



February 25, 2021

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

Dear Commissioners:

Subject: Docket No. 2017-0352 – To Institute a Proceeding Relating to a Competitive Bidding Process to Acquire Dispatchable and Renewable Generation Development of Stage 3 RFP for Hawai'i Island

In response to the Commission's letter dated January 21, 2021, the Hawaiian Electric Companies¹ support and agree with the Commission that the development of a Stage 3 RFP for Hawai'i Island ("Stage 3 RFP") should be "based upon an updated assessment of grid needs for the island."² To that end, the Companies have started the preliminary planning process for a Stage 3 RFP for Hawai'i Island. In advance of any forthcoming status conference, the Companies offer the following explanatory details about their plans and timelines.

In 2020, Hawai'i Island achieved 43.4% RPS and 34.6% total renewable energy. As shown in Figure 1, with the expected return of the Puna Geothermal Venture ("PGV") facility to full output by the end of 2021, the Stage 1 and Stage 2 RFP projects coming online by 2023, and CBRE Phase 2 projects online by 2025, Hawai'i Island's total renewable energy achievement (i.e., RPS-A) is projected to be approximately 80%³ (and 106% RPS). The Hawai'i Island 2021 Adequacy of Supply report filed on January 29, 2021 notes that with the addition of the planned Stage 1 and Stage 2 solar and storage projects, the island's lowest estimated energy reserve margin in 2023-2025 is forecasted to be in the 64-66 percent range, well in excess of the Companies' 30 percent planning guideline.

¹ The "Hawaiian Electric Companies" or "Companies" are Hawaiian Electric Company, Inc., Hawai'i Electric Light Company, Inc., and Maui Electric Company, Limited.

² See the Commission's Letter re: Docket No. 2017-0352 – To Institute a Proceeding Relating to a Competitive Bidding Process to Acquire Dispatchable and Renewable Generation transmitted on January 21, 2021 in the subject proceeding.

³ See the Companies' Supplemental Response to PUC-HECO-IR-46 filed in Docket No. 2018-0088, PBR Investigation, on October 2, 2020. The Waikoloa Village Solar project was initially included but has since withdrawn. The 80% RPS-A achievement does not include the Waikoloa Village Solar project.

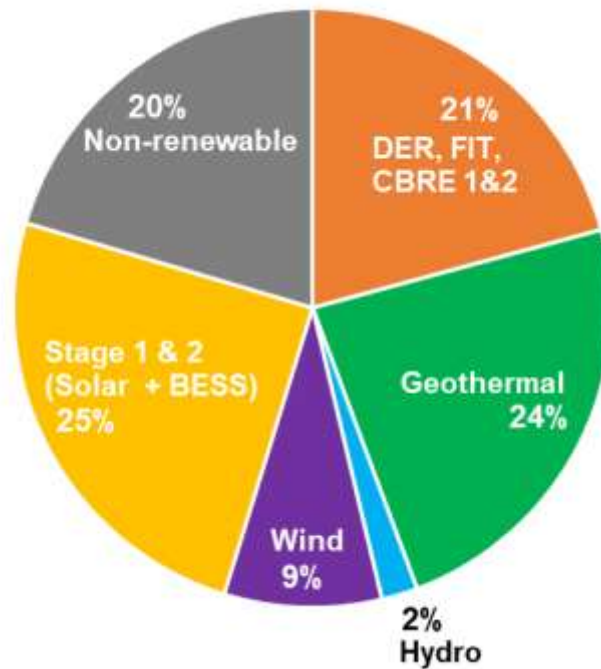


Figure 1 Projected Hawai'i Island Generation by Percent in 2025

Achieving these high levels of renewable energy will fundamentally change the operation of the power system, with much greater reliance on inverter-based resources. Studies are underway to (1) define the required supplemental resources and control strategies and (2) evaluate the effect of weather extremes on variable energy resources, both of which are often correlated. The results of these studies will help to target more dispatchable resources that can complement the availability of the inverter-based resources that have already been procured. The Stage 3 RFP target for additional generation, various grid services, and to meet other objectives such as improved resilience, should be carefully thought out and consistent with the needs of the system to avoid the unintended consequence of burdening customers with increased costs for services that are not needed or underutilized.⁴ To determine the appropriate scope for the Stage 3 RFP, the Companies are assessing the current Hawai'i Island system grid and near-term needs, reviewing

⁴ The Stage 1 and 2 RFP projects employ the Renewable Dispatchable Generation Power Purchase Agreement (“RDG PPA”), an innovative contracting mechanism that is very different than traditional PPA structures. The RDG PPA treats variable generation facilities as fully dispatchable and commits monthly lump sum payments for that availability of potential energy and dispatch of the facility regardless of the actual energy dispatched. Thus, the procurement scope must be sized correctly to ensure the energy potential and ancillary services procured pursuant to a PPA is utilized and customers receive the associated benefits.

geographic diversity of resources as a means to improve system resilience, and conducting an evaluation of the technical and operational requirements for the system to remain operable, reliable, and resilient with the future resource mix.

The Companies will require several months to update grid needs, resource plans, and prepare an RFP that is reflective of the best path forward to achieve a greater level of renewable energy on the system while positioning the grid with the ability to accommodate new technologies in the long-term. The Companies' timeline and options are discussed below.

The Stage 3 RFP should be consistent with the Integrated Grid Planning Process to ensure value

It is important that the resources selected in a Stage 3 RFP are tailored to meet the future needs of the Hawai'i Island system, considering the current and planned grid-scale and distributed resource acquisitions. The Integrated Grid Planning ("IGP") process has been discussed and vetted with the Commission and stakeholders over the last two-plus years, and as such, the Companies recommend that the Stage 3 RFP be integrated into the IGP process, either on an accelerated basis or as part of the current procedural schedule.

As directed by the Commission,⁵ the parties to Docket No. 2018-0165 will file their comments on the Companies' IGP Inputs & Assumptions by February 25, 2021, with the Companies filing reply comments on March 4, 2021.

In its Updated Workplan,⁶ the Companies estimated that grid needs assessments would be complete around July 2021, not including the additional time that the Commission provided for stakeholder feedback. As a means to accelerate the Stage 3 RFP, the Companies are amenable to prioritizing the Hawai'i Island's Grid Needs Assessment subsequent to Commission guidance expected some time after March 4, 2021 in the IGP proceeding.

Alternatively, the Companies can proceed with the Inputs & Assumptions⁷ that the Companies have published and filed with the Commission on January 19, 2021 to accelerate the Grid Needs Assessment step in the IGP process. The Companies note that the Inputs & Assumptions have been vetted through stakeholders through multiple stakeholder and working group meetings and believe that when coupled with a robust set of sensitivities, can inform the

⁵ See Order No. 37604 issued on February 4, 2021 in Docket No. 2018-0165, Instituting a Proceeding to Investigate Integrated Grid Planning.

⁶ See Figure 2 of the Companies' Updated Workplan filed in Docket No. 2018-0165 on January 19, 2021 ("Updated Workplan").

⁷ See Attachment to the Updated Workplan.

near-term needs for the Stage 3 RFP. Any course correction received from the Commission or parties in Docket No. 2018-0165 subsequent to March 4, 2021 can be incorporated into the next IGP cycle (for Hawai‘i Island), which could begin after the conclusion of the Stage 3 RFP.

The Companies have commenced work on a robust set of sensitivities using the RESOLVE models that have been provided in Docket No. 2019-0323. The work includes:

1. **Base Plan:** The Base Plan includes the retirement of Hill 5-6, Puna Steam and assumes the expansion of PGV to 46 MW. Power purchase agreements for the HEP facility and existing variable renewable projects are assumed to terminate at the end of their contract term to allow for their capacity to be re-optimized through RESOLVE. The Base Plan will also adopt a managed charging profile for electric vehicles and updated resource costs that reflect the Federal ITC changes that were published in December 2020. The RESOLVE model will also assume that PV, wind, BESS, and synchronous condensers can be built from 2025 and new thermal units from 2030.
2. **First Year Available:** A sensitivity will be performed that allows thermal units to be built from 2025, consistent with other resource options available in the model.
3. **Low Renewable Generation:** A sensitivity will be performed to evaluate how periods of low energy production from wind and PV resources can be addressed. Modeling cases will consider low PV generation and low wind generation separately as well as the combined effects of low generation from both resource types based on historical data. Low renewable production will be examined over a short duration (e.g., a one week period) and a longer duration (e.g., an extended period of several weeks).

The Companies could also evaluate a scenario that models distributed energy resources (“DER”) that participate in grid services, as contemplated in the IGP solution evaluation optimization working group;⁸ however, those scenarios and sensitivities are currently being assessed in the DER proceeding (Docket No. 2019-0323).

⁸ Available at

https://www.hawaiianelectric.com/documents/clean_energy_hawaii/integrated_grid_planning/stakeholder_engagement/working_groups/solution_evaluation_and_optimization/20200602_wg_seo_deliverable_draft_v1.pdf at Appendix E.

The result of these sensitivities in RESOLVE will be validated through the Company's production simulation model, PLEXOS, summarized, and shared with stakeholders for further discussion prior to proceeding with development of the Stage 3 RFP.

The Updated Workplan contemplates a competitive procurement subsequent to the completed Grid Needs Assessment around September 2021. However, for Hawai'i Island, the Companies recommend the Stage 3 RFP functions as the Integrated Solution Sourcing⁹ step following the completion of the Hawai'i Island Grid Needs Assessment (either on an accelerated schedule or as directed by the Commission).

Schedule for Grid Needs Assessment and Stage 3 RFP

If the Commission desires a Stage 3 RFP on an accelerated basis, the Companies believe that they can complete their RESOLVE and PLEXOS modeling analysis by the end of April 2021 for review by the Commission and stakeholders in the IGP proceeding. The Companies will make a high-level system security assessment based on the Stage 2 RFP interconnection requirements studies and the outputs of the RESOLVE and PLEXOS plans to compress the schedule. An additional high-level analysis, if needed, will require an additional two months, as this would require the use of PSS/E and PSCAD models to assess transient stability and inverter control interactions.

The Commission could provide 30 days for stakeholder review and comment of the completed Grid Needs Assessment or other duration determined by the Commission. Once those plans are accepted by the Commission, a draft RFP can be issued within two months.

Ideas to Streamline Procurement/Interconnection Process

The Companies have proposed and received feedback on various ideas for streamlining the interconnection and procurement processes. Suggestions that could apply to a Stage 3 RFP include:

- Identifying existing substation sites for interconnection to obviate the need for developers to construct new substations for interconnection. This will require additional transmission analysis to identify these locations. In this regard, to streamline

⁹ See Updated Workplan at pages 9-10. The integrated solution sourcing step includes the sourcing of resources for system needs, which generally involves identification and acquisition of services through three general methods: pricing, programs, and competitive procurements.

- this step, areas that developers are seeking to develop for various technologies in response to this all-source RFP would assist in reducing the duration of this analysis.
- Exclusion of sites that would require major transmission upgrades. For example, the northern Waikoloa loop of Hawai'i Island's 69 kV transmission system will be used to deliver all three Stage 1 and 2 RFP projects equating to 120 MW of battery energy storage (the Hawai'i Island peak load is approximately 180 MW). The looped transmission system was not designed to transmit large sums of generation. Major transmission upgrades would be required for additional interconnections in that location.

The challenge of reaching a 100% renewable future cannot be accomplished by one entity alone, and requires the dedicated focus, constant collaboration, and agility of many parties in order to overcome unexpected events such as the COVID-19 pandemic or extreme weather events. The Companies appreciate the Commission's consideration of the discussion above, and look forward to further discussion about the development of the Stage 3 RFP at the status conference.

Sincerely,

/s/ Greg Shimokawa

Greg Shimokawa
Acting Director, Renewable Acquisition

c: Division of Consumer Advocacy

Chun, Marisa

From: puc@hawaii.gov
Sent: Thursday, February 25, 2021 4:00 PM
To: Chun, Marisa
Subject: Hawaii PUC eFiling Confirmation of Filing

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