (0.001) by which the BOP Efficiency Ratio for such Contract Year falls below the BOP Benchmark up to and including a BOP Efficiency Ratio of three percentage points below the BOP Benchmark ("BOP Benchmark Minus 3"), one-tenth of one percent (0.001) of the Applicable Period Lump Sum Payment for such Contract Year; plus

For each one-tenth of one percent (0.001) by which the BOP Efficiency Ratio for such Contract Year falls below BOP Benchmark Minus 3 up to an including a BOP Efficiency Ratio of six percentage points below the BOP Benchmark ("BOP Benchmark Minus 6", two-tenths of one percent (0.002) of the Applicable Period Lump Sum Payment for such Contract Year; plus

For each one-tenth of one percent (0.001) by which the BOP Efficiency Ratio for such Contract Year falls below BOP Benchmark Minus 6, four-tenths of one percent (0.004) of the Applicable Period Lump Sum Payment for such Contract Year.

For purposes of determining liquidated damages under the preceding formula, the amount by which the BOP Efficiency Ratio for the Contract Year in question falls below the applicable threshold shall be rounded to the nearest one-tenth of one percent (0.001). Each Party agrees and acknowledges that (i) the damages that Company would incur if the Seller fails to achieve the BOP Benchmark for a Contract Year would be difficult or impossible to calculate with certainty and (ii) the

aforesaid liquidated damages are an appropriate approximation of such damages.

- (d) BOP Efficiency Ratio Termination Rights. The Parties acknowledge that, although the intent of the liquidated damages payable under Section 2.7(c) (BOP Benchmark and Liquidated Damages) is to compensate Company for the damages that Company would incur if Seller fails to achieve the BOP Benchmark for a Contract Year, such liquidated damages are not intended to compensate Company for the damages that Company would incur if a pattern of underperformance establishes a reasonable expectation that the Facility is likely to continue to substantially underperform the BOP Benchmark. Accordingly, and without limitation to Company's rights under said Section 2.7(c) (BOP Benchmark and Liquidated Damages) for those Contract Years during which the Seller failed to achieve the BOP Benchmark, the failure of the Facility to achieve a BOP Efficiency Ratio of not less than BOP Benchmark Minus 6 for each of three consecutive Contract Years shall constitute an Event of Default under Section 15.1(c) of this Agreement for which Company shall have the rights (including but not limited to the termination rights) set forth in Article 15 (Events of Default) and Article 16 (Damages in the Event of Termination by Company).

2.8 BESS Capacity Test; Liquidated Damages; Termination Rights.

- (a) BESS Capacity Test and Liquidated Damages. For each BESS Measurement Period following the Commercial Operations Date, the BESS shall be required to complete a BESS Capacity Test, as more fully set forth in Attachment W (BESS Tests) to this Agreement. For each BESS Measurement Period for which the BESS fails to demonstrate that it satisfies the BESS Capacity Performance Metric, Seller shall pay, and Company shall accept, as liquidated damages for such shortfall, the amount set forth in the following table (on a progressive basis) upon proper demand at the end the BESS Measurement Period in question:

<b>BESS Capacity Ratio</b>	<b>Liquidated Damage Amount</b>
Tier 1 95.0% - 99.9%	For each one-tenth of one percent (0.001) that the

	<p>BESS Capacity Ratio is below 100% and is above 94.9%, an amount equal to one-tenth of one percent (0.001) of the BESS Allocated Portion of the Lump Sum Payment for the BESS Measurement Period in question; plus</p>
<p>Tier 2 85.0% - 94.9%</p>	<p>For each one-tenth of one percent (0.001) that the BESS Capacity Ratio is below 95% and is above 84.9%, an amount equal to one and a half-tenths of one percent (0.0015) of the BESS Allocated Portion of the Lump Sum Payment for the BESS Measurement Period in question; plus</p>
<p>Tier 3 75.0% - 84.9%</p>	<p>For each one-tenth of one percent (0.001) that the BESS Capacity Ratio is below 85% and is above 74.9%, an amount equal to two-tenths of one percent (0.002) of the BESS Allocated Portion of the Lump Sum Payment for the BESS Measurement Period in question; plus</p>
<p>Tier 4 60.0% - 74.9%</p>	<p>For each one-tenth of one percent (0.001) that the BESS Capacity Ratio is below 75% and is above 59.9%, an amount equal to two and a half-tenths of one percent (0.0025) of the BESS Allocated Portion of the Lump Sum Payment for the BESS Measurement Period in question; plus</p>

<p>Tier 5 50.0% - 59.9%</p>	<p>For each one-tenth of one percent (0.001) that the BESS Capacity Ratio is below 60% and is above 49.9%, an amount equal to three-tenths of one percent (0.003) of the BESS Allocated Portion of the Lump Sum Payment for the BESS Measurement Period in question; plus</p>
<p>Tier 6 49.9% and below (<u>"Lowest BESS Capacity Bandwidth"</u>)</p>	<p>For each one-tenth of one percent (0.001) that the BESS Capacity Ratio is below 50%, an amount equal to three and a half-tenths of one percent (0.0035) of the BESS Allocated Portion of the Lump Sum Payment for the BESS Measurement Period in question.</p>

For purposes of determining liquidated damages under this Section 2.8(a) (BESS Capacity Test and Liquidated Damages), the starting and end points for the duration of the period that the BESS discharges shall be rounded to the nearest MWh. Each Party agrees and acknowledges that (i) the damages that Company would incur if the Seller fails to achieve the BESS Capacity Performance Metric for a BESS Measurement Period would be difficult or impossible to calculate with certainty and (ii) the aforesaid liquidated damages are an appropriate approximation of such damages.

EXAMPLE: The following is an example calculation of liquidated damages for the BESS Capacity Performance Metric and is included for illustrative purposes only. Assume the following:

The Maximum Rated Output for the BESS is 25 MW.

A BESS Capacity Test was conducted and the BESS was measured to have discharged 65 MWh

BESS Contract Capacity = 25 MW x 4 hours = 100 MWh

BESS Capacity Ratio = MWh Discharged/BESS Contract  
Capacity = 65 MWh/100 MWh = 0.65

LD = [((1 - 0.950) x 1) + ((0.950 - 0.850) x 1.5) +  
((0.850 - 0.750) x 2 + ((0.750 - 0.65) x 2.5)] x BESS  
Allocated Portion of the Lump Sum Payment for the BESS  
Measurement Period in question  
= 0.65 x BESS Allocated Portion of the Lump Sum Payment  
for the BESS Measurement Period in question

- (b) BESS Capacity Test Termination Rights. The Parties acknowledge that, although the intent of the liquidated damages payable under Section 2.8(a) (BESS Capacity Test and Liquidated Damages) is to compensate Company for the damages that Company would incur if the BESS fails to demonstrate satisfaction of the BESS Capacity Performance Metric during a BESS Measurement Period, such liquidated damages are not intended to compensate Company for the damages that Company would incur if a pattern of underperformance establishes a reasonable expectation that the BESS is likely to continue to substantially underperform the Company's expectations. Accordingly, and without limitation to Company's rights under said Section 2.8(a) (BESS Capacity Test and Liquidated Damages) for those BESS Measurement Periods during which the BESS fails to demonstrate satisfaction of the BESS Capacity Performance Metric, substantial underperformance shall give rise to a termination right as set forth in this Section 2.8(b) (BESS Capacity Test Termination Rights). If the BESS is in the Lowest BESS Capacity Bandwidth for any two BESS Measurement Periods during a 12-month period, an **18-month** cure period (the "BESS Capacity Cure Period") will commence on the Day following the close of the second such BESS Measurement Period. For each BESS Measurement Period during such BESS Capacity Cure Period, BESS Capacity Tests shall continue to be conducted as set forth in Attachment W (BESS Tests) and liquidated damages paid and accepted as set forth in Section 2.8(a) (BESS Capacity Test and Liquidated Damages); provided, however, that if the Seller fails to demonstrate satisfaction of the BESS Capacity Performance Metric prior to the expiration of the BESS Capacity Cure Period, such failure shall constitute an Event of Default under Section 15.1(e) of this Agreement for which Company shall have the rights (including but not limited to the termination rights)

set forth in Article 15 (Events of Default) and Article 16 (Damages in the Event of Termination by Company).

2.9 BESS Annual Equivalent Availability Factor; Liquidated Damages; Termination Rights.

(a) BESS Annual Equivalent Availability Factor and Liquidated Damages. For each BESS Measurement Period following the Commercial Operations Date, a BESS Annual Equivalent Availability Factor shall be calculated as set forth in Attachment X (BESS Annual Equivalent Availability Factor). If the BESS Annual Equivalent Availability Factor for such BESS Measurement Period is less than **97%** (the "BESS EAF Performance Metric"), Seller shall pay, and Company shall accept, as liquidated damages for such shortfall, the amount set forth in the following table (on a progressive basis) upon proper demand at the end the current BESS Measurement Period:

<b>BESS Annual Equivalent Availability Factor</b>	<b>Liquidated Damage Amount</b>
<p style="text-align: center;">Tier 1</p> <p style="text-align: center;">85.0% - 96.9%</p>	<p>For each one-tenth of one percent (0.001) by which the BESS Annual Equivalent Availability Factor falls below 97% but equal to or above 85%, an amount equal to one-tenth of one percent (0.001) of the BESS Allocated Portion of the Lump Sum Payment for the BESS Measurement Period in question; plus</p>
<p style="text-align: center;">Tier 2</p> <p style="text-align: center;">80.0% - 84.9%</p>	<p>For each one-tenth of one percent (0.001) by which the BESS Annual Equivalent Availability Factor falls below 85% but equal to or above 80%, an amount equal to two-tenths of one percent (0.002) of the BESS Allocated Portion of the Lump Sum Payment for the BESS</p>

	Measurement Period in question; plus
Tier 3 75.0% - 79.9%	For each one-tenth of one percent (0.001) by which the BESS Annual Equivalent Availability Factor falls below 80% but equal to or above 75%, an amount equal to three-tenths of one percent (0.003) of the BESS Allocated Portion of the Lump Sum Payment for the BESS Measurement Period in question; plus
Tier 4 Below 75.0%	For each one-tenth of one percent (0.001) by which the BESS Annual Equivalent Availability Factor falls below 75%, an amount equal to four-tenths of one percent (0.004) of the BESS Allocated Portion of the Lump Sum Payment for the BESS Measurement Period in question.

Such liquidated damages shall be due within thirty (30) Days after the first to occur of the end of such BESS Measurement Period or the end of Term. In the event Seller fails to pay Company amounts of liquidated damages due under this Section 2.9(a) (BESS Annual Equivalent Availability Factor and Liquidated Damages) within thirty (30) Days of receipt of Company's written demand, Company may, without limitation to any other remedy Company may have, set-off such amounts due against payments it is otherwise obligated to make under this Agreement.

For purposes of determining liquidated damages under this Section 2.9(a) (BESS Annual Equivalent Availability Factor and Liquidated Damages), the BESS Annual Equivalent Availability Factor for the BESS Measurement Period in question shall be rounded to the nearest one-tenth of one percent (0.001). Each Party agrees and acknowledges that (i) the damages that Company would incur if the Seller fails to achieve the BESS EAF

Performance Metric for a BESS Measurement Period would be difficult or impossible to calculate with certainty and (ii) the aforesaid liquidated damages are an appropriate approximation of such damages.

- (b) BESS Annual Equivalent Availability Factor Termination Rights. The Parties acknowledge that, although the intent of the liquidated damages payable under Section 2.9(a) (BESS Annual Equivalent Availability Factor and Liquidated Damages) is to compensate Company for the damages that Company would incur if the Seller fails to achieve the BESS EAF Performance Metric for a BESS Measurement Period, such liquidated damages are not intended to compensate Company for the damages that Company would incur if a pattern of underperformance establishes a reasonable expectation that the BESS is likely to continue to substantially underperform the BESS EAF Performance Metric. Accordingly, and without limitation to Company's rights under said Section 2.9(a) (BESS Annual Equivalent Availability Factor and Liquidated Damages) for those BESS Measurement Periods during which the Seller failed to achieve the BESS EAF Performance Metric, the failure of the Seller to achieve, for each of four consecutive BESS Measurement Periods, a BESS Annual Equivalent Availability Factor of not less than **75%** shall constitute an Event of Default under Section 15.1(f) of this Agreement for which Company shall have the rights (including but not limited to the termination rights) set forth in Article 15 (Events of Default) and Article 16 (Damages in the Event of Termination by Company); provided, however, that if a BESS Measurement Period for which the aforementioned 75% threshold is not achieved falls within a BESS Capacity Cure Period, such BESS Measurement Period shall be excluded from the calculation of the aforementioned "four consecutive BESS Measurement Periods" if the failure to achieve the aforementioned 75% threshold was the result of unavailability caused by the process of carrying out the repairs to or replacements of the BESS necessary to remedy the failure of the BESS to achieve the BESS Capacity Performance Metric.

2.10 BESS Annual Equivalent Forced Outage Factor; Liquidated Damages.

For each BESS Measurement Period following the Commercial Operations Date, the BESS shall maintain a BESS Annual

Equivalent Forced Outage Factor of not more than 4% (the "BESS EFOF Performance Metric") as calculated as set forth in Attachment Y (BESS Annual Equivalent Forced Outage Factor). If the BESS Annual Equivalent Forced Outage Factor for such BESS Measurement Period exceeds the BESS EFOF Performance Metric, Seller shall pay, and Company shall accept, as liquidated damages for exceeding the BESS EFOF Performance Metric, the amount set forth in the following table (on a progressive basis) upon proper demand by the Company at the end of the BESS Measurement Period in question:

<b>BESS Annual Equivalent Forced Outage Factor</b>	<b>Liquidated Damage Amount</b>
0.0% - 4.0%	-0-
4.1% - 6.9%	For each one-tenth of one percent (0.001) that the BESS Annual Equivalent Forced Outage Factor is above 4.0% but less than 7.0%, an amount equal to two-tenths of one percent (0.002) of the BESS Allocated Portion of the Lump Sum Payment for the BESS Measurement Period in question; plus
7.0% and above	For each one-tenth of one percent (0.001) that the BESS Annual Equivalent Forced Outage Factor is above 6.9%, an amount equal to four-tenths of one percent (0.004) of the BESS Allocated Portion of the Lump Sum Payment for the BESS Measurement Period in question

Such liquidated damages shall be due within thirty (30) Days after the first to occur of the end of such BESS Measurement Period or the end of Term. In the event Seller fails to pay Company amounts of liquidated damages due under this Section 2.10 (BESS Annual Equivalent Forced Outage Factor; Liquidated Damages) within thirty (30) Days of receipt of Company's

written demand, Company may set-off such amounts due against payments it is otherwise obligated to make under this Agreement.

For purposes of determining liquidated damages under this Section 2.10 (BESS Annual Equivalent Forced Outage Factor; Liquidated Damages), the BESS Annual Equivalent Forced Outage Factor for the BESS Measurement Period in question shall be rounded to the nearest one-tenth of one percent (0.001). Each Party agrees and acknowledges that (i) the damages that Company would incur if the Seller fails to achieve the BESS EFOF Performance Metric for a BESS Measurement Period would be difficult or impossible to calculate with certainty and (ii) the aforesaid liquidated damages are an appropriate approximation of such damages.

For example, if the BESS Equivalent Annual Forced Outage Factor was 4.1% as calculated in the example in Attachment Y (BESS Annual Equivalent Forced Outage Factor) attached hereto and the BESS Allocated Portion of the Lump Sum Payment for the BESS Measurement Period in question is \$1,000,000, the liquidated damages would be \$2,000, calculated as follows:

$$\begin{aligned} 4.1\% - 4.0\% &= 0.1\% \\ 0.1\%/0.1 &= 1 \\ \$1,000,000 \times .002 &= \$2,000 \\ \$2,000 \times 1 &= \$2,000 \end{aligned}$$

2.11 BESS Round Trip Efficiency Test; Liquidated Damages; Termination Rights.

- (a) RTE Test and Liquidated Damages. For each BESS Measurement Period following the Commercial Operations Date, the BESS shall be required to complete a RTE Test or otherwise demonstrate satisfaction of the RTE Performance Metric, as more fully set forth in Attachment W (BESS Tests) to this Agreement. For each BESS Measurement Period for which the BESS fails to demonstrate that it satisfies the RTE Performance Metric, Seller shall pay, and Company shall accept, as liquidated damages for such shortfall, in the amount to be calculated as provided in this Section 2.11(a) (RTE Test and Liquidated Damages), upon proper demand at the end the BESS Measurement Period in question.



Company's expectations. Accordingly, and without limitation to Company's rights under said Section 2.11(a) (RTE Test and Liquidated Damages) for those BESS Measurement Periods during which the BESS fails to demonstrate satisfaction of the RTE Performance Metric, substantial underperformance shall give rise to a termination right as set forth in this Section 2.11(b) (RTE Test Termination Rights). If the RTE Ratio for the Selected RTE Test for the BESS Measurement Period in question is more than 15 percentage points below the RTE Performance Metric for any two BESS Measurement Periods during a 12-month period, an **18-month** cure period (the "RTE Cure Period") will commence on the Day following the close of the second such BESS Measurement Period. For each BESS Measurement Period during such RTE Cure Period, RTE Tests shall continue to be conducted as set forth in Attachment W (BESS Tests) and liquidated damages paid and accepted as set forth in Section 2.11(a) (RTE Test and Liquidated Damages); provided, however, that if the Seller fails to demonstrate satisfaction of the RTE Performance Metric prior to the expiration of the RTE Cure Period, such failure shall constitute an Event of Default under Section 15.1(g) of this Agreement for which Company shall have the rights (including but not limited to the termination rights) set forth in Article 15 (Events of Default) and Article 16 (Damages in the Event of Termination by Company).

2.12 Fast Frequency Response Performance Metric. **[DRAFTING NOTE: SECTION 2.12 APPLIES ONLY TO PROJECTS THAT INCLUDE CONTINGENCY STORAGE IN THEIR PROPOSALS. IT WILL BE REMOVED FROM PROJECTS THAT DO NOT INCLUDE CONTINGENCY STORAGE.]**

- (a) Fast Frequency Response Criteria and Liquidated Damages. Following the Commercial Operations Date, the Facility shall respond appropriately to frequency disturbances in the Company System by operating in a manner consistent with standards and parameters established for Fast Frequency Response. With respect to such frequency disturbances in the Company System, the Facility shall be required to meet all of the following minimum frequency performance criteria (collectively, the "Fast Frequency Response Performance Metric"):

- (i) The time between a step change in frequency and the response is no more than 1.3 times the target ~~response~~ reaction time;
- (ii) The resource achieves at least 63% of the new steady state active power output within the rise time;
- (iii) The resource achieves at least 70% of the new steady state active power target within the settling time; ~~and~~
- (v) ~~(iv)~~ Overshoot does not exceed 5% of the final steady state active power.; and
- (vi) The new steady-state active power output is within the settling band.

Company will review historical operational data to determine the Facility's fast frequency response following disturbances and satisfaction of the Fast Frequency Response Performance Metric. In accordance with Section 8(v) (Data Collection) of Attachment B (Facility Owned by Seller), Seller shall provide such high resolution data from the Facility requested by Company to assist in the review. To the extent the historical operational data is insufficient or otherwise lacking for purposes of determining the Facility's satisfaction of the Fast Frequency Response Performance Metric, Company shall review Facility's performance under structured test conditions no less than once per Contract Year.

After the first Contract Year:

- (1) for each instance ~~the of the~~ Facility ~~fails failing~~ to satisfy the Fast Frequency Response Performance Metric, Seller shall pay, and Company shall accept, as liquidated damages for such failure, an amount equal to 25% of the monthly Lump Sum Payment upon proper demand by Company; and
- (2) in the event poor Facility fast frequency response performance requires ~~disconnection from the Company System~~ disabling of the fast frequency response controls, as determined by Company in its sole discretion (e.g., in the event a Facility response to Company System

frequency outside of the FFR deadband contributes to frequency error or worsens the disturbance), Seller shall pay and Company shall accept, as liquidated damages for such underperformance, an amount equal to 100% of the ~~monthly FFR Allocated Portion of the~~ Lump Sum Payment upon proper demand by Company, and Seller shall not be entitled to receive further ~~payments of the FFR Allocated Portion of the Lump Sum Payment Lump Sum Payments~~ while the Facility ~~fast frequency response controls~~ remains ~~disconnected from the Company System disabled~~ to allow Seller to ~~perform implement~~ corrective actions on the Facility ~~to Company's reasonable satisfaction~~.

Such liquidated damages shall be due within thirty (30) Days of Company's written demand.

Company agrees that, when evaluating performance under this ~~Section 2.13-12~~ (Fast Frequency Response Performance Metric), the available State of Charge shall be taken into consideration and Seller shall not be held to the criteria set forth in this ~~Section 2.13-12~~ (Fast Frequency Response Performance Metric) if there is insufficient charged capacity available for the appropriate response.

- (b) Performance Deficiencies; Fast Frequency Response Performance Factor Termination Rights. With respect to any Facility response under this ~~Section 2.13-12~~ (Fast Frequency Response Performance Metric), Company will notify Seller of any discrepancies in the Facility response, and Seller shall respond to and cure all such performance deficiencies in accordance with Section 1(j) (Demonstration of Facility) of Attachment B (Facility Owned by Seller). The Parties acknowledge that, although the intent of the liquidated damages payable under ~~Section 2.1312(a)~~ (Fast Frequency Response Criteria and Liquidated Damages) is to compensate Company for the damages that Company would incur if the Facility fails to respond appropriately to Company System frequency, such liquidated damages are not intended to compensate Company for the damages that Company would incur if a pattern of underperformance establishes a reasonable expectation that the Facility is likely to continue to substantially underperform. Accordingly, and without limitation to

Company's rights under said Section 2.1312(a) (Fast Frequency Response Criteria and Liquidated Damages), in the event Seller fails to comply with the terms of Section 1(j) (Demonstration of Facility) of Attachment B (Facility Owned by Seller), such event shall constitute an Event of Default under Section 15.2(f) of this Agreement for which Company shall have the rights (including but not limited to the termination rights) set forth in Article 15 (Events of Default) and Article 16 (Damages in the Event of Termination).

2.13 Payment of Liquidated Damages for Failure to Achieve Performance Metrics; Limitation on Liquidated Damage.

- (a) Payment of Liquidated Damages. With respect to the liquidated damages payable under Section 2.5(b) (Modified Pooled OMC Equipment Availability Factor Performance Metric and Liquidated Damages), Section 2.6(b) (GPI Metric and Liquidated Damages), Section 2.7(c) (BOP Benchmark and Liquidated Damages), Section 2.8(a) (BESS Capacity Test and Liquidated Damages), Section 2.9(a) (BESS Annual Equivalent Availability Factor and Liquidated Damages), Section 2.10 (BESS Annual Equivalent Forced Outage Factor; Liquidated Damages), Section 2.11 (BESS Round Trip Efficiency Test; Liquidated Damages; Termination Rights) and Section 2.12 (Fast Frequency Response Performance Metric) **[SUBJECT TO REMOVAL PER SECTION 2.12 DRAFTING NOTE]** (collectively, the "Performance Metrics LDs"), Company shall have the right, at any time on or after the LD Assessment Date for the liquidated damages in question, at Company's option, to set-off such liquidated damages from the amounts to be paid to Seller under Section 2.3 (Lump Sum Payment) of this Agreement or, to draw such liquidated damages from the Operating Period Security, as follows:
- (i) if the BESS fails to achieve the BESS Capacity Performance Metric for a BESS Measurement Period, the Company shall have the right to set-off or draw the amount owed for such failure as calculated as provided in Section 2.8(a) (BESS Capacity Test and Liquidated Damages); and
  - (ii) if the Monthly Report for the calendar month, PI Assessment Period, or BESS Measurement Period in question, as applicable, shows a failure to achieve one or more of the Performance Metrics required for

the LD Period in question, the PI Measurement Period in question, the BOP Measurement Period in question, or the BESS Measurement Period in question, as applicable, and Company does not submit a Notice of Disagreement with respect to such Monthly Report, the Company shall have the right to set-off or draw the amount of liquidated damages owed for such failure as calculated as provided in Section 2.5(b) (Modified Pooled OMC Equipment Availability Factor Performance Metric and Liquidated Damages), Section 2.6(b) (GPI Metric and Liquidated Damages), Section 2.7(c) (BOP Benchmark and Liquidated Damages), Section 2.9(a) (BESS Annual Equivalent Availability Factor and Liquidated Damages), Section 2.10 (BESS Annual Equivalent Forced Outage Factor; Liquidated Damages), Section 2.11 (BESS Round Trip Efficiency Test; Liquidated Damages; Termination Rights) and Section 2.12 (Fast Frequency Response Performance Metric), as applicable;

- (iii) in all cases in which Company submits a Notice of Disagreement for a given Monthly Report, Company shall have the right to set-off or draw all or any portion of the amount of liquidated damages for the calendar month in question, PI Assessment Period in question, the BOP Measurement Period in question, or BESS Measurement Period in question, as applicable, as calculated on the basis of the shortfall(s) in the achievement of the Performance Metric(s) in question, as shown in such Notice of Disagreement; and
- (iv) in the event of any disagreement as to the liquidated damages owed under clause (i) and (iii) above:
  - (aa) if the amount set-off or drawn by the Company exceeds the amount of liquidated damages for such calendar month, BESS Measurement Period or PI Assessment Period that are eventually found to be payable for the LD Period in question as determined under Section 2 (Monthly Report Disagreements) of Attachment T (Monthly Reporting and Dispute Resolution by Independent AF Evaluator) to this Agreement, Company shall promptly (and in no event more

than forty-five (45) Business Days from the date of such determination) repay such excess to Seller together with, unless the Parties otherwise agree in writing, interest from the date of Company's set-off or draw until the date that such excess is repaid to Seller at the average Prime Rate for such period; and

- (bb) if Company does not exercise its rights to set-off or draw liquidated damages for such calendar month, the BOP Measurement Period in question, BESS Measurement Period or PI Assessment Period, or does not set-off or draw the full amount of the liquidated damages for such calendar month, the BOP Measurement Period in question, BESS Measurement Period or PI Assessment Period that are eventually found to be payable for the LD Period, the BOP Measurement Period in question, BESS Measurement Period or PI Assessment Period in question as determined under Section 2 (Monthly Report Disagreements) of Attachment T (Monthly Reporting and Dispute Resolution by Independent AF Evaluator) to this Agreement, Seller shall promptly, upon such determination as aforesaid, pay to Company the amount of liquidated damages that are found to be owing together with, unless otherwise agreed by the Parties in writing, interest on the amount of such liquidated damages that went unpaid from the applicable LD Assessment Date for such liquidated damages until the date such liquidated damages are paid to Company in full at the average Prime Rate for such period, and Company shall have the right, at its option, to set-off such interest for the amounts to be paid to Seller under Section 2.3 (Lump Sum Payment) of this Agreement or to draw from the Operating Period Security.

Any delay by Company in exercising its rights to set-off liquidated damages and/or interest from the amounts to be paid to Seller under Section 2.3 (Lump Sum Payment) of this Agreement or to draw such liquidated damages and/or interest from the Operating Period Security shall not constitute a waiver by Company of its right to do so.

(b) Limitation on Liquidated Damages. Notwithstanding any other provision of this Agreement to the contrary, the aggregate liquidated damages paid by Seller during each Contract Year for the Performance Metrics LDs, such payments by Seller to include but not be limited to any set-offs or draws made by Company during such Contract Year pursuant to Section 2.13(a) (Payment of Liquidated Damages), shall not exceed the total of the twelve (12) monthly Lump Sum Payments payable during such Contract Year pursuant to Section 2.3 (Lump Sum Payment) and Section 2.18 (Payment Procedures). For avoidance of doubt: A monthly Lump Sum Payment that is invoiced by Seller to Company pursuant to Section 2.17 (Seller's Preparation of the Monthly Invoice) for, e.g., the twelfth (12<sup>th</sup>) calendar month of Contract Year N but is paid during Contract Year N+1 as provided in Section 2.18 (Payment Procedures) shall, for purposes of determining the limitation on Performance Metrics LDs under this Section 2.13(b) (Limitation on Liquidated Damages), be included in the total of the twelve (12) monthly Lump Sum Payments payable during Contract Year N+1. As a result of the foregoing, the total of the monthly Lump Sum Payments used to establish the limitation on Performance Metrics LDs for the initial Contract Year under this Section 2.13(b) (Limitation on Liquidated Damages) will be less than twelve (12). The Parties acknowledge that, because the monthly Lump Sum Payment is subject to adjustment (including downward adjustment) as provided in Section 2.3 (Lump Sum Payment), it is possible that a downward adjustment in some or all of the monthly Lump Sum Payments payable during a Contract Year might cause the Performance Metrics LDs paid by Seller during the course of such Contract Year to exceed the limitation on the Performance Metrics LDs for such Contract Year established at the close of such Contract Year pursuant to the first sentence of this Section 2.13(b) (Limitation on Liquidated Damages). In such case, Company shall promptly upon the determination that the Performance Metrics LDs paid during the course of such Contract Year exceeded the limitation on Performance Metrics LDs for such Contract Year (and in no event more than forty-five (45) Business Days from the end of such Contract Year) repay such excess amount to Seller without interest.

- 2.14 No Payments Prior to Commercial Operations Date. Prior to the Commercial Operations Date, Company may accept test energy delivered by Seller in accordance with Section 4 (Test Energy) of Attachment J (Company Payments for Energy, Dispatchability and Availability of BESS). Company shall not be obligated to pay for any test energy accepted prior to the Commercial Operations Date.
- 2.15 Sales of Electric Energy by Company to Seller. Sales of electric energy by Company to Seller shall be governed by an applicable rate schedule filed with the PUC and not by this Agreement, except with respect to the reactive amount adjustment (if any) referred to in Attachment B (Facility Owned by Seller).
- 2.16 [Reserved] **[Drafting Note: Use following if PPA has energy payment: Company's Obligation to Provide Certain Data.** By the fifth (5<sup>th</sup>) Business Day of each calendar month, Company shall provide Seller or its designated agent with the appropriate data for Seller to compute the amount to be paid for the electric energy purchased by Company in the preceding calendar month as determined in accordance with this Agreement.]
- 2.17 Seller's Preparation of the Monthly Invoice. By the tenth (10<sup>th</sup>) Business Day of each calendar month, Seller shall submit to Company an invoice that separately states the following for the preceding month: (i) the Actual Output during this period; (ii) the monthly Lump Sum Payment for this period; and (iii) the monthly metering charge as set forth in Article 7 (Seller Payments) of this Agreement. **[Drafting Note: Add the following subclause if PPA has energy payment: "(iv) the charge for electric energy purchased by Company, as set forth in Attachment J (Company Payments for Energy, Dispatchability and Availability of BESS) of this Agreement"]**
- 2.18 Payment Procedures. By the twentieth (20<sup>th</sup>) Business Day of each calendar month following the month during which the invoice was submitted (i.e., by the twentieth (20<sup>th</sup>) Business Day of the second calendar month following the calendar month covered by the invoice in question), (but, except as otherwise provided in the following sentence, no later than the last Business Day of that month if there are less than twenty (20) Business Days in that month), Company shall, subject to Company's right to set-off liquidated damages as provided in Section 2.13 (Payment of Liquidated Damages for

Failure to Achieve Performance Metrics; Limitation on Liquidated Damages) of this Agreement, make payment on such invoice, or provide to Seller an itemized statement of its objections to all or any portion of such invoice and pay any undisputed amount. Notwithstanding the foregoing, the Day by which the Company shall make payment to Seller hereunder shall be increased by one (1) Day for each Day that Seller is delinquent in providing to the Company either: (i) the Monthly Report for the calendar month in question pursuant to Section 1 (Monthly Report) of Attachment T (Monthly Reporting and Dispute Resolution by Independent AF Evaluator) to this Agreement; or (ii) the information required under Section 2.17 (Seller's Preparation of the Monthly Invoice) of this Agreement. **[Drafting Note: If PPA has an energy payment, replace language starting from subclause "(ii)" with the following: "(ii) the information required under Section 2.17 (Seller's Preparation of the Monthly Invoice) of this Agreement. However, if Company is not timely in providing data required in Section 2.16 (Company's Obligation to Provide Certain Data) and this directly causes Seller to be unable to deliver its invoice in accordance with the time frame set forth in Section 2.17 (Seller's Preparation of the Monthly Invoice), then Company shall still meet the payment date of the twentieth (20<sup>th</sup>) Business Day of the month following the month during which the invoice was submitted. If Seller is unable to provide a complete invoice for the reasons set forth in the preceding sentence, an estimated payment, subject to reconciliation with the complete invoice, may be made by Company as an interim provision until a complete invoice can be prepared by Seller and received by Company."]**

- 2.19 Late Payments. Notwithstanding all or any portion of such invoice in dispute, and subject to the provisions of Section 2.13(a)(iii) of this Agreement (to the extent applicable), interest shall accrue on any invoiced amount that remains unpaid following the twentieth (20<sup>th</sup>) Business Day of each calendar month (or the last Business Day of that month if there are less than twenty Business Days in that month), or following the due date for such payment if extended pursuant to Section 2.18 (Payment Procedures), at the average daily Prime Rate for the period commencing on the Day following the Day such payment is due until the invoiced amounts (or amounts due to Seller if determined to be less than the invoiced amounts) are paid in full. Partial payments shall be applied first to outstanding interest and then to outstanding invoice amounts.

- 2.20 Adjustments to Invoices After Payment. In the event adjustments are required to correct inaccuracies in an invoice after payment, the Party requesting adjustment shall recompute and include in the Party's request the principal amounts due during the period of the inaccuracy together with the amount of interest from the date that such invoice was payable until the date that such recomputed amount is paid at the average daily Prime Rate for the period. The difference between the amount paid and that recomputed for the invoice, along with the allowable amount of interest, shall either be (i) paid to Seller or set-off by Company, as appropriate, in the next invoice payment to Seller, or (ii) objected to by the Party responsible for such payment within thirty (30) Days following its receipt of such request. If the Party responsible for such payment objects to the request, then the Parties shall work together in good faith to resolve the objection. If the Parties are unable to resolve the objection, the matter shall, except to the extent otherwise provided in Section 28.3 (Exclusions), be resolved pursuant to Article 28 (Dispute Resolution). All claims for adjustments shall be waived for any amounts that were paid or should have been payable more than thirty-six (36) months preceding the date of receipt of any such request.
- 2.21 Company's Billing Records. Seller, after giving reasonable advance written notice to Company, shall have the right to review all billing, metering and related records necessary to verify the accuracy of payments relating to the Facility during Company's normal working hours on Business Days. Company shall maintain such records for a period of not less than thirty-six (36) months. **[Drafting Note: If PPA has an energy payment, replace this section with the following:**  
Company's Billing Records. Seller, after giving reasonable advance written notice to Company, shall have the right to review all billing, metering and related records necessary to verify the accuracy of the data provided by Company pursuant to Section 2.16 (Company's Obligation to Provide Certain Data) and payments relating to the Facility during Company's normal working hours on Business Days. Company shall maintain such records for a period of not less than thirty-six (36) months.]

**[ATTACHMENT B WILL BE REVISED TO REFLECT  
THE RESULTS OF IRS]**

ATTACHMENT B  
FACILITY OWNED BY SELLER

1. The Facility.

(a) Drawings, Diagrams, Lists, Settings and As-Builts.

- (i) Single-Line Drawing, Interface Block Diagram, Relay List, Relay Settings and Trip Scheme. A preliminary single-line drawing (including notes), Interface Block Diagram, relay list, relay settings, and trip scheme of the Facility shall, after Seller has obtained prior written consent from Company, be attached to this Agreement on the Execution Date as Attachment E (Single-Line Drawing and Interface Block Diagram) and Attachment F (Relay List and Trip Scheme). A final single-line drawing (including notes), Interface Block Diagram, relay list and trip scheme of the Facility shall, after having obtained prior written consent from Company, be labeled the "Final" Single-Line Drawing, the "Final" Interface Block Diagram and the "Final" Relay List and Trip Scheme and shall supersede Attachment E (Single-Line Drawing and Interface Block Diagram) and Attachment F (Relay List and Trip Scheme) to this Agreement and shall be made a part hereof on the Commercial Operations Date. After the Commercial Operations Date, no changes shall be made to the "Final" Single-Line Drawing, the "Final" Interface Block Diagram and the "Final" Relay List and Trip Scheme without the prior written consent of Seller and Company. The single-line drawing shall expressly identify the Point of Interconnection of Facility to Company System.
- (ii) As-Builts. Seller shall provide final as-built drawings of the Seller-Owned Interconnection Facilities within 30 Days of the successful completion of the Acceptance Test.
- (iii) Modeling. Seller shall provide the models as set forth in Exhibit B-1.

(iv) No Material Changes. Seller agrees that no material changes or additions to the Facility as reflected in the "Final" Single-Line Drawing (including notes), the "Final" Interface Block Diagram, and the "Final" Relay List and Trip Scheme shall be made without Seller first having obtained prior written consent from Company. The foregoing are subject to changes and additions as part of any Performance Standards Modifications. If Company directs any changes in or additions to the Facility records and operating procedures that are not part of any Performance Standards Modifications, Company shall specify such changes or additions to Seller in writing, and, except in the case of an emergency, Seller shall have the opportunity to review and comment upon any such changes or additions in advance.

(b) Certain Specifications for the Facility.

(i) Seller shall furnish, install, operate and maintain the Facility, including breakers, relays, switches, synchronizing equipment, monitoring equipment and control and protective devices approved by Company as suitable for parallel operation of the Facility with Company System. The Facility shall be accessible at all times to authorized Company personnel.

(ii) The Facility shall include:

**[LIST OF THE FACILITY]**

**Examples may include, but are not limited to:**

- **Seller-Owned Interconnection Facilities**
- **Substation**
- **Control and monitoring facilities**
- **Transformers**
- **Generating and/or Battery Energy Storage System ("BESS") equipment (as described in Attachment A)**
- **"Lockable" cabinets or housings suitable for the installation of the Company-Owned Interconnection Facilities located on the Site**
- **Relays and other protective devices**
- **Leased telephone line and/or equipment to facilitate microwave communication**

(iii) The Facility shall comply with the following  
**[includes excerpts of language that may be  
requested by Company]:**

- A. Seller shall install a \_\_\_\_\_ kV gang operated, load breaking, lockable disconnect switch and all other items for its switching station (relaying, control power transformers, high voltage circuit breaker). Bus connection shall be made to a manually and automatically (via protective relays) operated high-voltage circuit breaker. The high-voltage circuit breaker shall be fitted with bushing style current transformers for metering and relaying. Downstream of the high-voltage circuit breaker, a structure shall be provided for metering transformers. From the high-voltage circuit breaker, another bus connection shall be made to another pole mounted disconnect switch, with surge protection.
- B. Seller shall provide within the Seller-Owned Interconnection Facilities a separate, fenced area with separate access for Company. Seller shall provide all conduits, structures and accessories necessary for Company to install the Revenue Metering Package. Seller shall also provide within such area, space for Company to install its communications, supervisory control and data acquisition ("SCADA") equipment (remote terminal unit or equivalent) and certain relaying if necessary for the interconnection. Seller shall also provide AC and DC source lines as specified by Company. Seller shall provide a telephone line for Company-owned meters. Seller shall work with Company to determine an acceptable location and size of the fenced-in area. Seller shall provide an acceptable demarcation cabinet on its side of the fence where Seller and Company wiring will connect/interface.
- C. Seller shall ensure that the Seller-Owned Interconnection Facilities have a lockable cabinet for switching station relaying equipment. Seller shall select and install relaying equipment acceptable to Company. At

a minimum, the relaying equipment will provide over and under frequency (81), negative phase sequence (46), under voltage (27), over voltage (59), ground over voltage (59G), over current functions (50/51) and direct transfer trip (if required). The settings shall be consistent with the requirements for over/under frequency and voltage ride-through. Seller shall install protective relays that operate a lockout relay (86), which in turn will trip the main circuit breaker and not allow it to be reclosed without reset.

D. [RESERVED]

E. Seller's equipment also shall provide at a minimum:

(i) Interface with Company's Telemetry and Control, or designated communications and control interface, to provide telemetry of electrical quantities such as total Facility net MW, MVar, power factor, voltages, currents, and other quantities as identified by the Company.

(ii) Interface with Company's Telemetry and Control, or designated communications and control interface, to provide status for circuit breakers, reactive devices, switches, and other equipment as identified by the Company.

(iii) Interface with Company's Telemetry and Control, or designated communications and control interface, to provide control to incrementally raise and lower the voltage target at the point of regulation operating in automatic voltage regulation control.

(iv) Interface with Company's Telemetry and Control, or designated communications and control interface, to provide the active power control requirements of this Agreement. More than one interface may be required if Facility energy components, such as a BESS and variable

generation resource are controlled separately by the Company (as in grid-charging BESS).

(v) Interface with Company's Telemetry and Control, or designated communications and control interface, for the Company to specify control system modes of operation and parameters, for remotely configurable parameters and operating states required under this Agreement.

(vi) For Variable Energy Facilities: Interface with Company's Telemetry and Control, or designated communications and control interface, to provide telemetry of equipment availability and meteorological and production data required under Section 8 (Data and Forecasting) of this Attachment B (Facility Owned by Seller) and the Facility's Power Possible.

(vii) Provision for Loss of Telemetry and Control: If Company's Telemetry and Control, or designated communications and control interface, is unavailable, due to loss of communication link, Telemetry and Control failure, or other event resulting in loss of the remote control by Company, provision must be made for Seller to be able to institute via local controls, within 5 minutes (or such other period as Company accepts in writing) of the verbal directive by the Company System Operator, such change in voltage regulation target and real power export or import as directed by the Company System Operator.

F. If Seller adds, deletes and/or changes any of its equipment, or changes its design in a manner that would change the characteristics of the equipment and specifications used in the IRS, Seller shall be required to obtain Company's prior written approval. If an analysis to revise parts of the IRS is required, Seller shall be responsible for the cost of revising those parts of the IRS and

modifying and paying for the cost of the modifications to the Facility and/or the Company-Owned Interconnection Facilities based on the revisions to the IRS.

G. Critical Infrastructure Protection.

(i) Documentation. Seller shall submit documentation describing the approach, methodology and design to provide physical and cyber security with its submittal of the design drawings pursuant to Section 1(c) (Design Drawings, Bill of Materials, Relay Settings and Fuse Selection) of Attachment B (Facility Owned by Seller), which shall be at least sixty (60) Days prior to the Acceptance Test.

- The design shall meet industry standards and best practices, as indicated by NERC CIP guidelines and requirements for critical generation facilities. The system shall be designed with the criteria to meet applicable industry standards and guidelines (at the time of this writing, NERC CIP, or any future standard adopted by the industry in its place) compliance requirements and identify areas that are not consistent with NERC CIP guidelines and requirements.
- The cyber-security documentation shall include a block diagram of the control system with all external connections clearly described.
- Seller shall provide such additional information as Company may reasonably request as part of a security posture assessment.
- Company shall be notified in advance when there is any condition that would compromise physical or cyber security,

or if any breaches in security, or security incidents are detected.

- (ii) Malware. Seller shall (consistent with the following sentence) ensure that no malware or similar items are coded or introduced into any aspect of the Facility, Interconnection Facilities, the Company Systems interfacing with the Facility and Interconnection Facilities, and any of Seller's critical control systems or processes used by Seller to provide energy, including the information, data and other materials delivered by or on behalf of Seller to Company, (collectively, the "Environment"). Seller will continue to review, analyze and implement improvements to and upgrades of its Malware prevention and correction programs and processes that are commercially reasonable and consistent with the then current technology industry's standards and, in any case, not less robust than the programs and processes implemented by Seller with respect to its own information systems. If Malware is found to have been introduced into the Environment, Seller will promptly notify Company and Seller shall take immediate action to eliminate and remediate the effects of the Malware, at Seller's expense. Seller shall not modify or otherwise take corrective action with respect to the Company Systems except at Company's request. Seller will promptly report to Company the nature and status of all Malware elimination and remediation efforts.
- (iii) Security Breach. In the event that Seller discovers or is notified of a breach, potential breach of security, or security incident at Seller's Facility or of Seller's systems, Seller shall immediately (i) notify Company of such potential, suspected or actual security

breach, whether or not such breach has compromised any of Company's confidential information; (ii) investigate and promptly remediate the effects of the breach, whether or not the breach was caused by Seller; (iii) cooperate with Company with respect to any such breach or unauthorized access or use; (iv) comply with all applicable privacy and data protection laws governing Company's or any other individual's or entity's data; and (v) to the extent such breach was caused by Seller, provide Company with reasonable assurances satisfactory to Company that such breach, potential breach, or security incident shall not recur. Seller shall provide documentation to Company evidencing the length and impact of the breach. Any remediation of any such breach will be at Seller's sole expense.

- (iv) Monitoring and Audit. Seller shall provide information on available audit logs and reports relating to cyber and physical and security. Company may audit Seller's records to ensure Seller's compliance with the terms of this Section 1(b)(iii)(G) (Critical Infrastructure Protection) of this Attachment B (Facility Owned by Seller), provided that Company has provided reasonable notice to Seller and any such records of Seller's will be treated by Company as confidential.

H. Available Power Production

- (i) Variable Energy Systems. Seller's available power production considering equipment and resource availability (Power Possible) will be determined at any given time using the best-available data and methods for an accurate representation of the amount of active power at the Point of Interconnection.
- (ii) Variable Energy Systems Paired with Storage Operated through a Single Active

Power Control Interface. For variable energy systems paired with storage operated through a single active power control interface (i.e., charging indirectly controlled through dispatch), Seller's available power production considering equipment and resource availability and state of charge of the storage (Power Possible) will be determined at any given time using the best-available data and methods for an accurate representation of the amount of active power at the Point of Interconnection. Telemetry will be provided to indicate state of charge, including available estimated duration at the current dispatch given state of charge and forecast production.

(iii) Storage Directly Controlled by the Company. Seller's available power production considering state of charge (Power Possible) will be supplied as an accurate representation of the amount of maximum and minimum (negative) available active power at the Point of Interconnection and the duration available at the current dispatch. If the Facility allows for allocation of capacity to different modes of operation (i.e., reservation of capacity for regulation or contingency response), then the available capacity in each allocated region shall be reported individually and controlled separately through separately designated dispatch or active power control interface.

I. For variable resources where Power Possible is derived, in part or in whole, from a measured available variable energy source such as solar or wind: To the extent available, the Parties shall use Seller's real time Power Possible communicated to Company through the SCADA System except to the extent that the Potential Energy does not accurately reflect the actual available active power at the Point of

Interconnection (plus or minus 0.1 MW). During those periods of time when the SCADA derived Power Possible is unavailable or does not accurately represent the available power production considering equipment and resource availability, the Parties shall use the best available data obtained through commercially reasonable methods to determine the Power Possible. Follow up actions to resolve the discrepancy will be as provided in Section 1(j) (Demonstration of Facility) of this Attachment B (Facility Owned by Seller).

- J. Seller shall reserve space within the Site for possible future installation of Company-owned meteorological equipment (such as wind speed, direction and relative humidity monitors, SODAR and irradiance monitors) and AC and DC source lines for such equipment as may be required depending on the Facility resource type and location. In the event Company decides to install such meteorological equipment: (i) Seller shall work with Company to determine an acceptable location for such equipment and any associated wiring, interface or other components; and (ii) Company shall pay for the needed equipment, and installation of such equipment, unless otherwise agreed to by the Parties. Company and Seller shall use commercially reasonable efforts to facilitate installation and minimize interference with the operation of the Facility.
- K. The Facility shall, at a minimum, satisfy the wind load and seismic load requirements of the International Building Code and any more stringent requirements imposed under applicable Laws.

- (c) Design Drawings, Bill of Material, Relay Settings and Fuse Selection. Seller shall provide to Company for its review the design drawings, Bill of Material, relay settings and fuse selection for the Facility, and Company shall have the right, but not the obligation, to specify the type of electrical equipment, the interconnection wiring, the type of protective relaying equipment, including, but not limited to, the control

circuits connected to it and the disconnecting devices, and the settings that affect the reliability and safety of operation of Company's and Seller's interconnected system. Seller shall provide the relay settings and protection coordination study, including fuse selection and AC/DC Schematic Trip Scheme (part of design drawings), for the Facility to Company during the 60% design. Company, at its option, may, with reasonable frequency, witness Seller's operation of control, synchronizing, and protection schemes and shall have the right to periodically re-specify the settings. Seller shall utilize relay settings prescribed by Company, which may be changed over time as Company System requirements change.

- (d) Disconnect Device. Seller shall provide a manually operated disconnect device which provides a visible break to separate Facility from Company System. Such disconnect device shall be lockable in the OPEN position and be readily accessible to Company personnel at all times.
- (e) Other Equipment. Seller shall install, own and maintain the infrastructure associated with the Revenue Metering Package, including but not limited to all enclosures (meter cabinets, meter pedestals, meter sockets, pull boxes, and junction boxes, along with their grounding/bonding connections), CT/PT mounting structures, conduits and ductlines, enclosure support structures, ground buses, pads, test switches, terminal blocks, isolation relays, telephone surge suppressors, and analog phone lines (one per meter), subject to Company's review and approval.
- (f) Maintenance Plan. Seller shall maintain Seller-Owned Interconnection Facilities in accordance with Good Engineering and Operating Practices.
- (g) Active Power Control Interface. **[COMPANY TO REVISE THIS SECTION BASED ON SPECIFICS OF THE PROJECT.]**
  - (i) Seller shall provide and maintain in good working order all equipment, computers and software associated with the control system (the "Active Power Control Interface") necessary to interface the Facility active power controls with the Company System Operations Control Center for real power

control of the Facility by the Company System Operator.

The detailed design will be tailored to the specific resource type and configuration to achieve the functional requirements of the Facility.

The Active Power Control Interface will be used to control the net real power export (or import, as applicable) from the Facility for load following, system balancing, energy arbitrage, and/or supplemental frequency control as required under this Attachment B (Facility Owned by Seller).

For variable resources paired with storage: The implementation of the Active Power Control Interface will allow the Company System Operator to control the net real power export (or import, as applicable) from the entire Facility, up to Power Possible, remotely from the Company System Operations Control Center through control signals from the Company System Operations Control Center. The Facility will maintain the power level specified by the Company through the variable resource and BESS available energy, subject to the availability of resource and BESS State of Charge.

For facilities with grid charging storage, the Active Power Control interface may also direct the charging/discharging of energy from the BESS.

The Facility real power output (or import, if storage charging is enabled) will automatically adjust to a change in frequency in accordance with the frequency response requirements provided in this Attachment B (Facility Owned by Seller).

- (ii) Company shall review and provide prior written approval of the design for the Active Power Control Interface to ensure compatibility with Company's centralized control systems and use of Facility available energy and storage capabilities. To ensure such continued compatibility, Seller shall not materially change the approved design without Company's prior review and written approval. This will include design description and parameters for the Seller's control system(s), which determine provision of net real power from the variable

resource System (i.e., wind or PV) and/or the BESS storage, and charging of the BESS storage, in response to the Active Power Control signal or signals.

- (iii) The Active Power Control Interface shall include, but not be limited to, a demarcation cabinet, ancillary equipment and software necessary for Seller to connect to Company's Telemetry and Control, located in Company's portion of the Facility switching station which shall provide the control signals to the Facility and send feedback status to the Company System Operations Control Center. The control type shall be analog output (set point) or raise/lower controls and will be established by the Company prior to final design approval.
- (iv) The Active Power Control Interface shall also include provision for feedback points from the Facility indicating active power target in MW for the Active Power Control signal(s). The Facility shall provide the MW target feedback to the Company SCADA system immediately upon receiving the respective control signal from the Company.
- (v) Seller shall provide to the telemetry interface analogs for the gross production of the energy resource(s) at the Facility (for example, DC or AC MW production of the Variable Resource generator(s), depending on design; gross DC MW of the BESS, etc.) Seller shall also provide the total net AC MW production at the Point of Interconnection.
- (vi) The Active Power Control Interface shall provide for remote control of the real-power output of the Facility by the Company at all times. If the Active Power Control Interface is unavailable or disabled, the Facility may not export electric energy to Company and the Facility shall be deemed to be in Seller-Attributable Non-Generation status, unless the Company, in its sole discretion, agrees on an alternate means of dispatch. If Seller fails to provide such remote control capability (whether temporarily or throughout the Term), then, notwithstanding any other provision of this Attachment B (Facility Owned by Seller), Company

shall have the right to derate or disconnect the entire Facility during those periods that such control capability is not provided and the Facility shall be deemed to be in Seller-Attributable Non-Generation status for such periods.

(vii) The rate at which the Facility changes net real power in response to the active power control shall not be less than the greater of 2 MW per minute or 10% of the Facility capacity per minute, and shall make available through agreed parameters, such faster ramp as the installed equipment can support. The Facility's Active Power Control Interface will be used by Company to control the rate at which electric energy is changed to achieve the active power limit for load-following and regulation. The Facility will respond to the active power control request immediately with an echo of the set point and measurable change within the 4 second control cycle.

(viii) The Facility shall accept the following controls related to active power and frequency response to or from the Company centralized control system:

- A. Power Reference Setpoint from Company (based on the input to the Facility, from the Active Power Control Interface): The Facility output shall match this setting from the Variable Resource and/or BESS so long as it can be supported by the variable resource and/or BESS State of Charge (Power Possible does not change). This net output should be accurate within +/- 0.1 MW under normal frequency conditions. This setpoint will be modified as appropriate in the controls by the appropriate frequency response consistent with Section 1(g)(xi) (Active Power - Frequency Response (DROOP)), Section 1(g)(xii) (Dynamic Active Power - Frequency Performance), and **[FOR FACILITIES WITH STORAGE]** Section 1(g)(xiii) (Alternate Active Power / Frequency Response Modes) of this Attachment B (Facility Owned by Seller).
- B. For variable energy resources: The Facility shall include Variable Resource Enable/Disable control. When "Disable" is selected, the

Facility shall ramp down, shutdown, and leave offline variable resource generators. When "Enable" is selected, the Facility variable resource generators can start up, ramp up, and remain in normal operations subject to Company active power dispatch.

C. From Company: Frequency Response Mode (DROOP, FFR, isochronous) state (where alternate modes of operation are required).

D. From Seller:

- [For Facilities with a BESS and where required]: Capacity allocation to each mode of operation where ability to allocate capacity to different modes of operation is required (e.g., to allocate a portion of capacity to fast frequency response) and telemetered data and controls necessary to determine state of charge and gross MW and Mvar contribution, etc., operationally required for each segmented use.
- Power Possible (Available maximum capacity): See above, instantaneous limit for available energy, represents max level the Facility can produce under present resource, BESS State of Charge (if applicable) and equipment conditions. This is used as upper limit for Company Dispatch.
- For variable energy resources, maximum level the variable generation resources can produce under present variable resource and equipment conditions.
- Minimum Sustained Limit: Minimum output level the Facility can be reduced to continuously without delay (ecomn). For projects with BESS: If BESS charging from the grid is permitted, and charging capacity is available, this will be a negative value.
- Minimum Transient Limit (for frequency response, regulation) (lfcmn). For projects with BESS: If BESS charging from the grid is

permitted, and charging capacity is available, this will be a negative value.

- Maximum Dispatchable Ramp Rate: Controlled ramp rate available for controlled changes in output.
  - For projects with a BESS, Seller shall also provide the following:
    - BESS potential (BESS State of Charge and projected number of hours at present dispatch, minimum dispatch, and maximum dispatch).
    - Frequency Response Mode (DROOP, FFR, isochronous) state (where alternate modes of operation are required).
    - Capacity allocation to each mode of operation (to allow FFR and Droop allocation).
- (ix) Seller shall not override Company's active power controls without first obtaining specific approval to do so from the Company System Operator unless there is a system emergency. Disabling of the remote Active Power Control shall initiate telemetry notification to the Company.
- (x) The requirements of the Active Power Control Interface may be modified as mutually agreed upon in writing by the Parties.

**Active Power Communications between Company and Seller**

Company will receive and send AGC Set-Point and related data through the communications interface in accordance with Company standards. The data points covered under this Agreement, as described below, may overlap with data requirements described elsewhere.

**AGC Data Points to be sent from Seller to Company via SCADA**

The following data points will be transmitted via SCADA from Seller to Company and represent Facility

level data **[Note: May be modified based on resource type and Facility requirements]:**

<u>Description</u>	<u>Units</u>
AGC Set-Point (echo)	MW
Power demand	MW
Actual power	MW
Power Possible	MW
Actual reactive power	Mvars
Average Voltage	Kv
Variable Generation potential	MW
[Wind only] Number of turbines online and running	Integer
BESS State of Charge	Pct
[PV only] Inverters online	Integer
Facility duration at current output	HRS
AGC Status	Remote/Local
[For facilities with alternate modes of frequency response] Indication of Frequency Response Mode	Integer FFR, Droop, ISOCH

**Response times and limitations of Facility in regards to Active Power Control**

The following protocols outline the expectations for responding to the AGC Set-Point.

Frequency of Changes. Company may send a new AGC Set-Point to the Facility at up to the AGC control cycle (present 4 seconds).

Range of AGC Set-Point. The range of set point values can be between 0% and 100% of Power Possible. For projects offering grid-

charging storage, negative set-point values may be required.

### **Backup Communications**

In the event of an AGC failure, Company and Seller shall communicate via telephone, or other method mutually agreeable between the Parties, in order to correct the failure

(xi) Active Power - Frequency Response (DROOP).

The Facility shall provide a primary frequency response with a frequency droop characteristic reacting to system frequency at the Point of Interconnection in both the overfrequency and underfrequency directions except as limited by the minimum and maximum available capacity and energy potential at the time of the event including BESS state of charge. This response must be timely and sustained rather than injected for a short period and then withdrawn. For over-frequency events, response may include absorption through charging (as applicable under the terms of this Agreement). Seller shall provide minimum operational limits for each online resource and the Facility for primary frequency response.

Frequency will be calculated over a period of time (e.g., three to six cycles, or other period as specified by Company), and filtered to take control action on the fundamental frequency component of the calculated signal. Calculated frequency may not be susceptible to spikes caused by phase jumps on the Company system.

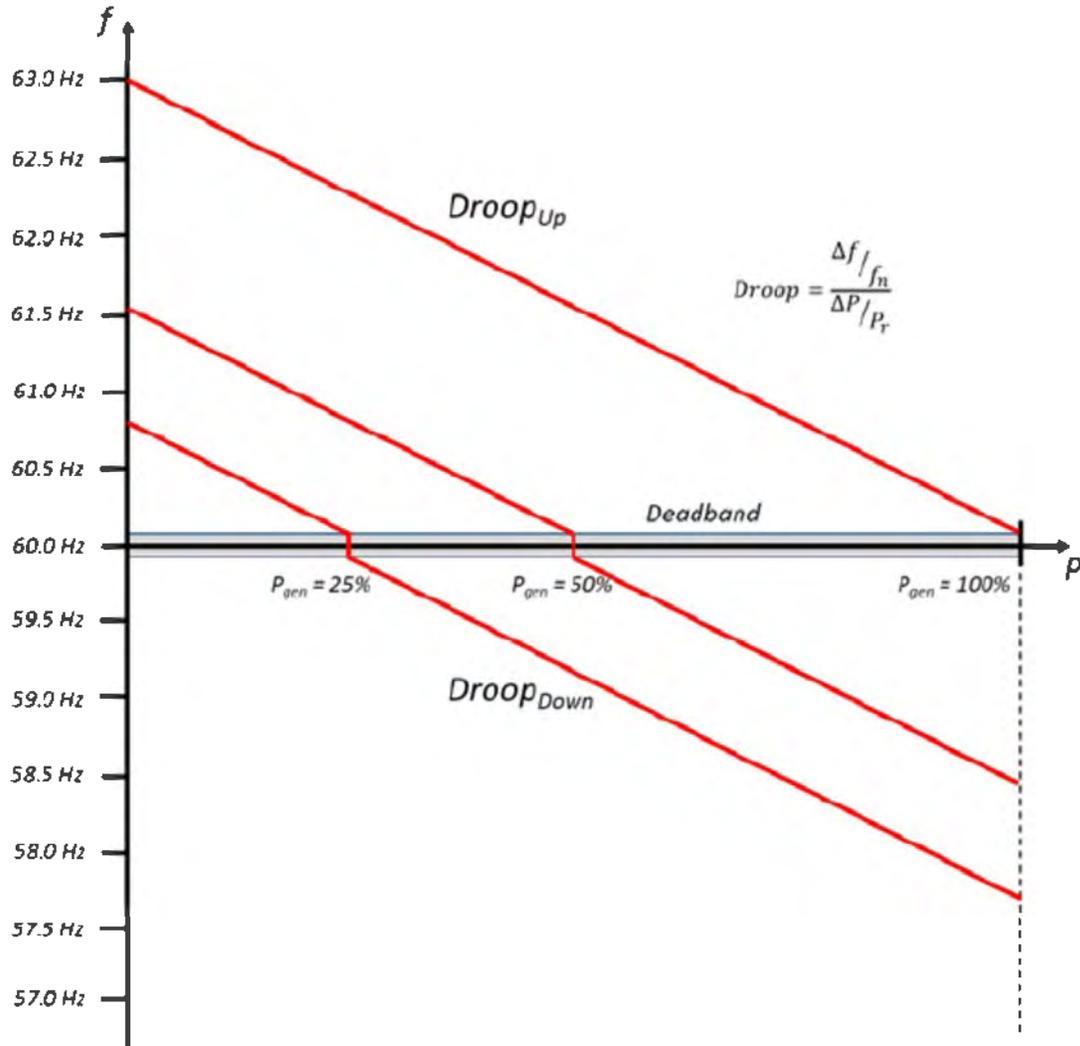
The active power-frequency control system, and overall response of the inverter-based resource (plant), must meet the following performance aspects (see figure below):

The active power-frequency control system shall have an adjustable proportional droop characteristic with a default value of [4%] percent. The droop setting shall permit a setting from 0.1% to 10%. This setting shall be changed upon Company's written request as necessary for grid droop response coordination. The droop

setting shall be tunable and may be specified during commissioning. The droop shall be a permanent value based on Pmax (maximum nominal active power output of the plant) and Pmin (typically 0 for an inverter based resource). This keeps the proportional droop constant across the full range of operation. The curve for an inverter-based BESS may include the negative active power quadrant of this curve. The droop response must include the capability to respond in both the upward (underfrequency) and downward (overfrequency) directions. Frequency droop will be based on the difference between maximum nameplate active power output (Pmax) and zero output (Pmin) such that the [4%] percent droop line is always constant for a resource.

Seller shall make commercially reasonable efforts to provide frequency response without a deadband, but in any case, not to exceed +/- 0.0166 Hz. If the active power-frequency control system has a deadband, it shall be a nonstep deadband that is adjustable between 0 Hz and the full frequency range of the droop characteristic with a default value not to exceed  $\pm 0.036$  Hz. (Nonstep deadband is where the change in active power output starts from zero deviation on either side of the deadband.) (Frequency deadband is the range of frequencies in which the unit does not change active power output.)

Inverter-based resources may consider a small hysteresis characteristic where linear droop meets any deadband to reduce dithering of inverter output when operating near the edges of the deadband. The hysteresis range may not exceed  $\pm 0.005$  Hz on either side of the deadband. If measurement resolution is not sufficient to measure this frequency, hysteresis may not be used.



**Active Power - Frequency Control Characteristic**

Nominal System Frequency is 60.00 Hz.

The closed-loop dynamic response of the active power-frequency control system of the overall inverter-based resources, as measured at the POI must have the capability to meet or exceed the performance specified in below. Seller shall ensure that the models and parameters for the resources and control equipment are consistent with those provided during the IRS process and that any updates have been provided to the Company reflecting currently implemented settings and configuration.

(xii) Dynamic Active Power-Frequency Performance.

For a step change in frequency at the point of measure of the inverter-based resource **[NOTE - MAY BE ADJUSTED AS THE RESULT OF IRS]**:

Reaction time: The time between a step change in frequency and the time when the resource active power output begins responding to the change shall be less than 500 Ms, or as otherwise specified by Company.<sup>1</sup>

Rise time: The time when the resource has reached 90% of the new steady-state (target) active power output shall be less than 4 seconds, or as otherwise specified by Company.<sup>2</sup>

Settling Time: Time in which the resource has entered into, and remains within, the settling band of the new steady-state active power (target) output shall be less than 10 seconds, or as otherwise specified by Company.

Overshoot: Percentage of the rated active power output that the resource can exceed while reaching the settling band shall be less than 5% or as otherwise specified by Company.<sup>3</sup>

Settling Band: Percentage of rated active power output that the resource should settle to within the settling time shall be less than 2.5%.

When operating in parallel with the Company System, the Facility shall operate with its primary frequency response control in automatic operation and in accordance with Company directions. Notification of changes in the status of the frequency response controls and, where applicable, mode of operation must be provided to the Company System Operator immediately through SCADA telemetry indication.

The Facility frequency response control shall adjust, without intentional delay and without

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<sup>1</sup> Time between step change in frequency and the time to 10 percent of new steady-state value can be used as a proxy for determining this time.

<sup>2</sup> Percentage based on final (expected) settling value.

<sup>3</sup> Percentage based on final (expected) settling value.

regard to the ramp rate limits in Section 3(c) (Ramp Rates) of this Attachment B (Facility Owned by Seller), the Facility's net real power export based on frequency deadband and frequency droop settings specified by the Company.

The Facility frequency response control shall increase the net real power export above the Power Reference Setpoint set under Section 1(g)(viii) of this Attachment B (Facility Owned by Seller) or further decrease the net real power export from the Power Reference Limit in its operations in accordance with the frequency response settings.

The Facility frequency response control shall be in continuous operation unless directed otherwise by the Company.

(xiii) **[FOR FACILITIES WITH STORAGE]**. Alternate Active Power/ Frequency Response Modes. The Facility will provide the capability to supply isochronous or fast frequency response modes of operation, in addition to normal droop, which can be set remotely or locally. The control design shall allow for a bumpless transfer between modes of operation.

A. Fast Frequency Response (FFR): This mode of operation will permit the Facility to respond to system frequency disturbances with a fast charge/discharge response in accordance with the fast frequency response droop settings. In this mode of operation, the Facility frequency response is configured to provide fast frequency response, as an alternative setting to the typical steady-state frequency response. When in this mode of operation, the frequency droop characteristics are configured to charge or discharge with a different set of parameters to allow for a faster and larger proportional charge and discharge in response to frequency changes outside of the configurable deadband. The initial parameter settings will be specified by Company following the IRS, and additional tuning and adjustment of configurable parameters may be required based on review of response to actual system events. When in FFR mode, when system

frequency is within the fast frequency response deadband, the Facility will operate to maintain a percentage state of charge, which is configurable on Company request (i.e., 50%), managed at a charging/discharging rate also specified by Company.

(1) When in FFR mode the active power-frequency control system shall have an adjustable FFR proportional droop characteristic with a default value of [1%] percent. The FFR droop setting shall permit a setting from 0.1% to 5%. This setting shall be changed upon Company's written request as necessary for fast frequency response coordination. The FFR droop shall be a permanent value based on Pmax (maximum nominal active power output of the plant) and Pmin (typically 0 for an inverter-based resource). This keeps the proportional droop constant across the full range of operation. The curve for an inverter-based BESS may include the negative active power quadrant of this curve. The droop response must include the capability to respond in both the upward (underfrequency) and downward (overfrequency) directions. Frequency droop will be based on the difference between maximum nameplate active power output (Pmax) and zero output (Pmin) such that the [1%] percent droop line is always constant for a resource.

(2) When in FFR mode the active power-frequency control system shall have an adjustable frequency deadband with a default value of 0.3 Hz. The deadband setting shall permit a setting from 0.1 Hz to 1 Hz. This setting shall be changed upon Company's written request as necessary for fast frequency response coordination. The deadband setting shall be tunable and may be specified during commissioning. It shall be a nonstep deadband such that the change in active

power output starts from zero deviation on either side of the deadband. (Frequency deadband is the range of frequencies in which the unit does not change active power output.)

(3) FFR-1 Performance Requirements - Expected FFR Active Power-Frequency Performance. For a step change in frequency at the point of measure of the FFR resource:

Reaction time: The time between a step change in frequency and the time when the resource active power output begins responding to the change shall be less than 50 milliseconds, or as otherwise specified by Company.<sup>4</sup>

Rise time: The time when the resource has reached 90% of the new steady-state (target) active power output shall be less than 0.133 seconds, or as otherwise specified by Company.<sup>5</sup>

Settling Time: Time in which the resource has entered into, and remains within, the settling band of the new steady-state active power (target) output shall be less than 500 milliseconds, or as otherwise specified by Company.

Overshoot: Percentage of the rated active power output that the resource can exceed while reaching the settling band shall be less than 5% or as otherwise specified by Company.<sup>6</sup>

~~A. Settling Band: Percentage of rated active power output that the resource should settle to within the settling time shall be less than 2.5%.~~

<sup>4</sup> Time between step change in frequency and the time to 10 percent of new steady-state value can be used as a proxy for determining this time.

<sup>5</sup> Percentage based on final (expected) settling value.

<sup>6</sup> Percentage based on final (expected) settling value.

B. Isochronous / Black Start: The Facility will be capable of operating in a zero droop (isochronous) mode of operation. When in this mode of operation, the frequency droop characteristic will be configured as needed to keep system frequency at a target. In a black start configuration, the target shall be 60 Hz. If isochronous is specified while in operation, the target shall be initialized to the grid frequency and the target increased or decreased from the Company System through the control interface.

(h) Control System Acceptance Test Procedures.

(i) Conditions Precedent. The following conditions precedent must be satisfied prior to conducting the Control System Acceptance Test:

- Successful Completion of the Acceptance Test.
- Facility has been successfully energized.
- All of the Facility's generators (as applicable) have been fully commissioned.
- The control system computer has been programmed for normal operations.
- All equipment that is relied upon for normal operations (including ancillary devices such as capacitors/inductors, energy storage device, statcom, etc.) shall have been commissioned and be operating within normal parameters.

(ii) Facility Energy Equipment. In the event that all or any portion of the Facility's energy equipment is not available for the duration of the Control System Acceptance Test, the Control System Acceptance Test will have to be re-run from the beginning unless Seller demonstrates to the satisfaction of the Company that the test results attained are consistent with the results that would have been attained if all of the equipment had been available for the duration of the test.

- (iii) Procedures. The Control System Acceptance Test will be conducted on Business Days during normal working hours on a mutually agreed upon schedule. No Control System Acceptance Test will be scheduled during the final 21 Days of a calendar year. No later than thirty (30) Days prior to conducting the Control System Acceptance Test, Company and Seller shall agree on a written protocol setting out the detailed procedure and criteria for passing the Control System Acceptance Test. Attachment O (Control System Acceptance Test Criteria) provides general criteria to be included in the written protocol for the Control System Acceptance Test. Within fifteen (15) Business Days of completion of the Control System Acceptance Test, Company shall notify Seller in writing whether the Control System Acceptance Test(s) has been passed and, if so, the date upon which such Control System Acceptance Test(s) was passed. If any changes have been made to the technical specifications of the Facility or the design of the Facility in accordance with Section 5(f) of Attachment A (Description of Generation, Conversion and Storage Facility), such changes shall be reflected in an amendment to this Agreement, and the written protocol for the Control Systems Acceptance Test shall be based on the Facility as modified. Such amendment shall be executed prior to conducting the Control System Acceptance Test and Company shall have no obligation for any delay in performing the Control Systems Acceptance Test due to the need to complete and execute such amendment.
- (i) Facility Security and Maintenance. Seller is responsible for securing the Facility. Seller shall have personnel available to respond to all calls related to security incidents and shall take commercially reasonable efforts to prevent any security incidents. Seller is also responsible for maintaining the Facility, including vegetation management, to prevent security breaches. Seller shall comply with all commercially reasonable requests of Company to update security and/or maintenance if required to prevent security breaches.
- (j) Demonstration of Facility. Company shall have the right at any time, other than during maintenance or other special conditions communicated by Seller, to notify

Seller in writing of Seller's failure, as observed by Company and set forth in such written notice, to meet the operational and performance requirements specified in Section 2.12 (Fast Frequency Response Performance Metric) of this Agreement, and Section 1(b)(iii)(I), Section 1(g) (Active Power Control Interface) and Section 3 (Performance Standards) of this Attachment B (Facility Owned by Seller), and to require documentation or testing to verify compliance with such requirements. Upon receipt of such notice, Seller shall promptly investigate the matter, implement corrective action and provide to Company, within thirty (30) Days of such notice, a written report of both the results of such investigation and the corrective action taken by Seller; provided, that, if thirty (30) Days is not a reasonable time period to investigate the matter, implement corrective action and provide such written report, Seller shall complete the foregoing within such longer commercially reasonable period of time agreed to by the Parties in writing. If the Seller's report does not resolve the issue to Company's reasonable satisfaction, the Parties shall promptly commission a study to be performed by one of the engineering firms then included on the Qualified Independent Third-Party Consultants List attached to the Agreement as Attachment D (Consultants List) to evaluate the cause of the non-compliance and to make recommendations to remedy such non-compliance. Seller shall pay for the cost of the study. The study shall be completed within ninety (90) Days, unless the selected consultant determines such study cannot reasonably be completed within ninety (90) Days, in which case, such longer period of time as the selected consultant determines is necessary to complete such study shall apply. The consultant shall send the study to Company and Seller. Seller (and/or its Third-Party consultants and contractors), at Seller's expense, shall take such action as the study shall recommend with the objective of resolving the non-compliance. Such recommendations shall be implemented by Seller to Company's reasonable satisfaction no later than forty-five (45) Days from the Day the completed study is issued by the consultant, unless such recommendations cannot reasonably be implemented within forty-five (45) Days, in which case, Seller shall implement such recommendations within such longer commercially reasonable period of time agreed to by the Parties in writing. Failure to implement such recommendations

within this period shall constitute a material breach of this Agreement. Unless the aforementioned written report and study are being completed, and any recommendations are being implemented, solely to address Seller's failure to satisfy the requirements of Section 3(w) (Round Trip Efficiency) of this Attachment B (Facility Owned by Seller), the Company shall have the right to declare the Facility derated and in Seller-Attributable Non-Generation status until the Seller's aforementioned written report has been completed, any subsequent study commissioned by the Parties has been completed and any recommendations to resolve the non-compliance have been implemented to Company's reasonable satisfaction.

2. Operating Procedures. **[NOTE: NUMERICAL SPECIFICATIONS IN THIS SECTION 2 MAY VARY DEPENDING ON THE SPECIFIC PROJECT AND THE RESULTS OF THE PROJECT-SPECIFIC INTERCONNECTION REQUIREMENT STUDY.]**

- (a) Reviews of the Facility. Company may require periodic reviews of the Facility, maintenance records, available operating procedures and policies, and relay settings, and Seller shall implement changes Company deems necessary for parallel operation or to protect the Company System from damages resulting from the parallel operation of the Facility with the Company System.
- (b) Separation. Seller must separate from Company System whenever requested to do so by the Company System Operator pursuant to Article 8 (Company Dispatch) and Article 9 (Personnel and System Safety) of the Agreement.
- (c) Seller Logs. Logs shall be kept by Seller for information on unit availability including reasons for planned and forced outages, circuit breaker trip operations, relay operations, including target initiation, and other unusual events. Company shall have the right to review these logs, especially in analyzing system disturbances. Seller shall maintain such records for a period of not less than six (6) years.
- (d) Reclosing and Return to Service. Under no circumstances shall Seller, when separated from the Company System for any reason, including tripping during disturbances or due to equipment failure, reclose into the Company

System without first obtaining specific approval to do so from the Company System Operator. Ramp rates, behavior and mode of operation upon return to service shall conform to verbal instructions from the System Operator or Active Power control from Company. Following "system black" conditions, the Facility shall not attempt to automatically reconnect to the grid (unless directed by the Company System Operator) so as to not interfere with blackstart procedures.

- (e) Reserved.
- (f) Reserved.
- (g) Critical Infrastructure Protection. Seller shall comply with the critical infrastructure protection requirements set forth in Section 1(b)(iii)(G) of this Attachment B (Facility Owned by Seller).
- (a) Allowed Operations. Facility shall be allowed to export energy to the Company System only when the [\_\_\_\_\_] circuit is in normal operating configuration served by breaker [\_\_\_\_\_] at [\_\_\_\_\_] Substation. **[TO BE DETERMINED BY COMPANY BASED ON THE RESULTS AND REQUIREMENTS OF THE IRS]**

3. Performance Standards.

- (a) Reactive Power Control. Seller shall control its reactive power by automatic voltage regulation control. Seller shall automatically regulate voltage at a point, the point of regulation, between the Seller's generator terminal and the Point of Interconnection to be specified by Company, to within 0.5% of a voltage or power factor specified by the Company System Operator to the extent allowed by the Facility reactive power capabilities as defined in Section 3(b) (Reactive Power Characteristics) of this Attachment B (Facility Owned by Seller).
- (b) Reactive Power Characteristics. **[THESE REQUIREMENTS MAY BE CHANGED BY COMPANY UPON COMPLETION OF THE IRS.]**
  - (i) The Facility must deliver power up to the Allowed Capacity (MW) at a power factor between 95% lagging and 95% leading to the Company System as illustrated in the **[generator capability]** curve(s) attached to this Agreement as Exhibit B-

2, which represents the Facility Composite (Generator and Energy Storage Capability Curve(s)). Facilities with a BESS with grid charging can operate with negative active power. These facilities shall provide automatic voltage control within their reactive capability while acting as a load (charging, negative active power generation). The automatic voltage control aspects of a BESS shall be seamless across the transition from acting as a generating resource to acting as a load. The Facility must be capable of automatically adjusting reactive control to maintain the bus voltage at the Point of Interconnection to meet the scheduled voltage set point target specified by the Company System Operator and be capable of supplying reactive power at the leading/lagging 0.95 power factor at all active power outputs down to zero active power. The voltage target will be specified remotely by the Company System Operator through the SCADA/EMS. The Facility's voltage set point target must reflect the Company voltage set point target controlled from the SCADA/EMS, without delay. The Facility should not normally operate on a fixed var or fixed power factor unless agreed by Company. The voltage setpoint target and present Facility minimum and maximum reactive power limits based on the Facility Composite capability curve shall be provided to the Company EMS through Company's Telemetry and Control.

- (ii) The Facility shall contain equipment able to continuously and actively control the output of reactive power under automatic voltage regulation control reacting to system voltage changes. The response requirements are differentiated for large and small signal disturbance performance characteristics. Small signal disturbances are those that reflect normal variations under non-disturbance conditions, the continuous operation range for voltage ride through:  $0.80 \text{ pu} \leq V \leq 1.00 \text{ pu}$  at the point of interconnection. Large disturbance is where the voltage at the point of interconnection falls outside the continuous operating range.

- (iii) For small signal disturbances, reaction time between the step change in voltage and the reactive power change shall be less than 500 msec (no intentional time delay). The automatic voltage regulation response speed at the point of regulation shall be such that at least 90% of the initial voltage correction needed to reach the voltage control target will be achieved within 1 second following a step change. The percentage of rated reactive power output that the resource can exceed while reaching the settling band shall be less than five percent (5%).
- (iv) Large disturbances: Large disturbances are characterized by voltage falling outside of the continuous operating range. The Facility shall adhere to the following characteristics for large disturbances:

The response of each generating resource over its full operating range and for all expected grid conditions should be stable. The dynamic performance of each resource should be tuned to provide this stable response. Company will work with Seller to ensure during the interconnection process that each resource supports Company System reliability and provides a stable transient response to grid events. **[Note - The performance specifications described here may need to be modified based on studies performed for specific interconnections to provide a stable response.]**

Inverter-based resources shall operate in closed loop automatic voltage control at all times to support voltage regulation and voltage stability. Either the individual inverters or the plant-level closed loop automatic voltage controller must operate with a relatively fast response characteristic to mitigate steady-state voltage issues from causing dynamic voltage collapse. The plant-level controller may send voltage or reactive power set point changes to the individual inverters relatively fast, or the inverters will respond locally (depending on control architecture).

For a large disturbance step in voltage, measured at the inverter terminals, where voltage falls outside the continuous operating range, the positive sequence component of the inverter reactive current response must meet the performance specifications set forth below. These parameters may be adjusted following additional study and/or operational testing and performance.

Reaction time: Time between the step change in voltage and when the resource reactive power output begins responding to the change. The reaction time shall be less than 16 msec.

Rise time: Time between a step change in control signal input and when the reactive power output changes by 90 percent of its final value. The rise time shall be less than 100 msec.

Overshoot: Percentage of rated reactive current output that the resource can exceed when reaching the settling band. Overshoot will be determined following the IRS such that any overshoot in reactive power response does not cause Company System voltages to exceed acceptable voltage limits. The magnitude of the dynamic response may be requested to be reduced based on stability studies or actual operational data review.

(v) If the Facility does not operate in accordance with Section 3(b) of this Attachment B (Facility Owned by Seller), Company may disconnect all or a part of Facility from Company System until Seller corrects its operation (such as by installing supplemental reactive power equipment or additional controls modifications, at Seller's expense).

(c) Ramp Rates.

Seller shall ensure that the ramp rate of the Facility is less 2 MW a minute for all conditions other than those under control of the Company System Operator and/or those due to desired frequency response, including start up, depletion of storage charge and resource, locally controlled startup and shut down.

(d) Ride-Through.

Ride-Through requires that the resource continues to inject current within the "No Trip" zone of the voltage and frequency ride-through requirements. Unless approved during the Interconnection Requirements Study analysis, resources should not use "momentary cessation" within the ride-through regions for any of the ride-through requirements in this Attachment B (Facility Owned by Seller).

(e) Undervoltage Ride-Through.

The Facility, as a whole, will meet the following undervoltage ride-through requirements during low voltage affecting one or more of the three voltage phases ("V" is the voltage of any three voltage phases at the Point of Interconnection). For alarm conditions the Facility shall not disconnect from the Company System unless the Facility's equipment is at risk of damage. This is necessary in order to coordinate with the existing Company System. **[THESE VALUES MAY BE CHANGED BY COMPANY UPON COMPLETION OF THE IRS. WITHOUT LIMITATION, FOR A DISTRIBUTION-CONNECTED FACILITY, UPON COMPLETION OF THE IRS THE COMPANY MAY SPECIFY REQUIREMENTS FOR A MANDATORY DISCONNECTION FROM THE COMPANY SYSTEM.]**:

$0.80 \text{ pu} \leq V \leq 1.00 \text{ pu}$       The Facility remains connected to the Company System and in continuous operation.

$0.00 \text{ pu} \leq V < 0.80 \text{ pu}$       The Facility remains connected to the Company System and in continuous operation for a minimum of 600 milliseconds per event (while "V" remains in this range). The Facility may initiate an alarm if "V" remains in this range for more than 600 milliseconds; the duration of the event is measured from the point at which the voltage drops below 0.80 pu and ends when the voltage is at or above 0.80 pu. The 600 milliseconds represents

a delayed clearing time of 30 cycles plus breaker opening time.

Protective Undervoltage Relaying (27) shall be set to alarm only to meet the above ride-through requirements, and shall not initiate a disconnect from the Company System unless Seller reasonably determines based upon Good Engineering and Operating Practices that the Facility's equipment is at risk of damage. This is necessary in order to coordinate with the existing Company System.

Seller shall have sufficient capacity to fulfill the above mentioned requirements to ride-through subsequent events 300 cycles or more apart, between which the voltage at the POI recovers above 0.80 pu. **[THE ACTUAL RIDE-THROUGH TIMES WILL BE DETERMINED BY COMPANY IN CONNECTION WITH THE IRS]**

(f) Over Voltage Ride-Through.

The overvoltage protection equipment at the Facility shall be set so that the Facility will meet the following overvoltage ride-through requirements during high voltage affecting one or more of the three voltage phases (as described below) ("V" is the voltage of any of the three voltage phases at the Point of Interconnection). For alarm conditions the Facility should not disconnect from the Company System unless the Facility's equipment is at risk of damage. This is necessary in order to coordinate with the existing Company System. **[THESE VALUES MAY BE CHANGED BY THE COMPANY UPON COMPLETION OF THE IRS. WITHOUT LIMITATION, FOR A DISTRIBUTION-CONNECTED FACILITY, UPON COMPLETION OF THE IRS THE COMPANY MAY SPECIFY REQUIREMENTS FOR A MANDATORY DISCONNECTION FROM THE COMPANY SYSTEM AT  $V > 1.2$  pu. RIDE-THROUGH REQUIREMENTS FOR OTHER SYSTEMS WILL BE DETERMINED IN THE IRS.]**:

1.00 pu < V ≤ 1.10 pu      The Facility remains connected to the Company System.

1.10 pu < V ≤ 1.15 pu      The Facility remains connected to the Company System and in continuous operation no less than 30 seconds; the duration

of the event is measured from the point at which the voltage increases at or above 1.1 pu and ends when voltage is at or below 1.1 pu.

$V > 1.15 \text{ pu}$

The Facility remains connected to the Company System and in continuous operation for as long as possible as allowed by the equipment operational limitations.

Protective Overvoltage Relaying (59) shall be set to alarm only to meet the above ride-through requirements, and shall not initiate a disconnect from the Company System unless Seller reasonably determines based upon Good Engineering and Operating Practices that the Facility's equipment is at risk of damage. This is necessary in order to coordinate with the existing Company System.

(g) Transient Stability Ride-Through.

The Facility shall be designed such that the transient stability of Company System is maintained for normally cleared and secondarily cleared faults. The Facility will be required to remain connected through anticipated rates of change of frequency **[TO BE PROVIDED UPON COMPLETION OF IRS]**.

(h) [RESERVED]

(i) Underfrequency ride-through.

The Facility shall meet the following underfrequency ride-through requirements during an underfrequency disturbance, and export of power shall continue with output adjusted as appropriate for Facility droop response consistent with Section 1(g)(xi) (Active Power - Frequency Response (DROOP)), Section 1(g)(xii) (Dynamic Active Power - Frequency Performance), and **[FOR FACILITIES WITH STORAGE]** Section 1(g)(xiii) (Alternate Active Power / Frequency Response Modes) of this Attachment B (Facility Owned by Seller) ("f" is the Company System frequency at the Point of Interconnection):

$57.0 \text{ Hz} \leq f \leq 60.0 \text{ Hz}$

The Facility remains connected to the Company System and in continuous operation.

$56.0 \text{ Hz} \leq f < 57.0 \text{ Hz}$

The Facility remains connected to the Company System and in continuous operation for at least six (6) seconds per event. The duration of the event is from the point at which the frequency is below 57 Hz and ends when the frequency is at or above 57 Hz. The Facility may initiate an alarm if frequency remains in this range for more than six (6) seconds.

$f < 56.0 \text{ Hz}$

The Facility remains connected to the Company System and in continuous operation for the duration allowed by the equipment operational limitations. The Facility may initiate an alarm immediately.

Protective Underfrequency Relaying (81U) shall be set to alarm only to meet the above ride-through requirements, and shall not initiate a disconnect from the Company System unless Seller reasonably determines based upon Good Engineering and Operating Practices that the Facility's equipment is at risk of damage. This is necessary in order to coordinate with the existing Company System.

Any tripping on calculated frequency should be based on accurately calculated and filtered frequency measurement over a time frame of minimum six cycles, or other period as specified by the Company, and should not use an instantaneously calculated value.

(j) Overfrequency ride-through.

The Facility will behave as specified below for overfrequency conditions, and export of power shall continue with output adjusted as appropriate for

Facility droop response consistent with Section 1(g) (xi) (Active Power - Frequency Response (DROOP)), Section 1(g) (xii) (Dynamic Active Power - Frequency Performance), and **[FOR FACILITIES WITH STORAGE]** Section 1(g) (xiii) (Alternate Active Power / Frequency Response Modes) ("f" is the Company System frequency at the Point of Interconnection):

60.0 Hz < f ≤ 61.5 Hz                      The Facility remains connected to the Company System and in continuous operation.

61.5 Hz < f ≤ 63.0 Hz                      The Facility remains connected to the Company System for at least ten (10) seconds. After ten seconds the Facility may initiate an alarm and the Facility remains connected and producing power for the duration allowed by the equipment operational limitations. The duration of condition is from the point at which the frequency is above 61.5 Hz and ends when the frequency is at or below 63.0 Hz.

f > 63.0 Hz                                      The Facility remains connected to the Company System for the duration allowed by the equipment operational limitations. The Facility may initiate an alarm immediately.

Protective Overfrequency Relaying (810) shall be set to alarm only to meet the above ride-through requirements, and shall not initiate a disconnect from the Company System unless Seller reasonably determines based upon Good Engineering and Operating Practices that the Facility's equipment is at risk of damage. This is necessary in order to coordinate with the existing Company System.

Any tripping on calculated frequency should be based on accurately calculated and filtered frequency measurement over a time frame of minimum six cycles, or other period

as specified by the Company, and should not use an instantaneously calculated value.

(k) Successive Faults.

If the resource necessitates tripping to protect from the cumulative effects of those successive faults, in a period of time to ensure safety and equipment integrity, the constraint and time periods should be provided for inclusion in the interconnection study. For all cases, at a minimum, the ride-through requirements shall be met for two ride-through events within two seconds to allow for the Company's transmission automatic reclosing attempt. **[Note - this requirement may be modified based on the results of the IRS.]**

(l) Rate of Change of Frequency ("ROCOF")

The inverter-based resources in the Facility shall not use rate-of-change-of-frequency protection unless an equipment limitation exists that requires the inverter to trip on high ROCOF. Any ROCOF tripping must be approved by Company.

(m) Phase Angle Shift Ride-Through.

The Facility equipment shall ride through phase angle shift of up to ([ ]) **[Note - requirements will depend on Facility]**. Inverter phase lock loop (PLL) loss of synchronism shall not cause the inverter to trip or enter momentary cessation within the voltage and frequency ride-through region. Inverters must be capable of riding through temporary loss of synchronism, and regain synchronism, without causing a trip or momentary cessation of the resource.

(n) DC Protection.

If the Facility requires DC reverse current protection, such protection must be coordinated with the inverter equipment module ratings and set to operate for short circuits on the DC side. DC reverse current protection shall not operate for transient overvoltage or for AC-side faults.

(o) Voltage Flicker.

Any voltage flicker on the Company System caused by the Facility shall not exceed the limits stated in IEEE Standard 1453-2011, or latest version "Recommended Practice - Adoption of IEC 61000-4-15:2010, Electromagnetic compatibility (EMC) - Testing and measurement techniques - Flickermeter - Functional and design specifications".

(p) Harmonics.

Harmonic distortion at the Point of Interconnection caused by the Facility shall not exceed the limits stated in IEEE Standard 519-1992, or latest version "Recommended Practices and Requirements for Harmonic Control in Electrical Power Systems". Seller shall be responsible for the installation of any necessary controls or hardware to limit the voltage and current harmonics generated from the Facility to defined levels.

(q) Grid Forming Capabilities.

**[NOTE APPLICABILITY BASED ON RESOURCE TYPE AND DESIGN, FOR INVERTER BASED RESOURCES]** Seller Facility inverters shall be capable of operating in grid forming mode supporting system operation under normal and emergency conditions without relying on the characteristics of synchronous machines. This includes operation as a current independent ac voltage source during normal and transient conditions (as long as no limits are reached within the inverter) and the ability to synchronize to other voltage sources or operate autonomously if a grid reference is unavailable.

- (i) Seller shall operate the Facility in grid forming mode only as directed by the Company System Operator, in its sole discretion. Such mode of operation shall be indicated to the Company System Operator through telemetry.
- (ii) The Facility shall include safeguards to prevent the unintentional switching of the Facility into and out of grid forming mode. The safeguards shall be approved in writing by the Company and implemented by the Seller prior to control system testing.

(r) Black Start Capability.

**[NOTE - APPLICABILITY BASED ON RESOURCE TYPE AND DESIGN, FOR INVERTER BASED RESOURCES]** [For synchronous machines, require capability to operate in isochronous control and black start.] The BESS storage shall be capable of grid forming inverter capability so it can generate its own AC waveform rather than relying on a grid voltage to synchronize and maintain frequency. Further, inverter-based resources shall ensure they have sufficient energy storage to maintain power injection to the grid during system restoration (i.e., have power available when and if called upon). Inverter based facilities should be capable of support as a black start cranking path to start synchronous generators for restoration.

(s) Provision of Synthetic Inertia. **[TO BE DETERMINED BASED ON IRS.]**

(t) Generator Step-Up Transformer Impedance.

The generator step-up transformer impedance shall be between [ ] percent and [ ] percent, inclusive, on transformer OA rating. **[NOTE: THESE VALUES WILL BE BASED ON THE RESULTS OF THE IRS.]**

(u) Control Systems and Auxiliary Equipment.

The power source for control systems and auxiliary equipment required for normal operation of the Facility shall be designed to be immune from system transients in accordance with the Public Utilities Commission of the State of Hawai'i tariff for [Maui Electric Company, Ltd./Hawai'i Electric Light Company, Inc.] Rule No. 2, Character of Service (Revised Sheet No. 5, effective Oct. 20, 1991) and Section 3.2(A)(6) (Facility Protection and Control Equipment) to meet the performance during under/over voltage and under/over frequency conditions pursuant to Section 3(e), Section 3(f), Section 3(i) and Section 3(j) of this Attachment B (Facility Owned by Seller).

(v) Frequency Response.

Seller shall comply with the requirements of Section 1(g)(xi) (Frequency Response (DROOP)), Section 1(g)(xii) (Dynamic Active Power - Frequency Performance), and **[FOR FACILITIES WITH STORAGE]** Section 1(g)(xiii) (Alternate Active Power / Frequency Response Modes) of this Attachment B (Facility Owned by Seller).

- (w) Round Trip Efficiency. The round trip efficiency of the BESS as measured at the POI shall be not less than [ ] percent ([ ]%). [ND: The percentage for round trip efficiency should be taken from Seller's response to the RFP.]

4. Maintenance of Seller-Owned Interconnection Facilities.

- (a) Seller must address any Disconnection Event (as defined below) according to the requirements of this Section 4 (Maintenance of Seller-Owned Interconnection Facilities) of Attachment B (Facility Owned by Seller). For the purposes of this Section 4 (Maintenance of Seller-Owned Interconnection Facilities), a "Disconnection Event" is the removal of [7.5 MW] [or 100% of capacity for facilities with capacity less than 7.5 MW] or more from Company System and/or disconnection of the Facility from the Company's System (i) that is not the result of Company dispatch, frequency droop response, or isolation of the Facility resulting from designed protection fault clearing, and (ii) for which Company does not issue the written notice for failure to meet operational and performance requirements as set forth in Section 1(j) (Demonstration of Facility) of this Attachment B (Facility Owned by Seller). Company's election to exercise its rights under Section 1(j) (Demonstration of Facility) shall not relieve Seller of its obligation to comply with the requirements of this Section 4 (Maintenance of Seller-Owned Interconnection Facilities) for any future Disconnection Event during the pendency of such election or thereafter.
- (b) For every Disconnection Event from the Company System, Seller shall investigate the cause. Within three (3) Business Days, Seller shall provide, in writing to Company, an incident report that summarizes the sequence of events and probable cause.
- (c) Within forty-five (45) Days of a Disconnection Event, Seller shall provide, in writing to Company, Seller's findings, data relied upon for such findings, and proposed actions to prevent reoccurrence of a Disconnection Event ("Proposed Actions"). Company may assist Seller in determining the causes of and recommendations to remedy or prevent a Disconnection Event ("Company's Recommendations"). Seller shall

implement such Proposed Actions (as modified to incorporate the Company's Recommendations, if any) and Company's Recommendations (if any) in accordance with the time period agreed to by the Parties.

- (d) In the event Seller and Company disagree as to (i) whether a Disconnection Event occurred, (ii) the sequence of events and/or probable cause of the Disconnection Event, (iii) the Proposed Actions, (iv) Company's Recommendations, and/or (v) the time period to implement the Proposed Actions and/or Company's Recommendations, then the Parties shall follow the procedure set forth in Section 5 (Expedited Dispute Resolution) of this Attachment B (Facility Owned by Seller).
- (e) Upon the fourth (4th) Disconnection Event (and each subsequent Disconnection Event) within any Contract Year, the Parties shall follow the procedures set forth in Section 4(a) and Section 4(d) of Attachment B (Facility Owned by Seller), to the extent applicable. If after following the procedures set forth in this Section 4 (Maintenance of Seller-Owned Interconnection Facilities) of Attachment B (Facility Owned by Seller), Seller and Company continue to have a disagreement as to (1) the probable cause of the Disconnection Event, (2) the Proposed Actions, (3) the Company's Recommendations, and/or (4) the time period to implement the Proposed Actions and/or the Company's Recommendations, then the Parties shall commission a study to be performed by a qualified independent Third-Party consultant ("Qualified Consultant") chosen from the Qualified Independent Third-Party Consultants List ("Consultants List") attached to the Agreement as Attachment D (Consultants List). Such study shall review the design of, review the operating and maintenance procedures dealing with, recommend modifications to, and determine the type of maintenance that should be performed on Seller-Owned Interconnection Facilities ("Study"). Seller and Company shall each pay for one-half of the total cost of the Study. The Study shall be completed within ninety (90) Days from such fourth Disconnection Event (and each subsequent Disconnection Event) within any Contract Year, unless the Qualified Consultant determines the Study cannot reasonably be completed within ninety (90) Days, in which case, such longer period of time as the Qualified Consultant determines is necessary to complete

the Study shall apply. The Qualified Consultant shall send the Study to Company and Seller. Seller (and/or its Third-Party consultants and contractors), at Seller's expense, shall change the design of, change the operating and maintenance procedures dealing with, implement modifications to, and/or perform the maintenance on Seller-Owned Interconnection Facilities recommended by the Study. Such design changes, operating and maintenance procedure changes, modifications, and/or maintenance shall be completed no later than forty-five (45) Days from the Day the completed Study is issued by the Qualified Consultant, unless such design changes, operating and maintenance procedure changes, modifications, and/or maintenance cannot reasonably be completed within forty-five (45) Days, in which case, Seller shall complete the foregoing within such longer commercially reasonable period of time agreed to by the Parties in writing. The Company shall have the right to derate the Facility to a level that maintains reliable operations in accordance with Good Engineering and Operating Practices, and the Facility shall be deemed to be in Seller-Attributable Non-Generation status, until the study has been completed and the study's recommendations have been implemented by Seller to Company's reasonable satisfaction. Nothing in this provision shall affect Company's right to dispatch the Facility as provided for in this Agreement.

- (f) The Consultants List attached hereto as Attachment D (Consultants List) contains the names of engineering firms which both Parties agree are fully qualified to perform the Study. At any time, except when a Study is being conducted, either Party may remove a particular consultant from the Consultants List by giving written notice of such removal to the other Party. However, neither Party may remove a name or names from the Consultants List without approval of the other Party if such removal would leave the list without any names. Intended deletions shall be effective upon receipt of notice by the other Party, provided that such deletions do not leave the Consultants List without any names. Proposed additions to the Consultants List shall automatically become effective thirty (30) Days after notice is received by the other Party unless written objection is made by such other Party within said thirty (30) Day period. By mutual agreement between the

Parties, a new name or names may be added to the Consultants List at any time.

5. Expedited Dispute Resolution.

If there is a disagreement between Company and Seller regarding (i) whether a Disconnection Event occurred, (ii) the sequence of events and/or probable cause of the Disconnection Event, (iii) the Proposed Actions, (iv) the Company's Recommendations, and (v) the time period to implement the Proposed Actions and/or the Company's Recommendations, then authorized representatives from Company and Seller, having full authority to settle the disagreement, shall meet in Hawai'i (or by telephone conference) and attempt in good faith to settle the disagreement. Unless otherwise agreed in writing by the Parties, the Parties shall devote no more than five (5) Business Days to settle the disagreement in good faith. In the event the Parties are unable to settle the disagreement after the expiration of the time period, then such disagreement shall constitute a Dispute for which either Party may pursue the dispute resolution procedure set forth in Section 28.2 (Dispute Resolution Procedures, Mediation) of Article 28 (Dispute Resolution) of this Agreement.

6. Modeling.

- (a) Seller's Obligation to Provide Models. Within 30 Days of Company's written request, but no later than the Commercial Operations Date, Seller shall provide detailed data regarding the design and location of the Facility, in a form reasonably satisfactory to Company, to allow the modeling of the inverters and any other equipment within the Facility identified in the IRS which utilizes Source Code (such as energy storage system, STATCOM or DVAR equipment), including, but not limited to, integrated and validated power flow and transient stability models (such as PSS/E models), a short circuit model (such as an ASPEN model), and an electro-magnetic transient model (such as a PSCAD model) of the inverters and any additional equipment identified in the IRS as set forth above, applied assumptions, and pertinent data sets (each a "Required Model" and collectively, the "Required Models"). Thereafter, during the Term, Seller shall provide working updates of any Required Model within 30 Days of (i) Company's written request, or (ii) Seller obtaining knowledge or

notice that any Required Model has been modified, updated or superseded by the Source Code Owner.

(b) Escrow Establishment. If, pursuant to Section 6(a) (Seller's Obligation to Provide Models) of this Attachment B (Facility Owned by Seller), the Required Models are provided to the Company in a form other than Source Code, Seller shall arrange for and ensure that the Source Code for the relevant Required Model is deposited into the Source Code Escrow as set forth below in Section 6(b)(i) (Source Code Escrow) of this Attachment B (Facility Owned by Seller) no later than the time periods set forth in Section 6(a) (Seller's Obligation to Provide Models) of this Attachment B (Facility Owned by Seller) for delivery of the Required Models. Seller shall be responsible for all costs associated with establishing and maintaining the Source Code Escrow. If, however, Seller is unable to deposit the required Source Code into the Source Code Escrow within the time periods set forth in Section 6(a) (Seller's Obligation to Provide Models), Seller shall, no later than such time periods, instead establish a monetary escrow as set forth below in Section 6(b)(ii) (Monetary Escrow) of this Attachment B (Facility Owned by Seller).

(i) Source Code Escrow.

A. Establishment of Source Code Escrow. If the Required Models are not provided to the Company in the form of Source Code pursuant to Section 6(a) of this Attachment B (Facility Owned by Seller), Seller shall: (a) arrange for and ensure the deposit of a copy of the current version of the Source Code and relevant documentation for all Required Models with the Source Code Escrow Agent under the terms and conditions of the Source Code Escrow Agreement, and (b) arrange for and ensure the update of the deposited Source Code and relevant documentation for Major Releases and Minor Releases of the Required Models as soon as reasonably possible after they are made generally available.

B. Release Conditions. Company shall have the right to obtain from the Source Code Escrow Agent one copy of the escrowed Source Code for

the Required Models, under the following conditions upon Company's request:

- (i) A receiver, trustee, or similar officer is appointed, pursuant to federal, state or applicable foreign law, for the Source Code Owner;
  - (ii) Any voluntary or involuntary petition or proceeding is instituted, under (x) U.S. bankruptcy laws or (y) any other bankruptcy, insolvency or similar proceeding outside of the United States, by or against the Source Code Owner; or
  - (iii) Failure of the Source Code Owner to function as a going concern or operate in the ordinary course; or
  - (iv) Seller and the Source Code Owner fail to provide to Company the Required Models or updated Required Models, or, alternatively, fail to issue a Source Code LC, within the time periods set forth in Section 6(a) (Seller's Obligation to Provide Models) of this Attachment B (Facility Owned by Seller), Company gives written notice of such failure to Seller and the Source Code Owner, and Seller and Source Code Owner fail to remedy such breach within five (5) Days following receipt of such notice.
- C. Remedies. If Company has the right to obtain from the Source Code Escrow Agent one copy of the escrowed Source Code for the Required Models pursuant to Section 6(b)(i)(B) (Release Conditions) of Attachment B (Facility Owned by Seller), and Company finds that Seller failed to arrange for and ensure the update the Source Code Escrow with the modified and/or updated Source Code and relevant documentation for Major Releases and Minor Releases of the Required Models as provided in Section 6(b)(i) (Establishment of Source Code Escrow) of Attachment B (Facility Owned by Seller) or that the Source Code for the Required Models

is incomplete or otherwise unusable, Seller shall be liable to Company for liquidated damages in the amount of \$500 per Day for each Day Seller fails to provide such Source Code to Company or such update to the Source Code to Company from the date such Major Release or Minor Release was first made available by the Source Code Owner to customers of the Source Code Owner. Failure to provide the updated Source Code of the Required Models within 30 Days' notice from Company of a breach of Section 6(b)(i)(A) (Establishment of Source Code Escrow) of Attachment B (Facility Owned by Seller); provided, that Seller has also failed to provide a satisfactory Source Code LC as set forth in Section 6(b)(ii) (Source Code Security) of this Attachment B (Facility Owned by Seller) shall constitute an Event of Default pursuant to Section 15.2(f) under the Agreement.

- D. Certification. The Source Code Escrow Agent shall release the Source Code of the Required Models to Company upon receipt of a signed statement by a representative of Company that reads substantially as follows:

The undersigned hereby certifies that (i) I am duly authorized to execute this document on behalf of Hawai'i Electric Light Company, Inc. ("Hawai'i Electric Light"), and (ii) Hawai'i Electric Light is entitled to a copy of the Source Code of the Required Models Pursuant to Section 6(b)(i)(B) (Release Conditions) of Attachment B (Facility Owned by Seller) of the Power Purchase Agreement dated as of \_\_\_\_\_, between \_\_\_\_\_, and Hawai'i Electric Light.

- E. Authorized Use. If Company becomes entitled to a release of the Source Code of the Required Models from escrow, Company may thereafter correct, modify, update and enhance the Required Models for the sole purpose of providing itself the support and maintenance it otherwise would have been entitled to if it had been provided the Required Models by

Seller under Section 6(a) (Seller's Obligation to Provide Models) of this Attachment B (Facility Owned By Seller) (the "Source Code Authorized Use").

- F. Confidentiality Obligations. Company shall keep the Source Code of the Required Models confidential pursuant to the confidentiality obligations of the Source Code Escrow Agreement. Company shall restrict access to the Source Code of the Required Models to those employees, independent contractors and consultants of Company who have agreed in writing to be bound by confidentiality and use obligations consistent with those specified in the Escrow Agreement, and who have a need to access the Source Code of the Required Models on behalf of Company to carry out their duties for the Authorized Use. Promptly upon Seller's request, Company shall provide Seller with the names and contact information of all individuals who have accessed the Source Code of the Required Models, and shall take all reasonable actions required to recover any such Source Code in the event of loss or misappropriation, or to otherwise prevent their unauthorized disclosure or use.

(ii) Source Code Security.

- (A) Establishment of Source Code Security. If the Required Models and their relevant Source Code are not provided to the Company in the form of Source Code pursuant to Section 6(a) (Seller's Obligation to Provide Models) of this Attachment B (Facility Owned by Seller) and if the Seller is unable to arrange for and ensure the deposit of the Source Code into the Source Code Escrow established for the benefit of the Company pursuant to Section 6(b)(i) (Source Code Escrow) of this Attachment B (Facility Owned by Seller) then, no later than the time periods set forth in Section 6(a) (Seller's Obligation to Provide Models) of this Attachment B (Facility Owned by Seller) for delivery of the Required Models and Source Code, Seller shall provide an irrevocable standby letter of credit (the "Source Code

LC") with no documentation requirement in the amount of Two Hundred Fifty Thousand Dollars (\$250,000) per Required Model (and its relevant Source Code) substantially in the form attached to this Agreement as Attachment M (Form of Letter of Credit) from a bank chartered in the United States with a credit rating of "A-" or better from Standard & Poor's or A3 or better from Moody's. Such letter of credit shall be issued for a minimum term of one (1) year. Furthermore, at the end of each year the security shall be renewed for an additional one (1) year term so that at the time of such renewal, the remaining term of any such security shall not be less than one (1) year. The letter of credit shall include a provision for at least thirty (30) Days' advance notice to Company of any expiration or earlier termination of the letter of credit so as to allow Company sufficient time to exercise its rights under said security if Seller fails to extend or replace the security. In all cases, the reasonable costs and expenses of establishing, renewing, substituting, canceling, increasing, reducing, or otherwise administering the letter of credit shall be borne by Seller.

- (B) Release Conditions. Company shall have the right to draw on the letter of credit the funds necessary to develop and recreate the Required Model or Required Models upon Company's request if Seller fails to provide the Company the Required Models or updated Required Models within the time periods set forth in Section 6(a) (Seller's Obligation to Provide Models) or Section 6(b) (i) (C) (Remedies) of this Attachment B (Facility Owned by Seller), Company gives written notice of such failure to Seller, and Seller fails to remedy such breach within five (5) Days following receipt of such notice for a breach under Section 6(a) (Seller's Obligation to Provide Models), or within thirty (30) Days following receipt of such notice for a breach under Section 6(b) (i) (C) (Remedies).

- (C) Extend Letter of Credit. If the letter of credit is not renewed or extended no later than thirty (30) Days prior to its expiration or earlier termination, Company shall have the right to draw immediately upon the full amount of the letter of credit and to place the proceeds of such draw (the "Proceeds"), at Seller's cost, in an escrow account in accordance with Section 6(b)(ii)(D) (Proceeds Escrow), until and unless Seller provides a substitute form of letter of credit meeting the requirements of this Section 6(b)(ii) (Source Code Security) of this Attachment B (Facility Owned by Seller).
- (D) Proceeds Escrow. If Company draws on the letter of credit pursuant to Section 6(b)(ii)(C) (Extend Letter of Credit) of this Attachment B (Facility Owned by Seller), Company shall, in order to avoid comingling the Proceeds, have the right but not the obligation to place the Proceeds in an escrow account as provided in this Section 6(b)(ii)(D) (Proceeds Escrow) of this Attachment B (Facility Owned by Seller) with a reputable escrow agent acceptable to Company ("Proceeds Escrow Agent") subject to an escrow agreement acceptable to Company ("Proceeds Escrow Agreement"). Without limitation to the generality of the foregoing, a federally-insured bank shall be deemed to be a "reputable escrow agent." Company shall have the right to apply the Proceeds as necessary to recover amounts Company is owed pursuant to this Section 6 (Modeling) of this Attachment B (Facility Owned by Seller). To that end, the Proceeds Escrow Agreement governing such escrow account shall give Company the sole authority to draw from the account. Seller shall not be a party to such Proceeds Escrow Agreement and shall have no rights to the Proceeds. Upon full satisfaction of Seller's obligations under Section 6 (Modeling) of this Attachment B (Facility Owned by Seller), Company shall instruct the Proceeds Escrow Agent to remit to the bank that issued the letter of credit that was the source of the

Proceeds the remaining balance (if any) of the Proceeds. If there is more than one escrow account with Proceeds, Company may, in its sole discretion, draw on such accounts in any sequence Company may select. Any failure to draw upon the Proceeds for any damages or other amounts due Company shall not prejudice Company's rights to recover such damages or amounts in any other manner.

- (E) Seller's Obligation. If the letter of credit is not sufficient to cover Company's associated consultant fees, costs and expenses to develop and recreate the Required Models, Seller shall pay to Company the difference within ten (10) Days of Company's written notice to Seller.
- (F) Model Verification. Seller shall work with the Company to validate the new Required Models developed by or on behalf of Company within sixty (60) Days of receiving such new Required Models. Seller shall also arrange for and ensure that Company may obtain new Required Models directly from the Source Code Owner in the event that Seller ceases to operate as a going concern or is subject to voluntary or involuntary bankruptcy and is unable or unwilling to obtain the new Required Models from the Source Code Owner.
- (G) Certification. The terms of the letter of credit shall provide for a release of the funds, or in the event the funds have been placed into a Proceeds Escrow, the Escrow Agent shall release the necessary funds to Company upon receipt of a signed statement by a representative of Company that reads substantially as follows:

The undersigned hereby certifies that (i) I am duly authorized to execute this document on behalf of Hawai'i Electric Light Company, Inc. ("Hawai'i Electric Light"), and (ii) Hawai'i Electric Light is entitled to \$ \_\_\_\_\_, pursuant to Section 6(b)(ii)(B) (Release Conditions)

of Attachment B (Facility Owned by Seller)  
of the Power Purchase Agreement dated as  
of \_\_\_\_\_, between \_\_\_\_\_, and  
Hawai'i Electric Light.

- (H) Authorized Use. If Company becomes entitled to a draw of funds from the Source Code Security or a release of funds from the Proceeds Escrow, Company may thereafter use such funds to develop, recreate, correct, modify, update and enhance the Required Models for the sole purpose of providing itself the support and maintenance it otherwise would have been entitled to if it had been provided the Required Models by Seller under Section 6(a) (Seller's Obligation to Provide Models) of this Attachment B (Facility Owned by Seller) (the "Monetary Authorized Use").

(iii) Supplementary Agreement. The parties stipulate and agree that the escrow provisions in this Section 6(b) (Escrow Establishment) of Attachment B (Facility Owned by Seller), and the Source Code Escrow Agreement and Proceeds Escrow Agreement are "supplementary agreements" as contemplated in Section 365(n)(1)(B) of the Code. In any voluntary or involuntary bankruptcy proceeding involving Seller, failure by Company to assert its rights to "retain its rights" to the intellectual property encompassed by the Source Code or the funds in the Proceeds Escrow, pursuant to Section 365(n)(1)(B) of the Code, under an executory contract rejected in a bankruptcy proceeding, shall not be construed as an election to terminate the contract by Company under Section 365(n)(1)(A) of the Code.

## 7. Testing Requirements.

- (a) Testing Requirements. Once the Control System Acceptance Test has been successfully passed, Seller shall not replace and/or change the configuration of the Facility Control, inverter control settings and/or ancillary device controls, without prior written notice to Company. In the event of any such replacement and/or change, the relevant test(s) of the Control System Acceptance Test shall be redone and must be successfully passed before the replacement or altered equipment is allowed to be placed in normal operations. In the event that Company reasonably determines that such replacement

and/or change of controls makes it inadvisable for the Facility to continue in normal operations without a further Control Systems Acceptance Test, the Facility shall be deemed to be in Seller-Attributable Non-Generation status until the new relevant tests of the Control System Acceptance Test have been successfully passed.

- (b) Periodic Testing. Seller shall coordinate periodic testing of the Facility with Company to ensure that the Facility is meeting the performance standards specified under this Agreement.

- 8. Data and Forecasting. Seller shall provide Site, meteorological and production data in accordance with the terms of Article 6 (Forecasting) of this Agreement and the following requirements:

- (i) Physical Site Data: Seller shall provide Company with an accurate description of the physical Site, including but not limited to the following, [as appropriate to Facility resource type(s) and use of storage] which may not be changed during the Term without Company's prior written consent:

- A. Location Facility Map showing the layout of the Facility (coverage area or footprint) and the coordinates (latitude and longitude) of generating equipment:

Solar PV: elevation (above ground), orientation angle and direction (north-east-south-west plane) of arrays/concentrators.

Wind Generators: coordinates (latitude and longitude) and height above ground of each wind turbine hub.

- B. Location (latitude and longitude) and elevation (above ground) of each MMT / MMS and elevation (above ground) of each field measurement device for, e.g., air density, ambient air pressure and ambient air temperature, located at each MMT or each field measurement device located on such MMS.

- C. For solar resource inverters: Inverter type, power rating, array configuration to inverters and DC rating of the Facility at the following standard

test conditions: irradiance of 1000 W/m<sup>2</sup>, air mass 1.5, and cell temperature 25° C.

- D. Solar generation technology employed at the Facility with temperature dependence, mounting and module type.
- E. Wind generation technology employed at the Facility with representative power curve(s).
- F. BESS technology and related auxiliary equipment, location and type.

(ii) Meteorological and Production Data.

- A. Seller shall install and maintain a minimum of two MMS for facilities that have either (i) a DC rating of the Facility of 5 MW or greater or (ii) a coverage area greater than one square kilometer.
- B. Placement of each MMS should account for the microclimate of the area and Facility coverage area and shall be oriented with respect to the primary wind direction.
- C. Seller shall provide to Company, via SCADA communication and protocol acceptable to Company to support operations and forecasting needs at a continuous scan, all meteorological and production data required under this Agreement updated every 2 seconds.
- D. Seller shall arrange for a dedicated distribution voltage line to provide separate service from Company, or for such other independent, backup power source as approved by Company in writing, to temporarily store and record the meteorological data from the field measuring devices at the MMSs. Any such backup power source must be capable of providing power for the field measurement devices for a reasonable period of time until primary power is restored. The same backup power source can serve multiple MMSs as needed by the Facility.

(iii) Units and Accuracy:

- A. [For PV] The Table below shows minimum required solar irradiance measurements for various types of

solar generation technology. **[DRAFTING NOTE: VALUES NEED TO BE INSERTED INTO TABLE.]** This value may not be derived.

Solar Technology	Direct Normal Irradiance	Global Irradiance (GHI)	Plane of Array Irradiance (POA)
<b>Flat Plate</b> (fixed horizontal, fixed angle, tracking, roof mounted)		X	X

- B. Units and accuracy of measured parameters to be provided to Company in real time shall be as shown in the Table below. These represent the minimum required accuracies.

**Table of Units and Accuracy of Meteorological and Production Data (PV)**

Parameter	Data Source	Unit	Range	Accuracy
Global Horizontal Irradiance at MMS	Pyranometer or equivalent	W/m <sup>2</sup>	0 to 1500 W/m <sup>2</sup>	Secondary standard per ISO 9060 or <= 3% from 100 W/m <sup>2</sup> to 1500 W/m <sup>2</sup> if using a PV Reference Cell
Plane of Array Irradiance on same axis as array	Pyranometer or equivalent	W/m <sup>2</sup>	0 to 1500 W/m <sup>2</sup>	Secondary standard per ISO 9060 or <= 3% from 100 W/m <sup>2</sup> to 1500 W/m <sup>2</sup> if using a PV Reference Cell
Back of Panel temperature at array height	Temperature probe	°C	-20 to +50 °C	+/-1 °C
Power production of Facility	Measured at POI	MW	Up to Capacity	+/-0.1 MW

Parameter	Data Source	Unit	Range	Accuracy
Inverters Available*	Seller's system	digital	Up to the number installed inverters	
	Ratio of inverters online/number of inverters	%	0 to 100%	
Power Possible*	Seller's Model	MW	0 to Allowed Capacity	+/-0.1 MW

**Table of Units and Accuracy of Meteorological and Production Data (Wind)**

Parameter	Data Source	Unit	Range	Accuracy
Wind speed at MMT (hub height)	Cup or sonic anemometer	Mph	0 to 134 mph	+/-1 mph
Wind direction at MMT (hub height)	Vane, sonic device or equivalent	Degrees (from True North)	360°	+/-5°
Ambient air temperature at MMT (hub height)	Temperature probe	°C	-20 to +50 °C	+/-1 °C
Ambient air pressure at MMT (hub height)	Piezoresistive transducer, barometer or equivalent	Mbar	150 to 1150 mbar	+/-60 mbar (0 to +50°C)
Power production of Facility	Measured at POI	MW		+/- 0.1 mw
Power Possible	Seller's Model	MW	0 to 120% of Allowed Capacity	+/-0.1 MW

(iv) Status of Generating Equipment: For each inverter, or wind turbine, Seller shall provide to Company, via SCADA communication and protocol acceptable to Company at a continuous scan updated not less frequently than every 2 seconds, a signal as to whether such inverter is available or unavailable, and on or offline.

(v) Data Collection.

**[NOTE COMPANY TO UPDATE REQUIREMENTS; WILL BE SPECIFIC TO FACILITY EQUIPMENT AND RESOURCE TYPE]**

- A. High Resolution Data: Seller shall install and make available to the Company time stamped and sequential data recordings for all inverter-based resources (and all generating resources) to perform event analysis and verify Facility performance during steady state and transient disturbance events. This will include a time-synchronized phasor measurement unit at the Facility, and access to multiple sources to provide sufficient clarity as to any abnormal response or behavior within the Facility, including Facility control settings and static values, SCADA data, sequence of events recording (SER) data, dynamic disturbance recorder (DDR) data, and inverter fault codes and inverter-level dynamic recordings. This data will be used to review the Facility response to system dynamics, such as the frequency response (normal droop and FFR), reactive response, etc.
- B. Plant Data: **[Note: specific requirements below are representative of variable energy resources and will be tailored to the Facility resource type(s) and geographic arrangement]**

Seller shall install at least three (3) meteorological tower(s), spaced so as to provide the data points set forth below for the entire Facility. At least two months prior to the Commercial Operation Date, Seller shall deliver to Company a report showing (i) manufacturer, model and year of all energy equipment (panels, inverters, energy storage devices, turbine generators), and meteorological instrumentation, and (ii) the latitude and longitude of the center of the energy equipment (i.e., solar panels for every inverter, wind turbines) and every meteorological tower. Beginning upon COD, Seller shall transmit and provide to Company the real-time data set forth below, refreshed as frequently as allowed by the SCADA system, not to exceed sixty (60) second intervals:

- Three (3) data points from each inverter or wind turbine:
  - Inverter/turbine generation (MW)
  - Inverter/turbine availability
  - Inverter/turbine on/offline status
- Two (2) data points from each meteorological tower (solar resources):
  - Global horizontal solar irradiance (instantaneous solar intensity, full sky)
  - Plane of array solar irradiance (instantaneous solar intensity at the current angle of the PV array)
- Five data points from each Meteorological Tower (wind resources):
  - Wind Speed \*\* (mps)
  - Wind Direction\*\* (degrees relative to true north)
  - Temperature (Celsius)
  - Pressure (mb)
  - Air Density (kg/m3)

In addition to the other requirements for data collection, if required by Company, a Facility with wind turbines shall install, maintain and operate at least one meteorological tower that is installed at hub height and is placed upstream of the prevailing wind path to provide meteorological data through a means agreed by the Company. The data stream from this meteorological tower to the Company's System must be reliable and include battery back-up at the meteorological tower and a local source of electricity to power the data collection and communication from the Facility to Company during transmission outages.

Seller shall provide a map and key for each inverter or wind turbine sufficient to allow Company to correlate the data received through Company's data historian system to each individual resource.

## 9. Technology Specific Requirements.

- (a) [RESERVED].
- (b) [RESERVED].
- (c) Inverter Systems.
  - (i) Direct current generators and non-power (i.e., other than 60 Hertz) alternating current generators can only be installed in parallel with the Company System using a non-islanding synchronous inverter unless alternate designs are approved by the Company. The design shall comply with the requirements of IEEE Std 1547-2003 (or latest version), except as described in Section 3 (Performance Standards) of this Attachment B (Facility Owned by Seller).
  - (ii) Self-commutated inverters of the Company-interactive type shall synchronize to the Company System. Line-commutated, thyristor-based inverters are not recommended and will require additional technical study to determine harmonic and reactive power requirements. All interconnected inverter systems shall comply with the harmonic current limits of IEEE Std 519-1992 (or latest version).
- (d) Battery Energy Storage System. The operating parameters of the BESS for facilities with paired storage shall be as follows:
  - (i) For facilities with variable energy and paired storage: The BESS shall directly charge storage from the variable resource when the Company Active Power Dispatch is for less than the available resource energy.
  - (ii) No more than [ ]% of the BESS energy capacity can be charged from the grid prior to the fifth anniversary of the Commercial Operations Date. Thereafter, 100% of the BESS energy capacity can be charged from the grid. [DRAFTING NOTE: 5-YEAR LIMITATION ON GRID CHARGING WILL BE DELETED IF ITC RECAPTURE IS NOT APPLICABLE TO THE BESS]
  - (iii) The BESS will not be required to discharge more energy than available relative to the available state of charge.

- (iv) For storage used primarily for energy shifting, the BESS shall be designed for an average annual use of 365 cycle(s) (a cycle is a discharge equal to the portion of the BESS Contract Capacity allocated for energy shifting, and sufficient charging to return the BESS to 100% State of Charge).
- (v) For contingency storage, the BESS storage technology shall be procured based on required charging/discharging duty for the provision of disturbance frequency response. This response will require fast response outside of a specified frequency deadband ~~(setable between 0.1 and 0.5 Hz)~~, in accordance with specified droop and time parameters. **(Historical frequency data for 2 second data resolution samples will be provided to bidders.) (Assumptions and associated restrictions on charging/discharging duty to be supplied by bidders.)**

10. Operating Committee and Operating Procedures.

Company and Seller shall each appoint one representative and one alternate representative to act as the operating committee in matters relating to the Parties' performance obligations under this Agreement and to develop operating arrangements for the generation, delivery and receipt of renewable energy from the Facility.

The operating committee may develop mutually agreeable written operating procedures consistent with the requirements of this Agreement, to address matters such as day-to-day communications; key personnel; operations-center interface; metering, telemetering, telecommunications, and data acquisition procedures; operations and maintenance scheduling and reporting; reports; operations log; testing procedures; and such other matters as may be mutually agreed upon by the operating committee.

The operating committee shall review the requirements for Active Power Control, the data collection and telemetry, and control system parameters from time to time after the date hereof and may agree on modifications thereto to the extent necessary or convenient for operation of the Facility in accordance with this Agreement.

The operating committee shall have authority to act in all technical and day-to-day operational matters relating to

performance of this Agreement and to attempt to resolve potential disputes, provided, however, that except as explicitly provided herein, the operating committee shall have no authority to amend or waive any provision of this Agreement.

EXHIBIT B-1  
MODELING REQUIREMENTS

1. Steady State and Dynamic Model Requirements and As-built Data to be provided by Seller. The expected steady state power flow and dynamic models will be provided by the Seller during the interconnection study process in the format compatible with the analytical tools used by the Company. Depending upon Facility design, different representations may be required for steady state and dynamic simulations. Seller will work with Company to derive a complex equivalent model if it is required to meet interconnection study needs. The as-built data and models will be provided by Seller immediately upon commissioning with sufficient information to demonstrate that the as-built parameters match the model. Any changes to plant settings that affect its response and impact to the Company System are required to be studied prior to those changes taking effect. The modeling will include all necessary control settings such that the correct capabilities, flags, and settings can be represented in a base case. Where such parameters are settable according to this Agreement, the initial models will be configured with parameters mutually agreed with Company for the interconnection study analysis. This includes, but is not limited to:
  - Plant Type: A description of the resource type (e.g., storage, solar PV or wind power resource) used as a flag to ensure that the inverter-based resource is accurately represented in the base case, where applicable.
  - Active and Reactive Capability: The overall plant "composite capability curve" shall be provided by Seller for performance purposes. That same curve will be used for accurately modeling the P-Q capability in power flow studies.
  - Plant-Level Voltage Control Settings: Information on the plant voltage control mode to ensure correct voltage control flags and set points are set accordingly in the software tools.
  - The voltage control set point at the POI is provided by the Company. Seller shall provide a description of the coordination of any plant-level shunt compensation

(static or dynamic) to ensure it can be accurately represented in the power flow base case.

The models provided by Seller should accurately reflect the contractual requirements established under this Agreement.

2. Positive Sequence Stability Modeling. Seller shall provide a positive sequence stability model representation which provides sufficient detailed modeling for necessary reliability studies, as specified by Company. **[Note - language to be revised based on proposed Facility.]** For example, the following are typical requirements for plants with inverter equipment:
  - Inverter-Level Controller Model: This represents the overall control of the inverter as an energy or generating resource.
  - Electrical Control Model: This represents the detailed electrical controls of the resource, including large disturbance behavior.
  - Plant-Level Controller Model: This represents control of multiple individual inverters and/or generators within the plant
3. Short Circuit Modeling. Seller will provide appropriate and accurate models to Company to support short circuit studies. **[Company to specify requirements based on specific Facility]**
4. Electromagnetic Transient Modeling. Company will require an electromagnetic transient ("EMT") model for the Facility. Seller shall provide Company with an EMT model for the IRS and an updated EMT model after the Facility has been commissioned. These models are in addition to the positive sequence stability models required for interconnection-wide modeling purposes. In addition, Seller shall provide Company with evidence that the expected (and commissioned) EMT model reasonably matches the positive sequence dynamic models provided. This should include a benchmarking report provided by the inverter OEM.

EXHIBIT B-2  
GENERATOR AND ENERGY STORAGE CAPABILITY CURVE(S)

ATTACHMENT T  
MONTHLY REPORTING AND DISPUTE  
RESOLUTION BY INDEPENDENT AF EVALUATOR

1. Monthly Report. Commencing with the month during which the Commercial Operations Date is achieved, and for each calendar month thereafter during the Term, Seller shall provide to Company a Monthly Report in Excel, Lotus or such other format as Company may require, which Monthly Report shall include (i) the data for the calendar month in question populated into the form of "Monthly Report" below, (ii) the data for the BESS Measurement Period ending with the calendar month in question populated into the form of "BESS Measurement Period Report" below, and (iii) Seller's calculations of the performance metrics, other than the Fast Frequency Response Performance Metric, and any liquidated damages assessments for the LD Period ending with such calendar month as set forth below. Seller shall deliver such Monthly Report to Company by the fifth (5<sup>th</sup>) Business Day following the close of the calendar month in question. Seller shall deliver the Monthly Report electronically to the address provided by the Company. Company shall have the right to verify all data set forth in the Monthly Report by inspecting measurement instruments and reviewing Facility operating records. Upon Company's request, Seller shall promptly provide to Company any additional data and supporting documentation necessary for Company to audit and verify any matters in the Monthly Report.

Monthly Report

NAME OF IPP FACILITY: [Facility Name]

MONTHLY REPORT PERIOD: [Month Day, Year] to [Month Day, Year]

Enter the total number of hours for each WTG and state during the reporting period (to 2 decimal places).

TID	ACTH	FTH	MTH	PTH	OPTH	OMTH	OPTH
Turbine1							
Turbine2							
Turbine3							
...							

Enter the Actual Generation (MWh) for each WTG and state during the reporting period (to 2 decimal places).

TID	CTH	ERSDTH	OEFDTH	OEMPTH	OEPDTH	Env. Derate

Turbine1						
Turbine2						
Turbine3						
...						

Enter the Expected Generation (MWh) for each WTG and state during the reporting period (to 2 decimal places).

TID	CTH	ERSDTH	OEFDTH	OEMPTH	OEPDTH	Env. Derate
Turbine1						
Turbine2						
Turbine3						
...						

Calculated Pooled OMC Equipment Equivalent Availability Factor for the reporting period: \_\_\_\_\_

Calculated Performance Index for the reporting period: \_\_\_\_\_

### BESS Measurement Period Report

NAME OF IPP FACILITY: [Facility Name]

BESS MEASUREMENT PERIOD: [Month Day, Year] to [Month Day, Year]

Enter the applicable information from which the IPP is using to demonstrate satisfaction of the BESS Capacity Performance Metric during the reporting period. This can either be from a BESS Capacity Test performed during the period or taken from operational data reflecting the net output of the BESS.

Date/Time Start	Date/Time End	Total MWh delivered to the POI (A)	BESS Contract Capacity (MWh) (B)	BESS Capacity Ratio 100% x (A/B)

Enter the information for each ExcludedTime event during the reporting period. Dates and times should be entered to the nearest minute. Duration, size of reduction, maximum rated output, and equivalent hours should be rounded to 1 decimal place.

Date/Time Start (A)	Date/Time End (B)	Duration (hrs) (C) = (B - A)	Size of Reduction (MW) (D)	Maximum Rated Output (MW) (E)	Equivalent Hours (hrs) (C x D)/E

...					
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Calendar hours in the reporting period: \_\_\_\_\_

Total equivalent ExcludedTime for the reporting period (from above): \_\_\_\_\_

Period Hours (PH) in the reporting period: \_\_\_\_\_

PH from the last three (3) reporting periods: \_\_\_\_\_

PH for the last four (4) reporting periods: \_\_\_\_\_

Enter the information for each Outage during the reporting period. Dates and times should be entered to the nearest minute. Duration should be rounded to 1 decimal place.

Date/Time Start (A)	Date/Time End (B)	Duration (hrs) (B - A)
...		

Calendar hours in the reporting period: \_\_\_\_\_

Total Outage hours for the reporting period (from above): \_\_\_\_\_

Available Hours (AH) in the reporting period: \_\_\_\_\_

AH from the last three (3) reporting periods: \_\_\_\_\_

AH for the last four (4) reporting periods: \_\_\_\_\_

Enter the information for each Planned Deration event during the reporting period. Dates and times should be entered to the nearest minute. Duration, size of reduction, maximum rated output, and equivalent hours should be rounded to 1 decimal place.

Date/Time Start (A)	Date/Time End (B)	Duration (hrs) (C) = (B - A)	Size of Reduction (MW) (D)	Maximum Rated Output (MW) (E)	Equivalent Hours (hrs) (C x D)/E
...					

Total equivalent planned derated hours (EPDH) for the reporting period: \_\_\_\_\_

EPDH from the last three (3) reporting periods: \_\_\_\_\_

EPDH for the last four (4) reporting periods: \_\_\_\_\_

Enter the information for each Unplanned Deration event during the reporting period. Dates and times should be entered to the nearest minute. Duration, size of reduction, maximum rated output, and equivalent hours should be rounded to 1 decimal place.

Date/Time Start (A)	Date/Time End (B)	Duration (hrs) (C) = (B - A)	Size of Reduction (MW) (D)	Maximum Rated Output (MW) (E)	Equivalent Hours (hrs) (C x D)/E
...					

Total equivalent unplanned derated hours (EUDH) for the reporting period: \_\_\_\_\_

EUDH for the last three (3) reporting periods: \_\_\_\_\_

EUDH for the last four (4) reporting periods: \_\_\_\_\_

Enter the Available Hours, EPDH, EUDH, and Period Hours for the last four (4) reporting periods as calculated above.

AH (A)	EPDH (B)	EUDH (C)	PH (D)	BESS Annual Equivalent Availability Factor $100\% \times (A - B - C)/D$

Enter the information for each Forced Outage during the reporting period. Dates and times should be entered to the nearest minute. Duration should be rounded to 1 decimal place.

Date/Time Start (A)	Date/Time End (B)	Duration (hrs) (B - A)
...		

Total Forced Outage Hours (FOH) for the reporting period (from above): \_\_\_\_\_

FOH from the last three (3) reporting periods: \_\_\_\_\_

FOH for the last four (4) reporting periods: \_\_\_\_\_

Enter the FOH and EUDH for the last four (4) reporting periods as calculated above.

FOH (A)	EUDH (B)	BESS Annual Equivalent Forced Outage Factor $100\% \times (A + B)/8760$

2. Monthly Report Disagreements.

- (a) Notice of Disagreement With Monthly Report. Within ten (10) Business Days following the close of the calendar month in question, Seller shall provide to Company the Monthly Report for such calendar month and the LD Period, the PI Assessment Period and the BESS Measurement Period (if any) ending with such calendar month, as provided in Section 1 (Monthly Report) of this Attachment T (Monthly Reporting and Dispute Resolution by Independent AF Evaluator). Within ten (10) Business Days after Company's receipt of a Monthly Report, Company shall provide written notice to Seller of any Monthly Report Disagreement, including with respect to the data for the calendar month covered by such Monthly Report and Seller's calculation of, as applicable, (i) the Modified Pooled OMC Equipment Availability Factor for the LD Period ending with such calendar month, (ii) the PI Assessment Period ending with such Performance Index calendar month, or (iii) any of the BESS Capacity Ratio, the BESS Annual Equivalent Availability Factor or the BESS Equivalent Forced Outage Factor for the BESS Measurement Period (if any) ending with such calendar month ("Notice of Disagreement"). Together with any such Notice of Disagreement, the Company shall include its own calculations and other support for its position. If Company fails to provide a Notice of Disagreement within said 10-Business Day period, the Monthly Report provided by Seller shall be deemed to be accepted by Company and shall no longer be subject to dispute by Company or Seller.

- (b) Notice of Disagreement With BOP Benchmark Determination. If Seller disagrees with either (i) the BOP Benchmark derived by Company from, as applicable, the IE Energy Assessment Report, the Initial OEPR or any Subsequent OEPR or (ii) Company's claim that it is unable to reasonably derive a BOP Benchmark from, as applicable, the IE Energy Assessment Report or any written clarification issued by an OEPR Evaluator pursuant to either Section 2.7(b)(ii) (Commencing With the Third Contract Year) or Section 2.7(b)(iii) (Commencing With the First Subsequent OEPR and Thereafter) of this Agreement, Seller shall, within thirty (30) Days after receipt of Company's written notice of the BOP Benchmark pursuant to Section 2.7(b) (Determination of BOP Benchmark) of this Agreement, provide written notice to Company of Seller's disagreement with either (i) the BOP Benchmark derived by Company as aforesaid or (ii) Company's claim that it is unable to reasonably derive a BOP Benchmark ("BOP Benchmark Disagreement"). Together with such notice of disagreement ("Notice of BOP Benchmark Disagreement"), the Seller shall include its own calculation and other support for its position. If Seller fails to provide such notice within such 30-Day period, the BOP Benchmark designated in Company's written notice shall be deemed to be accepted by Seller and shall no longer be subject to dispute by Company or Seller. For avoidance of doubt, if Company claims that it is unable to reasonably derive a BOP Benchmark from, as applicable, the IE Energy Assessment Report or any written clarification issued by an OEPR Evaluator, Company shall be deemed to have designated a BOP Benchmark of **97%**.
- (c) Submission of Monthly Report Disagreement to Independent AF Evaluator. Upon issuance of a Notice of Disagreement, the Parties shall review the contents of the Monthly Report(s) together with such Notice of Disagreement and attempt to resolve such Monthly Report Disagreement. If the Parties are able to agree on a resolution of any Monthly Report Disagreement, the resulting corrected Monthly Report(s) in question shall be set forth in a writing executed by both Parties, following which (i) such corrected Monthly Reports shall no longer be subject to dispute by either Party and (ii) to the extent such resolution of such Monthly Report Disagreement affects future

Monthly Reports, such future Monthly Reports shall be prepared, and the Modified Pooled OMC Equipment Availability Factor, the Performance Index, the BESS Annual Equivalent Factor and the BESS Annual Equivalent Forced Outage Factor in such future Monthly Reports shall be calculated, in a manner consistent with such resolution. If the Parties are unable to resolve such Monthly Report Disagreement within ten (10) Business Days after Company's issuance of such Notice of Monthly Report Disagreement, either Party may, within five (5) Business Days after the end of such 10-Business Day period, submit the unresolved Monthly Report Disagreement to an Independent AF Evaluator for resolution. Notwithstanding anything to the contrary in this Section 2(c) (Submission of Monthly Report Disagreement to Independent AF Evaluator), once the Measured Power Curve has been (i) deemed to be accepted by Company pursuant to Section 3 (Measured Power Curve Disagreement) of this Attachment T (Monthly Reporting and Dispute Resolution by Independent AF Evaluator), (ii) resolved pursuant to Section 3(b) (Submission of MPC Disagreement to Independent AF Evaluator), or (iii) resolved pursuant to Section 4(d) (Written Decision of Independent AF Evaluator) of this Attachment T (Monthly Reporting and Dispute Resolution by Independent AF Evaluator), the issue of the Measured Power Curve may not be reopened by either Party in the guise of a Monthly Report Disagreement.

- (d) Submission of BOP Benchmark Disagreement to Independent AF Evaluator. Upon issuance of a notice of BOP Benchmark Disagreement, the Parties shall review, as applicable, the IE Energy Assessment Report, the Initial OEPR and any written clarification thereof issued by the OEPR Evaluator who prepared the Initial OEPR, and any Subsequent OEPR and any written clarification thereof issued by the OEPR Evaluator who prepared the Subsequent OEPR, together with such notice of BOP Benchmark Disagreement, and attempt to resolve such BOP Benchmark Disagreement. If the Parties are able to agree on a resolution of any BOP Benchmark Disagreement, the resulting corrected BOP Benchmark shall be set forth in writing executed by both Parties, following which such corrected BOP Benchmark shall constitute the BOP Benchmark for the Contract Years in question. If the Parties are unable

to resolve such BOP Benchmark Disagreement within thirty (30) Days after Seller's issuance of such notice of BOP Benchmark Disagreement, either Party may, within five (5) Business Days after the end of such 30-Day period, submit the unresolved BOP Benchmark Disagreement to an Independent AF Evaluator for resolution. The authority of the Independent AF shall be limited to deciding the following issues:

(i) If Company derived a BOP Benchmark from, as applicable, the IE Energy Assessment, the Initial OEPR and/or any written clarification issued by the OEPR Evaluator who prepared the Initial OEPR or a Subsequent OEPR and/or any written clarification issued by the OEPR Evaluator who prepared such Subsequent OEPR, the authority of the Independent AF Evaluator shall be limited to deciding:

(aa) Is the BOP Benchmark derived by Company reasonably supported by the document from which it was derived as aforesaid?; and

(bb) If not, what is the BOP Benchmark that is best supported by such document?

(ii) If Company claimed that is was unable to reasonably derive a BOP Benchmark from, as applicable, the IE Energy Assessment, the Initial OEPR and/or written clarification issued by the OEPR Evaluator who prepared the Initial OEPR or a Subsequent OEPR and/or any written clarification issued by the OEPR Evaluator who prepared such Subsequent OEPR, the authority of the Independent AF Evaluator shall be limited to deciding:

(aa) Was Company correct in claiming that a BOP Benchmark cannot be reasonably derived from the document in question; and

- (bb) If Company was not correct, what is the BOP Benchmark that is best supported by such document?

For avoidance of doubt, because **97%** is the BOP Benchmark that shall apply to any Contract Year for which a BOP Benchmark cannot be reasonably be derived from the applicable document as aforesaid, the Independent PBA Evaluator shall not have the authority to resolve a BOP Benchmark Dispute by performing an independent evaluation of the Facility to estimate, among other things, BOP electrical losses, in order to arrive at an independent determination of BOP efficiency.

3. Measured Power Curve Disagreements.

- (a) Notice of Disagreement With Determination of Measured Power Curve. Within ten (10) Business Days after the first day of the second Contract Year, Seller shall provide written notice to Company of the Measured Power Curve for each WTG as provided in Section 4 (Determination of Measured Power Curve) of this Attachment Q (Calculation of Certain Metrics). Within thirty (30) Days after Company's receipt of Seller's written notice of the Measured Power Curve for each WTG, Company shall provide written notice to Seller of any disagreement with any such determination ("MPC Disagreement"). Together with any such notice of disagreement ("Notice of MPC Disagreement"), the Company shall include its own calculations and other support of its position. If Company fails to provide a Notice of MPC Disagreement within said 30-Day period, the Measured Power Curve for each WTG as calculated by the Seller pursuant to the aforesaid Section 4 (Determination of Measured Power Curve) of Attachment Q (Calculation of Certain Metrics) shall be deemed to be accepted by Company and shall no longer be subject to dispute by Company or Seller.
- (b) Submission of MPC Disagreement to Independent AF Evaluator. Upon issuance of a Notice of MPC Disagreement, the Parties shall review the Measured Power Curve(s) in question together with such Notice of MPC Disagreement and attempt to resolve such MPC Disagreement. If the Parties are able to agree on a

resolution of such MPC Disagreement, the resulting Measured Power Curve for each WTG shall be set forth in a writing executed by both Parties, following which such Measured Power Curve for such WTG shall be deemed to be the Measured Power Curve for such WTG under this Agreement and shall no longer be subject to dispute by either Party. If the Parties are unable to agree on a written resolution of such MPC Disagreement within thirty (30) Days after Company's issuance of such notice of disagreement, either Party may submit the unresolved MPC Disagreement to an Independent AF Evaluator for resolution. If, within five (5) Business Days following the expiration of said 30-Day period, neither Party has submitted such MPC Disagreement to an Independent AF Evaluator, the Measured Power Curve for each WTG as calculated by Seller pursuant to Section 4 (Determination of Measured Power Curve) of Attachment Q (Calculation of Certain Metrics) shall be deemed to be accepted by Company and shall no longer be subject to dispute by Company or Seller.

4. Independent AF Evaluator Process.

- (a) Appointment of Independent AF Evaluator. If either Party decides to submit an unresolved MPC Disagreement, unresolved Monthly Report Disagreement or an unresolved BOP Benchmark Disagreement to an Independent AF Evaluator, it shall provide written notice to that effect (the "Submission Notice") to the other Party, which notice shall designate which of the engineering firms on the OEPR Consultants List is to act as the Independent AF Evaluator for purposes of resolving such dispute; provided, however, for purposes of facilitating consistency in the resolution of Monthly Report Disagreements, all Monthly Report Disagreements concerning the same Performance Metric arising out of any one or more of the twelve (12) Monthly Reports issued for a given Contract Year shall be submitted to the same Independent AF Evaluator unless such Independent AF Evaluator declines to accept any such submission(s). A Submission Notice must be provided within the 5-Business Day period provided in Section 2(c) (Submission of Monthly Report Disagreement to Independent AF Evaluator) or Section 2(d) (Submission of BOP Benchmark Disagreement to Independent AF Evaluator) of this Attachment T

(Monthly Reporting and Dispute Resolution by Independent AF Evaluator). A Submission Notice must be provided within whichever of the following time periods is applicable:

- (i) For any MPC Disagreement, within the 5-Business Day period provided in Section 3(b) (Submission of MPC Disagreement to Independent AF Evaluator);
- (ii) for any Monthly Report Disagreement, within the 5-Business Day period provided in Section 2(c) (Submission of Monthly Report Disagreement to Independent AF Evaluator); and
- (iii) for any BOP Benchmark Disagreement, within the 5-Business Day period provided in Section 2(d) (Submission of BOP Benchmark Disagreement to Independent AF Evaluator).

The Parties shall each pay fifty percent (50%) of the fees and expenses charged by the Independent AF Evaluator.

- (b) Eligibility for Appointment as Independent AF Evaluator. Both Parties agree that the engineering firms listed in Section 4(j) (Acceptable Persons and Entities) of Attachment U (Calculation and Adjustment of Net Energy Potential) are fully qualified to serve as Independent AF Evaluator. By mutual agreement between the Parties in writing, a name or names may be added to or removed from the OEPR Consultants List at any time. In no event shall there be less than three (3) names on the OEPR Consultants List.
- (c) Participation of Parties. Promptly following the issuance of a Submission Notice as provided in Section 4(a) (Appointment of Independent AF Evaluator) of this Attachment T (Monthly Reporting and Dispute Resolution by Independent AF Evaluator), Seller and Company shall provide the Independent AF Evaluator which such data as they consider to be material to the resolution of the disputed issue(s). Seller and Company shall also provide such additional data and information as the Independent AF Evaluator may

reasonably request. The Parties shall assist the Independent AF Evaluator throughout the process of resolving such dispute, including making key personnel and records available to the Independent AF Evaluator, but neither Party shall be entitled to participate in any meetings with personnel of the other Party or review of the other Party's records. However, the Independent AF Evaluator will have the right to conduct meetings, hearing or oral arguments in which both Parties are represented.

- (d) Written Decision of Independent AF Evaluator. The terms of engagement with the Independent AF Evaluator shall require the Independent AF Evaluator to issue its written decision resolving the disputed issues submitted to it within the applicable time period set forth below, which time periods are subject to any tolling that may be applicable pursuant to Section 4(e) (Sequence to Resolving Interrelated Disagreements) of this Attachment T (Monthly Reporting and Dispute Resolution by Independent AF Evaluator):
- (a) 30 Days as measured from the issuance of the Submission Notice; or (b) such other time period as the Parties may agree in writing. Unless otherwise agreed by the Parties in writing:
    - (i) for a MPC Disagreement, the written decision of the Independent AF Evaluator shall set forth the Measured Power Curve for the WTG in question;
    - (ii) for a Performance Metric Disagreement concerning the Modified Pooled OMC Equipment Availability Factor, the written decision of the Independent AF Evaluator shall set forth (aa) for the calendar month in question, the correct values for equation used in calculations under Section 1 (Modified Pooled OMC Equipment Availability Factor) of Attachment Q (Calculation of Certain Metrics) of this Agreement as determined by such Independent AF Evaluator if any such values were in dispute and (bb) for the LD Period ending with the calendar month in question, the Modified Pooled OMC Equipment Availability Factor for such LD Period as determined by such Independent AF Evaluator if such Modified Pooled OMC Equipment Availability Factor was in dispute;

- (iii) for a Performance Metric Disagreement concerning the Performance Factor, the written decision of the Independent AF Evaluator shall set forth (aa) the correct values of the equation to be used in the calculation under Section 2 (Performance Index) of Attachment Q (Calculation of Certain Metrics) that include such calendar month if any such values were in dispute, (bb) if a PI Test was conducted during the month in question, the correct data points from such PI Test to be used in the calculation of PI under Section 2.6(a) (Calculation of Performance Index) of this Agreement for the PI Assessment Periods that include the month preceding the month covered by the Monthly Report in question if any such data points were in dispute, and (cc) for the PI Assessment Period ending with the calendar month in question, the Performance Index if such Performance Index was in dispute;
- (iv) for a Performance Metric Disagreement concerning the BESS Capacity Ratio or the RTE Ratio, the written decision of the Independent AF Evaluator shall set forth the BESS Capacity Ratio and/or the RTE Ratio (as applicable) for the BESS Measurement Period ending with the calendar month in question;
- (v) for a Performance Metric Disagreement concerning the BESS Annual Equivalent Availability Factor, the written decision of the Independent AF Evaluator shall set forth (aa) the correct values to be used for AH, EPDH, EUDH and PH under Attachment X (BESS Annual Equivalent Availability Factor) for the calendar month in question if any such values were in dispute and (bb) the BESS Annual Equivalent Availability Factor for the BESS Measurement Period ending with the calendar month in question if such BESS Annual Equivalent Availability Factor was in dispute; ~~and~~
- (vi) for a Performance Metric Disagreement concerning the BESS Annual Equivalent Forced Outage Factor, the written decision of the Independent AF Evaluator shall set forth (aa) the correct values for FOH and EUDH under Attachment Y (BESS Annual Equivalent Forced Outage Factor) for the calendar

month in question if any such values were in dispute and (bb) the BESS Annual Equivalent Forced Outage Factor for the BESS Measurement Period ending with the calendar month in question if such BESS Annual Equivalent Forced Outage Factor was in dispute ~~;~~ and

- (vii) for a BOP Benchmark Disagreement, the written decision shall: (aa) confirm that the BOP Benchmark derived by the Company was reasonably derived and state that such percentage constitutes the BOP Benchmark; or (bb) confirm the Company's conclusion that it is unable to reasonably derive a BOP Benchmark and state that **97%** is the BOP Benchmark; or (cc) disagree with the Company's conclusion that it is unable to reasonably derive a BOP Benchmark, state the percentage that is the best-supported BOP Benchmark, and state that such percentage constitutes the BOP Benchmark.

~~(viii) for a Performance Metric Disagreement concerning the Fast Frequency Response Performance Metric, the written decision of the Independent AF Evaluator shall set forth — [DRAFTING NOTE: TO BE DEVELOPED IF PPA SECTION 2.12 (FAST FREQUENCY RESPONSE PERFORMANCE METRIC) IS RETAINED.]~~

(e) Sequence for Resolving Interrelated Disagreements.

- (i) If an MPC Disagreement is unresolved at the time a Monthly Report Disagreement is submitted to an Independent AF Evaluator pursuant to Section 4(a) (Appointment of Independent AF Evaluator) of this Attachment T (Monthly Reporting and Dispute Resolution by Independent AF Evaluator), and the resolution of such MPC Disagreement is necessary to the resolution of such Monthly Report Disagreement, the time period for an Independent AF Evaluator to issue its written decision resolving such Monthly Report Disagreement shall be tolled until the resolution of such MPC Disagreement pursuant to either Section 3(b) (Submission of MPC Disagreement to Independent AF Evaluator) or Section 4(d) (Written Decision of Independent AF Evaluator) of this Attachment T

(Monthly Reporting and Dispute Resolution by Independent AF Evaluator).

- (ii) If at the time a Performance Metric Disagreement is submitted to an Independent AF Evaluator pursuant to Section 4(a) (Appointment of Independent AF Evaluator) of this Attachment T (Monthly Reporting and Dispute Resolution by Independent AF Evaluator) there are one or more other unresolved Performance Metric Disagreements concerning the same Performance Metric and the same LD Period that are pending before a different Independent AF Evaluator, and the resolution of such other Performance Metric Disagreement(s) is necessary to the resolution of the Performance Metric Disagreement that has been newly submitted to a new Independent AF Evaluator as aforesaid, the time period for such new Independent AF Evaluator to issue its written decision resolving such newly submitted Performance Metric Disagreement shall be tolled until such pending Performance Metric Disagreement(s) have been resolved. For avoidance of doubt, it is the intent of the Parties that disagreements over performance ratio data and calculations for a given calendar month or a given BESS Measurement Period shall (i) not be subject to resolution twice and (ii) once resolved, shall not be reopened.
- (f) Final, Conclusive and Binding. The Parties acknowledge the inherent uncertainty in calculating the Performance Metrics, and hereby assume the risk of such uncertainty and waive any right to dispute the qualification of the person or entity appointed as the Independent AF Evaluator pursuant to Section 4(a) (Appointment of Independent AF Evaluator) of this Attachment T (Monthly Reporting and Dispute Resolution by Independent AF Evaluator) and/or the appropriateness of the methodology used by Independent AF Evaluator in resolving such Performance Metric Disagreements. Without limitation to the generality of the preceding sentence, the decision of the Independent AF Evaluator as to each Performance Metric Disagreement submitted to an Independent AF Evaluator shall be final, conclusive and binding upon Company and Seller and shall not be subject to further dispute

under Article 28 (Dispute Resolution) of the Agreement.

5. Periodic Review of Method of Calculating and Reporting Performance Metric. At least once per Contract Year, Company shall review the method of calculating and reporting Performance Metric under this Agreement to determine if other variables should be incorporated into such calculations. Any revisions to the Performance Metric calculations in this Agreement shall be mutually agreed to by both Seller and Company.
6. Future Changes in Reporting Requirements. Seller shall reasonably cooperate with any Company requested revisions to the Monthly Report to include additional data that may be necessary from time to time to enable Company to comply with any new reporting requirements directed by the PUC or otherwise imposed under applicable Laws.

## **ARTICLE 4**

### **COMPENSATION; PERFORMANCE METRICS**

#### **4.1. Lump Sum Payment.**

Commencing on the Commercial Operations Date, Company shall pay to Seller a monthly Lump Sum Payment in consideration for the availability of the Facility's Energy Storage Services in accordance with this Agreement. For purposes of calculating the monthly Lump Sum Payment, the monthly Lump Sum Payment shall be adjusted downward to account for the time the Facility is not available because of a Force Majeure condition (a) at the Facility or (b) that otherwise delays or prevents the Seller from making the Facility available, as more fully set forth in **Attachment J** (Adjustment to Lump Sum Payment) to this Agreement.

#### **4.2. Performance Metrics.**

In order to provide Company with reasonable assurances of the Facility's capability to make the Facility available and provide, at a minimum, the required round trip efficiency and Fast Frequency Response capabilities: (a) the Capacity Performance Metric shall be used to confirm the capability of the Facility to discharge continuously for one (1) hour at Maximum Rated Output or to discharge continuously for a total energy (MWh) equal to the Contract Capacity if the test is conducted at less than Maximum Rated Output; (b) the EAF Performance Metric shall be used to determine whether the Facility is meeting its expected availability; (c) the EFOF Performance Metric shall be used to evaluate whether the Facility is experiencing excessive unplanned outages; and (d) the Fast Frequency Response Performance Metric shall be used to measure if the Facility frequency response to Company System frequency is acceptable, consistent with the required Fast Frequency Response and mutually agreed tuning parameters. Seller shall design, operate and maintain the Facility in a manner consistent with the standard of care reasonably expected of an experienced owner/operator with the desire and financial resources necessary to design, operate and maintain the Facility to achieve the Performance Metrics all in accordance with Good Engineering and Operating Practices. The Performance Metrics set forth in **Section 4.3** (Capacity Performance Metric) through **Section 4.5** (Equivalent Forced Outage Factor Performance Metric) of this Agreement shall be interpreted consistent with the NERC GADS Data Reporting Instructions.

#### **4.3. Capacity Performance Metric.**

(a) **Capacity Test and Liquidated Damages.** During commissioning, and for each Measurement Period following the Commercial Operations Date, the Facility shall be required to complete a Capacity Test, as more fully set forth in **Attachment T** (Facility Tests) to this Agreement. For each Measurement Period for which the Facility fails to demonstrate that it satisfies the Capacity Performance Metric, Seller shall pay, and Company shall accept, as liquidated damages for such shortfall, the amount set forth in the following table (on a progressive basis) upon proper demand at the end the Measurement Period in question:

<b>Capacity Ratio</b>	<b>Liquidated Damage Amount</b>
<u>Tier 1</u> 95.0% - 99.9%	For each one-tenth of one percent (0.001) that the Capacity Ratio is below 100% and is above 94.9%, an amount equal to one-tenth of one percent (0.001) of the Lump Sum Payment for the Measurement Period in question; plus
<u>Tier 2</u> 85.0% - 94.9%	For each one-tenth of one percent (0.001) that the Capacity Ratio is below 95% and is above 84.9%, an amount equal to one and a half-tenths of one percent (0.0015) of the Lump Sum Payment for the Measurement Period in question; plus
<u>Tier 3</u> 75.0% - 84.9%	For each one-tenth of one percent (0.001) that the Capacity Ratio is below 85% and is above 74.9%, an amount equal to two-tenths of one percent (0.002) of the Lump Sum Payment for the Measurement Period in question; plus
<u>Tier 4</u> 60.0% - 74.9%	For each one-tenth of one percent (0.001) that the Capacity Ratio is below 75% and is above 59.9%, an amount equal to two and a half-tenths of one percent (0.0025) of the Lump Sum Payment for the Measurement Period in question; plus
<u>Tier 5</u> 50.0% - 59.9%	For each one-tenth of one percent (0.001) that the Capacity Ratio is below 60% and is above 49.9%, an amount equal to three-tenths of one percent (0.003) of the Lump Sum Payment for the Measurement Period in question; plus
<u>Tier 6</u> 49.9% and below <b>("Lowest Capacity Bandwidth")</b>	For each one-tenth of one percent (0.001) that the Capacity Ratio is below 50%, an amount equal to three and a half-tenths of one percent (0.0035) of the Lump Sum Payment for the Measurement Period in question.

For purposes of determining liquidated damages under this **Section 4.3(a)** (Capacity Test and Liquidated Damages), the starting and end points for the duration of the period that the Facility discharges shall be rounded to the nearest MWh. Each Party agrees and acknowledges that (i) the damages that Company would incur if the Seller fails to achieve the Capacity Performance Metric for a Measurement Period would be difficult or impossible to calculate with certainty and (ii) the aforesaid liquidated damages are an appropriate approximation of such damages.

EXAMPLE: The following is an example calculation of liquidated damages for the Capacity Performance Metric and is included for illustrative purposes only. Assume the following:

The Maximum Rated Output for the Facility is 25 MW.

A Capacity Test was conducted and the Facility was measured to have discharged 97.5 MWh

Contract Capacity = 25 MW x 6 hours = 150 MWh

Capacity Ratio = MWh Discharged ÷ Contract Capacity = 97.5 MWh ÷ 150 MWh = 0.65

LD = [((1 - 0.950) x 1) + ((0.950 - 0.850) x 1.5) + ((0.850 - 0.750) x 2 + ((0.750 - 0.65) x 2.5)] x Lump Sum Payment for the Measurement Period in question

= 0.65 x Lump Sum Payment for the Measurement Period in question

**(b) Capacity Test Termination Rights.** The Parties acknowledge that, although the intent of the liquidated damages payable under **Section 4.3(a)** (Capacity Test and Liquidated Damages) is to compensate Company for the damages that Company would incur if the Facility fails to demonstrate satisfaction of the Capacity Performance Metric during a Measurement Period, such liquidated damages are not intended to compensate Company for the damages that Company would incur if a pattern of underperformance establishes a reasonable expectation that the Facility is likely to continue to substantially underperform the Company's expectations. Accordingly, and without limitation to Company's rights under said **Section 4.3(a)** (Capacity Test and Liquidated Damages) for those Measurement Periods during which the Facility fails to demonstrate satisfaction of the Capacity Performance Metric, substantial underperformance shall give rise to a termination right as set forth in this **Section 4.3(b)** (Capacity Test Termination Rights). If the Facility is in the Lowest Capacity Bandwidth for any Measurement Period, a 12-month cure period (the "**Capacity Cure Period**") will commence on the Day following the close of such Measurement Period. For the Measurement Period during such Capacity Cure Period, Capacity Tests shall continue to be conducted as set forth in **Attachment T** (Facility Tests) to demonstrate satisfaction of the Capacity Performance Metric during such Measurement Period, and liquidated damages paid and accepted as set forth in **Section 4.3(a)** (Capacity Test and Liquidated Damages); provided, however, that if the Seller fails to demonstrate satisfaction of the Capacity Performance Metric prior to the expiration of the Capacity Cure Period, such failure shall constitute an Event of Default under **Section 6.1(c)** of this Agreement for which Company shall have the rights (including but not limited to the termination rights) set forth in **Article 6** (Events of Default; Remedies; Termination).

#### **4.4. Equivalent Availability Factor Performance Metric.**

**(a) Annual Equivalent Availability Factor and Liquidated Damages.** For each Measurement Period following the Commercial Operations Date, an Annual Equivalent Availability Factor ("**Annual EAF**") shall be calculated as set forth in **Attachment U** (Annual Equivalent Availability Factor). If the Annual EAF for such Measurement Period is less than **97%** (the "**EAF Performance Metric**"), Seller shall pay, and Company shall accept, as liquidated damages for such shortfall, the amount set forth in the following table (on a progressive basis) upon proper demand at the end the current Measurement Period:

<b>Annual Equivalent Availability Factor</b>	<b>Liquidated Damage Amount</b>
<u>Tier 1</u> 85.0% - 96.9%	For each one-tenth of one percent (0.001) by which the Annual EAF falls below 97% but equal to or above 85%, an amount equal to one-tenth of one percent (0.001) of the Lump Sum Payment for the Measurement Period in question; plus
<u>Tier 2</u> 80.0% - 84.9%	For each one-tenth of one percent (0.001) by which the Annual EAF falls below 85% but equal to or above 80%, an amount equal to two-tenths of one percent (0.002) of the Lump Sum Payment for the Measurement Period in question; plus
<u>Tier 3</u> 75.0% - 79.9%	For each one-tenth of one percent (0.001) by which the Annual EAF falls below 80% but equal to or above 75%, an amount equal to three-tenths of one percent (0.003) of the Lump Sum Payment for the Measurement Period in question; plus
<u>Tier 4</u> Below 75.0%	For each one-tenth of one percent (0.001) by which the Annual EAF falls below 75%, an amount equal to four-tenths of one percent (0.004) of the Lump Sum Payment for the Measurement Period in question.

Such liquidated damages shall be due within thirty (30) Days after the first to occur of the end of such Measurement Period or the end of Term. In the event Seller fails to pay Company amounts of liquidated damages due under this **Section 4.4(a)** (Annual Equivalent Availability Factor and Liquidated Damages) within thirty (30) Days of receipt of Company's written demand, Company may, without limitation to any other remedy Company may have, set-off such amounts due against payments it is otherwise obligated to make under this Agreement.

For purposes of determining liquidated damages under this **Section 4.4(a)** (Annual Equivalent Availability Factor and Liquidated Damages), the Annual EAF for the Measurement Period in question shall be rounded to the nearest one-tenth of one percent (0.001). Each Party agrees and acknowledges that (i) the damages that Company would incur if the Seller fails to achieve the EAF Performance Metric for a Measurement Period would be difficult or impossible to calculate with certainty and (ii) the aforesaid liquidated damages are an appropriate approximation of such damages.

**(b) Annual Equivalent Availability Factor Termination Rights.** The Parties acknowledge that, although the intent of the liquidated damages payable under **Section 4.4(a)** (Annual Equivalent Availability Factor and Liquidated Damages) is to compensate Company for the damages that Company would incur if the Seller fails to achieve the EAF Performance Metric for a Measurement Period, such liquidated damages are not intended to compensate Company for the damages that Company would incur if a pattern of underperformance establishes a reasonable expectation that the Facility is likely to continue to substantially underperform the EAF Performance Metric. Accordingly, and without limitation to Company's rights under said **Section 4.4(a)** (Annual Equivalent Availability Factor and Liquidated Damages),

the failure of the Seller to achieve an Annual EAF of not less than **75%** for any Measurement Period shall constitute an Event of Default under **Section 6.1(d)** of this Agreement for which Company shall have the rights (including but not limited to the termination rights) set forth in **Article 6** (Events of Default; Remedies; Termination); provided, however, that if the failure to achieve the aforementioned 75% threshold was the result of unavailability caused by the process of carrying out the repairs to or replacements of the Facility and/or Storage Unit(s) necessary to remedy the failure of the Facility to achieve the Capacity Performance Metric, any portion of a Measurement Period which also falls within a Capacity Cure Period, shall be excluded from the Annual EAF calculation.

**4.5. Equivalent Forced Outage Factor Performance Metric.**

**(a) Annual Equivalent Forced Outage Factor and Liquidated Damages.**

For each Measurement Period following the Commercial Operations Date, the Facility shall maintain an Annual Equivalent Forced Outage Factor (“**Annual EFOF**”) of not more than 4% (the “**EFOF Performance Metric**”) as calculated as set forth in **Attachment V** (Annual Equivalent Forced Outage Factor). If the EFOF for such Measurement Period exceeds the EFOF Performance Metric, Seller shall pay, and Company shall accept, as liquidated damages for exceeding the EFOF Performance Metric, the amount set forth in the following table (on a progressive basis) upon proper demand by the Company at the end of the Measurement Period in question:

<b>Annual Equivalent Forced Outage Factor</b>	<b>Liquidated Damage Amount</b>
0.0% - 4.0%	-0-
4.1% - 6.9%	For each one-tenth of one percent (0.001) that the Annual EFOF is above 4.0% but less than 7.0%, an amount equal to two-tenths of one percent (0.002) of the Lump Sum Payment for the Measurement Period in question; plus
7.0% and above	For each one-tenth of one percent (0.001) that the Annual EFOF is above 6.9%, an amount equal to four-tenths of one percent (0.004) of the Lump Sum Payment for the Measurement Period in question.

Such liquidated damages shall be due within thirty (30) Days after the first to occur of the end of such Measurement Period or the end of Term. In the event Seller fails to pay Company amounts of liquidated damages due under this **Section 4.5(a)** (Annual Equivalent Forced Outage Factor and Liquidated Damages) within thirty (30) Days of receipt of Company’s written demand, Company may set-off such amounts due against payments it is otherwise obligated to make under this Agreement.

For purposes of determining liquidated damages under this **Section 4.5(a)** (Annual Equivalent Forced Outage Factor and Liquidated Damages), the Annual EFOF for the Measurement Period in question shall be rounded to the nearest one-tenth of one percent (0.001). Each Party agrees and acknowledges that (i) the damages that Company would incur if the Seller fails to achieve the EFOF Performance Metric for a Measurement Period would be difficult or impossible to calculate with certainty and



~~(iv)~~(v) The new steady-state active power output is within the settling band.

Company will review historical operational data to determine the Facility's fast frequency response following disturbances and satisfaction of the Fast Frequency Response Performance Metric. In accordance with **Section 8(v)** (Data Collection) of **Attachment B** (Facility Owned by Seller), Seller shall provide such high resolution data from the Facility requested by Company to assist in the review. To the extent the historical operational data is insufficient or otherwise lacking for purposes of determining the Facility's satisfaction of the Fast Frequency Response Performance Metric, Company shall review Facility's performance under structured test conditions no less than once per Contract Year.

After the first Contract Year:

(1) for each instance ~~the of the~~ Facility ~~fails-failing~~ to satisfy the Fast Frequency Response Performance Metric, Seller shall pay, and Company shall accept, as liquidated damages for such failure, an amount equal to **25%** of the monthly Lump Sum Payment upon proper demand by Company; and

(2) in the event poor Facility fast frequency response performance requires disconnection from the Company System, as determined by Company in its sole discretion (e.g., in the event a Facility response to Company System frequency outside of the FFR deadband contributes to frequency error or worsens the disturbance), Seller shall pay and Company shall accept, as liquidated damages for such underperformance, an amount equal to **100%** of the monthly Lump Sum Payment upon proper demand by Company, and Seller shall not be entitled to receive further monthly Lump Sum Payments while the Facility remains disconnected from the Company System to allow Seller to perform corrective actions on the Facility to Company's reasonable satisfaction.

Such liquidated damages shall be due within thirty (30) Days of Company's written demand. In the event Seller fails to pay Company amounts of liquidated damages due under this **Section 4.6(a)** (Fast Frequency Response Criteria and Liquidated Damages) within thirty (30) Days of receipt of Company's written demand, Company may set-off such amounts due against payments it is otherwise obligated to make under this Agreement.

Company agrees that, when evaluating performance under this **Section 4.6** (Fast Frequency Response Performance Metric), the available State of Charge shall be taken into consideration and Seller shall not be held to the criteria set forth in this **Section 4.6** (Fast Frequency Response Performance Metric) if there is insufficient charged capacity available for the appropriate response.

**(b) Performance Deficiencies; Fast Frequency Response Performance Factor Termination Rights.** With respect to any Facility response under this **Section 4.6** (Fast Frequency Response Performance Metric), Company will notify Seller of any discrepancies in the Facility response, and Seller shall respond to and cure all such performance deficiencies in accordance with **Section 1(j)** (Demonstration of Facility) of **Attachment B** (Facility Owned by Seller). The Parties acknowledge that,

although the intent of the liquidated damages payable under **Section 4.6(a)** (Fast Frequency Response Criteria and Liquidated Damages) is to compensate Company for the damages that Company would incur if the Facility fails to respond appropriately to Company System frequency, such liquidated damages are not intended to compensate Company for the damages that Company would incur if a pattern of underperformance establishes a reasonable expectation that the Facility is likely to continue to substantially underperform. Accordingly, and without limitation to Company's rights under said **Section 4.6(a)** (Fast Frequency Response Criteria and Liquidated Damages), in the event Seller fails to comply with the terms of **Section 1(j)** (Demonstration of Facility) of **Attachment B** (Facility Owned by Seller), such event shall constitute an Event of Default under **Section 6.2(f)** of this Agreement for which Company shall have the rights (including but not limited to the termination rights) set forth in **Article 6** (Events of Default; Remedies; Termination).

#### **4.7. Payment of Liquidated Damages for Failure to Achieve Performance Metrics; Limitation on Liquidated Damages.**

(a) **Payment of Liquidated Damages.** With respect to the liquidated damages payable under **Section 4.3(a)** (Capacity Test and Liquidated Damages), **Section 4.4(a)** (Annual Equivalent Availability Factor and Liquidated Damages), **Section 4.5(a)** (Annual Equivalent Forced Outage Factor and Liquidated Damages) and **Section 4.6(a)** (Fast Frequency Response Criteria and Liquidated Damages) (collectively, the "**Performance Metrics LDs**"), Company shall have the right, at any time on or after the LD Assessment Date for the liquidated damages in question, at Company's option, to set-off such liquidated damages from the amounts to be paid to Seller under **Section 4.1** (Lump Sum Payment) of this Agreement or, to draw such liquidated damages from the Operating Period Security, as follows:

(i) if the Facility fails to achieve the Capacity Performance Metric for a Measurement Period, Company shall have the right to set-off or draw the amount of liquidated damages owed for such failure as calculated as provided in **Section 4.3(a)** (Capacity Test and Liquidated Damages);

(ii) if the Annual Report for the Measurement Period in question shows a failure to achieve one or more of the Performance Metrics required for such period, other than the Fast Frequency Response Performance Metric, and Company does not submit a Notice of Disagreement with respect to such Annual Report, Company shall have the right to set-off or draw the amount of liquidated damages owed for such failure as calculated as provided in **Section 4.4(a)** (Annual Equivalent Availability Factor and Liquidated Damages) ~~and~~ **Section 4.5(a)** (Annual Equivalent Forced Outage Factor and Liquidated Damages) ~~and~~ **Section 4.6(a)** (Fast Frequency Response Criteria and Liquidated Damages), as applicable;

(iii) in all cases in which Company submits a Notice of Disagreement for a given Annual Report, Company shall have the right to set-off or draw all or any portion of the amount of liquidated damages for the Measurement Period in question, as applicable, as calculated on the basis of the shortfall(s) in the achievement of the Performance Metric(s) in question, as shown in such Notice of Disagreement; and

(iv) in the event of any disagreement as to the liquidated damages owed under clause (i) and (ii) above:

(A) if the amount set-off or drawn by the Company exceeds the amount of liquidated damages for such Measurement Period that are eventually found to be payable as determined under **Section 2** (Annual Report Disagreements) of **Attachment S** (Annual Reporting and Dispute Resolution by Independent Evaluator) to this Agreement, Company shall promptly (and in no event more than forty-five (45) Business Days from the date of such determination) repay such excess to Seller together with, unless the Parties otherwise agree in writing, interest from the date of Company's set-off or draw until the date that such excess is repaid to Seller at the average Prime Rate for such period; and

(B) if Company does not exercise its rights to set-off or draw liquidated damages for such Measurement Period, or does not set-off or draw the full amount of the liquidated damages for such period eventually found to be payable as determined under **Section 2** (Annual Report Disagreements) of **Attachment S** (Annual Reporting and Dispute Resolution by Independent Evaluator) to this Agreement, Seller shall promptly, upon such determination as aforesaid, pay to Company the amount of liquidated damages that are found to be owing together with, unless otherwise agreed by the Parties in writing, interest on the amount of such liquidated damages that went unpaid from the applicable LD Assessment Date for such liquidated damages until the date such liquidated damages are paid to Company in full at the average Prime Rate for such period, and Company shall have the right, at its option, to set-off such interest for the amounts to be paid to Seller under **Section 4.1** (Lump Sum Payment) of this Agreement or to draw from the Operating Period Security.

Any delay by Company in exercising its rights to set-off liquidated damages and/or interest from the amounts to be paid to Seller under **Section 4.1** (Lump Sum Payment) of this Agreement, or to draw such liquidated damages and/or interest from the Operating Period Security, shall not constitute a waiver by Company of its right to do so.

(b) **Limitation on Liquidated Damages.** Notwithstanding any other provision of this Agreement to the contrary, the aggregate liquidated damages paid by Seller during each Contract Year for the Performance Metrics LDs, such payments by Seller to include but not be limited to any set-offs or draws made by Company during such Contract Year pursuant to **Section 4.8(a)** (Payment of Liquidated Damages), shall not exceed the total of the twelve (12) monthly Lump Sum Payments payable during such Contract Year pursuant to **Section 4.1** (Lump Sum Payment) and **Section 5.4** (Payment Procedures). For avoidance of doubt: A monthly Lump Sum Payment that is invoiced by Seller to Company pursuant to **Section 5.3** (Seller's Preparation of the Monthly Invoice and Annual Report) for, e.g., the twelfth (12<sup>th</sup>) calendar month of Contract Year N but is paid during Contract Year N+1 as provided in **Section 5.4** (Payment Procedures) shall, for purposes of determining the limitation on Performance Metrics LDs under this **Section 4.8(b)** (Limitation on Liquidated Damages), be included in the total of the twelve (12) monthly Lump Sum Payments payable during Contract Year N+1. As a result of the foregoing, the total of the monthly Lump Sum Payments used to establish the limitation on Performance Metrics LDs for the initial Contract Year under this **Section 4.8(b)** (Limitation on Liquidated

Damages) will be less than twelve (12). The Parties acknowledge that, because the monthly Lump Sum Payment is subject to adjustment (including downward adjustment) as provided in **Section 4.1** (Lump Sum Payment), it is possible that a downward adjustment in some or all of the monthly Lump Sum Payments payable during a Contract Year might cause the Performance Metrics LDs paid by Seller during the course of such Contract Year to exceed the limitation on the Performance Metrics LDs for such Contract Year established at the close of such Contract Year pursuant to the first sentence of this **Section 4.8(b)** (Limitation on Liquidated Damages). In such case, Company shall promptly upon the determination that the Performance Metrics LDs paid during the course of such Contract Year exceeded the limitation on Performance Metrics LDs for such Contract Year (and in no event more than forty-five (45) Business Days from the end of such Contract Year) repay such excess amount to Seller without interest.

**[This Attachment will be revised to reflect the results of the IRS]**

**ATTACHMENT B**  
**FACILITY OWNED BY SELLER**

**1. The Facility.**

**(a) Drawings, Diagrams, Lists, Settings and As-Built.**

**(i) Single-Line Drawing, Interface Block Diagram, Relay List, Relay Settings and Trip Scheme.** A preliminary single-line drawing (including notes), Interface Block Diagram, relay list, relay settings, and trip scheme of the Facility shall, after Seller has obtained prior written consent from Company, be attached to this Agreement on the Execution Date as **Attachment E** (Single-Line Drawing and Interface Block Diagram) and **Attachment F** (Relay List and Trip Scheme). A final single-line drawing (including notes), Interface Block Diagram, relay list and trip scheme of the Facility shall, after having obtained prior written consent from Company, be labeled the “Final” Single-Line Drawing, the “Final” Interface Block Diagram and the “Final” Relay List and Trip Scheme and shall supersede **Attachment E** (Single-Line Drawing and Interface Block Diagram) and **Attachment F** (Relay List and Trip Scheme) to this Agreement and shall be made a part hereof on the Commercial Operations Date. After the Commercial Operations Date, no changes shall be made to the “Final” Single-Line Drawing, the “Final” Interface Block Diagram and the “Final” Relay List and Trip Scheme without the prior written consent of Seller and Company. The single-line drawing shall expressly identify the Point of Interconnection of Facility to Company System.

**(ii) As-Built.** Seller shall provide final as-built drawings of the Seller-Owned Interconnection Facilities within 30 Days of the successful completion of the Acceptance Test.

**(iii) Modeling.** Seller shall provide the models as set forth in **Exhibit B-1**.

**(iv) No Material Changes.** Seller agrees that no material changes or additions to the Facility as reflected in the “Final” Single-Line Drawing (including notes), the “Final” Interface Block Diagram, and the “Final” Relay List and Trip Scheme shall be made without Seller first having obtained prior written consent from Company. The foregoing are subject to changes and additions as part of any Performance Standards Modifications. If Company directs any changes in or additions to the Facility, records and operating procedures that are not part of any Performance Standards Modifications, Company shall specify such changes or additions to Seller in writing, and, except in the case of an emergency, Seller shall have the opportunity to review and comment upon any such changes or additions in advance.

**(b) Certain Specifications for the Facility.**

**(i)** Seller shall furnish, install, operate and maintain the Facility, including breakers, relays, switches, synchronizing equipment, monitoring equipment and control and protective devices approved by Company as suitable for parallel

operation of the Facility with Company System. The Facility shall be accessible at all times to authorized Company personnel.

(ii) The Facility shall include:

**[LIST OF THE FACILITY**

**Examples may include, but are not limited to:**

- **Seller-Owned Interconnection Facilities**
- **Substation**
- **Control and monitoring facilities**
- **Transformers**
- **Generating and/or Battery Energy Storage System (“BESS”) equipment (as described in Attachment A)**
- **“Lockable” cabinets or housings suitable for the installation of the Company-Owned Interconnection Facilities located on the Site**
- **Relays and other protective devices**
- **Leased telephone line and/or equipment to facilitate microwave communication]**

(iii) The Facility shall comply with the following **[includes excerpts of language that may be requested by Company]**:

**(A)** Seller shall install a \_\_\_ kV gang operated, load breaking, lockable disconnect switch and all other items for its switching station (relaying, control power transformers, high voltage circuit breaker). Bus connection shall be made to a manually and automatically (via protective relays) operated high-voltage circuit breaker. The high-voltage circuit breaker shall be fitted with bushing style current transformers for metering and relaying. Downstream of the high-voltage circuit breaker, a structure shall be provided for metering transformers. From the high-voltage circuit breaker, another bus connection shall be made to another pole mounted disconnect switch, with surge protection.

**(B)** Seller shall provide within the Seller-Owned Interconnection Facilities a separate, fenced area with separate access for Company. Seller shall provide all conduits, structures and accessories necessary for Company to install the Revenue Metering Package. Seller shall also provide, within such area, space for Company to install its communications, SCADA equipment (remote terminal unit or equivalent) and certain relaying if necessary for the interconnection. Seller shall also provide AC and DC source lines as specified by Company. Seller shall provide a telephone line for Company-owned meters. Seller shall work with Company to determine an acceptable location and size of the fenced-in area. Seller shall provide an acceptable demarcation cabinet on its side of the fence where Seller and Company wiring will connect/interface.

**(C)** Seller shall ensure that the Seller-Owned Interconnection Facilities have a lockable cabinet for switching station relaying equipment. Seller shall select and install relaying equipment acceptable to Company. At a minimum, the

relaying equipment will provide over and under frequency (81), negative phase sequence (46), under voltage (27), over voltage (59), ground over voltage (59G), over current functions (50/51) and direct transfer trip (if required). The settings shall be consistent with the requirements for over/under frequency and voltage ride-through. Seller shall install protective relays that operate a lockout relay (86), which in turn will trip the main circuit breaker and not allow it to be reclosed without reset.

**(D) Reserved.**

**(E)** Seller's equipment also shall provide at a minimum:

**(1)** Interface with Company's Telemetry and Control, or designated communications and control interface, to provide telemetry of electrical quantities such as total Facility net MW, MVar, power factor, voltages, currents, and other quantities as identified by the Company.

**(2)** Interface with Company's Telemetry and Control, or designated communications and control interface, to provide status for circuit breakers, reactive devices, switches, and other equipment as identified by the Company.

**(3)** Interface with Company's Telemetry and Control, or designated communications and control interface, to provide control to incrementally raise and lower the voltage target at the point of regulation operating in automatic voltage regulation control.

**(4)** Interface with Company's Telemetry and Control, or designated communications and control interface, to provide the active power control requirements of this Agreement. More than one interface may be required if Facility energy components, such as a BESS and variable generation resource are controlled separately by the Company (as in grid-charging BESS).

**(5)** Interface with Company's Telemetry and Control, or designated communications and control interface, for the Company to specify control system modes of operation and parameters, for remotely configurable parameters and operating states required under this Agreement.

**(6) For Variable Energy Facilities:** Interface with Company's Telemetry and Control, or designated communications and control interface, to provide telemetry of equipment availability and meteorological and production data required under **Section 8** (Data and Forecasting) of this **Attachment B** (Facility Owned by Seller) and the Facility's Power Possible.

**(7) Provision for Loss of Telemetry and Control:** If Company's Telemetry and Control, or designated communications and control interface, is unavailable, due to loss of communication link, Telemetry and Control failure, or other event resulting in loss of the remote control by Company, provision must be made for Seller to be able to institute via local controls, within 5 minutes (or such other period as Company accepts in writing) of the verbal directive by the

Company System Operator, such change in voltage regulation target and real power export or import as directed by the Company System Operator.

**(F)** If Seller adds, deletes and/or changes any of its equipment, or changes its design in a manner that would change the characteristics of the equipment and specifications used in the IRS, Seller shall be required to obtain Company's prior written approval. If an analysis to revise parts of the IRS is required, Seller shall be responsible for the cost of revising those parts of the IRS and modifying and paying for the cost of the modifications to the Facility and/or the Company-Owned Interconnection Facilities based on the revisions to the IRS.

**(G) Critical Infrastructure Protection.**

**(1) Documentation.** Seller shall submit documentation describing the approach, methodology and design to provide physical and cyber security with its submittal of the design drawings pursuant to **Section 1(c)** (Design Drawings, Bill of Materials, Relay Settings and Fuse Selection) of **Attachment B** (Facility Owned by Seller) which shall be at least sixty (60) Days prior to the Acceptance Test.

- The design shall meet industry standards and best practices, as indicated by NERC CIP guidelines and requirements for critical generation facilities. The system shall be designed with the criteria to meet applicable industry standards and guidelines (at the time of this writing, NERC CIP, or any future standard adopted by the industry in its place) compliance requirements and identify areas that are not consistent with NERC CIP guidelines and requirements.

- The cyber-security documentation shall include a block diagram of the control system with all external connections clearly described.

- Seller shall provide such additional information as Company may reasonably request as part of a security posture assessment.

- Company shall be notified in advance when there is any condition that would compromise physical or cyber security, or if any breaches in security, or security incidents are detected.

**(2) Malware.** Seller shall (consistent with the following sentence) ensure that no malware or similar items are coded or introduced into any aspect of the Facility, Interconnection Facilities, the Company Systems interfacing with the Facility and Interconnection Facilities, and any of Seller's critical control systems or processes used by Seller to provide energy, including the information, data and other materials delivered by or on behalf of Seller to Company, (collectively, the "**Environment**"). Seller will continue to review, analyze and implement improvements to and upgrades of its Malware prevention and correction programs and processes that are commercially reasonable and consistent with the then current technology industry's standards and, in any case, not less robust than the programs and processes implemented by Seller with respect to its own information systems. If

Malware is found to have been introduced into the Environment, Seller will promptly notify Company and Seller shall take immediate action to eliminate and remediate the effects of the Malware, at Seller's expense. Seller shall not modify or otherwise take corrective action with respect to the Company Systems except at Company's request. Seller will promptly report to Company the nature and status of all Malware elimination and remediation efforts.

**(3) Security Breach.** In the event that Seller discovers or is notified of a breach, potential breach of security, or security incident at Seller's Facility or of Seller's systems, Seller shall immediately (i) notify Company of such potential, suspected or actual security breach, whether or not such breach has compromised any of Company's confidential information; (ii) investigate and promptly remediate the effects of the breach, whether or not the breach was caused by Seller; (iii) cooperate with Company with respect to any such breach or unauthorized access or use; (iv) comply with all applicable privacy and data protection laws governing Company's or any other individual's or entity's data; and (v) to the extent such breach was caused by Seller, provide Company with reasonable assurances satisfactory to Company that such breach, potential breach, or security incident shall not recur. Seller shall provide documentation to Company evidencing the length and impact of the breach. Any remediation of any such breach will be at Seller's sole expense.

**(4) Monitoring and Audit.** Seller shall provide information on available audit logs and reports relating to cyber and physical and security. Company may audit Seller's records to ensure Seller's compliance with the terms of this **Section 1(b)(iii)(G)** (Critical Infrastructure Protection) of this **Attachment B** (Facility Owned by Seller), provided that Company has provided reasonable notice to Seller and any such records of Seller's will be treated by Company as confidential.

**(H) Available Power Production.**

**(1) Variable Energy Systems.** Seller's available power production considering equipment and resource availability (Power Possible) will be determined at any given time using the best-available data and methods for an accurate representation of the amount of active power at the Point of Interconnection.

**(2) Variable Energy Systems Paired with Storage Operated through a Single Active Power Control Interface.** For variable energy systems paired with storage operated through a single active power control interface (i.e., charging indirectly controlled through dispatch), Seller's available power production considering equipment and resource availability and state of charge of the storage (Power Possible) will be determined at any given time using the best-available data and methods for an accurate representation of the amount of active power at the Point of Interconnection. Telemetry will be provided to indicate state of charge, including available estimated duration at the current dispatch given state of charge and forecast production.

**(3) Storage Directly Controlled by the Company.** Seller's available power production considering state of charge (Power Possible) will be supplied as an accurate representation of the amount of maximum and minimum

(negative) available active power at the Point of Interconnection and the duration available at the current dispatch. If the Facility allows for allocation of capacity to different modes of operation (i.e., reservation of capacity for regulation or contingency response), then the available capacity in each allocated region shall be reported individually and controlled separately through separately designated dispatch or active power control interface.

**(I)** For variable resources where Power Possible is derived, in part or in whole, from a measured available variable energy source such as solar or wind: To the extent available, the Parties shall use Seller's real time Power Possible communicated to Company through the SCADA System except to the extent that the Potential Energy does not accurately reflect the actual available active power at the Point of Interconnection (plus or minus 0.1 MW). During those periods of time when the SCADA derived Power Possible is unavailable or does not accurately represent the available power production considering equipment and resource availability, the Parties shall use the best available data obtained through commercially reasonable methods to determine the Power Possible. Follow up actions to resolve the discrepancy will be as provided in **Section 1(j)** (Demonstration of Facility) of this **Attachment B** (Facility Owned by Seller)

**(J)** Seller shall reserve space within the Site for possible future installation of Company-owned meteorological equipment (such as wind speed, direction and relative humidity monitors, SODAR and irradiance monitors) and AC and DC source lines for such equipment as may be required depending on the Facility resource type and location. In the event Company decides to install such meteorological equipment: (i) Seller shall work with Company to determine an acceptable location for such equipment and any associated wiring, interface or other components; and (ii) Company shall pay for the needed equipment, and installation of such equipment, unless otherwise agreed to by the Parties. Company and Seller shall use commercially reasonable efforts to facilitate installation and minimize interference with the operation of the Facility.

**(K)** The Facility shall, a minimum, satisfy the wind load and seismic load requirements of the International Building Code and any more stringent requirements imposed under applicable Laws.

**(c) Design Drawings, Bill of Material, Relay Settings and Fuse Selection.** Seller shall provide to Company for its review the design drawings, Bill of Material, relay settings and fuse selection for the Facility, and Company shall have the right, but not the obligation, to specify the type of electrical equipment, the interconnection wiring, the type of protective relaying equipment, including, but not limited to, the control circuits connected to it and the disconnecting devices, and the settings that affect the reliability and safety of operation of Company's and Seller's interconnected system. Seller shall provide the relay settings and protection coordination study, including fuse selection and AC/DC Schematic Trip Scheme (part of design drawings), for the Facility to Company during the 60% design. Company, at its option, may, with reasonable frequency, witness Seller's operation of control, synchronizing, and protection schemes and shall have the right to periodically re-specify the settings. Seller shall utilize relay settings prescribed by Company, which may be changed over time as Company System requirements change.

**(d) Disconnect Device.** Seller shall provide a manually operated disconnect device which provides a visible break to separate Facility from Company System. Such disconnect device shall be lockable in the OPEN position and be readily accessible to Company personnel at all times.

**(e) Other Equipment.** Seller shall install, own and maintain the infrastructure associated with the Revenue Metering Package, including but not limited to all enclosures (meter cabinets, meter pedestals, meter sockets, pull boxes, and junction boxes, along with their grounding/bonding connections), CT/PT mounting structures, conduits and ductlines, enclosure support structures, ground buses, pads, test switches, terminal blocks, isolation relays, telephone surge suppressors, and analog phone lines (one per meter), subject to Company's review and approval.

**(f) Maintenance Plan.** Seller shall maintain Seller-Owned Interconnection Facilities in accordance with Good Engineering and Operating Practices.

**(g) Active Power Control Interface. [COMPANY TO REVISE THIS SECTION BASED ON SPECIFICS OF THE PROJECT.]**

**(i)** Seller shall provide and maintain in good working order all equipment, computers and software associated with the control system (the "**Active Power Control Interface**") necessary to interface the Facility active power controls with the Company System Operations Control Center for real power control of the Facility by the Company System Operator.

The detailed design will be tailored to the specific resource type and configuration to achieve the functional requirements of the Facility.

The Active Power Control Interface will be used to control the net real power export (or import, as applicable) from the Facility for load following, system balancing, energy arbitrage, and/or supplemental frequency control as required under this **Attachment B** (Facility Owned by Seller).

For variable resources paired with storage: The implementation of the Active Power Control Interface will allow the Company System Operator to control the net real power export (or import, as applicable) from the entire Facility, up to Power Possible, remotely from the Company System Operations Control Center through control signals from the Company System Operations Control Center. The Facility will maintain the power level specified by the Company through the variable resource and BESS available energy, subject to the availability of resource and BESS State of Charge.

For facilities with grid charging storage, the Active Power Control interface may also direct the charging/discharging of energy from the BESS.

The Facility real power output (or import, if storage charging is enabled) will automatically adjust to a change in frequency in accordance with the frequency response requirements provided in this **Attachment B** (Facility Owned by Seller).

(ii) Company shall review and provide prior written approval of the design for the Active Power Control Interface to ensure compatibility with Company's centralized control systems and use of Facility available energy and storage capabilities. To ensure such continued compatibility, Seller shall not materially change the approved design without Company's prior review and written approval. This will include design description and parameters for the Seller's control system(s), which determine provision of net real power from the variable resource System (i.e., wind or PV) and/or the BESS storage, and charging of the BESS storage, in response to the Active Power Control signal or signals.

(iii) The Active Power Control Interface shall include, but not be limited to, a demarcation cabinet, ancillary equipment and software necessary for Seller to connect to Company's Telemetry and Control, located in Company's portion of the Facility switching station which shall provide the control signals to the Facility and send feedback status to the Company System Operations Control Center. The control type shall be analog output (set point) or raise/lower controls and will be established by the Company prior to final design approval.

(iv) The Active Power Control Interface shall also include provision for feedback points from the Facility indicating active power target in MW for the Active Power Control signal(s). The Facility shall provide the MW target feedback to the Company SCADA system immediately upon receiving the respective control signal from the Company.

(v) Seller shall provide to the telemetry interface analogs for the gross production of the energy resource(s) at the Facility (for example, DC or AC MW production of the Variable Resource generator(s), depending on design; gross DC MW of the BESS, etc.) Seller shall also provide the total net AC MW production at the Point of Interconnection.

(vi) The Active Power Control Interface shall provide for remote control of the real-power output of the Facility by the Company at all times. If the Active Power Control Interface is unavailable or disabled, the Facility may not export electric energy to Company and the Facility shall be deemed to be in Seller-Attributable Unavailability status, unless the Company, in its sole discretion, agrees on an alternate means of dispatch. If Seller fails to provide such remote control capability (whether temporarily or throughout the Term), then, notwithstanding any other provision of this **Attachment B** (Facility Owned by Seller), Company shall have the right to derate or disconnect the entire Facility during those periods that such control capability is not provided and the Facility shall be deemed to be in Seller-Attributable Unavailability status for such periods.

(vii) The rate at which the Facility changes net real power in response to the active power control shall not be less than the greater of 2 MW per minute or 10% of the Facility capacity per minute, and shall make available through agreed parameters, such faster ramp as the installed equipment can support. The Facility's Active Power Control Interface will be used by Company to control the rate at which electric energy is changed to achieve the active power limit for load-following and regulation. The Facility will respond to the active power control request immediately with an echo of the set point and measurable change within the 4 second control

cycle.

**(viii)** The Facility shall accept the following controls related to active power and frequency response to or from the Company centralized control system:

- Power Reference Setpoint from Company (based on the input to the Facility, from the Active Power Control Interface): The Facility output shall match this setting from the Variable Resource and/or BESS so long as it can be supported by the variable resource and/or BESS State of Charge (Power Possible does not change). This net output should be accurate within +/- 0.1 MW under normal frequency conditions. This setpoint will be modified as appropriate in the controls by the appropriate frequency response consistent with **Section 1(g)(xi)** (Active Power – Frequency Response (DROOP)), **Section 1(g)(xii)** (Dynamic Active Power – Frequency Performance), and **[FOR FACILITIES WITH STORAGE] Section 1(g)(xiii)** (Alternate Active Power / Frequency Response Modes) of this **Attachment B** (Facility Owned by Seller).

- For variable energy resources: The Facility shall include Variable Resource Enable/Disable control. When “Disable” is selected, the Facility shall ramp down, shutdown, and leave offline variable resource generators. When “Enable” is selected, the Facility variable resource generators can start up, ramp up, and remain in normal operations subject to Company active power dispatch.

- From Company: Frequency Response Mode (DROOP, FFR, isochronous) state (where alternate modes of operation are required).

- From Seller:
  - [For Facilities with a BESS and where required]: Capacity allocation to each mode of operation where ability to allocate capacity to different modes of operation is required (e.g., to allocate a portion of capacity to fast frequency response) and telemetered data and controls necessary to determine state of charge, and gross MW and Mvar contribution, etc. operationally required for each segmented use.

- Power Possible (Available maximum capacity): See above, instantaneous limit for available energy, represents max level the Facility can produce under present resource, BESS State of Charge (if applicable) and equipment conditions. This is used as upper limit for Company Dispatch.

- For Variable Energy Resources: max level the variable generation resources can produce under present variable resource and equipment conditions.

- Minimum Sustained Limit: Minimum output level the Facility can be reduced to continuously without delay (ecomn). For projects with BESS: If BESS charging from the grid is permitted, and charging capacity is available, this will be a negative value.

- Minimum Transient Limit (for frequency response, regulation) (lfcmn). For projects with BESS: If BESS charging from the grid is permitted, and charging capacity is available, this will be a negative value.

- Maximum Dispatchable Ramp Rate: Controlled ramp rate available for controlled changes in output.

- For projects with a BESS, Seller shall also provide the following:

- BESS potential (BESS State of Charge and projected number of hours at present dispatch, minimum dispatch, and maximum dispatch).
- Frequency Response Mode (DROOP, FFR, isochronous) state (where alternate modes of operation are required).
- Capacity allocation to each mode of operation (to allow FFR and Droop allocation).

**(ix)** Seller shall not override Company’s active power controls without first obtaining specific approval to do so from the Company System Operator unless there is a system emergency. Disabling of the remote Active Power Control shall initiate telemetry notification to the Company.

**(x)** The requirements of the Active Power Control Interface may be modified as mutually agreed upon in writing by the Parties.

**Active Power Communications between Company and Seller**

Company will receive and send AGC Set-Point and related data through the communications interface in accordance with Company standards. The data points covered under this Agreement, as described below, may overlap with data requirements described elsewhere.

**AGC Data Points to be sent from Seller to Company via SCADA**

The following data points will be transmitted via SCADA from Seller to Company and represent Facility level data **[Note: May be modified based on resource type and Facility requirements]:**

<u>Description</u>	<u>Units</u>
AGC Set-Point (echo)	MW
Power demand	MW
Actual power	MW

Power Possible	MW
Actual reactive power	Mvars
Average Voltage	Kv
Variable Generation potential	MW
[Wind only] Number of turbines online and running	Integer
BESS State of Charge	Pct
[PV only] Inverters online	Integer
Facility duration at current output	HRS
AGC Status	Remote/Local
[For facilities with alternate modes of frequency response] Indication of Frequency Response Mode	Integer FFR, Droop, ISOCH

**Response times and limitations of Facility in regards to Active Power Control**

The following protocols outline the expectations for responding to the AGC Set-Point.

Frequency of Changes. Company may send a new AGC Set-Point to the Facility at up to the AGC control cycle (present 4 seconds).

Range of AGC Set-Point. The range of set point values can be between 0% and 100% of Power Possible. For projects offering grid-charging storage, negative set-point values may be required.

**Backup Communications**

In the event of an AGC failure, Company and Seller shall communicate via telephone, or other method mutually agreeable between the Parties, in order to correct the failure

**(xi) Active Power - Frequency Response (DROOP).** The Facility shall provide a primary frequency response with a frequency droop characteristic reacting to

system frequency at the Point of Interconnection in both the overfrequency and underfrequency directions except as limited by the minimum and maximum available capacity and energy potential at the time of the event including BESS state of charge. This response must be timely and sustained rather than injected for a short period and then withdrawn. For over-frequency events, response may include absorption through charging (as applicable under the terms of this Agreement). Seller shall provide minimum operational limits for each online resource and the Facility for primary frequency response.

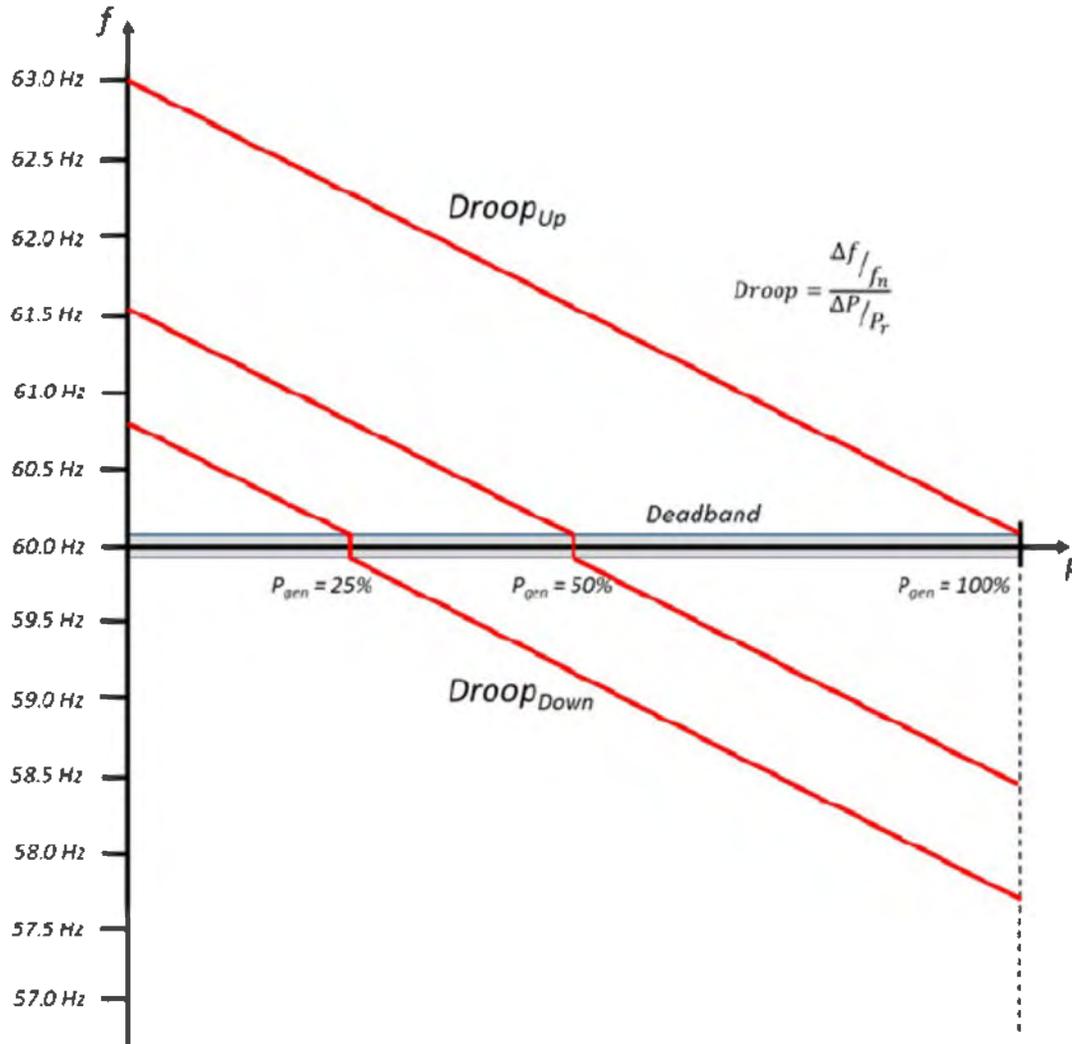
Frequency will be calculated over a period of time (e.g., three to six cycles, or other period as specified by Company), and filtered to take control action on the fundamental frequency component of the calculated signal. Calculated frequency may not be susceptible to spikes caused by phase jumps on the Company system.

The active power-frequency control system, and overall response of the inverter-based resource (plant), must meet the following performance aspects (see figure below):

The active power-frequency control system shall have an adjustable proportional droop characteristic with a default value of [4%] percent. The droop setting shall permit a setting from 0.1% to 10%. This setting shall be changed upon Company's written request as necessary for grid droop response coordination. The droop setting shall be tunable and may be specified during commissioning. The droop shall be a permanent value based on Pmax (maximum nominal active power output of the plant) and Pmin (typically 0 for an inverter based resource). This keeps the proportional droop constant across the full range of operation. The curve for an inverter-based BESS may include the negative active power quadrant of this curve. The droop response must include the capability to respond in both the upward (underfrequency) and downward (overfrequency) directions. Frequency droop will be based on the difference between maximum nameplate active power output (Pmax) and zero output (Pmin) such that the [4%] percent droop line is always constant for a resource.

Seller shall make commercially reasonable efforts to provide frequency response without a deadband, but in any case, not to exceed +/- 0.0166 Hz. If the active power-frequency control system has a deadband, it shall be a nonstep deadband that is adjustable between 0 Hz and the full frequency range of the droop characteristic with a default value not to exceed  $\pm 0.036$  Hz. (Nonstep deadband is where the change in active power output starts from zero deviation on either side of the deadband.) (Frequency deadband is the range of frequencies in which the unit does not change active power output.)

Inverter-based resources may consider a small hysteresis characteristic where linear droop meets any deadband to reduce dithering of inverter output when operating near the edges of the deadband. The hysteresis range may not exceed  $\pm 0.005$  Hz on either side of the deadband. If measurement resolution is not sufficient to measure this frequency, hysteresis may not be used.



**Active Power - Frequency Control Characteristic**

Nominal System Frequency is 60.00 Hz.

The closed-loop dynamic response of the active power-frequency control system of the overall inverter-based resources, as measured at the POI must have the capability to meet or exceed the performance specified in below. Seller shall ensure that the models and parameters for the resources and control equipment are consistent with those provided during the IRS process and that any updates have been provided to the Company reflecting currently implemented settings and configuration.

**(xii) Dynamic Active Power-Frequency Performance.** For a step change in frequency at the point of measure of the inverter-based resource **[NOTE - MAY BE ADJUSTED AS THE RESULT OF IRS]:**

Reaction time: The time between a step change in frequency and the

time when the resource active power output begins responding to the change shall be less than 500 Ms, or as otherwise specified by Company.<sup>1</sup>

Rise time: The time when the resource has reached 90% of the new steady-state (target) active power output shall be less than 4 seconds, or as otherwise specified by Company.<sup>2</sup>

Settling Time: Time in which the resource has entered into, and remains within, the settling band of the new steady-state active power (target) output shall be less than 10 seconds, or as otherwise specified by Company.

Overshoot: Percentage of the rated active power output that the resource can exceed while reaching the settling band shall be less than 5% or as otherwise specified by Company.<sup>3</sup>

Settling Band: Percentage of rated active power output that the resource should settle to within the settling time shall be less than 2.5%.

When operating in parallel with the Company System, the Facility shall operate with its primary frequency response control in automatic operation and in accordance with Company directions. Notification of changes in the status of the frequency response controls and, where applicable, mode of operation must be provided to the Company System Operator immediately through SCADA telemetry indication.

The Facility frequency response control shall adjust, without intentional delay and without regard to the ramp rate limits in **Section 3(c)** (Ramp Rates) of this **Attachment B** (Facility Owned by Seller), the Facility's net real power export based on frequency deadband and frequency droop settings specified by the Company.

The Facility frequency response control shall increase the net real power export above the Power Reference Setpoint set under **Section 1(g)(viii)** of this **Attachment B** (Facility Owned by Seller) or further decrease the net real power export from the Power Reference Limit in its operations in accordance with the frequency response settings.

The Facility frequency response control shall be in continuous operation unless directed otherwise by the Company.

**(xiii) [FOR FACILITIES WITH STORAGE] Alternate Active Power / Frequency Response Modes.** The Facility will provide the capability to supply isochronous or fast frequency response modes of operation, in addition to normal droop, which can be set remotely or locally. The control design shall allow for a

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<sup>1</sup> Time between step change in frequency and the time to 10 percent of new steady-state value can be used as a proxy for determining this time.

<sup>2</sup> Percentage based on final (expected) settling value.

<sup>3</sup> Percentage based on final (expected) settling value.

bumpless transfer between modes of operation.

**A.** Fast Frequency Response (FFR): This mode of operation will permit the Facility to respond to system frequency disturbances with a fast charge/discharge response in accordance with the fast frequency response droop settings. In this mode of operation, the Facility frequency response is configured to provide fast frequency response, as an alternative setting to the normal steady-state frequency response. When in this mode of operation, the frequency droop characteristics are configured to charge or discharge with a different set of parameters to allow for a faster and larger proportional charge and discharge in response to frequency changes outside of the configurable deadband. The initial parameter settings will be specified by Company following the IRS and additional tuning and adjustment of configurable parameters may be required based on review of response to actual system events. When in FFR mode, when system frequency is within the fast frequency response deadband, the Facility will operate to maintain a percentage state of charge, which is configurable on Company request (i.e., 50%) managed at a charging/discharging rate, also specified by Company.

**(1)** When in FFR mode the active power-frequency control system shall have an adjustable FFR proportional droop characteristic with a default value of [1%] percent. The FFR droop setting shall permit a setting from 0.1% to 5%. This setting shall be changed upon Company's written request as necessary for fast frequency response coordination. The FFR droop shall be a permanent value based on Pmax (maximum nominal active power output of the plant) and Pmin (typically 0 for an inverter-based resource). This keeps the proportional droop constant across the full range of operation. The curve for an inverter-based BESS may include the negative active power quadrant of this curve. The droop response must include the capability to respond in both the upward (underfrequency) and downward (overfrequency) directions. Frequency droop will be based on the difference between maximum nameplate active power output (Pmax) and zero output (Pmin) such that the [1%] percent droop line is always constant for a resource.

**(2)** When in FFR mode the active power-frequency control system shall have an adjustable frequency deadband with a default value of 0.3 Hz. The deadband setting shall permit a setting from 0.1 Hz to 1 Hz. This setting shall be changed upon Company's written request as necessary for fast frequency response coordination. The deadband setting shall be tunable and may be specified during commissioning. It shall be a nonstep deadband such that the change in active power output starts from zero deviation on either side of the deadband. (Frequency deadband is the range of frequencies in which the unit does not change active power output.)

**(3)** FFR-1 Performance Requirements – Expected FFR Active Power-Frequency Performance. For a step change in frequency at the point of measure of the FFR resource:

Reaction time: The time between a step change in frequency and the time when the resource active power output begins responding to the change shall be less than

50 milliseconds, or as otherwise specified by Company.<sup>4</sup>

Rise time: The time when the resource has reached 90% of the new steady-state (target) active power output shall be less than 0.133 seconds, or as otherwise specified by Company.<sup>5</sup>

Settling Time: Time in which the resource has entered into, and remains within, the settling band of the new steady-state active power (target) output shall be less than 500 milliseconds, or as otherwise specified by Company.

Overshoot: Percentage of the rated active power output that the resource can exceed while reaching the settling band shall be less than 5% or as otherwise specified by Company.<sup>6</sup>

Settling Band: Percentage of rated active power output that the resource should settle to within the settling time shall be less than 2.5%.

A.B. Isochronous / Black Start: The Facility will be capable of operating in a zero droop (isochronous) mode of operation. When in this mode of operation, the frequency droop characteristic will be configured as needed to keep system frequency at a target. In a black start configuration, the target shall be 60 Hz. If isochronous is specified while in operation, the target shall be initialized to the grid frequency and the target increased or decreased from the Company System through the control interface.

**(h) Control System Acceptance Test Procedures.**

**(i) Conditions Precedent.** The following conditions precedent must be satisfied prior to conducting the Control System Acceptance Test:

- Successful completion of the Acceptance Test;
- Facility has been successfully energized;
- All of the Facility's generators (as applicable) have been fully commissioned;
- The control system computer has been programmed for normal operations; and
- All equipment that is relied upon for normal operations (including ancillary devices such as capacitors/inductors, energy storage device,

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<sup>4</sup> Time between step change in frequency and the time to 10 percent of new steady-state value can be used as a proxy for determining this time.

<sup>5</sup> Percentage based on final (expected) settling value.

<sup>6</sup> Percentage based on final (expected) settling value.

statcom, etc.) shall have been commissioned and be operating within normal parameters.

**(ii) Facility Energy Equipment.** In the event that all or any portion of the Facility's energy equipment is not available for the duration of the Control System Acceptance Test, the Control System Acceptance Test will have to be re-run from the beginning unless Seller demonstrates to the satisfaction of the Company that the test results attained are consistent with the results that would have been attained if all of the equipment had been available for the duration of the test.

**(iii) Procedures.** The Control System Acceptance Test will be conducted on Business Days during normal working hours on a mutually agreed upon schedule. No Control System Acceptance Test will be scheduled during the final 21 Days of a calendar year. No later than thirty (30) Days prior to conducting the Control System Acceptance Test, Company and Seller shall agree on a written protocol setting out the detailed procedure and criteria for passing the Control System Acceptance Test. **Attachment O** (Control System Acceptance Test Criteria) provides general criteria to be included in the written protocol for the Control System Acceptance Test. Within fifteen (15) Business Days of completion of the Control System Acceptance Test, Company shall notify Seller in writing whether the Control System Acceptance Test(s) has been passed and, if so, the date upon which such Control System Acceptance Test(s) was passed. If any changes have been made to the technical specifications of the Facility or the design of the Facility in accordance with **Section 8(b) of Attachment A** (Description of Storage Facility), such changes shall be reflected in an amendment to this Agreement, and the written protocol for the Control Systems Acceptance Test shall be based on the Facility as modified. Such amendment shall be executed prior to conducting the Control System Acceptance Test and Company shall have no obligation for any delay in performing the Control Systems Acceptance Test due to the need to complete and execute such amendment.

**(i) Facility Security and Maintenance.** Seller is responsible for securing the Facility. Seller shall have personnel available to respond to all calls related to security incidents and shall take commercially reasonable efforts to prevent any security incidents. Seller is also responsible for maintaining the Facility, including vegetation management, to prevent security breaches. Seller shall comply with all commercially reasonable requests of Company to update security and/or maintenance if required to prevent security breaches.

**(j) Demonstration of Facility.** Company shall have the right at any time, other than during maintenance or other special conditions communicated by Seller, to notify Seller in writing of Seller's failure, as observed by Company and set forth in such written notice, to meet the operational and performance requirements specified in **Section 4.6 (Fast Frequency Response Performance Metric) of this Agreement, and Section 1(b)(iii)(I), Section 1(g)** (Active Power Control Interface) and **Section 3** (Performance Standards) of this **Attachment B** (Facility Owned by Seller), and to require documentation or testing to verify compliance with such requirements. Upon receipt of such notice, Seller shall promptly investigate the matter, implement corrective action and provide to Company, within thirty (30) Days of such notice, a written report of both the results of such investigation and the corrective action taken by Seller; provided, that, if thirty (30) Days is not a reasonable time period to

investigate the matter, implement corrective action and provide such written report, Seller shall complete the foregoing within such longer commercially reasonable period of time agreed to by the Parties in writing. If the Seller's report does not resolve the issue to Company's reasonable satisfaction, the Parties shall promptly commission a study to be performed by one of the engineering firms then included on the Qualified Independent Third-Party Consultants List attached to the Agreement as **Attachment D** (Consultants List) to evaluate the cause of the non-compliance and to make recommendations to remedy such non-compliance. Seller shall pay for the cost of the study. The study shall be completed within ninety (90) Days, unless the selected consultant determines such study cannot reasonably be completed within ninety (90) Days, in which case, such longer period of time as the selected consultant determines is necessary to complete such study shall apply. The consultant shall send the study to Company and Seller. Seller (and/or its third-party consultants and contractors), at Seller's expense, shall take such action as the study shall recommend with the objective of resolving the non-compliance. Such recommendations shall be implemented by Seller to Company's reasonable satisfaction no later than forty-five (45) Days from the Day the completed study is issued by the consultant, unless such recommendations cannot reasonably be implemented within forty-five (45) Days, in which case, Seller shall implement such recommendations within such longer commercially reasonable period of time agreed to by the Parties in writing. Failure to implement such recommendations within this period shall constitute a material breach of this Agreement. Unless the aforementioned written report and study are being completed, and any recommendations are being implemented, solely to address Seller's failure to satisfy the requirements of **Section 3(w)** (Round Trip Efficiency) of this **Attachment B** (Facility Owned by Seller), Company shall have the right to declare the Facility derated and in Seller-Attributable Unavailability status until the Seller's aforementioned written report has been completed, any subsequent study commissioned by the Parties has been completed and any recommendations to resolve the non-compliance have been implemented to Company's reasonable satisfaction.

**2. Operating Procedures. [NOTE: NUMERICAL SPECIFICATIONS IN THIS SECTION 2 MAY VARY DEPENDING ON THE SPECIFIC PROJECT AND THE RESULTS OF THE PROJECT-SPECIFIC IRS.]**

**(a) Reviews of the Facility.** Company may require periodic reviews of the Facility, maintenance records, available operating procedures and policies, and relay settings, and Seller shall implement changes Company deems necessary for parallel operation or to protect the Company System from damages resulting from the parallel operation of the Facility with the Company System.

**(b) Separation.** Seller must separate from the Company System whenever requested to do so by the Company System Operator pursuant to **Article 12** (Dispatching and Charging the Facility; Scheduling) and **Article 16** (Personnel and System Safety) of the Agreement.

**(c) Seller Logs.** Logs shall be kept by Seller for information on unit availability including reasons for planned and forced outages, circuit breaker trip operations, relay operations, including target initiation, and other unusual events. Company shall have the right to review these logs, especially in analyzing system disturbances. Seller shall maintain such records for a period of not less than six (6)

years.

**(d) Reclosing and Return to Service.** Under no circumstances shall Seller, when separated from the Company System for any reason, including tripping during disturbances or due to equipment failure, reclose into the Company System without first obtaining specific approval to do so from the Company System Operator. Ramp rates, behavior and mode of operation upon return to service shall conform to verbal instructions from the System Operator or Active Power control from Company. Following “system black” conditions, the Facility shall not attempt to automatically reconnect to the grid (unless directed by the Company System Operator) so as to not interfere with blackstart procedures.

**(e) Reserved.**

**(f) Reserved.**

**(g) Critical Infrastructure Protection.** Seller shall comply with the critical infrastructure protection requirements set forth in **Section 1(b)(iii)(G)** of this **Attachment B** (Facility Owned by Seller).

**(h) Allowed Operations.** Facility shall be allowed to export energy to the Company System only when the [\_\_\_\_\_] circuit is in normal operating configuration served by breaker [\_\_\_\_\_] at [\_\_\_\_\_] Substation. **[TO BE DETERMINED BY COMPANY BASED ON THE RESULTS AND REQUIREMENTS OF THE IRS.]**

### **3. Performance Standards.**

**(a) Reactive Power Control.** Seller shall control its reactive power by automatic voltage regulation control. Seller shall automatically regulate voltage at a point, the point of regulation, between the Seller’s generator terminal and the Point of Interconnection to be specified by Company, to within 0.5% of a voltage or power factor specified by the Company System Operator to the extent allowed by the Facility reactive power capabilities as defined in **Section 3(b)** (Reactive Power Characteristics) of this **Attachment B** (Facility Owned by Seller)

**(b) Reactive Power Characteristics. [THESE REQUIREMENTS MAY BE CHANGED BY COMPANY UPON COMPLETION OF THE IRS.]**

**(i)** The Facility must deliver power up to the Allowed Capacity (MW) at a power factor between 95% lagging and 95% leading to the Company System as illustrated in the **[generator capability]** curve(s) attached to this Agreement as **Exhibit B-2**, which represents the Facility Composite (Generator and Energy Storage Capability Curve(s)). Facilities with a BESS with grid charging can operate with negative active power. These facilities shall provide automatic voltage control within their reactive capability while acting as a load (charging, negative active power generation). The automatic voltage control aspects of a BESS shall be seamless across the transition from acting as a generating resource to acting as a load. The Facility must be capable of automatically adjusting reactive control to maintain the bus voltage at the Point of Interconnection to meet the scheduled voltage set point target specified by the Company System Operator and be capable of supplying reactive power

at the leading/lagging 0.95 power factor at all active power outputs down to zero active power. The voltage target will be specified remotely by the Company System Operator through the SCADA/EMS. The Facility's voltage set point target must reflect the Company voltage set point target controlled from the SCADA/EMS, without delay. The Facility should not normally operate on a fixed var or fixed power factor unless agreed by Company. The voltage setpoint target and present Facility minimum and maximum reactive power limits based on the Facility Composite capability curve shall be provided to the Company EMS through Company's Telemetry and Control.

**(ii)** The Facility shall contain equipment able to continuously and actively control the output of reactive power under automatic voltage regulation control reacting to system voltage changes. The response requirements are differentiated for large and small signal disturbance performance characteristics. Small signal disturbances are those that reflect normal variations under non-disturbance conditions, the continuous operation range for voltage ride through:  $0.80 \text{ pu} \leq V \leq 1.00 \text{ pu}$  at the point of interconnection. Large disturbance is where the voltage at the point of interconnection falls outside the continuous operating range.

**(iii)** For small signal disturbances, reaction time between the step change in voltage and the reactive power change shall be less than 500 msec (no intentional time delay). The automatic voltage regulation response speed at the point of regulation shall be such that at least 90% of the initial voltage correction needed to reach the voltage control target will be achieved within 1 second following a step change. The percentage of rated reactive power output that the resource can exceed while reaching the settling band shall be less than five percent (5%).

**(iv)** Large disturbances: Large disturbances are characterized by voltage falling outside of the continuous operating range. The Facility shall adhere to the following characteristics for large disturbances:

The response of each generating resource over its full operating range and for all expected grid conditions should be stable. The dynamic performance of each resource should be tuned to provide this stable response. Company will work with Seller to ensure during the interconnection process that each resource supports Company System reliability and provides a stable transient response to grid events. **[Note - The performance specifications described here may need to be modified based on studies performed for specific interconnections to provide a stable response.]**

Inverter-based resources shall operate in closed loop automatic voltage control at all times to support voltage regulation and voltage stability. Either the individual inverters or the plant-level closed loop automatic voltage controller must operate with a relatively fast response characteristic to mitigate steady-state voltage issues from causing dynamic voltage collapse. The plant-level controller may send voltage or reactive power set point changes to the individual inverters relatively fast, or the inverters will respond locally (depending on control architecture).

For a large disturbance step in voltage, measured at the inverter terminals, where voltage falls outside the continuous operating range, the positive sequence component of the inverter reactive current response must meet the performance specifications set forth below. These parameters may be adjusted following additional study and/or operational testing and performance.

Reaction time: Time between the step change in voltage and when the resource reactive power output begins responding to the change. The reaction time shall be less than 16 msec.

Rise time: Time between a step change in control signal input and when the reactive power output changes by 90 percent of its final value. The rise time shall be less than 100 msec.

Overshoot: Percentage of rated reactive current output that the resource can exceed when reaching the settling band. Overshoot will be determined following the IRS such that any overshoot in reactive power response does not cause Company System voltages to exceed acceptable voltage limits. The magnitude of the dynamic response may be requested to be reduced based on stability studies or actual operational data review.

**(v)** If the Facility does not operate in accordance with **Section 3(b)** (Reactive Power Characteristics) of this **Attachment B** (Facility Owned by Seller), Company may disconnect all or a part of Facility from Company System until Seller corrects its operation (such as by installing supplemental reactive power equipment or additional controls modifications, at Seller's expense).

**(c) Ramp Rates.** Seller shall ensure that the ramp rate of the Facility is less 2 MW a minute for all conditions other than those under control of the Company System Operator and/or those due to desired frequency response, including start up, depletion of storage charge and resource, locally controlled startup and shut down.

**(d) Ride-Through.** Ride-Through requires that the resource continues to inject current within the "No Trip" zone of the voltage and frequency ride-through requirements. Unless approved during the Interconnection Requirements Study analysis, resources should not use "momentary cessation" within the ride-through regions for any of the ride-through requirements in this **Attachment B** (Facility Owned by Seller).

**(e) Undervoltage Ride-Through.** The Facility, as a whole, will meet the following undervoltage ride-through requirements during low voltage affecting one or more of the three voltage phases ("V" is the voltage of any three voltage phases at the Point of Interconnection). For alarm conditions the Facility shall not disconnect from the Company System unless the Facility's equipment is at risk of damage. This is necessary in order to coordinate with the existing Company System. **[THESE VALUES MAY BE CHANGED BY COMPANY UPON COMPLETION OF THE IRS. WITHOUT LIMITATION, FOR A DISTRIBUTION-CONNECTED FACILITY, UPON COMPLETION OF THE IRS THE COMPANY MAY SPECIFY REQUIREMENTS FOR A MANDATORY**

**DISCONNECTION FROM THE COMPANY SYSTEM.]:**

- |                                 |   |
|---------------------------------|---|
| 0.80 pu $\leq$ V $\leq$ 1.00 pu | The Facility remains connected to the Company System and in continuous operation.   |
| 0.00 pu $\leq$ V < 0.80 pu      | The Facility remains connected to the Company System and in continuous operation for a minimum of 600 milliseconds per event (while “V” remains in this range). The Facility may initiate an alarm if “V” remains in this range for more than 600 milliseconds; the duration of the event is measured from the point at which the voltage drops below 0.80 pu and ends when the voltage is at or above 0.80 pu. The 600 milliseconds represents a delayed clearing time of 30 cycles plus breaker opening time. |

Protective Undervoltage Relaying (27) shall be set to alarm only to meet the above ride-through requirements, and shall not initiate a disconnect from the Company System unless Seller reasonably determines based upon Good Engineering and Operating Practices that the Facility’s equipment is at risk of damage. This is necessary in order to coordinate with the existing Company System.

Seller shall have sufficient capacity to fulfill the above mentioned requirements to ride-through subsequent events 300 cycles or more apart, between which the voltage at the POI recovers above 0.80 pu. **[THE ACTUAL RIDE-THROUGH TIMES WILL BE DETERMINED BY COMPANY IN CONNECTION WITH THE IRS]**

**(f) Over Voltage Ride-Through.** The overvoltage protection equipment at the Facility shall be set so that the Facility will meet the following overvoltage ride-through requirements during high voltage affecting one or more of the three voltage phases (as described below) (“V” is the voltage of any of the three voltage phases at the Point of Interconnection). For alarm conditions the Facility should not disconnect from the Company System unless the Facility’s equipment is at risk of damage. This is necessary in order to coordinate with the existing Company System. **[THESE VALUES MAY BE CHANGED BY THE COMPANY UPON COMPLETION OF THE IRS. WITHOUT LIMITATION, FOR A DISTRIBUTION-CONNECTED FACILITY, UPON COMPLETION OF THE IRS THE COMPANY MAY SPECIFY REQUIREMENTS FOR A MANDATORY DISCONNECTION FROM THE COMPANY SYSTEM AT V > 1.2 pu. RIDE-THROUGH REQUIREMENTS FOR OTHER SYSTEMS WILL BE DETERMINED IN THE IRS.]:**

- |                            |   |
|----------------------------|---|
| 1.00 pu < V $\leq$ 1.10 pu | The Facility remains connected to the Company System.   |
| 1.10 pu < V $\leq$ 1.15 pu | The Facility remains connected to the Company System and in continuous operation no less than 30 seconds; the duration of the event is measured from the point at which the voltage increases at or above 1.1 pu and ends when voltage is at or below 1.1 pu. |

$V > 1.15 \text{ pu}$

The Facility remains connected to the Company System and in continuous operation for as long as possible as allowed by the equipment operational limitations.

Protective Overvoltage Relaying (59) shall be set to alarm only to meet the above ride-through requirements, and shall not initiate a disconnect from the Company System unless Seller reasonably determines based upon Good Engineering and Operating Practices that the Facility's equipment is at risk of damage. This is necessary in order to coordinate with the existing Company System.

**(g) Transient Stability Ride-Through.** The Facility shall be designed such that the transient stability of Company System is maintained for normally cleared and secondarily cleared faults. The Facility will be required to remain connected through anticipated rates of change of frequency **[TO BE PROVIDED UPON COMPLETION OF IRS]**.

**(h) Reserved.**

**(i) Underfrequency Ride-Through.** The Facility shall meet the following underfrequency ride-through requirements during an underfrequency disturbance, and export of power shall continue with output adjusted as appropriate for Facility droop response consistent with **Section 1(g)(xi)** (Active Power – Frequency Response (DROOP)), **Section 1(g)(xii)** (Dynamic Active Power – Frequency Performance), and **[FOR FACILITIES WITH STORAGE] Section 1(g)(xiii)** (Alternate Active Power / Frequency Response Modes) of this **Attachment B** (Facility Owned by Seller) (“f” is the Company System frequency at the Point of Interconnection):

$57.0 \text{ Hz} \leq f \leq 60.0 \text{ Hz}$

The Facility remains connected to the Company System and in continuous operation.

$56.0 \text{ Hz} \leq f \leq 57.0 \text{ Hz}$

The Facility remains connected to the Company System and in continuous operation for at least six (6) seconds per event. The duration of the event is from the point at which the frequency is below 57 Hz and ends when the frequency is at or above 57 Hz. The Facility may initiate an alarm if frequency remains in this range for more than six (6) seconds.

$f < 56.0 \text{ Hz}$

The Facility remains connected to the Company System and in continuous operation for the duration allowed by the equipment operational limitations. The Facility may initiate an alarm immediately.

Protective Underfrequency Relaying (81U) shall be set to alarm only to meet the above ride-through requirements, and shall not initiate a disconnect from the Company System unless Seller reasonably determines based upon Good Engineering and Operating Practices that the Facility's equipment is at risk of damage. This is necessary in order to coordinate with the existing Company System.

Any tripping on calculated frequency should be based on accurately calculated and filtered frequency measurement over a time frame of minimum six cycles, or other period as specified by the Company, and should not use an instantaneously calculated value.

**(j) Overfrequency Ride-Through.** The Facility will behave as specified below for overfrequency conditions, and export of power shall continue with output adjusted as appropriate for Facility droop response consistent with **Section 1(g)(xi)** (Active Power – Frequency Response (DROOP)), **Section 1(g)(xii)** (Dynamic Active Power – Frequency Performance), and **[FOR FACILITIES WITH STORAGE] Section 1(g)(xiii)** (Alternate Active Power / Frequency Response Modes) (“f” is the Company System frequency at the Point of Interconnection):

$60.0\text{ Hz} \leq f \leq 61.5\text{ Hz}$	The Facility remains connected to the Company System and in continuous operation.
$61.5\text{ Hz} < f \leq 63.0\text{ Hz}$	The Facility remains connected to the Company System for at least ten (10) seconds. After ten seconds the Facility may initiate an alarm and the Facility remains connected and producing power for the duration allowed by the equipment operational limitations. The duration of condition is from the point at which the frequency is above 61.5 Hz and ends when the frequency is at or below 63.0 Hz.
$f > 63.0\text{ Hz}$	The Facility remains connected to the Company System for the duration allowed by the equipment operational limitations. The Facility may initiate an alarm immediately.

Protective Overfrequency Relaying (81O) shall be set to alarm only to meet the above ride-through requirements, and shall not initiate a disconnect from the Company System unless Seller reasonably determines based upon Good Engineering and Operating Practices that the Facility’s equipment is at risk of damage. This is necessary in order to coordinate with the existing Company System.

Any tripping on calculated frequency should be based on accurately calculated and filtered frequency measurement over a time frame of minimum six cycles, or other period as specified by the Company, and should not use an instantaneously calculated value.

**(k) Successive Faults.** If the resource necessitates tripping to protect from the cumulative effects of those successive faults, in a period of time to ensure safety and equipment integrity, the constraint and time periods should be provided for inclusion in the interconnection study. For all cases, at a minimum, the ride-through requirements shall be met for two ride-through events within two seconds to allow for the Company’s transmission automatic reclosing attempt. **[Note - this requirement may be modified based on the results of the IRS.]**

**(l) Rate of Change of Frequency (“ROCOF”).** The inverter-based

resources in the Facility shall not use rate-of-change-of-frequency protection unless an equipment limitation exists that requires the inverter to trip on high ROCOF. Any ROCOF tripping must be approved by Company.

**(m) Phase Angle Shift Ride-Through.** The Facility equipment shall ride through phase angle shift of up to ( ) **[Note – requirements will depend on Facility]**. Inverter phase lock loop (PLL) loss of synchronism shall not cause the inverter to trip or enter momentary cessation within the voltage and frequency ride-through region. Inverters must be capable of riding through temporary loss of synchronism, and regain synchronism, without causing a trip or momentary cessation of the resource.

**(n) DC Protection.** If the Facility requires DC reverse current protection, such protection must be coordinated with the inverter equipment module ratings and set to operate for short circuits on the DC side. DC reverse current protection shall not operate for transient overvoltage or for AC-side faults.

**(o) Voltage Flicker.** Any voltage flicker on the Company System caused by the Facility shall not exceed the limits stated in IEEE Standard 1453-2011, or latest version “Recommended Practice – Adoption of IEC 61000-4-15:2010, Electromagnetic compatibility (EMC) – Testing and measurement techniques – Flickermeter – Functional and design specifications.”

**(p) Harmonics.** Harmonic distortion at the Point of Interconnection caused by the Facility shall not exceed the limits stated in IEEE Standard 519-1992, or latest version “Recommended Practices and Requirements for Harmonic Control in Electrical Power Systems.” Seller shall be responsible for the installation of any necessary controls or hardware to limit the voltage and current harmonics generated from the Facility to defined levels.

**(q) Grid Forming Capabilities. [NOTE APPLICABILITY BASED ON RESOURCE TYPE AND DESIGN, FOR INVERTER BASED RESOURCES]** Seller Facility inverters shall be capable of operating in grid forming mode supporting system operation under normal and emergency conditions without relying on the characteristics of synchronous machines. This includes operation as a current independent ac voltage source during normal and transient conditions (as long as no limits are reached within the inverter) and the ability to synchronize to other voltage sources or operate autonomously if a grid reference is unavailable.

**(i)** Seller shall operate the Facility in grid forming mode only as directed by the Company System Operator, in its sole discretion. Such mode of operation shall be indicated to the Company System Operator through telemetry.

**(ii)** The Facility shall include safeguards to prevent the unintentional switching of the Facility into and out of grid forming mode. The safeguards shall be approved in writing by the Company and implemented by the Seller prior to control system testing.

**(r) Black Start Capability. [NOTE - APPLICABILITY BASED ON RESOURCE TYPE AND DESIGN, FOR INVERTER BASED RESOURCES]** [For

synchronous machines, require capability to operate in isochronous control and black start.] The BESS storage shall be capable of grid forming inverter capability so it can generate its own AC waveform rather than relying on a grid voltage to synchronize and maintain frequency. Further, inverter-based resources shall ensure they have sufficient energy storage to maintain power injection to the grid during system restoration (i.e., have power available when and if called upon). Inverter based facilities should be capable of support as a black start cranking path to start synchronous generators for restoration.

**(s) Provision of Synthetic Inertia. [TO BE DETERMINED BASED ON IRS.]**

**(t) Generator Step-Up Transformer Impedance.** The generator step-up transformer impedance shall be between [ ] percent and [ ] percent, inclusive, on transformer OA rating. **[NOTE: THESE VALUES WILL BE BASED ON THE RESULTS OF THE IRS.]**

**(u) Control Systems and Auxiliary Equipment.** The power source for control systems and auxiliary equipment required for normal operation of the Facility shall be designed to be immune from system transients in accordance with the Public Utilities Commission of the State of Hawaii tariff for [Maui Electric Company, Ltd./Hawaii Electric Light Company, Inc.] Rule No. 2, Character of Service (Revised Sheet No. 5, effective Oct. 20, 1991) and Section 3.2(A)(6) (Facility Protection and Control Equipment) to meet the performance during under/over voltage and under/over frequency conditions pursuant to **Section 3(e)** (Undervoltage Ride-Through), **Section 3(f)** (Over Voltage Ride-Through), **Section 3(i)** (Underfrequency Ride-Through) and **Section 3(j)** (Overfrequency Ride-Through) of this **Attachment B** (Facility Owned by Seller).

**(v) Frequency Response.** Seller shall comply with the requirements of **Section 1(g)(xi)** (Frequency Response (DROOP)), **Section 1(g)(xii)** (Dynamic Active Power – Frequency Performance), and **[FOR FACILITIES WITH STORAGE] Section 1(g)(xiii)** (Alternate Active Power / Frequency Response Modes) of this **Attachment B** (Facility Owned by Seller).

**(w) Round Trip Efficiency.** The round trip efficiency of the BESS as measured at the Point of Interconnection shall be not less than [ ] percent ([ ]%). **[Note – The percentage for round trip efficiency shall be taken from Seller’s RFP Proposal.]**

#### **4. Maintenance of Seller-Owned Interconnection Facilities.**

**(a)** Seller must address any Disconnection Event (as defined below) according to the requirements of this **Section 4** (Maintenance of Seller-Owned Interconnection Facilities) of **Attachment B** (Facility Owned by Seller). For the purposes of this **Section 4** (Maintenance of Seller-Owned Interconnection Facilities), a **“Disconnection Event”** is the removal of [7.5 MW][or 100% of capacity for facilities with capacity less than 7.5 MW] or more from Company System and/or disconnection of the Facility from the Company’s System (i) that is not the result of Company dispatch, frequency droop response, or isolation of the Facility resulting from designed

protection fault clearing, and (ii) for which Company does not issue the written notice for failure to meet operational and performance requirements as set forth in **Section 1(j)** (Demonstration of Facility) of this **Attachment B** (Facility Owned by Seller). Company's election to exercise its rights under **Section 1(j)** (Demonstration of Facility) shall not relieve Seller of its obligation to comply with the requirements of this **Section 4** (Maintenance of Seller-Owned Interconnection Facilities) for any future Disconnection Event during the pendency of such election or thereafter.

**(b)** For every Disconnection Event from the Company System, Seller shall investigate the cause. Within three (3) Business Days, Seller shall provide, in writing to Company, an incident report that summarizes the sequence of events and probable cause.

**(c)** Within forty-five (45) Days of a Disconnection Event, Seller shall provide, in writing to Company, Seller's findings, data relied upon for such findings, and proposed actions to prevent reoccurrence of a Disconnection Event ("**Proposed Actions**"). Company may assist Seller in determining the causes of and recommendations to remedy or prevent a Disconnection Event ("**Company's Recommendations**"). Seller shall implement such Proposed Actions (as modified to incorporate the Company's Recommendations, if any) and Company's Recommendations (if any) in accordance with the time period agreed to by the Parties.

**(d)** In the event Seller and Company disagree as to (i) whether a Disconnection Event occurred, (ii) the sequence of events and/or probable cause of the Disconnection Event, (iii) the Proposed Actions, (iv) Company's Recommendations, and/or (v) the time period to implement the Proposed Actions and/or Company's Recommendations, then the Parties shall follow the procedure set forth in **Section 5** (Expedited Dispute Resolution) of this **Attachment B** (Facility Owned by Seller).

**(e)** Upon the fourth (4th) Disconnection Event (and each subsequent Disconnection Event) within any Contract Year, the Parties shall follow the procedures set forth in **Section 4(a)** and **Section 4(d)** of **Attachment B** (Facility Owned by Seller), to the extent applicable. If after following the procedures set forth in this **Section 4** (Maintenance of Seller-Owned Interconnection Facilities) of **Attachment B** (Facility Owned by Seller), Seller and Company continue to have a disagreement as to (1) the probable cause of the Disconnection Event, (2) the Proposed Actions, (3) the Company's Recommendations, and/or (4) the time period to implement the Proposed Actions and/or the Company's Recommendations, then the Parties shall commission a study to be performed by a qualified independent third-party consultant ("**Qualified Consultant**") chosen from the Qualified Independent Third-Party Consultants List ("**Consultants List**") attached to the Agreement as **Attachment D** (Consultants List). Such study shall review the design of, review the operating and maintenance procedures dealing with, recommend modifications to, and determine the type of maintenance that should be performed on Seller-Owned Interconnection Facilities ("**Study**"). Seller and Company shall each pay for one-half of the total cost of the Study. The Study shall be completed within ninety (90) Days from such fourth Disconnection Event (and each subsequent Disconnection Event) within any Contract Year, unless the Qualified Consultant determines the Study cannot reasonably be completed within ninety (90) Days, in which case, such longer period of time as the Qualified Consultant determines is necessary to complete the Study shall apply. The

Qualified Consultant shall send the Study to Company and Seller. Seller (and/or its third-party consultants and contractors), at Seller's expense, shall change the design of, change the operating and maintenance procedures dealing with, implement modifications to, and/or perform the maintenance on Seller-Owned Interconnection Facilities recommended by the Study. Such design changes, operating and maintenance procedure changes, modifications, and/or maintenance shall be completed no later than forty-five (45) Days from the Day the completed Study is issued by the Qualified Consultant, unless such design changes, operating and maintenance procedure changes, modifications, and/or maintenance cannot reasonably be completed within forty-five (45) Days, in which case, Seller shall complete the foregoing within such longer commercially reasonable period of time agreed to by the Parties in writing. The Company shall have the right to derate the Facility to a level that maintains reliable operations in accordance with Good Engineering and Operating Practices, and the Facility shall be deemed to be in Seller-Attributable Unavailability status, until the study has been completed and the study's recommendations have been implemented by Seller to Company's reasonable satisfaction. Nothing in this provision shall affect Company's right to dispatch the Facility as provided for in this Agreement.

**(f)** The Consultants List attached hereto as **Attachment D** (Consultants List) contains the names of engineering firms which both Parties agree are fully qualified to perform the Study. At any time, except when a Study is being conducted, either Party may remove a particular consultant from the Consultants List by giving written notice of such removal to the other Party. However, neither Party may remove a name or names from the Consultants List without approval of the other Party if such removal would leave the list without any names. Intended deletions shall be effective upon receipt of notice by the other Party, provided that such deletions do not leave the Consultants List without any names. Proposed additions to the Consultants List shall automatically become effective thirty (30) Days after notice is received by the other Party unless written objection is made by such other Party within said thirty (30) Day period. By mutual agreement between the Parties, a new name or names may be added to the Consultants List at any time.

**5. Expedited Dispute Resolution.** If there is a disagreement between Company and Seller regarding (a) whether a Disconnection Event occurred, (b) the sequence of events and/or probable cause of the Disconnection Event, (c) the Proposed Actions, (d) the Company's Recommendations, and (e) the time period to implement the Proposed Actions and/or the Company's Recommendations, then authorized representatives from Company and Seller, having full authority to settle the disagreement, shall meet in Hawai'i (or by telephone conference) and attempt in good faith to settle the disagreement. Unless otherwise agreed in writing by the Parties, the Parties shall devote no more than five (5) Business Days to settle the disagreement in good faith. In the event the Parties are unable to settle the disagreement after the expiration of the time period, then such disagreement shall constitute a Dispute for which either Party may pursue the dispute resolution procedure set forth in **Section 26.2** (Dispute Resolution Procedures) of this Agreement.

**6. Modeling.**

**(a) Seller's Obligation to Provide Models.** Within thirty (30) Days of

Company's written request, but no later than the Commercial Operations Date, Seller shall provide detailed data regarding the design and location of the Facility, in a form reasonably satisfactory to Company, to allow the modeling of the inverters and any other equipment within the Facility identified in the IRS which utilizes Source Code (such as energy storage system, STATCOM or DVAR equipment), including, but not limited to, integrated and validated power flow and transient stability models (such as PSS/E models), a short circuit model (such as an ASPEN model), and an electro-magnetic transient model (such as a PSCAD model) of the inverters and any additional equipment identified in the IRS as set forth above, applied assumptions, and pertinent data sets (each a "**Required Model**" and collectively, the "**Required Models**"). Thereafter, during the Term, Seller shall provide working updates of any Required Model within thirty (30) Days of (i) Company's written request, or (ii) Seller obtaining knowledge or notice that any Required Model has been modified, updated or superseded by the Source Code Owner.

**(b) Escrow Establishment.** If, pursuant to **Section 6(a)** (Seller's Obligation to Provide Models) of this **Attachment B** (Facility Owned by Seller), the Required Models are provided to the Company in a form other than Source Code, Seller shall arrange for and ensure that the Source Code for the relevant Required Model is deposited into the Source Code Escrow as set forth below in **Section 6(b)(i)** (Source Code Escrow) of this **Attachment B** (Facility Owned by Seller) no later than the time periods set forth in **Section 6(a)** (Seller's Obligation to Provide Models) of this **Attachment B** (Facility Owned by Seller) for delivery of the Required Models. Seller shall be responsible for all costs associated with establishing and maintaining the Source Code Escrow. If, however, Seller is unable to deposit the required Source Code into the Source Code Escrow within the time periods set forth in **Section 6(a)** (Seller's Obligation to Provide Models), Seller shall, no later than such time periods, instead establish a monetary escrow as set forth below in **Section 6(b)(ii)** (Monetary Escrow) of this **Attachment B** (Facility Owned by Seller).

**(i) Source Code Escrow.**

**(A) Establishment of Source Code Escrow.** If the Required Models are not provided to the Company in the form of Source Code pursuant to **Section 6(a)** of this **Attachment B** (Facility Owned by Seller), Seller shall: (1) arrange for and ensure the deposit of a copy of the current version of the Source Code and relevant documentation for all Required Models with the Source Code Escrow Agent under the terms and conditions of the Source Code Escrow Agreement, and (2) arrange for and ensure the update of the deposited Source Code and relevant documentation for Major Releases and Minor Releases of the Required Models as soon as reasonably possible after they are made generally available.

**(B) Release Conditions.** Company shall have the right to obtain from the Source Code Escrow Agent one copy of the escrowed Source Code for the Required Models, under the following conditions upon Company's request:

**(1)** A receiver, trustee, or similar officer is appointed, pursuant to federal, state or applicable foreign law, for the Source Code Owner;

**(2)** Any voluntary or involuntary petition or proceeding

is instituted, under (a) U.S. bankruptcy laws or (b) any other bankruptcy, insolvency or similar proceeding outside of the United States, by or against the Source Code Owner;

**(3)** Failure of the Source Code Owner to function as a going concern or operate in the ordinary course; or

**(4)** Seller and the Source Code Owner fail to provide to Company the Required Models or updated Required Models, or, alternatively, fail to issue a Source Code LC, within the time periods set forth in **Section 6(a)** (Seller's Obligation to Provide Models) of this **Attachment B** (Facility Owned by Seller), Company gives written notice of such failure to Seller and the Source Code Owner, and Seller and Source Code Owner fail to remedy such breach within five (5) Days following receipt of such notice.

**(C) Remedies.** If Company has the right to obtain from the Source Code Escrow Agent one copy of the escrowed Source Code for the Required Models pursuant to **Section 6(b)(i)(B)** (Release Conditions) of **Attachment B** (Facility Owned by Seller), and Company finds that Seller failed to arrange for and ensure the update the Source Code Escrow with the modified and/or updated Source Code and relevant documentation for Major Releases and Minor Releases of the Required Models as provided in **Section 6(b)(i)** (Establishment of Source Code Escrow) of **Attachment B** (Facility Owned by Seller) or that the Source Code for the Required Models is incomplete or otherwise unusable, Seller shall be liable to Company for liquidated damages in the amount of \$500 per Day for each Day Seller fails to provide such Source Code to Company or such update to the Source Code to Company from the date such Major Release or Minor Release was first made available by the Source Code Owner to customers of the Source Code Owner. Failure to provide the updated Source Code of the Required Models within 30 Days' notice from Company of a breach of **Section 6(b)(i)(A)** (Establishment of Source Code Escrow) of **Attachment B** (Facility Owned by Seller); provided, that Seller has also failed to provide a satisfactory Source Code LC as set forth in **Section 6(b)(ii)** (Source Code Security) of this **Attachment B** (Facility Owned by Seller) shall constitute an Event of Default pursuant to **Section 6.2(f)** under the Agreement.

**(D) Certification.** The Source Code Escrow Agent shall release the Source Code of the Required Models to Company upon receipt of a signed statement by a representative of Company that reads substantially as follows:

The undersigned hereby certifies that (i) I am duly authorized to execute this document on behalf of Maui Electric Company, Limited ("**Maui Electric**"), and (ii) Maui Electric is entitled to a copy of the Source Code of the Required Models Pursuant to **Section 6(b)(i)(B)** (Release Conditions) of **Attachment B** (Facility Owned by Seller) of the Energy Storage Power Purchase Agreement dated as of \_\_\_\_\_, between \_\_\_\_\_, and Maui Electric.

**(E) Authorized Use.** If Company becomes entitled to a release of the Source Code of the Required Models from escrow, Company may thereafter

correct, modify, update and enhance the Required Models for the sole purpose of providing itself the support and maintenance it otherwise would have been entitled to if it had been provided the Required Models by Seller under **Section 6(a)** (Seller's Obligation to Provide Models) of this **Attachment B** (Facility Owned by Seller) (the "**Source Code Authorized Use**").

**(F) Confidentiality Obligations.** Company shall keep the Source Code of the Required Models confidential pursuant to the confidentiality obligations of the Source Code Escrow Agreement. Company shall restrict access to the Source Code of the Required Models to those employees, independent contractors and consultants of Company who have agreed in writing to be bound by confidentiality and use obligations consistent with those specified in the Escrow Agreement, and who have a need to access the Source Code of the Required Models on behalf of Company to carry out their duties for the Authorized Use. Promptly upon Seller's request, Company shall provide Seller with the names and contact information of all individuals who have accessed the Source Code of the Required Models, and shall take all reasonable actions required to recover any such Source Code in the event of loss or misappropriation, or to otherwise prevent their unauthorized disclosure or use.

**(ii) Source Code Security.**

**(A) Establishment of Source Code Security.** If the Required Models and their relevant Source Code are not provided to the Company in the form of Source Code pursuant to **Section 6(a)** (Seller's Obligation to Provide Models) of this **Attachment B** (Facility Owned by Seller) and if the Seller is unable to arrange for and ensure the deposit of the Source Code into the Source Code Escrow established for the benefit of the Company pursuant to **Section 6(b)(i)** (Source Code Escrow) of this **Attachment B** (Facility Owned by Seller) then, no later than the time periods set forth in **Section 6(a)** (Seller's Obligation to Provide Models) of this **Attachment B** (Facility Owned by Seller) for delivery of the Required Models and Source Code, Seller shall provide an irrevocable standby letter of credit (the "**Source Code LC**") with no documentation requirement in the amount of Two Hundred Fifty Thousand Dollars (\$250,000) per Required Model (and its relevant Source Code) substantially in the form attached to this Agreement as **Attachment M** (Form of Letter of Credit) from a bank chartered in the United States with a credit rating of "A-" or better from Standard & Poor's or A3 or better from Moody's. Such letter of credit shall be issued for a minimum term of one (1) year. Furthermore, at the end of each year the security shall be renewed for an additional one (1) year term so that at the time of such renewal, the remaining term of any such security shall not be less than one (1) year. The letter of credit shall include a provision for at least thirty (30) Days' advance notice to Company of any expiration or earlier termination of the letter of credit so as to allow Company sufficient time to exercise its rights under said security if Seller fails to extend or replace the security. In all cases, the reasonable costs and expenses of establishing, renewing, substituting, canceling, increasing, reducing, or otherwise administering the letter of credit shall be borne by Seller.

**(B) Release Conditions.** Company shall have the right to draw on the letter of credit the funds necessary to develop and recreate the Required Model or Required Models upon Company's request if Seller fails to provide the Company the Required Models or updated Required Models within the time periods set forth in

**Section 6(a)** (Seller's Obligation to Provide Models) or **Section 6(b)(i)(C)** (Remedies) of this **Attachment B** (Facility Owned by Seller), Company gives written notice of such failure to Seller, and Seller fails to remedy such breach within five (5) Days following receipt of such notice for a breach under **Section 6(a)** (Seller's Obligation to Provide Models), or within thirty (30) Days following receipt of such notice for a breach under **Section 6(b)(i)(C)** (Remedies).

**(C) Extend Letter of Credit.** If the letter of credit is not renewed or extended no later than thirty (30) Days prior to its expiration or earlier termination, Company shall have the right to draw immediately upon the full amount of the letter of credit and to place the proceeds of such draw (the "**Proceeds**"), at Seller's cost, in an escrow account in accordance with **Section 6(b)(ii)(D)** (Proceeds Escrow), until and unless Seller provides a substitute form of letter of credit meeting the requirements of this **Section 6(b)(ii)** (Source Code Security) of this **Attachment B** (Facility Owned by Seller).

**(D) Proceeds Escrow.** If Company draws on the letter of credit pursuant to **Section 6(b)(i)(C)** (Extend Letter of Credit) of this **Attachment B** (Facility Owned by Seller), Company shall, in order to avoid comingling the Proceeds, have the right but not the obligation to place the Proceeds in an escrow account as provided in this **Section 6(b)(ii)(D)** (Proceeds Escrow) of this **Attachment B** (Facility Owned by Seller) with a reputable escrow agent acceptable to Company ("**Proceeds Escrow Agent**"), subject to an escrow agreement acceptable to Company ("**Proceeds Escrow Agreement**"). Without limitation to the generality of the foregoing, a federally-insured bank shall be deemed to be a "reputable escrow agent." Company shall have the right to apply the Proceeds as necessary to recover amounts Company is owed pursuant to this **Section 6** (Modeling) of this **Attachment B** (Facility Owned by Seller). To that end, the Proceeds Escrow Agreement governing such escrow account shall give Company the sole authority to draw from the account. Seller shall not be a party to such Proceeds Escrow Agreement and shall have no rights to the Proceeds. Upon full satisfaction of Seller's obligations under **Section 6** (Modeling) of this **Attachment B** (Facility Owned by Seller), Company shall instruct the Proceeds Escrow Agent to remit to the bank that issued the letter of credit that was the source of the Proceeds the remaining balance (if any) of the Proceeds. If there is more than one escrow account with Proceeds, Company may, in its sole discretion, draw on such accounts in any sequence Company may select. Any failure to draw upon the Proceeds for any damages or other amounts due Company shall not prejudice Company's rights to recover such damages or amounts in any other manner.

**(E) Seller's Obligation.** If the letter of credit is not sufficient to cover Company's associated consultant fees, costs and expenses to develop and recreate the Required Models, Seller shall pay to Company the difference within ten (10) Days of Company's written notice to Seller.

**(F) Model Verification.** Seller shall work with the Company to validate the new Required Models developed by or on behalf of Company within sixty (60) Days of receiving such new Required Models. Seller shall also arrange for and ensure that Company may obtain new Required Models directly from the Source Code Owner in the event that Seller ceases to operate as a going concern or is subject to voluntary or involuntary bankruptcy and is unable or unwilling to obtain the new

Required Models from the Source Code Owner.

**(G) Certification.** The terms of the letter of credit shall provide for a release of the funds, or in the event the funds have been placed into a Proceeds Escrow, the Proceeds Escrow Agent shall release the necessary funds to Company upon receipt of a signed statement by a representative of Company that reads substantially as follows:

The undersigned hereby certifies that (i) I am duly authorized to execute this document on behalf of Maui Electric Company, Limited (“**Maui Electric**”), and (ii) Maui Electric is entitled to \$\_\_\_\_\_, pursuant to **Section 6(b)(ii)(B)** (Release Conditions) of **Attachment B** (Facility Owned by Seller) of the Energy Storage Power Purchase Agreement dated as of \_\_\_\_\_, between \_\_\_\_\_, and Maui Electric.

**(H) Authorized Use.** If Company becomes entitled to a draw of funds from the Source Code Security or a release of funds from the Proceeds Escrow, Company may thereafter use such funds to develop, recreate, correct, modify, update and enhance the Required Models for the sole purpose of providing itself the support and maintenance it otherwise would have been entitled to if it had been provided the Required Models by Seller under **Section 6(a)** (Seller’s Obligation to Provide Models) of this **Attachment B** (Facility Owned by Seller) (the “**Proceeds Authorized Use**”).

**(iii) Supplementary Agreement.** The parties stipulate and agree that the escrow provisions in this **Section 6(b)** (Escrow Establishment) of **Attachment B** (Facility Owned by Seller), and the Source Code Escrow Agreement and Proceeds Escrow Agreement are “supplementary agreements” as contemplated in 11 U.S.C. § 365(n)(1)(B). In any voluntary or involuntary bankruptcy proceeding involving Seller, failure by Company to assert its rights to “retain its rights” to the intellectual property encompassed by the Source Code or the funds in the Proceeds Escrow, pursuant to 11 U.S.C. § 365(n)(1)(B), under an executory contract rejected in a bankruptcy proceeding, shall not be construed as an election to terminate the contract by Company under 11 U.S.C. § 365(n)(1)(A).

## **7. Testing Requirements.**

**(a) Testing Requirements.** Once the Control System Acceptance Test has been successfully passed, Seller shall not replace and/or change the configuration of the Facility Control, inverter control settings and/or ancillary device controls, without prior written notice to Company. In the event of any such replacement and/or change, the relevant test(s) of the Control System Acceptance Test shall be redone and must be successfully passed before the replacement or altered equipment is allowed to be placed in normal operations. In the event that Company reasonably determines that such replacement and/or change of controls makes it inadvisable for the Facility to continue in normal operations without a further Control Systems Acceptance Test, the Facility shall be deemed to be in Seller-Attributable Unavailability status until the new relevant tests of the Control System Acceptance Test have been successfully passed.

**(b) Periodic Testing.** Seller shall coordinate periodic testing of the Facility with Company to ensure that the Facility is meeting the performance standards specified under this Agreement.

**8. Data and Forecasting.** Seller shall provide Site, meteorological and production data in accordance with the terms of this Agreement and the following requirements:

**(i) Physical Site Data:** Seller shall provide Company with an accurate description of the physical Site, including but not limited to the following, [as appropriate to Facility resource type(s) and use of storage] which may not be changed during the Term without Company's prior written consent:

**A.** Location Facility Map showing the layout of the Facility (coverage area or footprint) and the coordinates (latitude and longitude) of generating equipment:

Solar PV: elevation (above ground), orientation angle and direction (north-east-south-west plane) of arrays/concentrators.

Wind Generators: coordinates (latitude and longitude) and height above ground of each wind turbine hub.

**B.** Location (latitude and longitude) and elevation (above ground) of each MMT / MMS and elevation (above ground) of each field measurement device for, e.g., air density, ambient air pressure and ambient air temperature, located at each MMT or each field measurement device located on such MMS.

**C.** For solar resource inverters: Inverter type, power rating, array configuration to inverters and DC rating of the Facility at the following standard test conditions: irradiance of 1000 W/m<sup>2</sup>, air mass 1.5, and cell temperature 25° C.

**D.** Solar generation technology employed at the Facility with temperature dependence, mounting and module type.

**E.** Wind generation technology employed at the Facility with representative power curve(s).

**F.** BESS technology and related auxiliary equipment, location and type.

**(ii) Meteorological and Production Data.**

**A.** Seller shall install and maintain a minimum of two MMS for facilities that have either (i) a DC rating of the Facility of 5 MW or greater or (ii) a coverage area greater than one square kilometer.

**B.** Placement of each MMS should account for the microclimate of the area and Facility coverage area and shall be oriented with respect to the primary wind direction.

**C.** Seller shall provide to Company, via SCADA communication and

protocol acceptable to Company to support operations and forecasting needs at a continuous scan, all meteorological and production data required under this Agreement updated every 2 seconds.

**D.** Seller shall arrange for a dedicated distribution voltage line to provide separate service from Company, or for such other independent, backup power source as approved by Company in writing, to temporarily store and record the meteorological data from the field measuring devices at the MMSs. Any such backup power source must be capable of providing power for the field measurement devices for a reasonable period of time until primary power is restored. The same backup power source can serve multiple MMSs as needed by the Facility.

**(iii) Units and Accuracy:**

**A.** [For PV] The Table below shows minimum required solar irradiance measurements for various types of solar generation technology.

**[DRAFTING NOTE: VALUES NEED TO BE INSERTED INTO TABLE.]** This value may not be derived.

Solar Technology	Direct Normal Irradiance	Global Irradiance (GHI)	Plane of Array Irradiance (POA)
Flat Plate  (fixed horizontal, fixed angle, tracking, roof mounted)		X	X

**B.** Units and accuracy of measured parameters to be provided to Company in real time shall be as shown in the Table below. These represent the minimum required accuracies.

**Table of Units and Accuracy of Meteorological and Production Data (PV)**

Parameter	Data Source	Unit	Range	Accuracy
Global Horizontal Irradiance at MMS	Pyranometer or equivalent	W/m <sup>2</sup>	0 to 1500 W/m <sup>2</sup>	Secondary standard per ISO 9060 or <= 3% from 100 W/m <sup>2</sup> to 1500 W/m <sup>2</sup> if using a PV Reference Cell
Plane of Array Irradiance on same	Pyranometer or equivalent	W/m <sup>2</sup>	0 to 1500 W/m <sup>2</sup>	Secondary standard per

Parameter	Data Source	Unit	Range	Accuracy
axis as array				ISO 9060 or $\leq 3\%$ from 100 W/m <sup>2</sup> to 1500 W/m <sup>2</sup> if using a PV Reference Cell
Back of Panel temperature at array height	Temperature probe	°C	-20 to +50 °C	+/-1 °C
Power production of Facility	Measured at POI	MW	Up to Capacity	+0.1 MW
Inverters Available*	Seller's system	digital	Up to the number installed inverters	
	Ratio of inverters online/number of inverters	%	0 to 100%	
Power Possible*	Seller's Model	MW	0 to Allowed Capacity	+/-0.1 MW

**Table of Units and Accuracy of Meteorological and Production Data (Wind)**

Parameter	Data Source	Unit	Range	Accuracy
Wind speed at MMT (hub height)	Cup or sonic anemometer	Mph	0 to 134 mph	+/-1 mph
Wind direction at MMT (hub height)	Vane, sonic device or equivalent	Degrees (from True North)	360°	+/-5°
Ambient air temperature at MMT (hub height)	Temperature probe	°C	-20 to +50 °C	+/-1 °C
Ambient air pressure at MMT (hub height)	Piezoresistive transducer, barometer or equivalent	Mbar	150 to 1150 mbar	+/-60 mbar

				(0 to +50°C)
Power production of Facility	Measured at POI	MW		+/- 0.1 mw
Power Possible	Seller's Model	MW	0 to 120% of Allowed Capacity	+/-0.1 MW

**(iv) Status of Generating Equipment:** For each inverter, or wind turbine, Seller shall provide to Company, via SCADA communication and protocol acceptable to Company at a continuous scan updated not less frequently than every 2 seconds, a signal as to whether such inverter is available or unavailable, and on or offline.

**(v) Data Collection. [NOTE COMPANY TO UPDATE REQUIREMENTS; WILL BE SPECIFIC TO FACILITY EQUIPMENT AND RESOURCE TYPE]**

**A.** High Resolution Data: Seller shall install and make available to the Company time stamped and sequential data recordings for all inverter-based resources (and all generating resources) to perform event analysis and verify Facility performance during steady state and transient disturbance events. This will include a time-synchronized phasor measurement unit at the Facility, and access to multiple sources to provide sufficient clarity as to any abnormal response or behavior within the Facility, including Facility control settings and static values, SCADA data, sequence of events recording (SER) data, dynamic disturbance recorder (DDR) data, and inverter fault codes and inverter-level dynamic recordings. This data will be used to review the Facility's response to system dynamics, such as the frequency response (normal droop and FFR), reactive response, etc.

**B.** Plant Data: **[Note: specific requirements below are representative of variable energy resources and will be tailored to the Facility resource type(s) and geographic arrangement]** Seller shall install at least three (3) meteorological tower(s), spaced so as to provide the data points set forth below for the entire Facility. At least two months prior to the Commercial Operation Date, Seller shall deliver to Company a report showing (i) manufacturer, model and year of all energy equipment (panels, inverters, energy storage devices, turbine generators), and meteorological instrumentation, and (ii) the latitude and longitude of the center of the energy equipment (i.e., solar panels for every inverter, wind turbines) and every meteorological tower. Beginning upon COD, Seller shall transmit and provide to Company the real-time data set forth below, refreshed as frequently as allowed by the SCADA system, not to exceed sixty (60) second intervals:

- Three (3) data points from each inverter or wind turbine:
  - Inverter/turbine generation (MW)
  - Inverter/turbine availability

- Inverter/turbine on/offline status
- Two (2) data points from each meteorological tower (solar resources):
  - Global horizontal solar irradiance (instantaneous solar intensity, full sky)
  - Plane of array solar irradiance (instantaneous solar intensity at the current angle of the PV array)
- Five data points from each Meteorological Tower (wind resources):
  - Wind Speed \*\* (mps)
  - Wind Direction\*\* (degrees relative to true north)
  - Temperature (Celsius)
  - Pressure (mb)
  - Air Density (kg/m3)

In addition to the other requirements for data collection, if required by Company, a Facility with wind turbines shall install, maintain and operate at least one meteorological tower that is installed at hub height and is placed upstream of the prevailing wind path to provide meteorological data through a means agreed by the Company. The data stream from this meteorological tower to the Company's System must be reliable and include battery back-up at the meteorological tower and a local source of electricity to power the data collection and communication from the Facility to Company during transmission outages.

Seller shall provide a map and key for each inverter or wind turbine sufficient to allow Company to correlate the data received through Company's data historian system to each individual resource.

**9. Technology Specific Requirements.**

**(a) Reserved.**

**(b) Reserved.**

**(c) Inverter Systems.**

**(i)** Direct current generators and non-power (i.e., other than 60 Hertz) alternating current generators can only be installed in parallel with the Company System using a non-islanding synchronous inverter unless alternative designs are approved by Company. The design shall comply with the requirements of IEEE Std 1547-2003 (or latest version), except as described in **Section 3** (Performance Standards) of this **Attachment B** (Facility Owned by Seller).

(ii) Self-commutated inverters of the Company-interactive type shall synchronize to the Company System. Line-commutated, thyristor-based inverters are not recommended and will require additional technical study to determine harmonic and reactive power requirements. All interconnected inverter systems shall comply with the harmonic current limits of IEEE Std 519-1992 (or latest version).

(d) **Battery Energy Storage System.** The operating parameters of the BESS for facilities with paired storage shall be as follows:

(i) For facilities with variable energy and paired storage: The BESS shall directly charge storage from the variable resource when the Company Active Power Dispatch is for less than the available resource energy.

(ii) No more than [\_\_\_]% of the BESS energy capacity can be charged from the grid prior to the fifth anniversary of the Commercial Operations Date. Thereafter, 100% of the BESS energy capacity can be charged from the grid.

**[DRAFTING NOTE: 5-YEAR LIMITATION ON GRID CHARGING WILL BE DELETED IF INVESTMENT TAX CREDIT RECAPTURE IS NOT APPLICABLE TO THE BESS]**

(iii) The BESS will not be required to discharge more energy than available relative to the available state of charge.

(iv) For storage used primarily for energy shifting, the BESS shall be designed for an average annual use of 365 cycle(s) (a cycle is a discharge equal to the BESS Contract Capacity, and sufficient charging to return the BESS to 100% State of Charge).

(v) For contingency storage, the storage shall be procured based on required charging/discharging duty for the provision of disturbance frequency response. This response will require fast response outside of a specified frequency deadband (~~setable between 0.1 and 0.5 Hz~~), in accordance to specified droop and time parameters. **(Historical frequency data for 2 second data resolution samples will be provided to bidders). [Assumptions and associated restrictions on charging/discharging duty to be supplied by bidders]**

**10. Operating Committee and Operating Procedures.** Company and Seller shall each appoint one representative and one alternate representative to act as the operating committee in matters relating to the Parties' performance obligations under this Agreement and to develop operating arrangements for the generation, delivery and receipt of renewable energy from the Facility.

The operating committee may develop mutually agreeable written operating procedures consistent with the requirements of this Agreement, to address matters such as day-to-day communications; key personnel; operations-center interface; metering, telemetering, telecommunications, and data acquisition procedures; operations and maintenance scheduling and reporting; reports; operations log; testing procedures; and such other matters as may be mutually agreed upon by the operating committee.

The operating committee shall review the requirements for Active Power

Control, the data collection and telemetry, and control system parameters from time to time after the date hereof and may agree on modifications thereto to the extent necessary or convenient for operation of the Facility in accordance with this Agreement.

The operating committee shall have authority to act in all technical and day-to-day operational matters relating to performance of this Agreement and to attempt to resolve potential disputes, provided, however, that except as explicitly provided herein, the operating committee shall have no authority to amend or waive any provision of this Agreement.

## **EXHIBIT B-1**

### **MODELING REQUIREMENTS**

1. **Steady State and Dynamic Model Requirements and As-built Data to be provided by Seller.** The expected steady state power flow and dynamic models will be provided by the Seller during the interconnection study process in the format compatible with the analytical tools used by Company. Depending upon Facility design, different representations may be required for steady state and dynamic simulations. Seller will work with Company to derive a complex equivalent model if it is required to meet interconnection study needs. The as-built data and models will be provided by Seller immediately upon commissioning with sufficient information to demonstrate that the as-built parameters match the model. Any changes to plant settings that affect its response and impact to the Company System are required to be studied prior to those changes taking effect. The modeling will include all necessary control settings such that the correct capabilities, flags, and settings can be represented in a base case. Where such parameters are settable according to this Agreement, the initial models will be configured with parameters mutually agreed with Company for the interconnection study analysis. This includes, but is not limited to:

- Plant Type: A description of the resource type (e.g., storage, solar PV or wind power resource) used as a flag to ensure that the inverter-based resource is accurately represented in the base case, where applicable.
- Active and Reactive Capability: The overall plant “composite capability curve” shall be provided by Seller for performance purposes. That same curve will be used for accurately modeling the P-Q capability in power flow studies.
- Plant-Level Voltage Control Settings: Information on the plant voltage control mode to ensure correct voltage control flags and set points are set accordingly in the software tools.
- The voltage control set point at the POI is provided by the Company. Seller shall provide a description of the coordination of any plant-level shunt compensation (static or dynamic) to ensure it can be accurately represented in the power flow base case.

The models provided by Seller should accurately reflect the contractual requirements established under this Agreement.

2. **Positive Sequence Stability Modeling.** Seller shall provide a positive sequence stability model representation which provides sufficient detailed modeling for necessary reliability studies, as specified by Company. **[Note – language to be revised based on proposed Facility.]** For example, the following are typical requirements for plants with inverter equipment:

- Inverter-Level Controller Model: This represents the overall control of the inverter as an energy or generating resource.

- Electrical Control Model: This represents the detailed electrical controls of the resource, including large disturbance behavior.
- Plant-Level Controller Model: This represents control of multiple individual inverters and/or generators within the plant

3. **Short Circuit Modeling.** Seller will provide appropriate and accurate models to Company to support short circuit studies. **[Company to specify requirements based on specific Facility]**

4. **Electromagnetic Transient Modeling.** Company will require an electromagnetic transient (“**EMT**”) model for the Facility. Seller shall provide Company with an EMT model for the IRS and an updated EMT model after the Facility has been commissioned. These models are in addition to the positive sequence stability models required for interconnection-wide modeling purposes. In addition, Seller shall provide Company with evidence that the expected (and commissioned) EMT model reasonably matches the positive sequence dynamic models provided. This should include a benchmarking report provided by the inverter OEM.

**EXHIBIT B-2**  
**CAPABILITY CURVE(S)**

Exhibit A-1  
Fast Frequency Response Grid Service

Fast Frequency Response – 2 (“FFR-2”) for island of Oahu

~~Description and Requirements~~

1. Additional Definitions.
  - A. Non-Event Days – Any day in which load is not manipulated by a GS Event.
2. Grid Service Description.
  - A. ~~Fast Frequency Response (“FFR-2”)~~ is a local discrete response at a specified frequency trigger. FFR-2 acts to limit the frequency drop resulting from a frequency disturbance, such as loss of a generator. It assists in arresting the decline in frequency as a result of a contingency event. Updates to this Grid Service may be informed by any future updates to the Power Supply Improvement Plan or other appropriate Company filings.
3. Service Requirements.
  - A. Resource. The Resource offering FFR-2 must have the following operating characteristics and technical capabilities:
    - (1) The Resource must be capable of the full range of the amount of FFR-2 capability offered without manual resource operator intervention of any kind.
    - (2) Supplier must ensure that its control and monitoring or related SCADA (Supervisory Control and Data Acquisition) equipment for its enrolled Resources are operational throughout the time period during which FFR-2 is required to be provided. Polling rate of monitored equipment must occur at a more frequent periodicity than the poll rate specified in Section 8.A. Communications and Control, below.
  - B. The Resource must return to its normal operating state at a rate not to exceed ten percent (10%) of Supplier’s total forecasted FFR-2 capability per minute until an aggregate of 50 MW or more is enrolled in the FFR-2 grid service across all Supplier Resources. When 50 MW or more of FFR-2 is available, the Companies will assign a ramp rate to a Supplier’s resource such that the maximum ramp rate across all Supplier Resources does not exceed five (5) MW per minute.
  - C. Response Timing and Accuracy. When the measured frequency is less than or equal to the frequency trigger (as specified in Section H), the Supplier’s Resource must be fully deployed within 12 cycles, including operating time of any devices. A deviation of +/- 0.02 Hz of the frequency trigger as specified in Section H will be permitted.
  - D. Availability requirement. FFR-2 grid service is subject to event Trigger 24 hours per day, as specified in Section H. See Grid Service Value Ratio in Exhibit K (Settlement), for 24 hour availability valuation of FFR-2 grid service.
  - E. Periods of No Availability. If Supplier is temporarily unable to provide FFR-2 service, Supplier shall update its Operational Forecast to identify the period(s) during which FFR-2 service will be unavailable.
  - F. Non-export provision. Supplier shall not be allowed to export energy into the Company System (i.e., no backfeed capability), unless otherwise permitted under





Fast Frequency Response – 1 (“FFR-1”) for island of Oahu

**1. FFR-1 Grid Service Description**

Seller shall provide FFR-1 to rapidly inject or absorb energy in the event of a sudden and rapid system frequency disturbance.

- A. The aggregate fast frequency response control shall adjust, without intentional delay and without regard to any ramp rate limits, the Seller's net real power import or export based on the rate of change of frequency setting(s) and deadband specified by the Company.
- B. The aggregate fast frequency response shall be proportional to (or discrete but dynamically adjusted to the severity of) the disturbance.
- C. The aggregate output as adjusted by the aggregate fast frequency response control as measured at the aggregate Point of Interconnections (“POI(s)”) shall reach the control’s full commanded response in 200 milliseconds or less (12 cycles or less) from the initiation of the disturbance.
- D. The rate of change of frequency is proportional to the per unit generation/load mismatch and inversely proportional to the system inertial time constant. The aggregate shall be capable of receiving a periodically updated signal from the Company’s Demand Response Management System (“DRMS”) to assist in scaling the aggregate fast frequency response. If the DRMS signal becomes unavailable, the aggregate shall be capable using a local look up table as a substitute.
- E. The aggregate fast frequency response control shall be in continuous operation when the aggregate is online and connected to the Company unless directed otherwise by the Company.
- F. The aggregate fast frequency response design shall be approved in writing by the Company and implemented by the aggregate prior to conducting the System Integration Test.

Fast Frequency Response – 1 (“FFR-1”) for islands of Hawai‘i and Maui

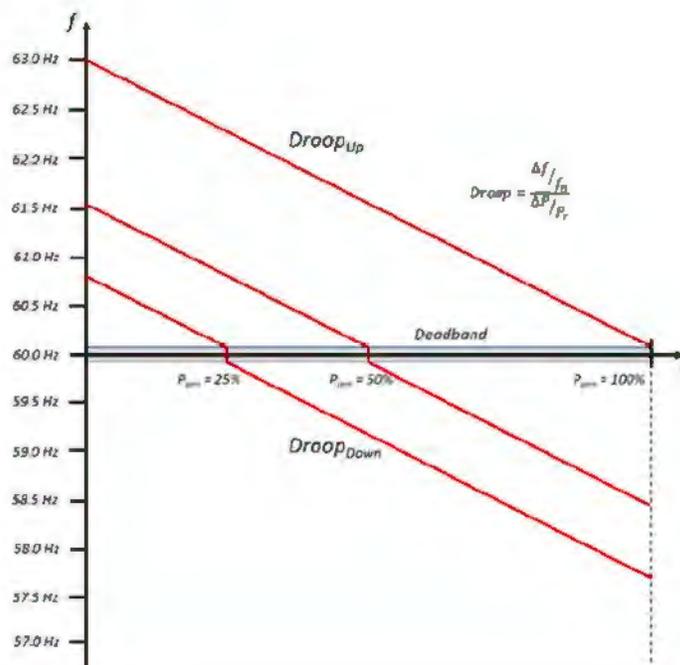
**1. FFR-1 Grid Service Description**

The Seller shall provide FFR-1 with a frequency droop characteristic reacting to system frequency in aggregate in both the over-frequency and under-frequency directions. This response must be timely and sustained for the required period. To achieve the necessary response, frequency will be calculated over a period of time (e.g., three to six cycles, or other period as specified by Company), and filtered to take control action on the fundamental frequency component of the calculated signal. Calculated frequency may not be susceptible to spikes caused by phase jumps on the Company system.

The FFR control system, and overall response of the FFR resources, must meet the following performance aspects (see Figure 1 below):

The FFR control system shall have an adjustable proportional droop characteristic with a default value of 1%. The droop setting shall permit a setting from 0.1% to 4%. This setting shall be changed upon Company’s written request as necessary for fast frequency response coordination. The droop shall be a permanent value based on Pmax (maximum nominal active power output of the FFR resource) and Pmin (typically 0 for an inverter or load based resource). This keeps the proportional droop constant across the full range of operation. The droop response must include the capability to respond in both the upward (under-frequency) and downward (over-frequency) directions. Frequency droop will be based on the difference between maximum nameplate active power output (Pmax) and zero output (Pmin) such that the 1% droop line is always constant for a resource.

The active power-frequency control system shall have an adjustable frequency deadband with a default value of 0.3 Hz. The deadband setting shall permit a setting from 0.1 Hz to 1 Hz. This setting shall be changed upon Company’s written request as necessary for fast frequency response coordination. The deadband setting shall be tunable and may be specified during commissioning. It shall be a nonstep deadband such that the change in active power output starts from zero deviation on either side of the deadband. (Frequency deadband is the range of frequencies in which the unit does not change active power output.)



**Figure 1: Active Power - Frequency Control Characteristic**

The closed-loop dynamic response of the FFR control system of the overall FFR resources, as measured at the Point of Interconnection (“POI”) must have the capability to meet or exceed the performance specified in below. Seller shall ensure that the models and parameters for the resources and control equipment are consistent with those provided during the interconnection approval process and the necessary supplemental review that any updates have been provided to the Company reflecting currently implemented settings and configuration.

## **2. FFR-1 Performance Requirements**

Dynamic Active Power-Frequency Performance. For a step change in frequency at the point of measure of the FFR resource:

Reaction time: The time between a step change in frequency and the time when the resource active power output begins responding to the change shall be less than 50 milliseconds (less than 3 cycles), or as otherwise specified by Company.<sup>[1]</sup>

Rise time: The time when the resource has reached 90% of the new steady-state (target) active power output shall be less than 133 milliseconds (less than 8 cycles), or as otherwise specified by Company.<sup>[2]</sup>

Settling Time: Time in which the resource has entered into, and remains within, the settling band of the new steady-state active power (target) output shall be less than 500 milliseconds, or as otherwise specified by Company.

<sup>[1]</sup> Time between step change in frequency and the time to 10 percent of new steady-state value can be used as a proxy for determining this time.

<sup>[2]</sup> Percentage based on final (expected) settling value.

Overshoot: Percentage of the rated active power output that the resource can exceed while reaching the settling band shall be less than 5% or as otherwise specified by Company.<sup>[3]</sup>

Settling Band: Percentage of rated active power output that the resource should settle to within the settling time shall be less than 2.5%.

The aggregate and individual site's frequency response control shall adjust, without intentional delay and without regard to the ramp rate limits, the Sellers's net real power export based on frequency deadband and frequency droop settings specified by the Company.

The aggregate frequency response control shall increase the net real power export above the Power Reference Setpoint) or further decrease the net real power export from the Power Reference Limit in its operations in accordance with the frequency response settings. The response shall be sustained for 30 minutes. The Facility frequency response control shall be in continuous operation.

### **3. FFR-1 Performance Metric.**

**A. Fast Frequency Response Criteria.** Following the Commercial Operations Date, the Seller shall respond appropriately to frequency disturbances in the Company System by operating in a manner consistent with standards and parameters established for FFR-1. With respect to such frequency disturbances in the Company System, the Seller shall be required to meet all of the following minimum frequency performance criteria (collectively, the "FFR-1 Performance Metric"):

- (1) The time between a step change in frequency and the response is no more than 1.3 times the target response time;
- (2) The resource achieves at least 63% of the new steady state active power output within the rise time;
- (3) The resource achieves at least 70% of the new steady state active power target within the settling time; and
- (4) Overshoot does not exceed 5% of the final steady state active power.
- (5) The new steady-state active power output is within the setting band.

Company will review historical operational data to determine the Seller's frequency response following disturbances and satisfaction of the Fast Frequency Response Performance Metric. Seller shall provide high resolution data from the individual sites requested by Company to assist in the review. To the extent the historical operational data is insufficient or otherwise

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<sup>[3]</sup> Percentage based on final (expected) settling value.

lacking for purposes of determining the Seller's satisfaction of the FFR-1 Performance Metric, Company shall review Facility's performance under structured test conditions no less than once per Contract Year.

**Table of Differences from July 10, 2019 Filing**

<b>Document Location</b>	<b>Filed on 7/10</b>	<b>Changed To</b>	<b>Reason</b>
O'ahu RFP RFP body primarily Chapters 1 and 4, Sections 1.2, 3.9 Appendix B		Revised sections to ask for Contingency Storage from either standalone or paired storage	Inclusion of Contingency Storage
O'ahu RFP various sections		Minor grammar corrections and section reference corrections	
O'ahu RFP Section 1.8.3 and various sections	Proposers may also submit up to three (3) minor variations (e.g., pricing terms, size, with/without storage, with/without grid- charging or level of grid- charging capability) within a Proposal on the same Site using the same generation technology without having to pay a separate Proposal Fee for these three (3) variations...	Modified language to clarify amount of variations a Proposer can submit along with expansion to include Contingency Storage	Clarification and inclusion of Contingency Storage
O'ahu RFP Section 3.9.6 p. 24  Hawai'i RFP Section 3.9.6 p. 24 Maui RFP Section 3.9.6 p. 24		<u>As identified in the Schedule of Defined Terms in the PPA under " BESS Allocated Portion of the Lump Sum Payment", the allocated portion of the Lump Sum Payment specified for energy storage for the Facility is 50% and shall be a non-negotiable percentage in the PPA.</u>	Added section to clarify the BESS Allocated Portion of the Lump Sum Payment is non- negotiable.
O'ahu RFP Appendix B Section 2.0		Revising summary table to reflect contingency response	
O'ahu RFP Appendix B throughout		Clarifying instructions on how to submit variations of Proposals	
O'ahu RFP Appendix G Section D.1.e  Hawai'i RFP Appendix G	.. Attachment T – Capacity Test...	.. Attachment T – <u>Facility</u> Test...	Reference correction.

Document Location	Filed on 7/10	Changed To	Reason
Section D.1.e			
Hawai'i RFP RFP body primarily Chapter 4, Sections 1.2, 3.9 Appendix B		Revised sections on contingency response	
O'ahu RFP Appendix F p.F-2	.. Hawaii's Special Managment Area.. guaranty.. condustions	.. Hawaii's Special <u>Management</u> Area.. <u>guarantee</u> .. <u>conclusion</u>	Spelling correction.
O'ahu RFP Appendix H throughout		Revised cost estimates to reflect costs in 2022 dollars	
Hawai'i RFP Table of Contents	Proposers Conference	Information Conferences	Correction.
Hawai'i RFP 1.2.7 p. 3	Projects must interconnect to the Company's System at the 69 kV level.	Projects must interconnect to the Company's System at the 69 kV level, <u>with the exception of standalone storage projects proposed at the Company-owned Puna Site which may interconnect to the Company system at the 13.8 kV level as described in Appendix F.</u>	Requirement clarification.
Hawai'i RFP 1.2.19 p. 5	...The proposed Facility's ability to meet the Company's contingency response need with be evaluated as a part of the Performance Standards non- price criterion.	...The proposed Facility's ability to meet the Company's contingency response need <u>will</u> be evaluated as a part of the Performance Standards non- price criterion.	Grammar correction.
Hawai'i RFP 1.2.21 p. 6	Grid Charging for Generation Paired w/Storage: As bid during ITC period; 100% after ITC period  Grid Charging for Generation Paired w/Contingency Storage: 100% at GCOD for Contingency Storage  As bid during ITC period; 100% after ITC period for energy storage	Grid Charging for Generation Paired w/Storage: 100% after ITC period  Grid Charging for Generation Paired w/Contingency Storage: 100% at GCOD for Contingency Storage  100% after ITC period for energy storage	Requirement clarification.

Document Location	Filed on 7/10	Changed To	Reason
Hawai'i RFP 1.8.3 p. 10	Proposers may also submit up to three (3) minor variations (e.g. pricing terms, size, with/without storage, with/without grid charging or level of grid charging capability, with/without contingency response, or level of contingency response) ...	Modified language to clarify amount of variations a Proposer can submit	Requirement clarification.
Hawai'i RFP 3.8.4 p. 20	..or other appropriate adjustment mechanism.	..or other appropriate adjustment mechanisms	Grammar correction.
Hawai'i RFP 3.8.7 p. 21	.. Proposers may propose modifications to sections of the RDG PPA or ESPPA...	.. Proposers may propose modifications to <u>other</u> sections of the RDG PPA or ESPPA...	Correction.
Hawai'i RFP 3.10.1 p. 24	...The NEP RFP Projection should assume that all energy is being directly exported to the Maui Electric System...	...The NEP RFP Projection should assume that all energy is being directly exported to the <u>Hawaii</u> Electric <u>Light</u> System...	Correction.
Hawai'i RFP 4.4.2 p. 35	.. Parties should at least identify. . .	.. <u>Proposers</u> should at least identify...	Correction.
Hawai'i RFP 4.4.2 p. 38	...maintaining projects (include all components of the project)...	...maintaining projects ( <u>including</u> all components of the project)...	Grammar correction.
Hawai'i RFP 5.3 p. 45	.. do not represent the only community engagement and outreach activities..	.. do not represent the only community <u>outreach and</u> engagement activities..	Correction.
Hawai'i RFP 5.3 p. 46	Following the submission of the PUC application for the Project, the Company will provide another opportunity for the public to comment on the proposed Project. The Company's statement of position filed in the docket associated with the Project will contain an attachment including those comments	[Removed]	Repetitive section.
Hawai'i RFP 5.4 p. 46	.. in the Company's sole and exclusive direction to prepare a greenhouse...	.. in the Company's sole and exclusive direction, <u>for such consultant</u> to prepare a greenhouse...	Correction.

Document Location	Filed on 7/10	Changed To	Reason
Hawai'i RFP 5.6 p. 47	...the Company requires the following be included in the 60% design drawings...	...the Company requires the following be included <u>with</u> the 60% design drawings...	Correction.
Hawai'i RFP Appendix F p.F-2	..guaranty..condusions	.. <u>guarantee</u> .. <u>conclusions</u>	Spelling corrections.
Maui RFP various sections	Energy storage components that are coupled with generation...	Energy storage components that are <u>paired</u> with generation...	Update terminology
Maui RFP 1.2.7	Projects must be greater than 5MW.	Projects' <u>size</u> must be greater than <u>the threshold for a waiver from the Competitive Bidding Framework applicable to Maui.</u>	Correction
Maui RFP 1.2.11	Energy storage components that are coupled with generation Projects...	Energy storage components that are <u>paired</u> with <u>generating facilities</u> ...	Correction
Maui RFP 1.8.2	Proposers may submit multiple Proposal variations for a Project.	Proposers may submit multiple Proposal variations for a Project <u>for a single Proposal Fee.</u>	Correction
Maui RFP 1.8.3	Proposers may also submit up to three (3) minor variations (e.g., pricing terms, size, with/without grid-charging, or level of grid-charging capability) within a Proposal on the same Site using the same generation technology without having to pay a separate Proposal Fee for these three (3) variations.	Modified language to clarify amount of variations a Proposer can submit	Correction
Maui RFP 1.9	As a result, the Companies have instated...	As a result, the <u>Company has instituted</u> ...	Grammar correction
Maui RFP 2.1	To be clear, Proposers may not propose any degradation in storage capacity or storage efficiency in their Proposals	To be clear, Proposers may not propose any degradation <u>for either</u> capacity or efficiency in their Proposals.	Correction
Maui RFP 3.8.4	If selected, a Self-Build Proposer will not be required to enter into a PPA with the Company.	If selected, a Self-Build Proposer will not be required to enter into a PPA <u>or ESPPA</u> with the Company.	Correction

Document Location	Filed on 7/10	Changed To	Reason
Maui RFP 3.9.4 and 3.9.4	For Self-Build Proposals: <ul style="list-style-type: none"> <li>Total Project Capital Costs (\$):...</li> </ul>	For Self-Build Proposals Total Project Capital Costs (\$/year):...	Correction
Maui RFP 3.11.2	Proposers proposing to use the Waena Storage Site shall be required to agree to specific terms and conditions for such use as provided for in an appendix to the ESPPA.	Proposers proposing to use the Waena Storage Site shall be required to agree to specific terms and conditions for such use as provided for in an <u>attachment</u> to the ESPPA.	Correction
Maui RFP 3.11.2	A draft copy of the proposed form of the Terms and Conditions for Use is attached as <u>Attachment X</u> to the ESPPA.	A draft copy of the proposed form of the Terms and Conditions for Use is attached as <u>Attachment X</u> to the <u>model</u> ESPPA.	Correction
Maui RFP 4.2	Project must be greater than 5 MW.	Project <u>size</u> must be greater than <u>the threshold for a waiver from the Competitive Bidding Framework applicable to Maui.</u>	Correction
Maui RFP 4.3, Site Control	In such a case, at a minimum the Proposer must provide a credible and viable plan, including evidence of any steps taken to date, to secure the necessary Site Control for the Proposal...	In such a case, at a minimum the Proposer must provide a credible and viable plan, including evidence of any steps taken to date, to secure <u>all</u> necessary Site Control for the Proposal...	Correction
Maui RFP 4.4.2	For the non-price analysis, each Proposal will be evaluated based on each of the eight (8) non-price criteria categories...	For the non-price analysis, each Proposal will be evaluated <u>based</u> on each of the eight (8) non-price criteria categories...	Correction
Maui RFP 4.8	the Company, taking into consideration the timing of such removal and the current status of the Company's needs under the RFP, in consultation with the Independent Observer...	the Company, taking into consideration the timing of such removal and the current status of the Company's needs under the RFP, in consultation with <u>and concurrence from</u> the Independent Observer...	Correction

Document Location	Filed on 7/10	Changed To	Reason
Maui RFP 5.3	The public meeting and comment solicitation process described in this Section and <u>Section 29.21</u> of the PPA (Community Outreach Plan)...	The public meeting and comment solicitation process described in this Section and <u>Section 29.21</u> of the <u>model RDG PPA or Section 27.17 of the model ESPPA</u> (Community Outreach Plan)...	Update reference
Maui RFP Appendix B p. B-6	.. net electrical output greater than 135 MW.	.. net electrical output greater than <u>20</u> MW.	Correction
Maui RFP Appendix F p. F-2	.. guaranty.. conclusions	.. <u>guarantee.. conclusions</u>	Spelling corrections
GS RFP Ch 1 p.1	Table 1-1 6 columns of MW target.	Table 1-1 7 columns, adding FFR-1 for Oahu.	Additional scope.
GS RFP 1.4.1 p.5	Table 1-2 Maintain system security during contingency events	Table 1-2 Maintain system security during contingency events ( <u>Two different types FFR-1 and FFR-2 defined in Exhibit A.</u> )	Requirement clarification.
GS RFP 1.4.9.1 p.6	For FFR on Big Island	For FFR on <u>Hawai'i</u> Island.	Correction
GS RFP p.15	n/a	NEW <u>3.9.4 If bidding to FFR-1 grid service as part of a bundled grid services proposal, Proposer's must provide both the bundled grid service pricing as well as discrete unbundled grid service pricing for FFR-1 only.</u>	Requirement clarification.
GS RFP 4.1 p.17	Big Island FFR and Contingency Storage	FFR- <u>1</u>	Correction
GS RFP p.19	Figure 1	Figure 1 updated for FFR Evaluation	Correction
GS RFP 4.6 p.26	The Company will select a Priority List from the highest-scoring Proposals that accrue to the total quantity of grid services as solicited.	The Company will select a Priority List from the highest-scoring Proposals that accrue to the quantity of <u>up to 125% of</u> grid services as solicited.	Correction
GS RFP p.27	n/a	NEW <u>4.8 Final Evaluation for Grid Service Capacity</u> added	Requirement clarification
GS RFP p.27	n/a	NEW <u>4.9 Final Evaluation for Grid Service FFR-2 (Oahu)</u>	Requirement clarification

Document Location	Filed on 7/10	Changed To	Reason
		<u>and FFR-1 (Maui)</u> added	
GS RFP p.27	4.7 Big Island FFR Evaluation	<u>4.10 Final Evaluation for Grid Service FFR-1 for Oahu and Hawaii island</u> revised to include Oahu's requirement and clarify FFR-1 evaluation.	Requirement clarification
GS RFP p.29	4.8 Final Award Group Evaluation & Selection	Section deleted.	Correction
GS RFP Appendix B Section 2.4 B-9	Specific to pricing bids regarding Hawai'i island, the Proposers shall providing pricing for bundled services and unbundled services where the grid services are individually priced.	Specific to pricing bids regarding <u>Fast Frequency Response-1 ("FFR-1") for Oahu and</u> Hawai'i island, the Proposers shall providing pricing for bundled services and unbundled services where the grid services are individually priced.	Requirement clarification.
GS RFP Appendix L GSPA Exhibit A-1	FFR defined only for Oahu.	Original file re-defined as FFR-2 for Oahu and added new definition of FFR-1 for Oahu and FFR-1 for Maui/Hawai'i islands	Requirement clarification.
Oahu RDG PPA for PV and wind, ESPPA – various sections  Hawai'i RDG PPA for PV and Wind, ESPPA – various sections		Minor grammar corrections Table of Contents update and section reference corrections	
Oahu RDG PPA Article 2  Exhibit 4, Attachment 1 (PV)  Exhibit 5, Attachment 1 (wind)  Oahu ESPPA Article 4  Exhibit 6,		Added a new section in Article for the Fast Frequency Performance Metric, renumbered the following sections and cross references  This section applies only to projects that include contingency storage in their proposals.	

Document Location	Filed on 7/10	Changed To	Reason
Attachment 1			
Hawai'i RDG PPA Article 2  Exhibit 7, Attachment 1 (PV)  Exhibit 8, Attachment 1 (wind)  Hawai'i ESPPA Article 4  Exhibit 9, Attachment 1		Updated and clarified the section in Article 2 (RDG PPA) or Article 4 (ESPPA) for the Fast Frequency Performance Metric  This section applies only to projects that include contingency storage in their proposals.	
Hawai'i RDG PPA Article 29.24		Corrected the Hawai'i General Excise Tax surcharge to 4.4386%	
Oahu RDG PPA for PV and wind Attachment A  Hawai'i RDG PPA for PV and Wind Attachment A		Additional fields in Attachment A, Section 5 (b) to describe the portion of the facility to provide fast frequency response  This section applies only to projects that include contingency storage in their proposals.	
Oahu RDG PPA Attachment B  Exhibit 4, Attachment 2 (PV)  Exhibit 5, Attachment 2 (wind)  Oahu ESPPA Attachment B  Exhibit 6, Attachment 2		Added a new section 3(p) for Fast Frequency Response Performance Standard.	

Document Location	Filed on 7/10	Changed To	Reason
<p>Hawai'i RDG PPA Attachment B</p> <p>Exhibit 7, Attachment 2 (PV)</p> <p>Exhibit 8, Attachment 2 (wind)</p> <p>Hawai'i ESPPA Attachment B</p> <p>Exhibit 9, Attachment 2</p>		<p>Updated Section 1 (g)(xiii) Dynamic Active Power-Frequency Performance for Facilities with Storage adding FFR mode active power-frequency control performance requirements</p>	
<p>Oahu RDG PPA Attachment O</p> <p>Exhibit 4, Attachment 3 (PV)</p> <p>Exhibit 5, Attachment 3 (wind)</p> <p>Oahu ESPPA Attachment O</p> <p>Exhibit 6, Attachment 3</p>		<p>Inserted a new Section 5 to describe the Fast Frequency Response Control Test, renumbered the following sections</p>	
<p>Oahu RDG PPA Attachment T</p> <p>Exhibit 4, Attachment 4 (PV)</p> <p>Exhibit 5, Attachment 4 (wind)</p> <p>Oahu ESPPA Attachment S</p> <p>Exhibit 6, Attachment 4</p>		<p>Clarifies that Attachment T (RDG PPA) Monthly Reporting and Dispute Resolution by Independent AF Evaluator or Attachment S (ESPPA) Quarterly Reporting and Dispute Resolution by Independent Evaluator, Section 1 does not apply to the Fast Frequency Response Performance Metric</p>	

Document Location	Filed on 7/10	Changed To	Reason
<p>Hawai'i RDG PPA Attachment T</p> <p>Exhibit 7, Attachment 3 (PV)</p> <p>Exhibit 8, Attachment 3 (wind)</p>		<p>Clarifies that Attachment T Monthly Reporting and Dispute Resolution by Independent AF Evaluator, Section 1 does not apply to the Fast Frequency Response Performance Metric</p> <p>deletes Attachment T Section 4 (d) (viii) in the wind PPA and Section 4 (d) (vi) of the PV PPA relating to the Fast Frequency Response Performance Metric</p>	

Pages 1 through 2 of 2 are intentionally left blank.

Pages 1 through 42 of 42 are intentionally left blank.

**EXHIBIT 14: CONFIDENTIALITY JUSTIFICATION TABLE**

Pursuant to Protective Order No. 36148, the Hawaiian Electric Companies hereby identify redacted confidential and/or proprietary information that is being submitted as “confidential information” and: (1) identifies, in reasonable detail, the confidential information’s source, character, and location; (2) states clearly the basis for the claim of confidentiality; and (3) describes, with particularity, the cognizable harm to the producing party or participant from any misuse or unpermitted disclosure of the information.

<b>Reference</b>	<b>Identification of Item</b>	<b>Basis of Confidentiality</b>	<b>Harm</b>
Transmittal filing on Companies’ Submission of Revisions to the Proposed Final Draft Requests for Proposals, Exhibit 12.	Table of changes made to the Hawaiian Electric Companies’ proposed (1) Variable Renewable Dispatchable Generation and Energy Storage Stage 2 Proposal Receipt and Proposal Evaluation Protocol and (2) Delivery of Grid Services Via Customer-Sited Distributed Energy Resources Bid Receipt and Bid Evaluation Protocol filed July 10, 2019.	Confidential commercial and financial information which falls under the frustration of legitimate government function exception of the Uniform Information Practices Act (“UIPA”).	Public disclosure of the subject confidential information could cause the Companies to be competitively disadvantaged in their proposed procurement. The Companies believe that public disclosure of this information could dissuade the market from setting the most competitive pricing for renewable generation and storage and/or give an unfair business advantage to potential proposers, resulting in increased costs or other prejudice to the Companies and their customers. Furthermore, Section IV.H of the Framework for Competitive Bidding provides that in a closed bidding process “bidders shall not have access to the utility’s bid evaluation models, the detailed criteria used to evaluate bids, or information contained in proposals submitted by other bidders.”
			The Companies maintain that the subject information falls under the frustration of legitimate government function exception of the UIPA, as disclosure of the subject information would impair the Commission’s ability to obtain necessary information to properly perform its review of this regulatory proceeding (as the Companies would not have submitted the confidential information in this docket at this time but for: (1) the

<b>Reference</b>	<b>Identification of Item</b>	<b>Basis of Confidentiality</b>	<b>Harm</b>
			<p>governmental function of reviewing the Companies' draft RFPs; and (2) the Companies' belief and reliance that the information would not be publicly disclosed).</p> <p>The confidential information: (1) has not been previously disclosed or otherwise publicly disseminated; (2) is not of the kind of information that the Companies would customarily disclose to the public at this juncture; and (3) is of a nature that its disclosure could (a) impair the Commission's ability to obtain necessary information from similarly situated parties in the future, and (b) cause substantial harm to the Companies and/or its customers as previously described above.</p>

<b>Reference</b>	<b>Identification of Item</b>	<b>Basis of Confidentiality</b>	<b>Harm</b>
<p>Transmittal filing on Companies' Submissions to the Revisions to the Proposed Final Draft Requests for Proposals, Exhibit 13.</p>	<p>Contingency Energy Storage Update for Hawai'i Electric Light Company</p>	<p>To the extent that the confidential information consists of critical infrastructure information that should not be disclosed under the Homeland Security Act of 2002, such information is exempt from disclosure under the section 92F-13(4) of the UIPA.</p>	<p>Public disclosure of the confidential information could increase risk to Hawai'i Electric Light's facilities, jeopardize its emergency and disaster preparedness plans, and/or adversely impact its ability to respond to potential terrorist threats. The public release of the confidential information would provide information such as Hawai'i Electric Light system conditions and operations that could be utilized in efforts to attack Hawai'i Electric Light's critical energy infrastructure.</p> <p>The confidential information: (1) has not been previously disclosed or otherwise publicly disseminated; (2) is not of the kind of information that the Companies would customarily disclose to the public at this juncture; and (3) is of a nature that its disclosure could (a) impair the Commission's ability to obtain necessary information from similarly situated parties in the future, and (b) cause substantial harm to the Companies and/or its customers as previously described above.</p>