

Rule No. 22

CUSTOMER SELF-SUPPLY

A. ELIGIBLE CUSTOMER-GENERATOR

Customer Self-Supply service is available to permanent customers (“Eligible Customer-Generator”) who own (or lease from a third party) and operate (or contract to operate with a third party) a solar generating facility (“Generating Facility” or “Self-Supply System”), with a capacity of not more than one hundred kilowatts (100 kW), and where:

1. The Generating Facility, which may include an energy storage system, is located on the Eligible Customer-Generator’s premises,
2. The Generating Facility is sized and designed such that all of the Generating Facility’s output is intended to offset all or part of the Eligible Customer-Generator’s own electrical requirements (“Host Load”),
3. The Eligible Customer-Generator does not intend to export electrical energy to the utility system, except when permitted to provide Grid Support as set forth in Appendix II attached hereto,
4. The Generating Facility is in conformance with the Company’s interconnection requirements provided in Rule No. 14, Paragraph H, and
5. The Generating Facility shall be designed and configured to meet the Technical Specifications set forth in Appendix II attached hereto.

B. INTERCONNECTION AGREEMENT AND REQUIREMENTS

1. Eligible Customer-Generator shall complete and sign an application for service and a Standard Interconnection Agreement For Self-Supply Systems (100 kW or less) provided as Appendix I of this Rule (“Interconnection Agreement”), to receive Customer Self-Supply service, which shall not be effective until approved and executed by the Company. Where the Eligible Customer-Generator is not the person or entity in whose name electric service is rendered for the Eligible Customer-Generator’s premises where the Generating Facility is located, i.e. where a landlord-tenant relationship exists, only the Eligible Customer-Generator shall be required to complete and sign the application for service and the Interconnection Agreement.
2. The Eligible Customer-Generator’s Generating Facility and interconnection systems must be in compliance with all applicable safety and performance standards of the National Electric Code (NEC), the Institute of Electrical and Electronic Engineers (IEEE), accredited testing laboratories such as Underwriters Laboratories (UL), the Company’s interconnection requirements provided in Rule No. 14. Section H, Appendix I, and is subject to any other requirements provided in the Interconnection Agreement.

HAWAIIAN ELECTRIC COMPANY, INC.

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CUSTOMER SELF-SUPPLY

C. METERING AND BILLING

1. The Company, at its expense, may install meter(s) to record the flow of electric power in each direction. The Eligible Customer-Generator shall, at its expense, provide, install and maintain all conductors, service switches, fuses, meter sockets, meter instrument transformer housing and mountings, switchboard meter test buses, meter panels and similar devices required for service connection and meter installations on the customer's premises in accordance with the Company's Rule No. 14, Section A.2.
2. Eligible Customer-Generators served under this tariff who also receive energy from the Company shall be billed monthly for the energy supplied by the Company, in accordance with the Company's Rule No. 8, the applicable rate schedule, and the Company's rules filed with the Commission.
3. All rates, terms, and conditions from the applicable rate schedule will apply except for the minimum charge. The minimum charge shall be as follows:

Applicable Rate Schedule:

|                           |                   |
|---------------------------|-------------------|
| Schedule R, TOU-R, TOU EV | \$25.00 per month |
| Schedule G, TOU-G,        | \$50.00 per month |
| Schedule J, TOU-J, U, SS  | Per Rate Schedule |
| Schedule DS               | Per Rate Schedule |
| Schedule P                | Per Rate Schedule |
| Schedule F                | Per Rate Schedule |
| Schedule EV-R, EV-C, EV-F | Per Rate Schedule |

4. Company's agreement to accept inadvertently exported electric power from the Generating Facility under this tariff is solely an accommodation. Neither this tariff nor the Interconnection Agreement provide for, require or otherwise obligate Company to measure, purchase, transmit, distribute, or store any electric power that may be delivered to Company's distribution system by Eligible Customer-Generator.

D. INTERCONNECTION PROCESS

1. Eligible Customer-Generator requests to interconnect and operate a Generating Facility in parallel with the Company's electric system will be processed in accordance with the procedures in the Interconnection Process Overview provided in Appendix III of Rule 14, Paragraph H. Generating Facilities that meet the Technical Specifications stated in Appendix II to this Rule shall qualify for expedited interconnection subject to the terms and conditions set forth in Company Rule 14, Section H, Appendix III.
2. Under no circumstances shall a Customer-Generator interconnect and operate a Generating Facility in parallel with the Company's electric system without prior written approval by the Company in the form of a fully executed Interconnection Agreement.

HAWAIIAN ELECTRIC COMPANY, INC.

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CUSTOMER SELF-SUPPLY

E. MICROGRIDS

1. Capitalized terms used in this section are as defined in Rule No. 30, Microgrid Services Tariff.
2. During Grid-Connected Mode, the Microgrid will be operated in parallel with the Company's System.
3. A Customer may operate its Generating Facility as part of a Customer Microgrid or be a participant in a Hybrid Microgrid.
4. A Customer who intends to operate its Generating Facility within a Customer Microgrid, or as a participant in a Hybrid Microgrid, shall notify the Company in its application through the Customer Interconnection Tool.
5. A Customer who operates its Generating Facility as part of a Microgrid after obtaining interconnection approval from the Company shall update its application through the Customer Interconnection Tool. Such notification and revision shall satisfy the Customer's notice requirements set forth in Tariff Rule 3B (Change in Customer's Equipment or Operations).
6. Customer Microgrids and Hybrid Microgrid Participants shall comply with the requirements of Rule No. 30, Microgrid Services Tariff, including Section H, Microgrid Operation.

HAWAIIAN ELECTRIC COMPANY, INC.

**APPENDIX I**  
**STANDARD INTERCONNECTION AGREEMENT FOR SELF-SUPPLY SYSTEMS**  
**(100 kW or less)**

This Standard Interconnection Agreement for Self-Supply Systems (100 kW or less) (“Agreement”) is made by and between:

\_\_\_\_\_ Hawaiian Electric Company, Inc. (“Company”),  
\_\_\_\_\_  
\_\_\_\_\_ (“Customer-Generator”) and, if applicable,  
\_\_\_\_\_ (“Owner/Operator”),

and is made, effective and binding as of To be filled out by the Company (“Effective Date”). Company and Customer-Generator may be referred to individually as a “Party” and collectively as the “Parties”.

**WHEREAS**, Company is an operating electric public utility subject to the Hawaii Public Utilities Law, Hawaii Revised Statutes, Chapter 269, and the rules and regulations of the Hawaii Public Utilities Commission (“Commission”);

**WHEREAS**, the Customer-Generator receives service from the Company;

**WHEREAS**, the Customer-Generator qualifies as an “Eligible Customer-Generator,” as defined in the Company’s Customer Self-Supply Tariff;

**WHEREAS**, the Customer-Generator intends to construct a generating facility, as further described herein (“Generating Facility”) and desires to interconnect and operate the Generating Facility in parallel with the Company’s electric system;

**WHEREAS**, the Owner/Operator, may be a person or entity other than the Customer-Generator, who owns and operates the Generating Facility.

**NOW, THEREFORE**, in consideration of the premises and the respective promises herein, the Company and the Customer-Generator, and if applicable, the Owner/Operator, hereby agree as follows:

1. **Scope and Purpose.** The Parties understand and agree that this Agreement applies only to the operation of Customer-Generator’s Generating Facility described in Exhibit A, and if applicable, Exhibit A-1 (Description of Generating Facility- Additional Information) attached hereto. This Agreement provides for interconnection and operation of the Generating Facility in parallel with the Company’s electric system to serve only the electrical loads at the location identified in Exhibit A (“Customer Loads”). To facilitate the operation of the Generating Facility and the Company’s system, this Agreement also allows for the occasional and inadvertent export of power to the Company’s electric system, as specifically agreed to herein, and may permit and/or require import and export of real and/or reactive power to provide Grid Support, as specified under Rule No. 22 (Rule 22), Appendix II, Rule No. 14, Paragraph H (“Rule 14H”) or other applicable interconnection standards.
2. **Notice and Disclaimer Regarding Future Rate and Tariff Modifications.** This Agreement shall, at all times, be subject to modification by the Commission as said Commission may, from time to time, direct in the exercise of its jurisdiction. Without limiting the foregoing, Customer-Generator expressly acknowledges the following:

**The Self-Supply Tariff and your Agreement and Generating Facility shall be subject to any future modifications ordered by the Commission. Such modifications may positively or negatively impact any potential savings in your electricity bill that were calculated by you or presented to you to support your decision to buy or lease a Generating Facility and may otherwise change the value of your Agreement and Generating Facility.**

**BY SIGNING BELOW, YOU ACKNOWLEDGE THAT YOU HAVE READ, UNDERSTAND AND AGREE TO THE ABOVE NOTICE AND DISCLAIMER. FURTHER, BY SIGNING BELOW, YOU CONFIRM YOUR UNDERSTANDING THAT ANY POTENTIAL SAVINGS IN YOUR**

**ELECTRICITY BILL THAT WERE CALCULATED BY YOU OR PRESENTED TO YOU TO SUPPORT YOUR DECISION TO BUY OR LEASE A GENERATING FACILITY MAY CHANGE.**

3. **Effectiveness of Agreement.** This Agreement shall not be effective until approved and executed by each Party, i.e. upon the Effective Date. Customer-Generator shall not interconnect and operate the Generating Facility in parallel with the Company's system prior to approval and execution of this Agreement by the Company, except to extent necessary to obtain governmental or utility approvals. Until this Agreement is effective, no Party shall have any legal obligations arising hereunder, express or implied, and any actions taken by a Party in reliance on the terms of this Agreement prior to the Effective Date shall be at that Party's own risk.
4. **Term and Termination.** This Agreement shall continue on a month-to-month basis from the Effective Date. Customer-Generator may terminate this Agreement at any time with thirty (30) days' written notice. Company may terminate this Agreement at any time if Customer-Generator fails to comply with any term of this Agreement or if Customer-Generator fails to be an Eligible Customer-Generator.
5. **Generating Facility Description.** For the purposes of this Agreement, the "Generating Facility" is defined as the equipment and devices, and associated appurtenances, owned by the Customer-Generator, which produce electric energy for use by the Customer-Generator and are to be interconnected and operated in parallel with the Company's system. The Generating Facility is identified in Exhibits A (Description of Generating Facility) and, if applicable, Exhibit A-1 (Description of Generating Facility- Additional Information) attached hereto.
6. **Parallel Operation.** Company shall allow Customer-Generator to interconnect and operate the Generating Facility in parallel with the Company's distribution system in accordance with the terms and conditions of this Agreement and Company Rule 14, Paragraph H (Interconnection of Distributed Generating Facilities Operating in Parallel With The Company's Electric System) ("Rule 14H").
  - (a) The electric power produced by the Generating Facility shall be used to serve electric loads for the electric service account that the Company uses to interconnect the Customer-Generator's Generating Facility. Customer-Generator shall not cause the Customer-Generator to be considered a "public utility" as such term is defined in Chapter 269 of the Hawaii Revised Statutes.
  - (b) If, notwithstanding Customer-Generators efforts to regulate the electrical output of the Generating Facility, electric power flows from the Generating Facility to the Company's distribution system, Company shall attempt to receive such power. Unless acceptance of such energy from the Seller by the Company would require the Company to operate the Company system outside of good engineering and operating practices. In no event shall the delivery of electric power to Company's electric system exceed the amounts, duration, frequency of occurrence, or other limitations specified in Appendix II to Company Rule 22. If Customer-Generator does not regulate its Generating Facility in compliance with the limitations set forth in Appendix II to Company Rule 22, Company may require Customer-Generator to disconnect the Generating Facility from Company's electric system until Customer-Generator demonstrates to Company's sole satisfaction that Customer-Generator has taken adequate measures to regulate the output of the Generating Facility and control its export of power. Further, even if the Generating Facility is operating within the limitations set forth in Appendix II to Company Rule 22, if at any time the Company determines that the continued operation of the Generating Facility may endanger any person or property, the Company's electric system, or have an adverse effect on the safety or power quality of other customers, the Company shall have the right to disconnect the Generating Facility from the Company's electric system in accordance with Paragraph 15 (Personnel and System Safety) herein.
7. **No Purchase of Electric Power.** Company's agreement to accept electric power from the Generating Facility is solely an accommodation. This Agreement does not provide for, or otherwise obligate Company to measure, purchase, transmit, distribute, or store any electric power that may be delivered to Company's distribution system by Customer-Generator.
8. **No Delivery of Reactive Power.** Customer-Generator shall not deliver reactive power to Company's distribution system, except as provided under Rule 22, Appendix II and Rule 14H or unless the Parties have agreed otherwise in writing.

9. **Sale of Electric Power by the Company to the Customer-Generator.** This Agreement does not constitute an agreement by the Company to provide retail electric service to Customer-Generator. Such arrangement must be made separately between the Company and Customer-Generator and sales of energy delivered by the Company to the Customer-Generator shall be governed by the applicable rate schedule and the Company's rules filed with the Commission.
10. **Permits and Licenses.** Customer-Generator shall be responsible for the design, installation, operation, and maintenance of the Generating Facility and shall obtain at its expense, and maintain any required governmental authorizations and/or permits for the construction and operation of the Generating Facility. Customer-Generator shall not commence parallel operation of the Generating Facility until Company has provided written approval. Company shall provide such written approval within fifteen (15) business days from Company's receipt of a copy of the final inspection or approval of the Generating Facility, which has been issued by the governmental authority having jurisdiction to inspect and approve the installation. Company's written approval shall not be unreasonably withheld. Company shall have the right to have its representatives present at the final inspection made by the governmental authority having jurisdiction to inspect and approve the installation of the Generating Facility. Customer-Generator shall be required to notify Company in accordance with the terms of Section 19 (Notices), herein, at least five (5) business days prior to such inspection.
11. **Installation.**
- (a) Design, installation, operation and maintenance of the Generating Facility shall include appropriate control and protection equipment as specified by the Company, including but not limited to an automatic load-break device such as a circuit breaker or inverter and a manual disconnect that has a visible break or breaker with rack-out capability to isolate the Generating Facility from the Company's system. The manual disconnect device must be accessible by the Company and be capable of being locked by the Company in the open position, to establish working clearance for maintenance and repair work in accordance with the Company's safety rules and practices. The disconnect devices shall be furnished and installed by the Customer-Generator and are to be connected between the Generating Facility and the Company's electric system. The disconnect devices shall be located in the immediate vicinity of the electric meter serving the Customer-Generator. The manual disconnect device shall be, at a minimum, clearly labeled "Customer-Generator System Disconnect". With permission of the Company, the disconnect devices may be located at an alternate location which is readily and safely accessible to the Company on a 24-hour basis. Such alternate location shall be clearly identified with signage placed in the immediate vicinity of the electric meter serving the Customer-Generator.
  - (b) The Customer-Generator grants access to the Company to utilize the disconnect device, if needed. The Customer-Generator shall obtain the authorization from the owner and/or occupants of the premises where the Generating Facility is located that allows the Company to access the Generating Facility for the purpose specified in this Agreement. Company may enter premises where the Generating Facility is located, as permitted by law or tariff, for the following purposes: (a) to inspect Generating Facility's protective devices and read or test meter(s); and (b) to disconnect the Generating Facility and/or service to Customer-Generator, whenever in Company's sole opinion, a hazardous condition exists and such immediate action is necessary to protect persons, Company's facilities, or property of others from damage or interference caused by the Generating Facility, or the absence or failure of properly operating protective device.
  - (c) Under no circumstances shall a Customer-Generator interconnect and operate a generating facility in parallel with the Company's electric system without prior written approval by the Company in the form of a fully executed Agreement.
  - (d) Generating facilities that incorporate the use of an energy storage device, e.g. battery storage, which is interconnected to the Company's transmission and/or distribution facilities, shall obtain an interconnection review by the Company pursuant to this Agreement. Energy storage systems that are intended to be installed by an Eligible Customer-Generator after Company's execution of an Agreement shall constitute a material change and addition to a Generating Facility and shall require interconnection review pursuant to this Rule prior to installation.

- (e) Once a Generating Facility is interconnected to the Company's system, the Company reserves the right to require the installation of, or modifications to, equipment determined by the utility to be necessary to facilitate the delivery of reliable electric service to its customers, subject to the requirement that such installation or modification be consistent with applicable interconnection standards (e.g., Rule 14H). The Company shall provide a written explanation of the need for such installation or modification. Such installation or modification shall be made by mutual agreement of the Company and the Customer-Generator. Any disputes related to this provision shall be resolved according to the dispute resolution process described in Rule 14H.
12. **Metering.** Within fifteen (15) days of execution of this Agreement, the Company will supply, own, and maintain all necessary meters and associated equipment utilized for billing and energy purchase. The meters will be tested and read in accordance with the rules of the Commission and the Company. The Customer-Generator, at its expense, shall provide, install and maintain all conductors, service switches, fuses, meter sockets, meter instrument transformer housing and mountings, switchboard meter test buses, meter panels and similar devices required for service connection and meter installations on the Customer-Generator's premises in accordance with the Company's Rule 14H.
13. **Interconnection Facilities.**
- (a) **Customer-Generator-Owned Interconnection Facilities (for Generating Facilities Larger than 30 kW or with three-phase electrical service).**
- (1) The Customer-Generator shall furnish, install, operate and maintain, at its cost, the interconnection facilities (such as circuit breakers, relays, switches, synchronizing equipment, monitoring equipment, and control and protective devices and schemes) identified in Exhibit B (Customer-Generator-Owned Generating Facility and Interconnection Facilities).
- (2) The point of interconnection is shown on the single-line diagram and three-line diagram (provided by the Customer-Generator and reviewed by the Company) which are attached to Exhibit B (Customer-Generator-Owned Generating Facility and Interconnection Facilities). Pursuant to Company Rule 14H, Appendix I (Distributed Generating Facility Interconnection Standards Technical Requirements), Section 6.c (Review of Design Drawings), the Company must review and approve Customer-Generator's single-line and three-line diagrams prior to Customer-Generator constructing of the Generating Facility interconnection. The Customer-Generator agrees to test the Generating Facility, to maintain operating records, and to follow such operating procedures, as may be specified by the Company to protect the Company's system from damages resulting from the parallel operation of the Generating Facility, including such testing, records and operating procedures as more fully described in Exhibit C attached hereto.
- (3) The Customer-Generator agrees to test the Generating Facility, to maintain operating records, and to follow such operating procedures, as may be specified by the Company to protect the Company's system from damages resulting from the parallel operation of the Generating Facility, including such testing, records and operating procedures as more fully described in Exhibit C attached hereto.
- (4) The Company may inspect the Generating Facility and Customer-Generator's interconnection facilities.
- (b) **Company-Owned Interconnection Facilities (for Generating Facilities Larger than 30 kW or with three-phase electrical service).**
- (1) The Company agrees to furnish, install, operate and maintain such interconnection facilities on its side of the point of interconnection with the Generating Facility as required for the parallel operation with the Generating Facility and more fully described in Exhibit C (Company-Owned Interconnection Facilities) attached hereto and made apart hereof ("Company Interconnection Facilities"). All Company Interconnection Facilities shall be the property of the Company. Where portions of the Company Interconnection Facilities are located on the Customer-Generator's premises, the

Customer-Generator shall provide, at no expense to the Company, a suitable location for and access to all such equipment. If a 120/240 Volt power source or sources are required, the Customer shall provide these at no expense to the Company.

- (2) The Customer-Generator agrees to pay to the Company: (1) a non-refundable contribution for the Company's investment in the Company Interconnection Facilities described in Exhibit C (Company-Owned Interconnection Facilities), subject to the terms and conditions included in Exhibit C and to pay for other interconnection costs. The interconnection costs will not include the cost of an initial technical screening of the impact of the Generating Facility on the Company's system.

14. **Indemnification:**

- (a) The Customer-Generator shall indemnify, defend and hold harmless the Company and its officers, directors, agents and employees, from and against all liabilities, damages, losses, fines, penalties, claims, demands, suits, costs and expenses (including reasonable attorney's fees and expenses) to or by third persons, including the Company's employees or subcontractors, for injury or death, or for injury to property, arising out of the actions or inactions of the Customer-Generator (or those of anyone under its control or on its behalf) with respect to its obligations under this Agreement, and/or arising out of the installation, operation and maintenance of the Generating Facility and/or the Customer-Generator Interconnection Facilities, except to the extent that such injury, death or damage is attributable to the gross negligence or intentional act or omission of the Company or its officers, directors, agents or employees.
- (b) The Owner/Operator shall indemnify, defend and hold harmless the Company and its officers, directors, agents and employees, from and against all liabilities, damages, losses, fines, penalties, claims, demands, suits, costs and expenses (including reasonable attorney's fees and expenses) to or by third persons, including the Company's employees or subcontractors, for injury or death, or for injury to property, arising out of the actions or inactions of the Owner/Operator (or those of anyone under its control or on its behalf) with respect to its obligations under this Agreement, and/or arising out of the installation, operation and maintenance of the Generating Facility and/or the Interconnection Facilities, except to the extent that such injury, death or damage is attributable to the gross negligence or intentional act or omission of the Company or its officers, directors, agents or employees.

**Provided, however, where the Customer-Generator is an agency of the United States, the following Section shall be applicable in place of Paragraphs 14(a) and (b):**

"The United States understands that it may be held liable for loss, damages expense and liability to third persons and injury to or death of persons or injury to property caused by the United States in its engineering design, construction ownership or operations of, or the making of replacements, additions betterment to, or by failure of, any of such party's works or facilities used in connection with this Agreement to the extent allowed by the Federal Tort Claims Act 28 U.S.C. § 2671 et seq. and the Agreement Disputes Act of 1978, 41 U.S.C. §§ 601-613.

Company shall be responsible for damages or injury caused by Company, Company's agents, officers, and employees in the course of their employment to the extent permitted by law."

**Provided, however, where the Customer-Generator is an agency of the State of Hawaii (the "State"), the following Section shall be applicable in place of Paragraphs 14(a) and (b):**

"The State shall be responsible for damages or injury caused by the State's agents, officers, and employees in the course of their employment to the extent that the State's liability for such damage or injury has been determined by a court or otherwise agreed to by the State. The State shall pay for such damage and injury to the extent permitted by law. The State shall use reasonable good faith efforts to pursue any approvals from the Legislature and the Governor that may be required to obtain the funding necessary to enable the State to perform its obligations or cover its liabilities hereunder. The State shall not request Company to indemnify the State for, or hold the State harmless from, any claims for such damages or injury.



- (c) Company shall be responsible for damages or injury caused by Company, Company's agents, officers, and employees in the course of their employment to the extent that Company's liability for such damage or injury has been determined by a court or otherwise agreed to by Company, and Company shall pay for such damage and injury to the extent permitted by law. Company shall not request the State to indemnify Company for, or hold Company harmless from, any claims for such damages or injury."
  - (d) The Company shall indemnify, defend and hold harmless the Customer-Generator, and its officers, directors, agents and employees, from and against all liabilities, damages, losses, fines, penalties, claims, demands, suits, costs and expenses (including reasonable attorney's fees and expenses) to or by third persons, including the Customer-Generator's employees or subcontractors, for injury or death, or for injury to property, arising out of the actions or inactions of the Company (or those of anyone under its control or on its behalf) with respect to its obligations under this Agreement, and/or arising out of the installation, operation and maintenance of the Company Interconnection Facilities, except to the extent that such injury, death or damage is attributable to the gross negligence or intentional act or omission of the Customer-Generator or its officers, directors, agents or employees.
  - (e) Nothing in this Agreement shall create any duty to, any standard of care with reference to, or any liability to any person not a party to it.
15. **Personnel and System Safety.** If at any time the Company determines that the continued operation of the Generating Facility may endanger any person or property, the Company's electric system, or have an adverse effect on the safety or power quality of other customers, the Company shall have the right to disconnect the Generating Facility from the Company's electric system remotely or otherwise. The Generating Facility shall remain disconnected until such time as the Company is satisfied that the endangering or power quality condition(s) has been corrected, and the Company shall not be obligated to accept any energy from the Generating Facility during such period. The Company shall not be liable, directly or indirectly, for permitting or continuing to allow an attachment of the Generating Facility for the acts or omissions of the Customer-Generator that cause loss or injury, including death, to any third party.
16. **Prevention of Interference.** The Customer-Generator shall not operate equipment that superimposes a voltage or current upon the Company's system that interferes with the Company's operations, service to the Company's customers, or the Company's communication facilities. Such interference shall include, but not be limited to, overcurrent, voltage imbalance, and abnormal waveforms. If such interference occurs, the Customer-Generator must diligently pursue and take corrective action at its own expense after being given notice and reasonable time to do so by the Company. If the Customer-Generator does not take timely corrective action, or continues to operate the equipment causing interference without restriction or limit, the Company may, without liability, disconnect the Customer-Generator's equipment from the Company's system.
17. **Limitation of Liability.** Neither by inspection, if any, or non-rejection, nor in any other way, does the Company give any warranty, express or implied, as to the adequacy, safety, or other characteristics of any structures, equipment, wires, appliances or devices owned, installed or maintained by the Customer-Generator or leased by the Customer-Generator from third parties, including without limitation the Generating Facility and any structures, equipment, wires, appliances or devices appurtenant thereto.
18. **Customer-Generator and Generating Facility Information.** By signing this Agreement, the Customer-Generator expressly agrees and authorizes the Company to: (1) request and obtain from Customer-Generator and its contractors, vendors, subcontractors, installers, suppliers or agents (collectively "Customer-Generator Agents"), at no cost to Company, information related to the Generating Facility, including but not limited to Watts, Vars, Watt Hours, current and voltage, status of the Generating Facility, inverter settings, any and all recorded event or alarm logs recorded, (collectively "Generating Facility Data") that Company reasonably determines are needed to ensure the safe and reliable operation of the Generating Facility or the Company's system; or (2) make such modifications to the Customer-Generator's system, at no cost to the Company, that Company determines, in its reasonable discretion, are needed to ensure the safe and reliable operation of the Generating Facility or the Company's system. Customer-Generator expressly agrees and irrevocably authorizes Customer-Generator Agents to disclose such

Customer-Generator Data to Company and to make such modifications to the Customer-Generator's Generating Facility upon request by Company.

19. **Additional Information.** The Company reserves the right to request additional information from Customer-Generator relating to the Generating Facility, where reasonably necessary, to serve the Customer-Generator under this Agreement or to ensure reliability, safety of operation, and power quality of the Company's system.
20. **No Material Changes to Generating Facility.** The Customer-Generator agrees that no material changes or additions to the Generating Facility shall be made without having obtained prior written consent from the Company, which consent shall not be unreasonably withheld. In no event may the Total Rated Capacity of the Generating Facility exceed 100 kW. If a Generating Facility changes ownership, the Company may require the new Customer-Generator and/or Owner/Operator to complete and execute an amended Agreement or new Agreement, as may be applicable.
21. **Notices.** Any notice required under this Agreement shall be in writing and mailed at any United States Post Office with postage prepaid and addressed to the Party, or personally delivered to the Party at the address identified in Exhibit A (Description of Generating Facility), or if the Party is the Company, to the address provided on the last page of this Agreement. Changes in such designation may be made by notice similarly given. Notice sent by mail shall be deemed to have been given on the date of actual delivery or at the expiration of the fifth day after the date of mailing, whichever is earlier.
22. **Certification by Licensed Electrical Contractor.** Generating and interconnection systems must comply with all applicable safety and performance standards of the National Electrical Code (NEC), Institute of Electrical and Electronic Engineers (IEEE), and accredited testing laboratories such as the Underwriters Laboratories (UL), and where applicable, the rules of the Commission, or other applicable governmental laws and regulations, and the Company's interconnection requirements, in effect at the time of signing this agreement. This requirement shall include, but not be limited to, the interconnection provisions of the Company's Rule 14H, as authorized by the Commission. Upon request by Company, Customer-Generator shall cause a Licensed Electrical Contractor, as agent for Customer-Generator, to certify that once approved by the Company, the proposed Generating Facility will be installed to meet all preceding requirement(s).
23. **Force Majeure.** For purposes of this Agreement, "Force Majeure Event" means any event: (a) that is beyond the reasonable control of the affected party; and (b) that the affected party is unable to prevent or provide against by exercising reasonable diligence, including the following events or circumstances, but only to the extent they satisfy the preceding requirements: (a) acts of war, public disorder, insurrection or rebellion; floods, hurricanes, earthquakes, lighting, storms, and other natural calamities; explosions or fires; strikes, work stoppages, or labor disputes; embargoes ; and sabotage. If a Force Majeure Event prevents a party from fulfilling any obligations under this Agreement, such party will promptly notify the other party in writing, and will keep the other party informed on a continuing basis of the scope and duration of the Force Majeure Event. The affected party will specify in reasonable detail the circumstances of the Force Majeure Event, its expected duration, and the steps that the affected party is taking to mitigate the effects of the event on its performance. The affected part will be entitled to suspend or modify its performance of obligations under this Agreement, other than the obligation to make payments then due or becoming due under this Agreement, but only to the extent that the effect of the Force Majeure Event cannot be mitigated by the use of reasonable efforts. The affected party will use reasonable efforts to resume its performance as soon as possible.
24. **Good Engineering Practice.**
  - (a) Each party agrees to install, operate and maintain its respective equipment and facilities and to perform all obligations required to be performed by such party under this Agreement in accordance with good engineering practice in the electric industry and with applicable laws, rules, orders and tariffs.
  - (b) Wherever in this Agreement and the attached Exhibits the Company has the right to give specifications, determinations or approvals, such specifications, determinations and/or approvals shall be given in accordance with the Company's standard practices, policies and procedures, which may include the Company's Electric Service Installation Manual, the Company's

Engineering Standard Practice Manual and the IEEE Guides and Standards for Protective Relaying Systems.

25. **Insurance.** The following insurance provisions are only applicable to Generating Facilities with a Total Rated Capacity greater than 16 kW but not exceeding 100 kW:

The Customer-Generator shall, at its own expense and during the term of the Agreement and any other time that the Generating Facility is interconnected with the Company's system, maintain in effect with a responsible insurance company authorized to do insurance business in Hawaii, the following insurance or its equivalent at Company's discretion that will protect the Customer-Generator and the Company with respect to the Generating Facility, the Generating Facility's operations, and the Generating Facility's interconnection with the Company's system:

A commercial general liability policy, covering bodily injury and property damage combined single limit of at least the following amounts based on the Total Rated Capacity of the generator (for solar systems—Total Rated Capacity of the generator or inverter, whichever is lower, can be used with appropriate technical documentation on inverter, if not higher Total Rated Capacity will be used), for any occurrence. Generating Facilities up to 16kW are exempt and are not required to have a commercial general liability policy.

| Commercial General Liability (or equivalent) Coverage Amount | Total Rated Capacity of the Generating Facility     |
|--|---|
| \$1,000,000  | Greater than 30 kW and less than or equal to 100 kW |
| \$500,000  | Greater than 16 kW and less than or equal to 30 kW  |
| \$0  | Up to 16 kW   |

The Customer-Generator has responsibility to determine if higher limits are desired and purchased. Said insurance shall name the Company, its directors, officers, agents, and employees as additional insureds, shall include contractual liability coverage for written Agreements and agreements including this Agreement, and shall include provisions stating that the insurance will respond to claims or suits by additional insureds against the Customer-Generator or any other insured thereunder. Customer-Generator shall immediately provide written notice to the Company should the required insurance be cancelled, limited in scope, or not renewed upon expiration. "Claims made" policies are not acceptable, unless the Customer-Generator agrees to maintain coverage in full effect at all times during the term of this Agreement and for THREE (3) years thereafter. The adequacy of the coverage afforded by the required insurance shall be subject to review by the Company from time to time, and if it appears in such review that risk exposures require an increase in the coverages and/or limits of this insurance, the Customer-Generator shall make such increase to that extent and any increased costs shall be borne by the Customer-Generator. The insurance required hereunder shall provide that it is primary with respect to the Customer-Generator and the Company. Initially, certificates of insurance must be provided to the Company prior to executing the Agreement and any parallel interconnection. Receipt of any evidence of insurance showing less coverage than requested is not a waiver of the Customer-Generator's obligations to fulfill this provision. The Customer-Generator's indemnity and other obligations shall not be limited by the foregoing insurance requirements. Any deductible shall be the responsibility of the Customer-Generator.

Alternatively, where the Customer-Generator is a governmental entity, Customer Generator may elect to be self-insured for the amounts set forth above in lieu of obtaining insurance coverage to those levels from an insurance company.

26. **Miscellaneous.**

- (a) **Disconnection and Survival of Obligations.** Upon termination of this Agreement, the Generating Facility shall be disconnected from the Company's system. The termination of this Agreement shall not relieve the Parties of their respective liabilities and obligations, owed or continuing at the time of termination.
- (b) **Governing Law and Regulatory Authority.** This Agreement was executed in the State of Hawaii and must in all respects be interpreted, governed, and construed under the laws of the State of Hawaii. This Agreement is subject to, and the parties' obligations hereunder include, operating in full compliance with all valid, applicable federal, state, and local laws or ordinances, and all applicable rules, regulations, orders of, and tariffs approved by, duly constituted regulatory authorities having jurisdiction.

- (c) **Amendment, Modifications, or Waiver.** This Agreement may not be altered or modified by either of the Parties, except by an instrument in writing executed by each of them. None of the provisions of this Agreement shall be considered waived by a Party unless such waiver is given in writing. The failure of a Party to insist in any one or more instances upon strict performance of any of the provisions of this Agreement or to take advantage of any of its rights hereunder shall not be construed as a waiver of any such provisions or the relinquishment of any such rights for the future, but the same shall continue and remain in full force and effect. This Agreement contains the entire agreement and understanding between the Parties, their agents, and employees as to the subject matter of this Agreement. Each party also represents that in entering into this Agreement, it has not relied on any promise, inducement, representation, warranty, agreement or other statement not set forth in this Agreement.
- (d) **Termination of Existing Agreement.** This Agreement shall supersede any existing agreement, if any, under which Customer-Generator is currently operating the Generating Facility and any such agreement shall be deemed terminated as of the date this Agreement becomes effective.
- (e) **Assignment.** This Agreement may not be assigned by either Party without the prior written consent of the other party. Such consent shall not be unreasonably withheld.
- (f) **Binding Effect.** This Agreement shall be binding upon and inure to the benefit of the parties hereto and their respective successors, legal representatives, and permitted assigns.
- (g) **Relationship of Parties.** Nothing in this Agreement shall be deemed to constitute any Party hereto as partner, agent or representative of the other party or to create any fiduciary relationship between the Parties.
- (h) **Limitations.** Nothing in this Agreement shall limit the Company's ability to exercise its rights or expand or diminish its liability with respect to the provision of electrical service pursuant to the Company's tariffs as filed with the Commission, or the Commission's Standards for Electric Utility Service in the State of Hawaii, which currently are included in the Commission's General Order Number 7, as either may be amended from time to time.
- (i) **Execution of Agreement; Multiple Counterparts.** This Agreement may be executed in two or more counterparts, each of which is deemed an original but all constitute one and the same instrument binding all Parties notwithstanding that all of the Parties are not signatories to the same counterparts. Signatures may be provided in original ("wet") form or by other means intended to preserve the original graphic and pictorial appearance of the signature, such as as photocopy. A copy of a Party's signature shall be considered an "original" signature for purposes of this Agreement.

27. **Generator/Equipment Certification**

Generating Facilities that utilize inverter technology must be compliant with *Institute of Electrical and Electronics Engineers IEEE Std 1547* and *Underwriters Laboratories UL 1703* and *UL 1741* in effect at the time this Agreement is executed. By signing below, the Applicant certifies that the installed generating equipment will meet the appropriate preceding requirement(s) and can supply documentation that confirms compliance, including a certification of the same from the Installing Electrical Contractor upon request by the Company.

**IN WITNESS WHEREOF**, the Parties hereto have caused two originals of this Agreement to be executed by their duly authorized representatives. This Agreement is effective as of the date first set forth above.

**CUSTOMER-GENERATOR**

By: \_\_\_\_\_  
Signature Date

Name (Print): \_\_\_\_\_

Company Name (if applicable): \_\_\_\_\_

Title (if applicable): \_\_\_\_\_

**OWNER/OPERATOR**

**(if different from Customer-Generator)**

Not Applicable

By: \_\_\_\_\_  
Signature Date

Name (Print): \_\_\_\_\_

Company Name (if applicable): \_\_\_\_\_

Title (if applicable): \_\_\_\_\_

**HAWAIIAN ELECTRIC COMPANY**

By: \_\_\_\_\_  
Signature To be filled out by the Company Date To be filled out by the Company

Name (Print): \_\_\_\_\_  
To be filled out by the Company

Title: \_\_\_\_\_  
To be filled out by the Company

**Contact us by mail or email:**

**Hawaiian Electric**  
connect@hawaiianelectric.com  
Distributed Energy Resources  
P.O. Box 2750, CP12-SE  
Honolulu, HI 96840

**EXHIBIT A**

**DESCRIPTION OF GENERATING FACILITY**

Under no circumstances shall a Customer-Generator interconnect and operate a generating facility in parallel with the Company's electric system without prior written approval by the Company in the form of a fully executed Agreement. Generating facilities that incorporate the use of an energy storage device, e.g. battery storage, regardless of whether such energy storage device is intended to operate in parallel with the Company's transmission and/or distribution facilities, shall obtain an interconnection review by the Company pursuant to this Agreement. Energy storage systems that are intended to be installed by an Eligible Customer-Generator after Company's execution of an Agreement shall constitute a material change and addition to a generating facility and shall require interconnection review pursuant to this Rule prior to installation.

**1. Customer-Generator Information**

Name (print): \_\_\_\_\_

**Property Address:** \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

Active Electric  
Service Account #: \_\_\_\_\_ Meter #: \_\_\_\_\_ TMK: \_\_\_\_\_

Phone: \_\_\_\_\_ Cell: \_\_\_\_\_ Email: \_\_\_\_\_

Mailing Address is the same as the Property Address

**Mailing Address:** \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

**2. Owner-Operator Information**

Not Applicable

Name (print): \_\_\_\_\_

Company: \_\_\_\_\_  
(If applicable)

Mailing Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

Phone: \_\_\_\_\_ Cell: \_\_\_\_\_ Email: \_\_\_\_\_

**3. Electrical Contractor**

Electrical Contractor: \_\_\_\_\_ Hawai'i License #: \_\_\_\_\_

Mailing Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

Phone: \_\_\_\_\_ Cell: \_\_\_\_\_ Email: \_\_\_\_\_

Supply certification that the generating system will be installed and inspected in compliance with the local Building/Electrical code of the County of:

Honolulu     Maui     Hawai'i

Generating System Building Permit # (to be filled out by the Company upon the Company's approval and execution of Agreement):

To be filled out by the Company

**4. Insurance**

Not Applicable (less than or equal to 16 kW)

Insurance Carrier: \_\_\_\_\_

**5. General Technical Information (Attached)**

**Single Line Diagram** (if the Generating Facility is less than 30 kW)     **Three Line Diagram** (if the Generating Facility's capacity is greater than or equal to 30 kW)     **Relay List and Trip Scheme** (if applicable)

**6. Generator Qualifications**

Generator Type:

Photovoltaic with DC Inverter (the Customer Self Supply program does not allow other generators)

What is the system's Maximum Export capability?

Less than 30 kW

Maximum Generating Capability: \_\_\_\_\_ kW                      Maximum Export: \_\_\_\_\_ kW

Greater than or equal to 30 kW but less than or equal to 100 kW (include Exhibit A-1 and Exhibit B)

Maximum Generating Capability: \_\_\_\_\_ kW                      Maximum Export: \_\_\_\_\_ kW  
Maximum Site Load without Generation: \_\_\_\_\_ kW                      Minimum Site Load without Generation: \_\_\_\_\_ kW

**7. Interconnecting Equipment Technical Data**

Generator Disconnect Information:

Manufacturer: \_\_\_\_\_ Catalog #: \_\_\_\_\_

Type: \_\_\_\_\_ Rated Amps: \_\_\_\_\_ Rated Volts: \_\_\_\_\_

Fused *or*  Non-Fused |  Single Phase *or*  Three Phase (include Exhibit A-1) |  Uses multiple disconnects

Mounting Location: \_\_\_\_\_

Will an interposing transformer be used between the generator and the point of interconnection?

No     Yes (include Exhibit A-1)

**8. Generator Technical Information**

Photovoltaic System Information:

| Micro Inverter  | Central/String Inverter    | Inverter Manufacturer | Model | Qty. | Nominal AC Output Rating (kW)* | Qty x Nominal AC Output Rating (kW) |
|---|----------------------------|-----------------------|-------|------|--------------------------------|-------------------------------------|
| <input type="checkbox"/> 1  | <input type="checkbox"/> 1 |                       |       |      |                                |                                     |
| <input type="checkbox"/> 2  | <input type="checkbox"/> 2 |                       |       |      |                                |                                     |
| <input type="checkbox"/> 3  | <input type="checkbox"/> 3 |                       |       |      |                                |                                     |
| <input type="checkbox"/> 4  | <input type="checkbox"/> 4 |                       |       |      |                                |                                     |
| <input type="checkbox"/> 5  | <input type="checkbox"/> 5 |                       |       |      |                                |                                     |
| Total Inverter Capacity (kW):   |                            |                       |       |      |                                |                                     |
| Micro Inverter  | Central/String Inverter    | Module Manufacturer   | Model | Qty. | STC Rating (kW)*               | Quantity x STC Rating (kW)          |
| <input type="checkbox"/> 1  | <input type="checkbox"/> 1 |                       |       |      |                                |                                     |
| <input type="checkbox"/> 2  | <input type="checkbox"/> 2 |                       |       |      |                                |                                     |
| <input type="checkbox"/> 3  | <input type="checkbox"/> 3 |                       |       |      |                                |                                     |
| <input type="checkbox"/> 4  | <input type="checkbox"/> 4 |                       |       |      |                                |                                     |
| <input type="checkbox"/> 5  | <input type="checkbox"/> 5 |                       |       |      |                                |                                     |
| Total Module Capacity (kW):   |                            |                       |       |      |                                |                                     |
| Total Capacity of Inverter #:   |                            | 1:                    | 2:    | 3:   | 4:                             | 5:                                  |
| <b>Total System Capacity (kW):</b>  |                            |                       |       |      |                                |                                     |
| Total System Capacity is the combined sums of the lesser of the AC or DC capacities per inverter. |                            |                       |       |      |                                |                                     |

\*All equipment ratings must match those listed on their manufacturer's specification sheets.



**9. Energy Storage System Information**

Not Applicable

*Specification sheets must be provided for all equipment listed in the section below*

| Micro Inverter                            | Central/String Inverter    | Energy Storage System Manufacturer | Model | Qty. | Size kW | Max Capacity kW | Rated kW Discharge | Rated kW Charge | Qty. x Size kW |
|---|----------------------------|------------------------------------|-------|------|---------|-----------------|--------------------|-----------------|----------------|
| <input type="checkbox"/> 1                | <input type="checkbox"/> 1 |                                    |       |      |         |                 |                    |                 |                |
| <input type="checkbox"/> 2                | <input type="checkbox"/> 2 |                                    |       |      |         |                 |                    |                 |                |
| <input type="checkbox"/> 3                | <input type="checkbox"/> 3 |                                    |       |      |         |                 |                    |                 |                |
| <input type="checkbox"/> 4                | <input type="checkbox"/> 4 |                                    |       |      |         |                 |                    |                 |                |
| <input type="checkbox"/> 5                | <input type="checkbox"/> 5 |                                    |       |      |         |                 |                    |                 |                |
| Total Energy Storage System Capacity (kW) |                            |                                    |       |      |         |                 |                    |                 |                |

**Description of Energy Storage System Operations:**

Will the energy storage system be used only as an Emergency Backup System?

No  Yes

Describe mode(s) of operation (e.g. charge and discharge timing; does the system match the load with PV and battery?)

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Will the distribution grid be used to charge the storage device?

No  Yes, charging periods: \_\_\_\_\_

Will power be exported to the grid?

No  Yes, maximum export to the grid: \_\_\_\_\_

**EXHIBIT A-1**

**DESCRIPTION OF GENERATING FACILITY – ADDITIONAL INFORMATION**

**[ADDITIONAL INFORMATION FOR GENERATING FACILITIES THAT HAVE A TOTAL SYSTEM CAPACITY GREATER THAN 30 KW OR THREE-PHASE ELECTRICAL SERVICE]**

**Interconnecting Equipment Technical Data**

Transformer Data  Not Applicable

*A copy of transformer Nameplate and Manufacturer's Test Report may be substituted*

Transformer Primary (Volts): \_\_\_\_\_ Transformer Secondary (Volts): \_\_\_\_\_  
 Delta  Wye  Wye Grounded |  Delta  Wye  Wye Grounded  
 Size: \_\_\_\_\_ KVA Transformer Impedance: \_\_\_\_\_ % on \_\_\_\_\_ KVA Base

Transformer Fuse Data  Not Applicable

*Attach fuse manufacturer's Minimum Melt & Total Clearing Time-Current Curves*

At Primary Voltage  At Secondary Voltage

Manufacturer: \_\_\_\_\_ Type: \_\_\_\_\_ Size: \_\_\_\_\_ Speed: \_\_\_\_\_

Transformer Protection (if not fuse)  Not Applicable

Please describe: \_\_\_\_\_

Generator Main Circuit Breaker  Not Applicable

*A copy of circuit breaker's Nameplate and Specification Sheet may be substituted*

Manufacturer: \_\_\_\_\_ Type: \_\_\_\_\_

Continuous Load Rating (Amps): \_\_\_\_\_ Interrupting Rating (Amps): \_\_\_\_\_ Trip Speed (Cycles): \_\_\_\_\_

Feeder Circuit Breaker  Not Applicable

*Attach copy of any proposed Time-Overcurrent Coordination Curves*

Current Transformer Data  Not Applicable

*Attach copy of Manufacturer's Excitation & Ratio Correction Curves*

| Manufacturer | Type | Accuracy Class | Proposed Ratio Connection |
|--------------|------|----------------|---------------------------|
|              |      |                | /5                        |
|              |      |                | /5                        |

**EXHIBIT B**  
**CUSTOMER-GENERATOR-OWNED GENERATING FACILITY**  
**AND INTERCONNECTION FACILITIES**

**[THIS EXHIBIT IS ONLY APPLICABLE TO GENERATING FACILITIES EQUAL TO OR GREATER THAN 30 kW OR WITH THREE-PHASE ELECTRICAL SERVICE. DO NOT INCLUDE THIS EXHIBIT IF NOT APPLICABLE.]**

**1. Generating Facility**

- a. Compliance with laws and standards. The Generating Facility, Generating Facility design, and Generating Facility drawings shall meet all applicable national, state, and local laws, rules, regulations, orders, construction and safety codes, and shall satisfy the Company's Distributed Generating Facility Interconnection Standards, Technical Requirements ("Interconnection Standards"), as set forth in Rule 14, Paragraph H.1 of the Company's tariff.
- b. Avoidance of adverse system conditions. The Generating Facility shall be designed, installed, operated and maintained so as to prevent or protect against adverse conditions on the Company's system that can cause electric service degradation, equipment damage, or harm to persons, such as:
- Unintended islanding.
  - Inadvertent and unwanted re-energization of a Company dead line or bus.
  - Interconnection while out of synchronization.
  - Overcurrent.
  - Voltage imbalance.
  - Ground faults.
  - Generated alternating current frequency outside of permitted safe limits.
  - Voltage outside permitted limits.
  - Poor power factor or reactive power outside permitted limits.
  - Abnormal waveforms.
- c. Specification of protection, synchronizing and control requirements. The Customer-Generator shall provide the design drawings, operating manuals, manufacturer's brochures/instruction manual and technical specifications, manufacturer's test reports, bill of material, protection and synchronizing relays and settings, and protection, synchronizing, and control schemes for the Generating Facility to the Company for its review, and the Company shall have the right to specify the protection and synchronizing relays and settings, and protection, synchronizing and control schemes that affect the reliability and safety of operation and power quality of the Company's system with which the Generating Facility is interconnected ("Facility Protection Devices/Schemes").
- d. Generating Facility protection. The Customer-Generator is solely responsible for providing adequate protection for the Generating Facility.
- e. Customer-Generator Interconnection Facilities.
- (i) The Customer-Generator shall furnish, install, operate and maintain interconnection facilities (such as circuit breakers, relays, switches, synchronizing equipment, monitoring equipment, and control and protective devices and schemes) designated by or acceptable to the Company as suitable for parallel operation of the Generating Facility with the Company's system ("Customer-Generator Interconnection Facilities"). Such facilities shall be accessible at all times to authorized Company personnel.
  - (ii) The Customer-Generator shall comply with the Company's Interconnection Standards.
  - (iii) 1) Single-line diagram of the Generating Facility, 2) relay list, trip scheme and settings of the Generating Facility, 3) Generating Facility Equipment List, and 4) three-line diagram

HAWAIIAN ELECTRIC COMPANY, INC.

(if the Generating Facility's capacity is greater than or equal to 30 kW), which identify the circuit breakers, relays, switches, synchronizing equipment, monitoring equipment, and control and protective devices and schemes, shall, after having obtained prior written consent from the Company, be attached to Exhibit A and made a part hereof at the time the Agreement is signed. The single-line diagram shall include pertinent information regarding operation, protection, synchronizing, control, monitoring, and alarm requirements. The single-line diagram and three-line diagram shall expressly identify the point of interconnection of the Generating Facility to the Company's system. The relay list, trip scheme and settings shall include all protection, synchronizing and auxiliary relays that are required to operate the Generating Facility in a safe and reliable manner. The three-line diagram shall show potential transformer and current transformer ratios, and details of the Generating Facility's configuration, including relays, meters, and test switches.

- f. Approval of Design Drawings. If the Generating Facility's capacity is greater than or equal to 30 kW, the single-line diagram, relay list, trip scheme and settings of the Generating Facility, and three-line diagram shall be approved by a Professional Electrical Engineer registered in the State of Hawaii prior to being submitted to the Company. Such approval shall be indicated by the engineer's professional seal on all drawings and documents.

**2. Verification Testing.**

- a. Upon initial parallel operation of the Generating Facility, or any time interface hardware or software is changed, a verification test shall be performed. A licensed professional engineer or otherwise qualified individual shall perform verification testing in accordance with the manufacturer's published test procedure. Qualified individuals include professional engineers, factory trained and certified technicians, and licensed electricians with experience in testing protective equipment. The Company reserves the right to witness verification testing or require written certification that the testing was performed.
- b. Verification testing shall also be performed every four years. The Company reserves the right to perform, at its expense, additional verification testing. All verification tests prescribed by the manufacturer shall be performed. If wires must be removed to perform certain tests, each wire and each terminal shall be clearly and permanently marked. The Customer-Generator shall maintain verification test reports for inspection by the Company.
- c. Inverters shall be verified once per year as follows: once per year the Customer-Generator shall operate the customer generator system disconnect switch and verify the Generating Facility automatically shuts down and does not reconnect with the Company's system until the Company's system continuous normal voltage and frequency have been maintained for a minimum of 5 minutes. The Customer-Generator shall maintain a log of these operations for inspection by the Company.
- d. Any system that depends upon a battery for trip power shall be checked once per month for proper voltage. Once every four (4) years the battery shall either be replaced or have a discharge test performed. The Customer-Generator shall maintain a log of these operations for inspection by the Company.
- e. Tests and battery replacements as specified in this section 2 of Exhibit B shall be at the Customer-Generator's expense.

**3. Inspection of the Generating Facility.**

- a. The Company may, in its discretion and upon reasonable notice not to be less than 24 hours (unless otherwise agreed to by the Company and the Customer-Generator), observe the construction of the Generating Facility (including but not limited to relay settings and trip schemes) and the equipment to be installed therein.
- b. Within fourteen days after receiving a written request from the Customer-Generator to begin producing electric energy in parallel with the Company's system, the Company may inspect the

Generating Facility (including but not limited to relay settings and trip schemes) and observe the performance of the verification testing. The Company may accept or reject the request to begin producing electric energy based upon the inspection or verification test results.

- c. If the Company does not perform an inspection of the Generating Facility (including but not limited to relay settings and trip schemes) and observe the performance of verification testing within the fourteen-day period, the Customer-Generator may begin to produce energy after certifying to the Company that the Generating Facility has been tested in accordance with the verification testing requirements and has successfully completed such tests. After receiving the certification, the Company may conduct an inspection of the Generating Facility (including but not limited to relay settings and trip schemes) and make reasonable inquiries of the Customer-Generator, but only for purposes of determining whether the verification tests were properly performed. The Customer-Generator shall not be required to perform the verification tests a second time, unless irregularities appear in the verification test report or there are other objective indications that the tests were not properly performed in the first instance.
- d. The Company may, in its discretion and upon reasonable notice not to be less than 24 hours (unless an apparent safety or emergency situation exists which requires immediate inspection to resolve a known or suspected problem), inspect the Generating Facility (including but not limited to relay settings and trip schemes) and its operations (including but not limited to the operation of control, synchronizing, and protection schemes) after the Generating Facility commences operations.

**4. Operating Records and Procedures.**

- a. The Company may require periodic reviews of the maintenance records, and available operating procedures and policies of the Generating Facility.
- b. The Customer-Generator must separate the Generating Facility from the Company's system whenever requested to do so by the Company's System Operator pursuant to this Agreement. It is understood and agreed that at times it may not be possible for the Company to accept electric energy due to temporary operating conditions on the Company's system, and these periods shall be specified by the Company's System Operator. Notice shall be given in advance when these are scheduled operating conditions.
- c. Logs shall be kept by the Customer-Generator 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. The Company shall have the right to review these logs, especially in analyzing system disturbance.

**5. Changes to the Generating Facility, Operating Records, and Operating Procedures.**

- a. The Customer-Generator agrees that no material changes or additions to the Generating Facility as reflected in the single-line diagram, relay list, trip scheme and settings of the Generating Facility, Generating Facility Equipment List, and three-line diagram (if the Generating Facility's capacity is greater than or equal to 30 kW), shall be made without having obtained prior written consent from the Company, which consent shall not be unreasonably withheld.
- b. As a result of the observations and inspections of the Generating Facility (including but not limited to relay list, trip scheme and settings) and the performance of the verification tests, if any changes in or additions to the Generating Facility, operating records, and operating procedures and policies are required by the Company, the Company shall specify such changes or additions to the Customer-Generator in writing, and the Customer-Generator shall, as soon as practicable, but in no event later than thirty (30) days after receipt of such changes or additions, respond in writing, either noting agreement and action to be taken or reasons for disagreement. If the Customer-Generator disagrees with the Company, it shall note alternatives it will take to accomplish the same intent, or provide the Company with a reasonable explanation as to why no action is required by good engineering practice.

**6. Generating Facility Equipment List.**

The Generating Facility shall include the following equipment:

[Specific items to be attached as necessary. The Generating Facility Equipment List, together with the single-line diagram, relay list and trip scheme, and three-line diagram (if the Generating Facility's capacity is greater than or equal to 30 kW), should be attached to this Exhibit B.]

**EXHIBIT C**  
**COMPANY-OWNED INTERCONNECTION FACILITIES**

(To be filled out by Company)

**1. Description of Company Interconnection Facilities**

The Company will purchase, construct, own, operate and maintain all interconnection facilities required to interconnect the Company's system with the Generating Facility at \_\_\_ volts, up to the point of interconnection.

The Company Interconnection Facilities, for which the Customer-Generator agrees to pay, include:  
[Need to specify the interconnection facilities. If no interconnection facilities, state "None".]

**2. Customer-Generator Payment to Company for Company Interconnection Facilities, Review of Generating Facility, and Review of Verification Testing**

The Customer-Generator shall pay to the Company the total estimated interconnection cost to be incurred by the Company (Total Estimated Interconnection Cost), which is comprised of (i) the estimated cost of the Company Interconnection Facilities, (ii) the estimated engineering costs associated with a) developing the Company Interconnection Facilities and b) reviewing and specifying those portions of the Generating Facility which allow interconnected operation, and (iii) witnessing and reviewing the verification testing. The following summarizes the Total Estimated Interconnection Cost:

| Description                                       | Estimated Cost (\$) [If no cost, state "None".] |
|---|---|
|   |   |
| <b>Total Estimated Interconnection Cost (\$):</b> |   |

The Total Estimated Interconnection Cost, which, except as otherwise provided herein, is non-refundable, shall be paid by the Customer-Generator fourteen (14) days after receipt of an invoice from the Company, which shall be provided not less than thirty (30) days prior to start of procurement of the Company Interconnection Facilities.

Within thirty (30) days of receipt of an invoice, which shall be provided within fourteen (14) days of the final accounting, which shall take place within sixty (60) days of completion of construction of the Company Interconnection Facilities, the Customer-Generator shall remit to the Company the difference between the Total Estimated Interconnection Cost paid to date and the total actual interconnection cost (Total Actual Interconnection Cost). The latter is comprised of (i) the total costs of the Company Interconnection Facilities, and (ii) the total engineering costs associated with a) developing the Company Interconnection Facilities and b) reviewing and specifying those portions of the Generating Facility which allow interconnected operations as such are described in Exhibit A, and (iii) reviewing the verification testing. If in fact the Total Actual Interconnection Cost is less than the payments received by the Company as the Total Estimated Interconnection Cost, the Company shall repay the difference to the Customer-Generator within thirty (30) days of the final accounting.

If the Agreement is terminated prior to the Customer-Generator's payment for the Total Actual Interconnection Cost (or the portion of this cost which has been incurred) or prior to the Company's repayment of the over collected amount of the Total Estimated Interconnection Cost (or the portion of this cost which has been paid), such payments shall be made by the Customer-Generator or Company, as appropriate. If payment is due to the Company, the Customer-Generator shall pay within thirty (30) days of receipt of an invoice, which shall be provided within fourteen (14) days of the final accounting, which shall take place within sixty (60) days of the date the Agreement is terminated. If payment is due to the Customer-Generator, the Company shall pay within thirty (30) days of the final accounting.

All Company Interconnection Facilities shall be the property of the Company.

**3. Operation, Maintenance and Testing Costs**

The Company will bill the Customer-Generator monthly and the Customer-Generator will, within 30 days after the billing date, reimburse the Company for any costs incurred in operating, maintaining or testing the Company Interconnection Facilities. The Company's costs will be determined on the basis of outside service costs, direct labor costs, material costs, transportation costs, applicable overheads at time incurred and applicable taxes. Applicable overheads will include such costs as vacation, payroll taxes, non-productive wages, supervision, tools expense, employee benefits, engineering administration, corporate administration, and materials handling. Applicable taxes will include the Public Service Company Tax, and Public Utility Fee.



## APPENDIX II

### TECHNICAL SPECIFICATIONS FOR CUSTOMER SELF-SUPPLY SYSTEMS

The following technical specifications are intended to provide guidelines to facilitate the interconnection and parallel operation of Self-Supply Systems with the utility's Distribution System. These technical specifications have been established to maintain safety, reliability, and power quality standards for all utility customers and personnel. Unless otherwise defined herein, capitalized terms shall have the definitions set forth in Rule 14, Paragraph H ("Rule 14H").

#### Technical Specifications –

- **Maximum System Size.** The Generating Facility shall have a capacity of not more than one hundred kilowatts (100 kW).
- **Host Load Only.** The Generating Facility shall be sized and designed such that all of the Generating Facility's output is consumed by the Eligible Customer-Generator's load ("Host Load").
- **Non-Export Requirements.** The Generating Facility shall be designed to minimize the transfer of electrical energy from the Generating Facility to the utility. The Generating Facility shall not export electrical energy across the Point of Interconnection, except to provide Grid Support as described in Option 5, including during emergency conditions where Advanced Inverter functions, including functions that result in energy export, shall be provided pursuant to Rule 14H and this Agreement. In any situation in which Rule 22 conflicts with Rule 14H regarding energy export, Rule 14H controls. In order to qualify as a Self-Supply System under the Company's Customer Self-Supply tariff, the Generating Facility must utilize one or more of the following options:

- **Option 1** ("Reverse Power Protection"): To ensure power is never exported across the Point of Interconnection, a reverse power relay may be provided. The default setting for this protective function shall be 0.1% (export) of the service transformer's rating, with a maximum 2.0 second time delay.
- **Option 2** ("Minimum Power Protection"): To ensure at least a minimum amount of power is imported across the Point of Interconnection at all times (and, therefore, that power is not exported, other than for the short time periods noted), an under-power protective function may be provided. The default setting for this Minimum Power Protection shall be 5% (import) of Generating Facility's total gross rating, with a maximum 2.0 second time delay.
- **Option 3** (Certified Non-Islanding Protection): To ensure the incidental export of power is limited to acceptable levels, this option requires that all of the following conditions be met: a) the total gross capacity of the Generating Facility must be no more than 25% of the nominal ampere rating of the Customer-Generator's dedicated service equipment; b) the total gross capacity of the Generating Facility must be no more than 50% of the Customer-Generator's dedicated service transformer capacity rating (this capacity requirement does not apply to Eligible Customer-Generator taking primary service without an intervening transformer); and c) the Generating Facility must be Certified as Non-Islanding.

The ampere rating of the Eligible Customer-Generator's service equipment to be used in this evaluation will be that rating for which the Eligible Customer-Generator's utility service was originally sized or for which an upgrade has been approved. It is not the intent of this provision to allow increased export simply by increasing the size of the Eligible Customer-Generator's service panel, without separate approval for the resize.

- **Option 4** (Relative Generating Facility Rating): This option, when used, requires the net rating of the Generating Facility to be small enough in comparison to its host facility's minimum load such that the use of additional protective functions is not required to ensure that power will not be exported to the Company's Distribution System. This option requires the Generating Facility capacity to be no greater than 50% of the Eligible Customer-Generator's verifiable minimum Host Load over the past 12 months. This option only applies to Eligible Customer-Generators with load profile metering with at least 12 months of historical data.

- **Option 5** (Advanced Inverter Functionality): To prevent the unpermitted reverse power flow, or Net Export, from the Customer's Generating Facility across the Point of Interconnection, the use of an internal transfer relay, Energy Management System, or other Company approved Customer Facility hardware or software system(s) is required. This option must meet the following requirements identified below:
  - 1) **Inadvertent Export:** Inadvertent Export is the unpermitted, unscheduled, and uncompensated export or real power generated from a Customer's Generating Facility and delivered to the Company. The magnitude of Inadvertent Export shall be less than the Generating Facility's Nameplate Rating and the duration shall be less than 30 seconds for any single event. There are no limits to the number events.
  - 2) **Nameplate Rating:** For the purpose of calculating Inadvertent Export, Nameplate Rating is defined as the lesser of (i) the Total Inverter Capacity (kW) or (ii) the sum of the Total Module Capacity and the Total Energy Storage System Capacity (kW) (i.e. the aggregate of the DC-power components), as those amounts are stated in Exhibit A (Description of Generating Facility) of the Customer's Standard Interconnection Agreement for Self-Supply Systems, and as depicted on the single-line diagram and three-line diagram.
  - 3) **Net Export Limit:** Net Export is the cumulative amount of Inadvertent Export energy produced by the Customer's Generating Facility and delivered to the Company. Net Export shall be less than the limit of the Customer's Generating Facility's Nameplate Rating multiplied by one (1) hour per customer billing cycle. The Company will install an ANSI certified meter or similar device to register the Net Export produced by the Customer's Generating Facility per billing cycle.
  - 4) **Grid Support:** Grid Support is the import and export of real and/or reactive power in a controlled and specified manner in order to maintain safety, reliability, and/or power quality. When permitted by the Company and agreed to by the Customer, the Generating Facility may provide Grid Support. Cumulative Grid Support export energy shall be deducted from the Customer's Net Export Limit per billing cycle, so as to not count towards a Generating Facility's Net Export Limit.
  - 5) **Cease to Energize:** Any amount of export of real power across the Point of Interconnection lasting longer than 30 seconds for any single event shall result in a trip of the Customer's Generating Facility within two (2) seconds of exceeding the 30 second duration limit, except to provide Grid Support when permitted by the Company, including during emergency conditions where Advanced Inverter functions, including functions that result in energy export, shall be provided pursuant to Rule 14H and this Agreement. In any situation in which Rule 22 conflicts with Rule 14H regarding energy export, Rule 14H controls. The event reconnection time limit will be a minimum of five (5) minutes, unless otherwise directed by the Company, pursuant to Rule 14, Paragraph H, Appendix I, Required Delay on Reconnection.
  - 6) **Control System Failure:** Where applicable, any failure of the Customer's Generating Facility control system for thirty (30) seconds or more, which includes but is not limited to; the internal transfer relay, Energy Management System, or other Company approved Customer Facility hardware or software system(s) intended to prevent the reverse power flow, shall cause the Customer's Generating Facility to enter a safe operating mode whereby the production of energy from the Generating Facility is autonomously limited to an amount that shall not cause Inadvertent Export to occur until such time that the Customer has reestablished real power output control of the Generating Facility.
- **Advanced Inverter Requirements to Provide Grid Support.** The Generating Facility shall comply with the Advanced Inverter requirements set forth in Rule 14, Paragraph H, Appendix I (Advanced Inverter Generating Facility Design And Operating Requirements). In any situation in which Rule 22 conflicts with Rule 14H regarding energy export, Rule 14H controls.

• **Sample Single Line Diagram**

