DRAFT

REQUEST FOR PROPOSALS

FOR

RENEWABLE DISPATCHABLE GENERATION

AND

ENERGY STORAGE

ISLANDS OF O‘AHU AND HAWAI‘I

APRIL 3, 2025

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Chapter 1: Introduction and General Information

Hawaiian Electric Company, Inc. and Hawai‘i Electric Light Company, Inc. (individually or jointly referred to as the "Company" or "Hawaiian Electric")[1] seek proposals on O‘ahu and Hawai‘i Island to acquire renewable dispatchable energy generation, renewable firm capacity, and energy storage through this Request for Proposals ("RFP"), as further described in Section 1.2. Hawaiian Electric will target the acquisition of such resources in a manner consistent with the findings and planning methodologies of the IGP Report.[2]

The Company seeks five general types of projects in this RFP: (1) new variable renewable dispatchable generation projects (with or without energy storage systems),[3] (2) new standalone energy storage projects, (3) new firm renewable dispatchable generation projects, (4) Proposals from existing renewable generation projects, or existing fossil fuel projects that convert to a renewable source, for new terms after the expiration of their current agreements, and (5) Proposals from existing renewable generation projects adding energy storage systems.

Through this RFP, the Company intends to contract, upon mutually acceptable terms, (a) variable renewable dispatchable generation projects using its Model Renewable Dispatchable Generation Power Purchase Agreement ("RDG PPA"), which treats variable generation facilities as fully dispatchable; (b) firm[4] dispatchable generation projects using its Model Firm Renewable Dispatchable Generation Power Purchase Agreement ("Firm PPA"); and (c) standalone energy storage projects using its Model Energy Storage Purchase Agreement ("ESPA"). Collectively, these model purchase agreements are referred to as the "IGP Contracts" and separately as an "IGP Contract."[5] If selected, such Proposers will be required to execute an applicable IGP Contract. If a proposed Project utilizes a technology that is not encompassed by the IGP Contracts provided, the terms of the most applicable IGP Contract will be modified, with new terms added, as appropriate, to address the specific technology and/or component.[6] Proposers of existing generation projects proposing to add an energy storage component with grid forming capability may submit a bid even if the term of their current PPA expires after the target Guaranteed Commercial Operations Date ("GCOD") of this RFP.

In order to proceed toward development of its Project, all selected Proposals must agree to an applicable IGP Contract to provide the required electric services to the Company, which contract will be negotiated between the Company and Proposer and also subject to review and approval by the State of Hawai‘i Public Utilities Commission ("PUC" or the "Commission"). Proposers

[1] Hawaiian Electric Company, Inc., Maui Electric Company, Limited, and Hawai‘i Electric Light Company, Inc. are each doing business as "Hawaiian Electric" and have jointly registered "Hawaiian Electric" as a trade name with the State of Hawai‘i Department of Commerce and Consumer Affairs, as evidenced by Certificate of Registration No. 4235929, dated December 4, 2024.

[2] This RFP will also seek to acquire amounts targeted but not procured from the Company's previous Stage 3 RFPs.

[3] Any proposed photovoltaic ("PV") project must be paired with an energy storage component.

[4] For "firm" generation projects, other than during periods of outage and deration, up to 100% of the Project's contract capacity is available at any time for Company dispatch, independent of source energy resource availability.

[5] Herein, the term "IGP Contract" will be used generically to refer to the applicable purchase agreement for that technology (i.e., RDG PPA, Firm PPA, or ESPA).

[6] Proposers shall contact the Company if there is any uncertainty as to which IGP Contract most closely aligns with a Proposer's intended technology.

are instructed to thoroughly review the applicable IGP Contract, attached as Appendix J, L, and M, that represents the technology of a proposed Project. The structure of the RDG PPA, Firm PPA and ESPA intends to provide monthly payments to the Proposer by the Company (e.g., Lump Sum Payment, Capacity Charge payment), based upon the availability of the energy potential or contract capacity, as applicable, of the Facility, regardless of the actual energy dispatched. In exchange, the Company maintains full dispatch control of the Facility as needed. Under the RDG PPA, Firm PPA and ESPA, each Facility must meet certain performance requirements to receive the full Lump Sum Payment/Capacity Charge payment (as applicable) each month. The Firm PPA also permits Proposers to include a separate monthly Energy Charge payment.[7] RDG PPA and ESPA projects may not propose a separate Energy Charge payment. The requirements in this RFP ensure that each Facility is available to the Company for dispatch to meet system needs. The Company intends to use all Projects selected for the Final Award Group in accordance with the performance and dispatchability requirements described in each applicable IGP Contract.

The Company will evaluate Proposals using the evaluation and selection process described in Chapter 4. The Company will evaluate and select Proposals for each island separately, based on both price and non-price factors that impact the Company, its customers, and communities affected by the proposed Projects.

The number of Proposals that the Company may select for each island in this RFP depends on, among other things, the quality and cost-effectiveness of Proposals received in response to this RFP; economic comparison to other RFP responses; updates to the Company's forecasts; transmission and distribution availability; and changes to regulatory or legal requirements. If attractive Proposals are received that will provide energy and other services in excess of the targeted amounts, the Company will consider selecting such Proposal(s) if benefits to its customers are demonstrated. Similarly, the Company may, in its sole discretion, opt to select Projects that, combined, fall below the targeted amounts.

All requirements necessary to submit a Proposal are stated in this RFP, including its appendices.

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

1.1 Authority and Purpose of the Request for Proposals

This RFP is consistent with the Integrated Grid Planning Framework for Competitive Bidding ("Framework" or "Competitive Bidding Framework"), which was approved for use in the first round of integrated grid planning by Order No. 41568, issued on February 25, 2025 in Docket No. 2018-0165.

[7] The Energy Charge payment would be based on actual production and delivery of energy to the grid. The Firm PPA allows the Company dispatch rights and does not guarantee Seller any amount of energy will be delivered to the Point of Interconnection. In the event that the Company does not accept any energy at the Point of Interconnection, the Company will not pay any Energy Charge payment.

1.2 General RFP Information

1.2.1 Consistent with the findings and planning methodologies of the Company's Integrated Grid Plan, filed in Docket No. 2018-0165 on May 12, 2023 and the Supplemental Response filed on November 15, 2023 (collectively, the "IGP Report"), the primary purpose of this RFP is to stabilize rates and advance energy equity, grow the marketplace for large-scale renewables, create a modern and resilient grid, and secure reliability and resiliency of the Company System.

This RFP is the first in a series of rolling procurements, designed to align with the Integrated Grid Plan Preferred Plans ("Preferred Plan") (available at https://hawaiipowered.com/igpreport/). Procurement fulfillment will be dependent on the types of Proposals received in this RFP. The Company may consider selecting Proposals that will provide additional energy and other services in excess of or less than the targeted amounts depending on whether such Proposals demonstrate benefits to customers and meet the needs of the grid. Subject to PUC approval of this RFP, subsequent issuance(s) of this RFP will not require further approval unless significant substantive changes are introduced. The Company intends to issue subsequent iterations of this RFP approximately fourteen (14) months after the issuance of the prior RFP, following a notification filing and thirty (30) day notice period.

Rolling Procurement	**Project GCOD[8]**	**O'ahu**	**Hawai'i**	**Maui**
Round 1	No later than March 1, 2030	Energy: 750 GWh Stability: 350 MW[9] grid forming resources or equivalent	Energy: 435 GWh Stability: 115 MW[10] grid forming resources or equivalent	N/A
	No later than December 1, 2032[11]	N/A	Firm Capacity:[12] 60 MW	N/A

[8] GCOD deadlines in subsequent iterations of this IGP RFP are subject to change based on then-current status of projects selected in previous procurements.
[9] System stability requirements will be evaluated during the Detailed Evaluation set forth in Section 4.7 below.
[10] System stability requirements will be evaluated during the Detailed Evaluation set forth in Section 4.7 below.
[11] The Company encourages a GCOD of December 1, 2030 or earlier.
[12] For firm generation, up to 100% of the contract capacity is available for Company dispatch at any time, except during periods of outage and deration, independent of source energy resource availability.

	No later than December 1, 2033	Firm Capacity:[13] 81 MW	N/A	N/A
Succeeding Round(s)	No later than December 1, 2033	Energy: 232 GWh, plus any remaining Round 1 needs, plus consideration for other projects withdrawn in previous procurements	TBD, based on any remaining Round 1 needs plus consideration for other projects withdrawn in previous procurements	Energy: 230 GWh plus consideration for other projects withdrawn in previous procurements

1.2.2 Projects that are not selected to the Final Award Group for the first issuance of this RFP, or choose to withdraw from this RFP, are not precluded from resubmitting the proposed Project for consideration in a subsequent issuance of this RFP.

1.2.3 Prospective proposers with Projects that may not be ready for immediate development due to a longer technology development period or projects with long-lead infrastructure requirements (e.g., new transmission lines or substations, or upgrades to existing transmission or substations that will not meet this RFP's stated GCOD requirement) are invited to participate in a future long-term RFP.

1.2.4 In addition to the RFP documents, Proposers should review the IGP Report, the 2024 IGP Action Plan Annual Update, as well as related resources, available at hawaiipowered.com/igpreport/. The IGP Report informs Proposers of the modeling analysis that was performed to develop the recommended grid needs and shape the basis of this RFP, including the manner in which the modeling software chose to dispatch resources based on Company System need.

1.2.5 Section 2.1.1 describes the grid needs sought as part of this RFP. The needs were primarily determined based on the Preferred Plans for Oʻahu and Hawaiʻi Island. The Company made minor adjustments to the Preferred Plan to reflect actual projects acquired through the Stage 3 RFP and energy from facilities that have power purchase agreements that will expire in the near future. Oʻahu needs are based on unmet capacity and energy needs from the Oʻahu Stage 3 RFP that were assumed to be procured in the Preferred Plan, renewable energy and capacity that have withdrawn from the Stage 3 RFP process, and existing PPAs set to expire in the near future. Grid-forming capacity needs identified in the Preferred Plan are also included in this RFP for Oʻahu.

The variable generation needs for Hawaiʻi Island are based on existing PPAs set to expire in the near term, renewable energy and capacity that have withdrawn from the Stage 3

[13] For firm generation, up to 100% of the contract capacity is available for Company dispatch at any time, except during periods of outage and deration, independent of source energy resource availability.

RFP process, and the need for reliable firm generation. The Company added a firm capacity target for Hawai‘i Island based on recent issues with Hawai‘i Island’s firm generation due to the age of the firm generators and the increasing need for more frequent maintenance. Grid-forming capacity needs identified are also included in this RFP for Hawai‘i Island. If the entire firm capacity target is procured and the projects selected from the Stage 3 procurements are successful, the retirement of existing firm generation on Hawai‘i Island could be accelerated.

The Company intends to seek needs targeted for 2035 in the Preferred Plan in a separate RFP for long-term resources that require extended project development time or long-lead infrastructure to complete (i.e., new transmission lines or substations, or upgrades to existing transmission or substations).

Section 8 of the IGP Report provides information to Proposers on the grid needs of the System, including how new resources may be dispatched and used to provide grid services. Proposers can use this information to design their Project to better fit within the resource portfolio.

The modeling analyses conducted in the IGP Report show that new resource additions to be selected include variable renewables, firm renewables, and storage to meet grid needs identified in future years, as opposed to a focus on any particular technology. Therefore, acquiring sufficient resources needed to meet grid needs set forth in the IGP Report will be dependent on the final resource mix selected. As described in this RFP, during the detailed evaluation, modeling will be performed to assess how grid needs are met by the resources in the final selected portfolios.

1.2.6 Each Proposal submitted in response to this RFP must propose a Project that meets the requirements of this RFP without having to rely on the completion or implementation of any other Project or system upgrade outside the scope of its Proposal, or without having to rely on a change in law, rule, or regulation (or an absence of any change in current law, rule, or regulation).

1.2.7 Each Proposer must agree to provide Project financial information, including proposed Project finance structure information and a pro forma cashflow in a form specified in Appendix B. Such information will be used to evaluate Threshold Requirements and Non-Price Criteria (e.g., Financial Compliance, Financial Strength and Financing Plan, Project Development and Schedule) set forth in Sections 4.3 and 4.4.2. The Company may request that Proposers selected to the Final Award Group provide further detailed cost information if requested by the PUC or the Division of Consumer Advocacy (“Consumer Advocate”) as part of the IGP Contract approval process. If requested, such information would be provided to the PUC, Consumer Advocate and the Company pursuant to a protective order in the docket.

1.2.8 No material changes or additions may be made to a Proposal without obtaining prior written consent from the Company. Evaluation of all Proposals in this RFP is based on the information submitted in each Proposal at the Proposal Due Date. If any Proposer requests any Proposal information to be changed after the Proposal Due Date, the

Company, in consultation with the Independent Observer and/or Independent Engineer (if applicable), and in consideration of whether the Company's evaluation of the Proposal is affected, will determine whether the change is permitted.

1.2.9 If selected, Proposers will be responsible for all costs throughout the term of the IGP Contract, including but not limited to all project development costs, completion of an Interconnection Requirements Study ("IRS"), the cost of conducting a greenhouse gas ("GHG") emissions analysis, land acquisition, site control, permitting, financing, construction of the Facility and all Interconnection Facilities, including system upgrades, all energy necessary to operate the Facility, and the operation and maintenance ("O&M") of the Facility and Interconnection Facilities. Payments to the Company for the IRS and GHG emissions analysis, and all other costs payable to the Company, must be made by the Seller as defined in the negotiated IGP Contract, and not a parent or affiliate company.

1.2.10 If selected, Proposers will be solely responsible for the decommissioning of the Project and the restoration of the Site upon the expiration of the IGP Contract, as described in Attachment G to the RDG PPA, Firm PPA or ESPA.

1.2.11 If selected, Proposers shall pursue all available applicable federal and state tax credits (including, without limitation, all available applicable tax credits from the federal Inflation Reduction Act). Proposal pricing must be set to incorporate the benefit of such available federal tax credits. If a Proposal is not eligible for any available tax credits, the Proposal must affirmatively state as such and be prepared to provide the Company with supporting documentation confirming such statement. In the event additional federal tax credits become available through new tax legislation after Proposals are submitted but before Proposals are selected to the Final Award Group, the Company may require applicable Proposals propose an additional downward only price adjustment to allow the benefits of those additional tax credits to be passed along to the Company's customers.

However, to mitigate the risk on Proposers due solely to potential changes to Hawai‘i state's tax credit law before a selected Project reaches Commercial Operations, Proposal pricing shall be set without including any state tax credits. If a Proposal is selected, the IGP Contract for the Project will require the Proposer to pursue the maximum available state tax credit and remit tax credit proceeds to the Company for customers' benefit. The IGP Contract will also provide that the Proposer will be responsible for payment of liquidated damages for failure to pursue such maximum available state tax credit.

1.2.12 Proposers are expected to address permitting requirements and provide a realistic project schedule in their Proposals reflecting the anticipated time necessary to complete all permitting requirements. If selected, Proposers will submit project schedules as required pursuant to Attachment S to the IGP Contract, including creating their schedules using Microsoft Project and submitted in .mpp file format, along with the pdf copy. Demonstrating there is a reasonable expectation the Project will reach GCOD and demonstrating the Company-Owned Interconnection Facilities ("COIF") costs are sufficient are Threshold Requirements in Section 4.3.

1.2.13 Any existing projects must meet all of the terms of this RFP, including agreement to use the applicable IGP Contract attached hereto and meet, at a minimum, the performance metrics and standards included therein. Existing projects should review the current performance metrics and standards in their existing power purchase agreement and compare them to the requirements of the applicable IGP Contract to determine what will be required from their Facility, whether upgrades or replacement of equipment, to meet the new performance metrics and standards under the applicable IGP Contract. The terms of the existing project's power purchase agreement will remain in effect until the earlier to occur of (1) the end of the term of the existing power purchase agreement, or (2) the GCOD of the new IGP Contract, upon which, in either case, the existing power purchase agreement will be terminated and superseded by the IGP Contract.[14] Existing projects not proposing an increase in project capacity will still maintain the right to use their existing point(s) of interconnection but may require potential upgrades and/or replacements to their present interconnection facilities to meet current interconnection requirements.[15] Existing projects are also required to provide a detailed explanation and timeline or schedule of plans to repower, upgrade or refurbish the Facility, as stated in Appendix B, Sections 2.2.4 and 2.14.

1.3 Competitive Bidding Framework

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

1.3.1 The Company will employ a closed-bidding process for this solicitation in accordance with Part IV.H.3 of the Framework where the bid evaluation models, detailed evaluation criteria, Proposal scoring and rationale, and information contained in Proposals submitted by other Proposers will be kept confidential. The Company will provide the Independent Observer with all necessary information for the Independent Observer to understand the evaluation models and to enable the Independent Observer to observe the entire analysis to ensure a fair process.

[14] Certain terms of the IGP Contract may become effective prior to the end of the existing power purchase agreement, e.g., terms governing the PUC approval of the IGP Contract, repowering of the existing project or upgrades to existing interconnection facilities. The IGP Contract may also include provisions to resolve any conflicts between the existing and new contract if any contract provisions overlap, or should special provisions be agreed to during negotiations.

[15] Sections 2.1.11, 2.3, and Appendix H interconnection cost applications may or may not apply to existing projects currently interconnected and operating on the Company System. Please contact the Company via the respective RFP Email Address in Section 1.7 to seek clarification on what is specifically required for an existing project. For example, if an existing facility does not increase the capacity that its existing facility currently generates and does not propose any difference to their Facility technology, then the Company could, but shall not be obligated to, maintain an exception to the single point of failure requirement within Section 2.1.12. Conversely, even existing facilities not proposing any increases in capacity or differences in facility technology could be required to implement new interconnection requirements and equipment to meet current interconnection requirements. An IRS will be required for any existing project in order to ensure the proposed Project conforms with current interconnection standards and to identify any upgrades that may be required.

1.4 Role of the Independent Observer and Independent Engineer

1.4.1 Part III.C.1 and Part III.D.1 of the Framework sets forth the circumstances under which an Independent Observer and Independent Engineer are respectively required in a competitive bidding process. Unless otherwise determined by the Commission, the Independent Observer will advise and monitor all phases of the RFP process and will coordinate with Commission staff throughout the RFP process to ensure that the RFP is conducted in a fair and unbiased manner. In particular, the Company will review and discuss with the Independent Observer decisions regarding the evaluation, disqualification, non-selection, and selection of Proposals.

1.4.2 An Independent Observer will be appointed by the PUC for this RFP.[16] The role of the Independent Observer, as described in the Framework, will include, but is not limited to:

- Monitor all steps in the competitive bidding process
- Monitor communications (and communications protocols) with Proposers
- Monitor adherence to the Company's Code of Conduct
- Submit comments and recommendations, if any, to the PUC concerning the RFP
- Review the Company's Proposal evaluation methodology, models, criteria, and assumptions
- Review the Company's evaluation of Proposals
- Advise the Company on its decision-making
- Participate in dispute resolution as set forth in Section 1.8
- Monitor contract negotiations with Proposers
- Report to the PUC on monitoring results during each stage of the competitive bidding process
- Provide an overall assessment of whether the goals of the RFP were achieved, including any recommendations for improving future competitive bidding processes

An Independent Engineer will be appointed by the PUC for this RFP.[17] The Independent Engineer will provide technical expertise to oversee matters related to technical aspects of the RFP, specifically the engineering designs and interconnection-related components of Proposals. The Independent Engineer's role will include, but not be limited to:

- Review the Company's requirements and standards for interconnection
- Review the Company's technical studies, including hosting capacity and feasibility studies in advance of the issuance of the RFP
- Review the interconnection documents provided by Proposers, including the technical models and the Company's review of such models
- Review and advise the Independent Observer on technical aspects of Proposal evaluation criteria during the selection process

[16] See Order No. 40976, *Opening the Docket*, issued in Docket No. 2024-0258 on August 19, 2024 ("Order No. 40976"), at 9.
[17] Order No. 40976 at 9.

- Monitor all discussions between the Company and Proposers related to interconnection matters in advance of and during the RFP process
- Monitor and verify all interconnection assumptions and parameters of Proposals
- Participate in discussions with the Company and Proposers over interconnection requirements, scope, and cost
- Verify any one-time Net Energy Potential RFP Projection adjustment allowed in Section 2.1.18
- Review requirements imposed on Proposers that have interconnection cost implications
- Review system available MW capacity information to Proposers to ensure accuracy
- Oversee dispute resolution as it relates to technical, interconnection-related issues, including determination of whether an issue is eligible for the Interconnection Dispute Resolution Process, as approved by Order No. 39163 and clarified by Order No. 39286, issued in Docket 2017-0352 ("IDRP")
- Investigate and review interconnection-related costs from the Proposers

1.4.3 The Independent Observer for this RFP is: [**TBD]**
The Independent Observer Email Address: [TBD]

The Independent Engineer for this RFP is: [**TBD]**
The Independent Engineer Email Address: [TBD]

1.5 Communications Between the Company and Proposers

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

1.5.2 All broadcasted communication with prospective Proposers shall be conducted via posts on the Company's RFP website, via electronic mail ("Email") through the address specified in Section 1.7 (the "RFP Email Address"), or via pre-arranged and noticed technical conferences conducted by the Company electronically (via Microsoft Teams or similar format) to provide general or technical information to all prospective Proposers.

1.5.3 Any two-way communication with individual prospective Proposers before selection of the Final Award Group shall be conducted via Email through the RFP Email Address, with the exception of the PIR Meeting, discussed in Section 1.6.

1.5.4 All Proposal submissions shall be submitted only through the Electronic Procurement Platform.

1.5.5 To ensure the Independent Observer can monitor RFP Email communications, all correspondence to the RFP Email Address (Section 1.7) regarding the RFP or a proposed Project shall include the Independent Observer Email Address found in Section 1.4.3 above. In addition to the Independent Observer, Proposers shall also include the Independent Engineer on any technical related questions as reflected in Section 1.4.2.

The Company reserves the right to provide copies of communications that should have included the Independent Observer and/or Independent Engineer but, for whatever reason, did not include either or both of them.

1.5.6 Frequently asked questions, or questions with common issues, submitted by prospective Proposers and responses to those questions that may have general relevance to all Proposers may be posted on the Company's RFP website. The Company reserves the right to post only comments and questions with respective responses it deems are appropriate and relevant to the RFP.

1.5.7 Proposers are allowed to submit questions up to, but no later than, fifteen (15) days before the respective Proposal Due Date (RFP Schedule in Section 3.1, Table 2). The Company will endeavor to respond to all questions no later than five (5) days before the respective Proposal Due Date but make no assurance that it will be able to do so by such time or even before the Proposal Due Date if such question(s) involve significant investigation and/or research that the Company is unable to complete.

1.5.8 After the Proposal Due Date, the Company may contact individual Proposers for purposes of clarifying information in their Proposal(s). Proposers will not have any right to change their Proposal based on the Company's clarifying questions unless such clarification reveals a manifest error in the Proposal that the Company, in its sole discretion, deems necessary to correct in order for the Proposal to continue.

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

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

1.6 PIR Meeting and Preliminary Interconnection Report

1.6.1 After the RFP is issued, during the preparation period prior to the Proposal Due Date, in order to (1) provide an initial understanding of potential interconnection requirements for a prospective project to interconnect to the Company system at the Proposer's selected interconnection point(s), and (2) improve the likelihood that Proposals will include an accurate assessment of necessary interconnection costs for their proposed interconnection point(s), the Company will schedule a mandatory meeting (conducted virtually, not in-person) with each prospective Proposer to discuss the interconnection associated with their potential Project(s) (a "PIR Meeting"). A PIR Meeting is a required prerequisite in order to submit a Proposal in response to this RFP. Based on the information provided in the written request from prospective Proposers, as described in Sections 1.6.2 to 1.6.10 below, the Company will prepare a report (a "Preliminary Interconnection Report" or "PIR") for the prospective Proposer to facilitate the submittal of a complete Proposal with more informed anticipated interconnection costs associated with such Proposal.

1.6.2 Any prospective Proposer seeking to submit a Proposal in response to this RFP must submit to the Company:

- A completed PIR Request (Appendix O) per proposed Project,
- An executed NDA (Appendix E), and
- The applicable PIR Fee (see Section 1.6.5 below).

1.6.3 The PIR Request and the executed NDA must be submitted to the respective island's RFP Email Address no later than the PIR Request Due Date shown in the RFP Schedule in Section 3.1, Table 2. All prospective Proposers must submit their PIR Requests by the PIR Request Due Date to be eligible to participate in this RFP.[18]

1.6.3.1 The PIR Fee shall be submitted in a manner consistent with the requirements applicable to the Proposal Fee, as set forth in Section 3.7.3.

1.6.3.2 The Company will not begin processing a PIR Request, nor will it begin work on the associated PIR until all required information (the PIR Request and executed NDA) and the associated PIR Fee is received. If any request for a PIR Meeting is not yet complete by the PIR Request Due Date, the Company, in its sole discretion, may decline to schedule a PIR Meeting for such prospective Proposer and such prospective Proposer will not be permitted to submit a Proposal in this RFP.

1.6.4 Each prospective Proposer may submit a maximum of three (3) PIR Requests per island for this RFP,[19] each with a maximum of up to three (3) Project variations (variations are described in Section 3.7.2.1), all of which must be completed and submitted prior to the PIR Request Due Date. Prospective Proposers may not change their request or their respective variations prior to the PIR Meeting. If the Company receives fewer PIR Requests than expected, the Company, at its sole discretion, may allow a prospective Proposer to submit additional PIR Requests or additional Project variations within such limits and deadlines as the Company may impose.

1.6.5 IPP and Affiliate Proposers are required to pay a non-refundable PIR Fee as described herein. The PIR Fee per island is $2,000 for a single Project if the Project is interconnecting to a pre-screened location specified in Section 2.3.1, Table 1. If a prospective Proposer submits two or more PIR Requests covering two or more Projects interconnecting to a pre-screened location specified in Section 2.3.1, Table 1, the PIR Fee increases incrementally by $2,000 per Project.

The PIR Fee (including its variations as described in Section 3.7.2) per island is $4,000 for a single Project if the Project is interconnecting to other locations not specified in Section 2.3.1, Table 1. If a prospective Proposer submits two or more PIR Requests

[18] The Company reserves the right to extend the PIR Request Due Date at its discretion, with notice posted to the RFP website.
[19] A maximum of six (6) PIR Requests per Proposer if they submit the maximum three (3) for both islands.

covering two or more Projects interconnecting to a location not specified in Section 2.3.1, Table 1, the PIR Fee increases incrementally by $4,000 per Project.

If a prospective Proposer submits two or more PIR Requests covering two or more Projects proposing to interconnect at both a pre-screened location specified in Section 2.3.1, Table 1, as well as a non-pre-screened location, the PIR Fee (1) for the pre-screened location Project(s) shall be determined as set forth above, and (2) for the non-pre-screened location Project(s) shall be determined as set forth above. The fees per island for each different situation is displayed below:

Number of Projects **per Island**	Fee **per Island**
1 Pre-Screened Location	**$2,000**
2 Pre-Screened Locations	**$4,000** ($2k + $2k)
3 Pre-Screened Locations	**$6,000** ($2k + $2k + $2k)
1 Non-Pre-Screened Locations	**$4,000**
2 Non-Pre-Screened Locations	**$8,000** ($4k + $4k)
3 Non-Pre-Screened Locations	**$12,000** ($4k + $4k + $4k)
1 Pre-Screened Location; **1** Non-Pre-Screened Location	**$6,000** ($2k + $4k)
1 Pre-Screened Location; **2** Non-Pre-Screened Location	**$10,000** ($2k +$4k + $4k)
2 Pre-Screened Locations; **1** Non-Pre-Screened Location	**$8,000** ($2k + $2k + $4k)

If a prospective Proposer is uncertain as the amount of its PIR Fee, such Proposer should contact the Company via the RFP Email Address.

1.6.6 The PIR will identify potential interconnection requirements for the given Project based only on information provided by the prospective Proposer in its PIR Request and such further information available and actually known to the Company at the time that the PIR is prepared. For purposes of completing the PIR, the Company will assume that only the prospective Proposer's Project is interconnecting to the Company System at a particular location. If the Company, in its sole discretion, determines that it is unlikely that a Project and the potential interconnection requirements can be completed by the RFP's GCOD deadline, or that interconnection of the Project at the prospective Proposer's selected interconnection point is either impossible or cost-prohibitive, the Company, to the extent it is able to do so, and subject to all of the disclaimers and limitations of this Section 1.6, will attempt to identify one or more potential alternative interconnection options for the Project. The alternative interconnection option(s), if any, will be described in the PIR.

As noted above, the PIR is based on one Project interconnecting to the Company System at the specific location identified by the Proposer in its PIR Request. Due to the interconnectedness of each island system, it is likely that requirements provided in the PIR will be superseded if any other Proposal proposing to interconnect at the same location is selected. As such, in submitting a PIR Request, requesters understand and acknowledge that any information and/or potential requirements identified in the PIR are non-binding, subject to change, and for informational purposes only and the Company

assumes no responsibility for a prospective Proposer's reliance on the PIR, anything discussed during the PIR Meeting and any subsequent written summary thereof.

The Company makes no representation, warranty or other guarantee or assurance that any information, potential requirements and, if included, any alternative interconnection options, is accurate, complete, or cost-effective. The requestor is solely responsible for its review, interpretation, actions, plans, schedules, costs and contents of any Proposal completed using information obtained from the PIR. Further, the Company undertakes and assumes no obligation to update any information, requirements or options in any PIR once issued and provided to the requestor.

The scheduling and completion of the PIR Meeting and the issuance of a PIR shall not constitute acceptance by the Company of the prospective Proposer's Proposal, as all Proposals must be prepared and submitted in accordance with the procedures and format specified in this RFP. Moreover, issuance of a PIR does not obligate the Company to perform an IRS, nor does it negate any requirement for an IRS. An IRS will be required for all Projects selected to the Final Award Group for this RFP.[20] In the event of a conflict between a PIR and a subsequently prepared IRS, the IRS shall govern.

1.6.7 Consistent with the Eligibility Requirements set forth in Section 4.2, all prospective Proposers are required to request and complete a PIR Meeting with the Company (the Independent Observer and Independent Engineer will be invited to all meetings) to be eligible to submit a Proposal in response to this RFP.[21] The scope of the PIR Meeting shall be limited to discussing the applicable Project's PIR. Other RFP topics not related to interconnection will not be discussed and should be presented as questions to the RFP Email address in Section 1.7. Proposer's counsel may also attend the PIR Meeting, provided that a completed Certification of Counsel for Proposer (Appendix E, Attachment 2) is received by the Company prior thereto, and further provided that counsel for the Company is also present at the meeting. Each PIR Meeting will be scheduled for 1.5 hours each between the hours of 9:00am and 5:00pm, Hawai'i Standard Time ("HST"), and will be scheduled by the Company within the timeframes specified in the RFP Schedule in Section 3.1, Table 2, taking into account, among other considerations, the number of PIR Requests received by the Company and the availability of Company resources. The Company will schedule the Proposer-specific meeting upon receipt of a timely and complete PIR Request and associated materials as described in Section 1.6.2. Any requests to reschedule may be accommodated subject to availability, in the Company's sole discretion. If a Proposer timely submits multiple PIR Requests and all required information and applicable PIR Fees, a single PIR Meeting will be scheduled with the Proposer to discuss all Projects responsive to this RFP.

1.6.8 The information provided by the Company in a PIR Meeting may depend on the clarity and accuracy of the information provided by a prospective Proposer in the PIR Request(s), along with the specificity and detail of the questions and expertise and

[20] Any prior IRS conducted for a Project cannot be used as a substitute for this requirement.
[21] The Independent Observer and Independent Engineer will be invited to all PIR Meetings with prospective Proposers, and will be included on all email conversations and PIR Meeting summary distributions.

sophistication of a prospective Proposer's participants (e.g., technical personnel) present at the PIR Meeting. The Company assumes no responsibility to any prospective Proposers that information provided in one PIR Meeting will be consistent with information provided in another PIR Meeting, both as to content, complexity and scope, all of which is dependent on the level of detail, clarity and accuracy of the information provided, the questions presented and the level of expertise and sophistication of the PIR Meeting participants. The Company will attempt, subject to all of the disclaimers and limitations of this Section 1.6, to answer all questions presented but reserves the right, in its sole and absolute discretion, not to answer any questions posed by a prospective Proposer.

The Company will provide a written meeting summary, subject to all of the disclaimers and limitations of this Section 1.6, to prospective Proposers, as well as the Independent Observer and Independent Engineer, after the PIR Meeting. The summary is not intended to signify formal minutes of the PIR Meeting and may not contain all information discussed at the PIR Meeting. The Company assumes no responsibility for the accuracy of the summarizations of the PIR Meeting. Any inconsistencies should be raised with the Company for clarification. The Company reserves the right, with respect to non-confidential questions raised in any PIR Meeting that may be helpful to other prospective Proposers, to share such information with other prospective Proposers via the Q&A section on the RFP website.

1.6.9 A Proposal submitted to the Company in response to this RFP must be consistent with the specified technology and site information Project characteristics described in the corresponding PIR Request submitted by the prospective Proposer for the Project. A proposed Project's interconnection may deviate from that described in such Project's PIR Request received by the Company; provided, however, that such deviation must have been identified in the PIR Meeting, memorialized in the Company's written meeting summary of the PIR Meeting and, subject to all of the disclaimers and limitations of this Section 1.6, be deemed by the Company to be a reasonable alternative interconnection for the Project. The Company will also allow Proposals to deviate from the project characteristics discussed in the PIR Meeting with the Company's prior written consent, on the condition that topics discussed earlier during the PIR and/or PIR Meeting may or may not apply to the submitted Proposal, and system upgrades will be solely captured during the Interconnection Requirements Study phase. Proposers must obtain the Company's prior written consent through the communications process described in Section 1.5. Any other change to a proposed Project's characteristics that are inconsistent with the proposed Project described in the PIR will not be accepted and will be deemed by the Company to have not completed the mandatory PIR Meeting requirement. All such Proposals not completing a PIR Meeting will be automatically disqualified from this RFP without further review.

1.7 RFP Email Communication

The primary contact for this RFP is:

IGP RFP Team
Hawaiian Electric Company, Inc.

RFP Email Address for prospective Projects on O‘ahu:
oahurenewablerfp@hawaiianelectric.com

RFP Email Address for prospective Projects on Hawai‘i Island:
hawaiirenewablerfp@hawaiianelectric.com

1.8 Dispute Resolution Process

1.8.1 If disputes arise under this RFP, including any disagreement with a position taken by the Independent Observer,[22] except for disputes governed by the IDRP, the provisions of Section 1.8 and the dispute resolution process established in the Framework will control.[23] Because of the nature of the information provided in a PIR and the acknowledged disclaimers and limitations of Section 1.6 with respect to such PIR, the interconnection information, including but not limited to any potential interconnection alternatives contained in such report, is not subject to question or dispute under this Section 1.8, or the dispute resolution process in the Framework.

1.8.1.1 Any person that challenges or contests any aspect of the RFP process must first attempt to resolve any concern with the Company and the Independent Observer ("Initial Meeting"). The Independent Observer will seek to work cooperatively with the parties to resolve any disputes or pending issues and may offer to mediate the Initial Meeting to resolve disputes.

1.8.1.2 Any and all disputes arising out of or relating to the RFP that remain unresolved for a period of twenty (20) days after the Initial Meeting takes place may, upon the agreement of the Proposer and the Company, be submitted to confidential mediation in Honolulu, Hawai‘i (the "Mediation"), pursuant to and in accordance with the agreed upon mediation rules of the American Arbitration Association ("AAA") (or its successor). The Mediation will be administered by an independent mediator selected by the Company from the AAA list of approved mediators that have expertise with the subject of the dispute. Limited evidentiary requirements and pre-mediation procedural conditions shall be implemented and adhered to by the parties. If the parties agree to submit the dispute to Mediation, the Proposer and the Company shall each pay fifty percent (50%) of the cost of the Mediation (i.e., the fees and expenses charged by the mediator) and shall otherwise each bear their own Mediation costs and attorney's fees.

1.8.1.3 If settlement of the dispute is not reached within sixty (60) days after commencement of the Mediation, or if after the Initial Meeting, the parties do not agree to submit any

[22] See Part III.C.7 of the Framework.
[23] See Part V of the Framework.

unresolved disputes to Mediation, the Proposer may submit the dispute to the PUC in accordance with the Framework.

1.8.1.4 In accordance with the Framework, the PUC will serve as the arbiter of last resort for any disputes relating to this RFP. The PUC will use an informal expedited dispute resolution process to resolve the dispute within thirty (30) days, as described in Parts III.B.3 and V of the Framework.[24] There will be no right to hearing or appeal from this informal expedited dispute resolution process.

1.8.1.5 By submitting a Proposal in response to this RFP, each Proposer expressly agrees that if it initiates a dispute resolution process for any dispute or claim submitted in violation of or arising under or relating to this RFP (e.g., a court proceeding, arbitration, etc.), other than as permitted by Section 1.8 of this RFP and the Framework, such dispute shall be dismissed with prejudice and the Proposer filing such dispute or claim shall be responsible for any and all attorneys' fees and costs that may be incurred by the Company or the PUC in order to resolve such claim.

1.8.2 With respect to any disputes that arise under this RFP specific to technical aspects of a Proposal, including interconnection, the Independent Engineer shall determine whether an issue is eligible for the IDRP.

1.9 No Protest or Appeal

No Proposer or other person will have the right to protest or appeal any award, non-award or disqualification of a Project made by the Company except through the dispute resolution process of Section 1.8 of this RFP.

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

1.10 Modification or Cancellation of the Solicitation Process

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

1.10.2 The Company may modify this RFP subject to requirements of the Framework, whereby the modified RFP will be reviewed by the Independent Observer and submitted to the

[24] The Company submits that the informal expedited dispute resolution process does not apply to PUC review of contracts that result from the RFP. See Decision and Order No. 23121, issued in Docket No. 03-0372 on December 8, 2006, at 34-35; Framework Part III.B.4. Further, the informal expedited dispute resolution process does not apply to the Framework's process relating to issuance of a final RFP, and/or to the PUC approval of the RFP because: (1) the Framework (and the RFP) set forth specific processes whereby interested parties may provide input through the submission of comments (see Framework Part IV.B.6.c); and (2) the Framework's dispute resolution process applies to "Bidders" and there are no "Bidders" at this stage in the RFP process (see Framework Part III.B.7 and Part V).

PUC thirty (30) days prior to its issuance, unless the PUC directs otherwise.[25] The Company will follow the same procedure with regard to any potential postponement, withdrawal, or cancellation of the RFP or any portion thereof.

Chapter 2: Resource Needs and Requirements

2.1 Scope of the RFP

2.1.1 In this RFP, Hawaiian Electric seeks proposals on O‘ahu to acquire 750 GWh annually of renewable electrical energy, with (1) 350 MW of grid-forming capacity[26] and (2) a GCOD no later than March 1, 2030. This RFP also seeks proposals on O‘ahu to acquire up to 81 MW of firm capacity, with a GCOD no later than December 1, 2033.

In this RFP, Hawaiian Electric also seeks proposals on Hawai‘i Island to acquire 435 GWh annually of renewable electrical energy, with (1) up to 115 MW of grid-forming capacity[27] and (2) a GCOD no later than March 1, 2030. This RFP also seeks proposals on Hawai‘i Island to acquire up to 60 MW of firm capacity, with a GCOD no later than December 1, 2032.[28] On Hawai‘i Island, the Company requires the interconnection of facilities to the transmission system (69 kV) and there is a strong preference to be sited on the east and south part of Hawai‘i Island.

The grid-forming requirement on the O‘ahu and Hawai‘i Island systems may be met by Standalone Storage Projects or Paired Projects with storage inverters able to operate in grid-forming mode as defined in the applicable IGP Contract that are grid chargeable.

2.1.2 Proposals must be submitted as a:

- Project with a single-technology generation component (e.g., wind, biofuel, etc.) that does not include an energy storage component (“Generation Project”);
- Project with both a single-technology variable renewable generation component (e.g., solar, wind, etc.) and an energy storage component (“Paired Project”);

2.1.3 Generation Project or Paired Project with a separate co-located energy storage component (“Co-located Project”) subject to independent dispatch by the Company; or

- Standalone energy storage Project (“Standalone Storage Project”);

Any proposed Project utilizing PV must be proposed as a Paired Project with its energy storage component sized to the minimum capacity and duration requirement. Wind generation may be proposed as a Generation Project, or, if it is proposed with storage,

[25] See Part IV.B.10 of the Framework.
[26] As noted in footnote 9, in Section 1.2.1 above, the total amount of grid forming resources selected will be subject to evaluation during the Detailed Evaluation.
[27] As noted in footnote 10, in Section 1.2.1 above, the total amount of grid forming resources selected will be subject to evaluation during the Detailed Evaluation.
[28] Notwithstanding this requirement, the Company encourages proposals for firm capacity to include a GCOD of December 1, 2030 or earlier.

must be proposed as a Paired Project with an energy storage component sized to the minimum capacity and duration requirement.

In Paired Projects, the generation and energy storage resources are controlled by Company dispatch as a single combined resource. In Co-located Projects, the co-located storage is controlled independent of the generation resource or paired resource(s). Additionally, in Co-located Projects, the co-located storage and the generation resource or paired resource(s) share a single interconnection.

2.1.4 All Proposals with a generation component submitted in response to this RFP must produce renewable electrical energy as defined in the Hawai'i Renewable Portfolio Standards ("RPS") law,[29] as amended from time to time, and the IGP Contract applicable to the Proposal (RDG PPA, Firm PPA, or ESPA). By statute, "Renewable Energy" means energy generated or produced using the following sources: (1) wind; (2) the sun; (3) falling water; (4) biogas, including landfill and sewage-based digester gas; (5) geothermal; (6) ocean water, currents, and waves, including ocean thermal energy conversion; (7) biomass, including biomass crops, agricultural and animal residues and wastes, and municipal solid waste and other solid waste; (8) biofuels; and (9) hydrogen produced from renewable energy sources.[30] So long as any of the following are not specifically excluded as a "biofuel" in a subsequent amendment to the RPS Law, biodiesel, renewable diesel, renewable naphtha, and renewable natural gas are recognized and allowed as "biofuels" for this RFP.

Projects that produce renewable electrical energy with longer or uncertain development timeframes than permitted by this RFP are invited to participate in a future long-term RFP. In addition to producing renewable electrical energy as defined by the RPS law, proposed technologies must also meet the Proven Technology Threshold Requirement as defined and described in Section 4.3.

2.1.5 All Proposals with a generation component that operates on fuel must include any and all costs of such fuel for the entire proposed Firm PPA term in its Proposal, with the exception of biofuel Proposals. Proposals operating on biofuel[31] do not need to include the cost of biofuel in its Proposal cost, but must provide a biofuel price forecast. The Proposal will not have to guarantee the biofuel forecast pricing, but the Company reserves the right to use an alternative appropriate fuel forecast when evaluating the Proposal (i.e., the Company may choose to use the Company's biofuel forecast, or potentially look at more than one fuel forecast for evaluation purposes).

2.1.5.1 All Proposals with a generation component that operates on fuel must also describe the preliminary plan to ensure the satisfaction of the requirements to acquire, transport and

[29] RPS requirements in Hawai'i are codified in Hawai'i Revised Statutes ("HRS") §§ 269-91 through 269-95. "Renewable electrical energy" is defined in HRS § 269-91.
[30] See HRS § 269-91.
[31] Biofuel is defined in HRS § 269-91: "Biofuels" means liquid or gaseous fuels produced from organic sources such as biomass crops, agricultural residues and oil crops, such as palm oil, canola oil, soybean oil, waste cooking oil, grease, and food wastes, animal residues and wastes, and sewage and landfill wastes.

store an adequate supply of fuel required for the operation and maintenance of the Facility, as described in Section 14 of Attachment Y to the Firm PPA.

Alternative fuel management plans that meet the intent of the above requirements may be considered. The fuel requirements may be revisited and adjusted downward in the future if needs so require; provided, that the Company will maintain the right to consent to any fuel supply changes during the term of the IGP Contract.

2.1.5.2 All Proposals with a generation component that operates on fuel must also commit to provide fuel for the entire proposed term of the Firm PPA and, with the exception of biofuel Proposals, provide evidence (e.g., fuel supply contract or letter of intent) that the fuel will be secured for the duration of the Firm PPA term. Proposals operating on biofuel must commit to providing fuel for the entire duration, but do not have to provide evidence of a fuel supply contract for the entire duration of the Firm PPA term. However, Proposals utilizing biofuel must commit to provide evidence of a fuel supply for at least the first 3 years of the Firm PPA term while still accommodating the possible fuel switching provisions of this section.

All Proposals utilizing a fuel source must also specify any minimum monthly, quarterly, and/or annual fuel purchases in its fuel contract. Proposals for facilities that elect to use a liquid or gaseous fuel source must also be capable of operating using fossil fuel in emergency conditions, unavailability of biofuel, or as otherwise requested by the Company, including obtaining the proper permitting, and include the costs for the use of such fuel in the Proposal.[32] Fuel switching is described in Attachment DD to the Firm PPA. Proposals shall demonstrate access to fossil fuel at any time during the term of the Firm PPA. It is the responsibility of the Seller to apply for and obtain applicable permits necessary to operate the Facility as bid by the Proposer in its Proposal and consistent with the terms in the Firm PPA. The Facility must be capable of meeting the performance metrics and standards of the Firm PPA while operating within the limits of such permits throughout the term of the Firm PPA. Any operational constraints inconsistent with the above requirements, including any run-hour limits, must be identified in the Proposal. Proposers are responsible for researching permitting and environmental requirements in existence and identifying such requirements and any resulting operational limits in their Proposal. Proposers shall seek to permit the maximum potential run hours for the stated energy generating capacity of the Facility and not to any stated run-hour limitation proposed by the Proposer.

2.1.6 Proposals that will require Company System upgrades must account for and include such upgrades in the Proposal – including impacts on cost, schedule, and GCOD. Proposals that will require Company System upgrades the construction of which, in the reasonable judgment of the Company (in consultation with the Independent Observer and/or Independent Engineer), creates a significant risk that their Project's GCOD will not be

[32] Requiring fuel switching is consistent with the policy of the State of Hawai'i, as described in Executive Order No. 25-01, "Accelerating Hawai'i's Transition Toward 100 Percent Renewable Energy," issued on January 27, 2025, which states in pertinent part, that "[t]o provide the lowest cost to ratepayers, this [policy] requires collective action and shared accountability to maximize end-use efficiency, demand response, and *fuel switching* to balance new renewable energy projects with affordability, reliability, land use, and resilience." (emphasis added).

met, will not be considered in this RFP. All Company System upgrades may or may not be identified in the Company's PIR to Proposers. The absence of any identified Company System upgrades, however, shall not preclude the necessity of any Company System upgrades identified in the applicable IRS for the Project.

2.1.7 Projects submitted in response to this RFP must be located either on O'ahu or Hawai'i Island.

2.1.8 Proposals may propose a term of any length for the IGP Contract with the understanding that Proposal costs may change for different term lengths. Proposals with terms longer than twenty-five (25) years, however, may require additional terms and conditions for obligatory capital improvements, replacements, refurbishment and upgrades to the Project to ensure that the Facility can be satisfactorily operated and maintained to respond to Company dispatch and meet required performance metrics and Technical and Operational Requirements for the entire term of the IGP Contract.

2.1.9 Proposals must determine and identify their Project Site, interconnection facilities and route of interconnection facilities, Grid Connection Point ("GCP"), and Point(s) of Interconnection ("POI"). Proposers will be required to propose revisions to the IGP Contract to account for multiple POI. Any such revisions shall be subject to Company's review and agreement in its sole discretion. Proposers are reminded that any proposed Project Site must meet all requirements in this RFP and the applicable IGP Contract regardless of any agreements with any landowner for the Project Site. Proposers should perform their own evaluation of these factors in determining whether a site is suitable for their renewable energy project development.

2.1.10 Proposers must locate all Project infrastructure[33] within areas of the proposed Project Site that are:

- outside the 3.2-feet sea level rise exposure area (SLR-XA) as described in the Hawai'i Sea Level Rise Vulnerability, and Adaptation Report (2017);[34]
- not located within a Tsunami Evacuation Zone;[35] and
- not located within the Hawai'i Department of Land and Natural Resources flood map's flood zones A, AE, AEF, AH, AO, VE based on the Federal Emergency Management Agency's Digital Flood Insurance Rate Maps.[36]

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[33] Project infrastructure includes Seller-Owned Interconnection Facilities ("SOIF") and COIF located at the Project Site but does not include any required line extension between the Project and the GCP.

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

[35] See Hawai'i Sea Level Rise Viewer at https://www.pacioos.hawaii.edu/shoreline/slr-hawaii/, and National Oceanic and Atmospheric Administration (NOAA) interactive map in partnership with the State of Hawai'i at https://tsunami.coast.noaa.gov/#/. Projects infrastructure must be outside the "Tsunami Evacuation Zone" (but not necessary to be outside the "Extreme Tsunami Evacuation Zone").

[36] See Hawai'i Department of Land and Natural Resources Flood Hazard Assessment Tool at https://fhat.hawaii.gov/.

All equipment required for a Proposer's Project must be sited within the proposed Project Site with no assumptions that any equipment will be sited on Company property, unless specified by the Company.

2.1.11 Projects must meet the Resilience Requirements stated in Attachments B and G of the applicable IGP Contract.

2.1.12 On O'ahu, Projects must interconnect to either the Company's 138 kV transmission system or 46 kV subtransmission system. The Company notes a strong preference for proposed Projects on O'ahu to interconnect to the transmission system (138 kV). Proposers are encouraged to seek input in deciding whether to interconnect to the 138kV transmission system or the 46 kV subtransmission system where both are options for a particular Proposal. On Hawai'i Island, Projects must interconnect to the Company's 69 kV transmission system. Interconnection to the transmission system is further described in Section 2.3. To the extent the Company's existing land rights for any Company-provided interconnection location are not perpetual, Proposers will remain responsible for securing land rights in the Company's favor for any such Company-provided interconnection location in accordance with the requirements of the applicable IGP Contract.

2.1.13 A Project on O'ahu must be sized greater than or equal to 5 MW. No single point of failure from a Facility on O'ahu shall result in a decreased generating capacity or export measured at the Project's POI greater than 142 MW. A Project on Hawai'i Island must be sized greater than or equal to 2.5 MW. No single point of failure from a Facility on Hawai'i Island shall result in a decreased generating capacity or export measured at the Project's POI greater than 30 MW for the system.

According to the Company's transmission planning criteria, for any transmission element outage, the aggregate generating capacity on any remaining radial transmission circuit will not exceed the aforementioned single point of failure limit for the System.[37] Additionally, in meeting the single point of failure requirement, if the Project's generator step-up transformers are operated in parallel, the parallel step-up transformers must be equal in size (MVA) and have the same electrical characteristics and available tap positions. Each generator step-up transformer must have its own POI not in adjacent positions of the same breaker-and-a-half bay into the Company System that can be independently dispatched via the Company's Energy Management System.

2.1.14 Contracts for Projects selected through this RFP must propose the appropriate IGP Contract as described in Section 3.11. Under the RDG PPA and Firm PPA, the Company

[37] This requirement will be evaluated by the Company as it is dependent on the system topology, generating resources currently or planned (e.g., Stage 2 and 3 RFP projects), as well as the selected portfolio of projects procured in this RFP. A preliminary assessment to meet this requirement with only the proposer's project will be provided in the PIR. An example of complying with this requirement is a Hawai'i Island project greater than 30 MW interconnecting to a Company substation will require at least three transmission lines (other factors may require additional upgrades) connecting to the interconnection substation. Proposals less than 30 MW interconnecting to lines with an aggregated generation capacity greater than 30 MW may also require additional transmission line termination(s).

shall maintain exclusive rights to fully direct dispatch of the Facility, subject to availability of the resource for those Projects using the RDG PPA. Under the Firm PPA, the Company shall maintain the exclusive right to direct any fuel switch for the Facility. Under the ESPA, the Company shall maintain exclusive rights to fully direct the charging and discharging of the Facility. Additionally, due to the critical nature and usage of the Project to support the grid, the ability to control and tune the Facility's response to certain grid events and conditions is an important aspect that will be required of all facilities.

2.1.15 The storage component of a Paired Project will be charged from its generation component during periods when full potential export of the generation component is not being dispatched by the Company. Energy in the storage component will be exported to the Company's System subject to Company dispatch. The storage component of a Paired Project must be sized to support the Facility's Net Nameplate Capacity (in MW)[38] for a minimum of four (4) continuous hours throughout the term of the respective RDG PPA and support a minimum of 365 full charging/discharging cycles per year (or 366 full charging/discharging cycles per leap year).

For example, for a paired 10 MW PV or wind facility, the energy storage component must be able to store and discharge at least 40 MWh of energy in a cycle throughout the term of the RDG PPA.

Paired Projects must also be capable of being 100% charged from the grid at the direction of the Company from the GCOD.

2.1.16 The amount of energy discharged from any energy storage component (Paired Project, Co-located Project or Standalone Storage Project) in a year will be limited to the BESS Contract Capacity (in MWh) multiplied by the number of days in that year. An energy storage component may be dispatched more than once per day, subject to such discharge energy limitations.

2.1.17 Co-located Projects and Standalone Storage Projects will be charged from the grid and provide energy to the Company during times that are deemed by the Company to be beneficial to the System. These facilities must be connected to the grid at all times, with the exception of allowed maintenance periods and periods where the Company has requested the Projects to disconnect from the System.

2.1.18 Standalone Storage Projects must be sized to support the Facility's Net Nameplate Capacity (in MW) for a minimum of four (4) continuous hours throughout the term of the ESPA and support a minimum of 365 full charging/discharging cycles per year (or 366 full charging/discharging cycles per leap year).

For example, for a 10 MW facility, the energy storage component must be able to store and discharge at least 40 MWh of energy in a cycle throughout the term of the ESPA.

[38] See the appropriate IGP Contract for the Net Nameplate Capacity definition.

For Paired Projects, Co-located Projects, and Standalone Storage Projects, the inverter which interfaces between the BESS DC side and AC side must be a grid-forming control type inverter.

2.1.19 Generation Projects or Paired Projects utilizing the RDG PPA must provide a Net Energy Potential ("NEP") RFP Projection for the proposed Facility. The NEP RFP Projection represents the estimated annual net energy potential (in MWh) that could be produced by the Facility and delivered to the POI over a 10-year period with a probability of exceedance of 95%. The NEP RFP Projection represents the potential renewable energy that could be generated by the Facility from the renewable resource and delivered to the POI (i.e., the net energy) assuming all energy is directly exported to the POI in the moment it is generated (full dispatch during all production hours) and never in excess of the Contract Capacity. Since the NEP is intended to be the energy delivered to the POI, the gross energy production should be reduced by auxiliary losses at the Facility including those relatively constant station loads for all components, including storage, as well as other electrical losses, station service, PV system aux loads, and a PV system equivalent availability factor of 98% and PV conversion. Round trip efficiency losses incurred as charging and discharging the storage are not included.

The NEP RFP Projection is based upon the potential to convert a natural energy source into electric energy, and therefore, does not include any export from the energy storage component of the Facility. In other words, since only the generation component of a Project *generates* energy, only its contributions should be counted in the NEP, which is intended to represent the potential net generation expected to be made available to the Company from the Project's siting and generating equipment and design. The benefit of the storage component will be included in the Company's production modeling of the Project dispatch.

The NEP RFP Projection is independent of the actual dispatch of the Facility as dispatch is at the full discretion of the Company. The NEP RFP Projection must reflect any anticipated maintenance and losses such as System degradation and balance of plant losses. The NEP RFP Projection will be used in the RFP evaluation process and therefore Proposers will be held to their provided value.[39] However, after selection to the Final Award Group and prior to the completion of the NEP IE Estimate, as defined in the RDG PPA, the Company will allow the Proposer a one-time upward adjustment to its NEP RFP Projection of up to five percent (5%) above its original Proposal's NEP RFP Projection along with any proportioned change to its Lump Sum Payment as long as the Project's RDG PPA unit price does not change.

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

2.1.20 Proposals utilizing the Firm PPA must provide a Contract Firm Capacity, which is the amount of MW of net dependable active power anticipated to be made available to Company from the Facility at the metering point subject to Company dispatch upon Commercial Operations. Along with the Contract Firm Capacity, Proposers utilizing the Firm PPA should provide an anticipated maintenance schedule and level of reductions expected to the Contract Firm Capacity during maintenance. Proposals must also agree to meet the warranties and guarantees of performance outlined in Section 3.2(B) of the Firm PPA, including, but not limited to, the guaranteed equivalent availability factor of ninety percent (90%), the equivalent forced outage factor of four percent (4%), and no more than three (3) disconnection events per contract year. Additionally, for fast start generation resources no more than two (2) Start-up Failures per contract year. Further, any minimum loads or minimum up-times driven by the technical and operational capabilities of the Facility should also be provided in the Proposal.

2.1.21 Paired Project and Standalone Storage Project Proposals must provide their BESS Contract Capacity (MW/MWh), which is the anticipated maximum net instantaneous active power and maximum energy storage capability (MWh stored that represents a 100% State of Charge) for export to the POI upon Commercial Operations. The BESS Contract Capacity (MW) shall not be less than the Net Nameplate Capacity. Proposals must also specify their Allowed Losses (kWh/24-hour period) which will be utilized for purposes of establishing the limit in Section 2.13 of the ESPA.

2.1.22 Co-located Project Proposals must provide their BESS Contract Capacity (MW/MWh), which is the anticipated maximum net instantaneous active power and maximum energy storage capability (MWh stored that represents a 100% State of Charge) for export to the POI upon Commercial Operations. The BESS Contract Capacity (MW) of a proposed Co-located Project shall not be less than the MW thresholds established in Section 2.1.12 of this RFP. The BESS Contract Capacity (MWh) of a proposed Co-located Project must be sized to support the BESS Contract Capacity (MW) for at least four (4) continuous hours throughout the term of the IGP Contract and support a minimum of 365 full charging/discharging cycles per year (or 366 full charging/discharging cycles per leap year). Proposed Co-located Projects must also specify their Allowed Losses (kWh/24-hour period), which will be utilized for purposes of establishing the limit in Section 2.13 of the ESPA.

2.1.23 Paired Project, Co-located Project, and Standalone Storage Project Proposals must provide a single value Round Trip Efficiency ("RTE"), measured at the POI, that the Facility's BESS component is required to maintain throughout the term of the RDG PPA or ESPA. This RTE value will be used in the RFP evaluation process and therefore Proposers will be held to this provided value as it will become the RTE Performance Metric in Section 2.11 of the RDG PPA or ESPA. Review the applicable IGP Contract for potential liquidated damages assessed against Seller if the BESS does not maintain the required RTE. The RTE is further specified in Appendix B, Section 2.2.4.

2.1.24 Proposals must include a GCOD that is no later than the GCOD deadline specified in Section 2.1.1 of this RFP. A GCOD included in any Proposal shall be the GCOD in any resulting IGP Contract if such Proposal is selected to the Final Award Group. No

Proposer shall be permitted to request any change to the GCOD proposed in its Proposal. The Company stresses that, as stated in Section 4.3, Projects must fully demonstrate that there is a reasonable expectation the Project will reach the specified GCOD. Failure to meet this Threshold Requirement will result in a Proposal not advancing through this RFP. For any Proposal involving an existing project with an existing PPA expiring prior to March 1, 2030, such Proposal (a) must specify a GCOD no later than the date the existing PPA term expires, and (b) must not be contingent on the negotiation and extension of the existing PPA.

2.1.25 Proposals interconnecting on O'ahu's subtransmission-level must provide a new ring bus switching station to interconnect subtransmission lines and the new generation resource. The switching station must connect to at least two subtransmission lines in a manner that ensures all of the generation resource's contract capacity is available to the system at all times, even when one subtransmission line is taken offline (i.e., both lines must have the capacity to allow full output of the plant on either line).

2.1.26 Part II.D.2 of the Framework requires that the Company include a Contingency Plan section in an RFP that addresses a near-term reliability or statutory need, in the event that the RFP does not adequately address that need. Please see Appendix P for the IGP RFP Contingency Plan.

2.2 Technical and Operational Requirements

Proposals must meet the Technical and Operational Requirements and attributes set forth in this RFP, and the Technical and Operational Requirements set forth in the respective IGP Contract. Note that Technical and Operational Requirements may differ between islands and by technology. This RFP and the applicable IGP Contract set forth the minimum requirements that all Proposals must satisfy to be eligible for consideration in this RFP. Additional Technical and Operational Requirements may be required based on the results of the IRS.

2.2.1 For Proposals with energy storage components, the functionality and characteristics of the storage must be maintained throughout the term of the IGP Contract since the Company will rely on the capacity the energy storage components provide. To be clear, Proposers may not propose any energy storage degradation for either capacity or efficiency in their Proposals.[40] Energy storage components must comply with the BESS Fire Safety Requirements described in Attachment B of the applicable IGP Contract.

2.2.2 Similarly, for Proposals with PV generation components, Proposers must design their PV generation system to not exceed the model RDG PPA Article 2's degradation factor.

2.2.3 Note that selected Projects shall not sell energy to off-takers or third parties. The Company is not seeking proposals for microgrids and will not pay for availability, energy, capacity, or any other service if a project is being operated in a microgrid mode.

[40] Ensuring that there is no degradation in storage capacity or efficiency over the term of the IGP Contract can be accomplished in a number of ways, including overbuilding or pricing in replacement components. The particular manner in which this requirement is achieved is ultimately up to the Proposer to include in its Proposal.

However, in the event that a landowner requires a project have the capability to provide such services to the landowner, the Company requires such proposals to clearly identify such capabilities and restrictions in the Proposal's executive summary (Appendix B, Section 2.2.2). A Project with microgrid capability must: (1) operate in a grid-connected mode as its primary function, (2) convert from grid-connected mode to island mode only as permitted by the Company in the Company's sole discretion, and (3) return from island mode to grid-connected mode as directed by the Company in the Company's sole discretion.

2.3 Transmission System Information

As specified in Section 2.1.11, projects must interconnect to the Company System at the transmission level (or subtransmission level for O'ahu only). The Company will provide information on and discuss interconnection location(s) with potential Proposers in accordance with Section 1.6.

Proposers should perform their own evaluation of project locations, and the Company does not guarantee any project output or ability to connect based on information provided prior to the completion of an IRS. Reliance on the PIR Meeting and/or PIR is subject to the disclaimers and limitations of Section 1.6 and pursuant thereto, would be superseded by the IRS. For example, even if not noted in a PIR, an IRS may find that a Project causes an effective grounding issue, requiring additional grounding equipment to mitigate the issue.

2.3.1 The Company provides a pre-screened list of interconnection locations identified in Table 1 below. The pre-screened list is a result of the Company's assessment to provide Proposers with more upfront information about the Company's existing transmission lines and substations. The Company determined that these locations will likely require less upgrades to accommodate new resource additions as compared to other non-listed locations – with the goal of interconnecting projects as soon as possible. The line and substation locations were selected to this list based on results from Stage 3 RFP evaluation studies, as well as a review of the feasibility for interconnection. Proposers may request a high-level map identifying the pre-screened lines and substations. Requests shall be directed to the RFP Email Address in Section 1.7 after the execution of the NDA.

On O'ahu, the Company notes a strong preference for proposed Projects to interconnect to the transmission system (138 kV), as well as a preference for such interconnection to be located at CEIP, Hoohana, Kahe, or Koolau substations due to previous studies results indicating the ability to export power from these substations. There are two (2) 46 kV lines that are provided as pre-screened locations, which are all in the Windward side of the island and downstream of the Koolau Substation. These 46 kV lines were identified as potential locations for interconnection in the Company's Renewable Energy Zone study.[41] Notwithstanding the Company's disclosure of these potential locations and its

[41] See Hawaiian Electric Companies' Grid Needs Assessment Methodology Review Point, Book 2 of 2, Exhibit 2 (Dkt. No. 2018-0165), filed November 5, 2021.

preference noted above, a Proposer remains solely responsible for securing the necessary access and use rights and site control for such interconnection at any of these locations.

On Hawai'i Island, the Company notes a strong preference for proposed Projects to be sited on the east side of the island to provide a more geographically balanced (east and west) resource portfolio. There is also a strong preference for proposed Projects to be sited on the south side of the island to address a future need for generation and voltage support (considering the island's load growth) upon the retirement of the Apollo Wind farm.

Table 1
Pre-Screened List of Interconnection Locations

Island	Type	Name	Voltage (kV)	BAAH Gen terminations available (within existing substation footprint)[42]	Stage 3 Injection Capacity[43] (MW)	Notes
Hawai'i	Sub	Kanoelehua	69	1	30	Prioritized REZ Zone 1. East Hawai'i Island
Hawai'i	Sub	Poopoomino	69	3	30	West Hawai'i Island
Hawai'i	Sub	Kamaoa	69	0	n/a	Prioritized REZ Zone 5. South Hawai'i Island
Hawai'i	Line	L6100 Kaumana-Kanoelehua	69	n/a	30	Prioritized REZ Zone 1. East Hawai'i Island
Hawai'i	Line	L6400 Puna-Kanoelehua	69	n/a	30	Prioritized REZ Zone 1. East Hawai'i Island
Hawai'i	Line	L6700 Keahole-Kahaluu	69	n/a	30	REZ Zone 2. West Hawai'i Island
Hawai'i	Line	L6800 Keamuku-Keahole	69	n/a	30	Partially in REZ Zone 2. West Hawai'i Island

[42] Breaker-and-a-half ("BAAH") positions available with the addition of substation equipment, provisions available within the current substation footprint. Locations showing 0 denote no positions available and require an expansion of the substation. Column is only applicable to substation interconnections (i.e., line interconnections denoted with "n/a" are not applicable).

[43] While Company has endeavored to provide more information of potential injection capacities from studies performed prior to the Stage 3 RFP, the Proposer must still complete its own due diligence. Locations showing "n/a" were not studied in the Stage 3 RFP analysis. Available capacities are being provided with the intent to convey the relative availability and only reflects the Company's current understanding. Interconnection of proposed Project capacities will be confirmed in the PIR.

Island	Type	Name	Voltage (kV)	BAAH Gen terminations available (within existing substation footprint)[42]	Stage 3 Injection Capacity[43] (MW)	Notes
Hawai‘i	Line	L7100 Anaehoomalu-Poopoomino	69	n/a	30	REZ Zone 2. West Hawai‘i Island
Hawai‘i	Line	L7300 Waimea-Ouli	69	n/a	30	REZ Zone 4. North Hawai‘i Island
Hawai‘i	Line	L7400 Pepeekeo-Wailuku	69	n/a	17.9	Prioritized REZ Zone 1. East Hawai‘i Island
Hawai‘i	Line	L7500 Keahole-Kailua	69	n/a	30	REZ Zone 2. West Hawai‘i Island.
Hawai‘i	Line	L8400 Pepeekeo-Puueo	69	n/a	25	Prioritized REZ Zone 1. East Hawai‘i Island
Hawai‘i	Line	L8200 Mauna Lani-Anaehoomalu	69	n/a	30	REZ Zone 4. North Hawai‘i Island.
Hawai‘i	Line	L8500 Kaumana-Keamuku	69	n/a	30	Cross island transmission line
Hawai‘i	Line	L8600 Kealia-Kahaluu	69	n/a	9.5	REZ Zone 2. West Hawai‘i Island.
Hawai‘i	Line	L9100 Keahole-Poopoomino	69	n/a	30	REZ Zone 2. West Hawai‘i Island.
Hawai‘i	Line	L9200 Wailuku-Kaumana	69	n/a	17.9	Prioritized REZ Zone 1. East Hawai‘i Island.
Hawai‘i	Line	L9300 Keahole-Kailua	69	n/a	30	REZ Zone 2. West Hawai‘i Island.
Hawai‘i	Line	L9500 Kahaluu-Kailua	69	n/a	30	REZ Zone 2. West Hawai‘i Island.
O‘ahu	Sub	AES	138	1	90	REZ Zone 3. West O‘ahu.
O‘ahu	Sub	Ewa Nui	138	2	284	Prioritized REZ Zone 2.
O‘ahu	Sub	Kahe	138	3	426	REZ Zone 3. West O‘ahu.
O‘ahu	Sub	Hoohana	138	1	90	Prioritized REZ Zone 2. Central Oahu.

Island	Type	Name	Voltage (kV)	BAAH Gen terminations available (within existing substation footprint)[42]	Stage 3 Injection Capacity[43] (MW)	Notes
O‘ahu	Sub	CEIP	138	1	142	REZ Zone 3. West O‘ahu.
O‘ahu	Sub	Koolau	138	1	142	Prioritized REZ Zone 6. East O‘ahu.
O‘ahu	Line	Waiau-Ewa Nui 1	138	n/a	n/a	Partially in Prioritized REZ Zone 2. Waipahu.
O‘ahu	Line	Waiau-Ewa Nui 2	138	n/a	n/a	Partially in Prioritized REZ Zone 2. Waipahu.
O‘ahu	Line	Waiau-Koolau 1	138	n/a	n/a	Koolau Ridge.
O‘ahu	Line	Waiau-Koolau 2	138	n/a	n/a	Koolau Ridge.
O‘ahu	Line	Koolau-Pukele 1	138	n/a	n/a	Partially in Prioritized REZ Zone 6.
O‘ahu	Line	Koolau-Pukele 2	138	n/a	n/a	Partially in Prioritized REZ Zone 6.
O‘ahu	Line	Koolau-Aikahi	46	n/a	15	Partially in Prioritized REZ Zone 6. East O‘ahu.
O‘ahu	Line	Koolau-Kailua	46	n/a	11	Partially in Prioritized REZ Zone 6. East O‘ahu.

2.3.2 The Company reiterates that it provides the pre-screened 138 kV and 46 kV interconnection list for O‘ahu and pre-screened 69 kV interconnection list for Hawai‘i Island to streamline the process for prospective Proposers, as more upfront information is known and provided as locations were based on a preliminary feasibility assessment. Pre-screened lines identified for interconnection are known to have available MW capacity to allow project interconnections. In contrast, lines not included on the pre-screened list have a high likelihood of requiring reconductoring and/or the addition of new transmission lines to the Proposer’s switching station, and/or rebuild or expansion of existing substations. New transmission lines require new terminations at other transmission substations, which may also trigger rebuild, reconfiguration, and/or expansion to accommodate the new terminations.

2.3.3 Notwithstanding the aforementioned intent behind providing the pre-screened interconnection location list, a detailed IRS, when performed, may reveal other adverse system impacts that may further limit a Project's contract capacity or require interconnection upgrades.

2.4 Interconnection to the Company System

2.4.1 The Proposer must provide information pertaining to the design, development, and construction of the Interconnection Facilities. Interconnection Facilities include both the SOIF and the COIF.

2.4.1.1 All Proposals must include a description and conceptual or schematic diagrams of the Proposer's plan to transmit power from the Facility to the Company's System. The proposed Interconnection Facilities must be compatible with the Company's System. In the design, Projects must adequately consider Company requirements to address impacts on the performance, safety, and reliability of the Company System.

2.4.1.2 Proposals must include COIF cost estimates in a form substantively similar to the template provided as Attachment 1 to Appendix H. This will facilitate the Company's evaluation of whether the Proposal included sufficient COIF costs in its Proposal.

2.4.1.2.1 To assist Proposers in developing costs of potential projects, the Company offers interconnection facilities cost and schedule information in Appendix H. The information provided in Appendix H can be used to approximate the cost for COIF, including substation, telecommunications, security, transmission and distribution lines, and project management. Examples of how to apply the per-unit costs provided in Appendix H are provided in Attachment 2 to Appendix H.

2.4.1.2.2 The Company notes that Appendix H cost information is composed of estimates only and should not be viewed as a commitment to, confirmation of, or cap on, such costs, which could change significantly based on numerous factors including but not limited to Project equipment, Project location, interconnection route, other specifics of any Project and outside extenuating factors including but not limited to, inflation, supply chain cost increases and equipment availability. Further, Appendix H is not intended to be an exhaustive list of costs that may be applicable to interconnection of any particular Project. Other costs may be identified by the Company or the subsequent IRS performed for the Project.

2.4.1.3 In addition to the Technical and Operational Requirements and findings of the IRS, the design of the COIF, including power rating, POI with the Company's System, and scheme of interconnection, must meet Company's latest standards.

2.4.1.4 To facilitate Proposers receiving additional information on the Company's required specifications and procedures early in the RFP process, the Company will offer its Engineer, Procure, Construct Specifications for Hawaiian Electric Power Lines and

Substations ("EPC Specifications")[44] to Proposers who request this via the communication method identified in Section 1.7 and upon the execution of an NDA (if not previously executed) and the execution of a separate Confidentiality, Waiver, and Hold Harmless Agreement with the Company provided as Appendix E, Attachment 1 ("HHA"). These EPC Specifications are intended to illustrate the scope of work typically required to administer and perform the design and construction of a Hawaiian Electric substation and power line.

The most updated and applicable Company standards will also be provided later to Projects that are selected to the Final Award Group and continue through PPA negotiations. At that time, if the EPC Specifications have since been updated, the Company will also make an updated version available upon execution of a new HHA to include such updated EPC Specifications.

2.4.1.5 The Company will also make available PIR Meetings to discuss a prospective Project's interconnection plan. Completing a PIR Meeting is mandatory for all Project proposals submitted for this RFP. See Section 1.6.

2.4.1.6 Information and documents related to the interconnection process may also be found at: https://www.hawaiianelectric.com/clean-energy-hawaii/selling-power-to-the-utility/competitive-bidding-for-system-resources. This site provides a detailed overview of the full, three-part interconnection process and reference documents. It includes description of each step in the process, lists of key deliverables, and helpful resources and examples. It also includes a listing of technical documents that may be referenced elsewhere in this RFP.

2.4.1.7 Past PPAs executed with the Company are filed with the PUC and are publicly available on the PUC's Case and Document Management System website. Attachment G and Matrix G-1 of recently filed PPAs contain summarized total estimated interconnection cost information of the COIF and the identification of substation responsibilities. In addition, on March 31, 2022, the Company's Key Performance Metrics Interconnection Experience website went live. The website contains a list of projects and their estimated and actual interconnection costs for the portions of interconnection built by the Company. These resources may also aid Proposers in estimating the costs of their Interconnection Facilities. However, the Company notes that each Project and POI is unique and it is the Proposer's responsibility to ensure it conducts proper due diligence to determine the proper interconnection requirements for its Project. Proposers should therefore not assume that an interconnection configuration and associated interconnection costs for a prior project is suitable and appropriate for its proposed Project.

2.4.1.8 Interconnection Facilities must be designed such that they meet the applicable single-line diagram in Appendix H. Typical substation layouts and COIF Estimating Guidelines can

[44] The Company's EPC Specifications are currently being updated, but the Company will provide these in draft form. The draft is currently being reviewed to ensure consistency between all documents, but the drafts should provide useful guidance to assist with the Proposal development. The Company will not be responsible for updates made to the EPC Specifications after transmittal to a Proposer, even if such update results in the need for a Proposer to make necessary revisions to its designs and/or plans.

be provided to assist with Proposal estimations and familiarize Proposers with the Company's engineering expectations for the Proposer's interconnection facilities. The layouts and design assumptions may not reflect the exact requirements of a Proposer's Project but should provide useful guidance to assist with their Proposal development.

2.4.1.8.1 Transmission and subtransmission level interconnection single-line drawings and notes for O'ahu are provided in Appendix H as Attachment T2 and S1, respectively. Transmission level interconnection single-line drawings and notes for Hawai'i Island are provided in Appendix H as Attachment T1.

2.4.1.8.2 The Company will also make available substation layouts for each pre-screened substation and its COIF Estimating Guidelines. Upon the execution of an NDA provided as Appendix E, Proposers may submit a request via the communication method identified in Section 1.7 for the substation layouts (referenced in Appendix H) and the COIF Estimating Guidelines.

2.4.2 Tariff Rule No. 19 establishes provisions for Interconnection and Transmission Upgrades and can be found at https://www.hawaiianelectric.com/billing-and-payment/rates-and-regulations. The tariff provisions are intended to simplify the rules regarding who pays for, installs, owns, and operates Interconnection Facilities in the context of competitive bidding. As stated in the tariff, in the event there is any conflict between the tariff and this RFP, the provisions of this RFP shall prevail. Proposers shall be required to build the COIF, including the switching station and line work, except for any work in the Company's existing energized facilities and the final tap as described in Appendix H, or work deemed necessary to be performed by the Company during the Project's Facility Study. Construction of COIF by the Proposer must comply with (i) all applicable Laws; (ii) Company's design/drawing layout and symbol standards, equipment specifications, and construction specifications and standards; and (iii) Good Engineering and Operating Practices. The Company's specific construction standards and procedures will be provided upon request. (See Section 2.4.1.4.)

2.4.3 The Proposer shall be responsible for all costs required to interconnect a Project to the Company's System, including all SOIF and COIF, regardless of who is responsible for building such facilities. Unless otherwise explicitly stated in this RFP, a Proposer must assume that it is responsible for all interconnection costs and should not assume that any portion of such interconnection costs is for a Company System upgrade allocable to the Company.

2.4.4 Proposers are required to include in their pricing Proposal all costs for interconnection and equipment expected to be required between their Facility and their proposed GCP. Appendix H includes information related to COIF and costs that may be helpful to Proposers. Selected Proposers shall be responsible for the actual final costs of all interconnection costs for its Project including SOIF and COIF (see Appendix H), whether or not such costs exceed the costs set forth in a Proposer's Proposal. No adjustments will be allowed to the proposed price in a Proposal if actual costs for Interconnection Facilities exceed the amounts proposed.

2.4.5 Proposers are required to account for all costs for distribution-level service connection for station power in their pricing proposal. All proposals that have an energy storage component that is grid chargeable must have a service connection for station power.

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

2.4.7 A Proposer, subject to the disclaimers and limitations specified in Section 1.6, shall use the information provided in the PIR and discussed in the PIR Meeting, along with unit pricing in Appendix H, to incorporate the interconnection and/or include any system upgrade costs in their Proposal. Proposers shall also use this information to assist in determining whether all upgrades identified can be completed within reasonable timelines to achieve Commercial Operations prior to the RFP's established GCOD deadline. Appendix H does not include an exhaustive list of estimates, and Proposers may need to develop their own estimates for work and materials that are not included in Appendix H. Notwithstanding the information obtained from the PIR, the PIR Meeting or Appendix H, Proposers are ultimately responsible for development of their pricing to incorporate Company System upgrades and may submit follow-up questions to the Company as necessary to develop cost estimates for a Proposal.

2.5 Potential Sites

2.5.1 Company-Owned Sites

Consistent with the Framework, the Company may make a Company-owned site available for consideration as a Project Site. Only Company-owned sites specified in this Section 2.5.1 of the RFP shall be available for Proposers' consideration.[45]

No Company-owned site is being offered for this RFP. The Company does not currently have any sites available that would be appropriate, based on size and location, for use as a renewable energy site.[46]

2.5.2 Landowner Responses

In early 2023, the Company issued a Land Request for Information ("Land RFI") that extended an open informal invitation to landowners interested in making their land

[45] The Framework provides that the Hawaiian Electric Development team may use a Company-owned site, provided that the Company offers such Company-owned site to other prospective Proposers. If the Company seeks to not offer such Company-owned site, the Company shall request approval to not offer such Company-owned site no later than the later of sixty (60) days after the appointment of an Independent Observer or the filing of the draft RFP..

[46] Consistent with the requirement in Part III.A.2.d of the Framework, the Company filed a list of Company-owned sites, including a summary of reasons for not offering each site in this RFP with the Commission on July 1, 2024, and subsequently included as Exhibit 11 to the draft IGP RFP filed in Docket No. 2024-0258 on August 26, 2024.

available for siting future utility-scale renewable energy projects. The information gathered through this Land RFI will be made available upon request, subject to the execution of the NDA, by following the instructions at http://hawaiianelectric.com/landrfi.

The Land RFI information is provided for prospective Proposers' consideration only. Project proposals submitted in response to this RFP are not required to be sited at a location identified through the Land RFI. Hawaiian Electric also make no representations as to the suitability of the listed sites for renewable energy production with regard to resource quality, interconnection constraints, zoning and permitting issues, community support, or other issues. Proposers should perform their own evaluation of these factors in determining whether a site is suitable for renewable energy project development. After further evaluation, Proposers that are interested in any of the identified sites are invited to engage in further discussions directly with landowners to negotiate any required rights to use the property. If a Proposer seeks interconnection information at a specific proposed Site, the Company will provide information on and mdiscuss interconnection location(s) with potential Proposers in accordance with Section 1.6.

2.5.3 Federal Site

On O'ahu, the Department of the Navy ("Navy") has expressed a willingness to make available a site at the Marine Corps Base Hawai'i ("MCBH") to support: (1) a 30 MW firm (minimum) renewable energy project; and (2) a PV (with storage) facility at a pre-determined project site (the "Federal Site"). Such availability is subject to certain conditions imposed by the Navy. In addition to meeting such conditions, Proposers proposing to use the Federal Site shall be required to execute a lease or license for the Federal Site with the landowner coterminous with the term of the applicable IGP Contract. Proposers are reminded that any proposed Project utilizing the Federal Site must still meet all requirements in this RFP and the applicable IGP Contract regardless of any agreements with any landowner. Hawaiian Electric makes no representations as to the suitability of this site for renewable energy production with regard to resource quality, zoning and permitting issues, community support, or other issues. Proposers should perform their own evaluation of these factors and other Navy-imposed conditions in determining whether the Federal Site is suitable for their renewable energy project development. If interested in the Federal Site, prospective Proposers can request additional information via the RFP Email Address in Section 1.7.

Chapter 3: Instructions to Proposers

3.1 Schedule for the Proposal Process

Table 2 sets forth the proposed schedule for the proposal process (the "RFP Schedule"). The RFP Schedule is subject to PUC approval. The Company reserves the right to revise the RFP Schedule as necessary. Changes to the RFP Schedule prior to the RFP Proposal Due Date will be posted to the RFP website. Changes to the RFP Schedule after the

Proposal Due Date will be communicated via e-mail to all Proposers and posted on the RFP website.

Table 2
Proposed RFP Schedule

Milestone	Schedule Dates
(1) Community Meeting	March 11, 2024
(2) Developer Meeting	March 20, 2024
(3) Draft RFP Filing Date	April 30, 2024
(4) Comments for 4/30/2024 Draft RFP Due Date	May 30, 2024
(5) Docket No. 2024-0258 Opened	August 19, 2024
(6) Docket No. 2024-0258 Draft RFP Filing Date	August 26, 2024
(7) Comments for 8/26/2024 Draft RFP Due Date	September 16, 2024
(8) Draft RFP Filing in response to CA-IR-5	March 12, 2025
(9) Company's complete response to Order No. 41594	April 3, 2025
(10) Parties SOPs	April 17, 2025
(11) Company's Reply SOP	May 2, 2025
(12) Order to Issue Final RFP	May 30, 2025[47]
(13) Issue RFP	June 6, 2025
(14) Technical Conference	To Be Determined
(15) PIR Request Due Date	[5 weeks after RFP issuance]
(16) PIR Meetings Held	[13 - 16 weeks after RFP issuance] September 2 – September 19, 2025
(17) Hawaiian Electric and Affiliate Proposal Due Date	[24 weeks – 1 day after RFP issuance] November 20, 2025 at 2:00 pm HST
(18) IPP Proposal Due Date	[24 weeks after RFP issuance] November 21, 2025 at 2:00 pm HST
(19) Selection of Priority List	March 19, 2026
(20) Hawaiian Electric and Affiliate BAFOs Due	March 26, 2026
(21) IPP BAFOs Due	March 27, 2026
(22) Selection of Final Award Group	July 10, 2026
(23) IRS and Contract Negotiations Begin	July 24, 2026

3.2 Company RFP Website and Electronic Procurement Platform

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

www.hawaiianelectric.com/IGPRFP

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

[47] This date and all subsequent dates in the proposed schedule are dependent on any further guidance to be set by the PUC.

the RFP website throughout the procurement process. Proposers should check the website frequently to stay abreast of any new developments.

3.2.2 Wood Mackenzie Supply Chain Intelligence Platform[48] is the Electronic Procurement Platform that the Company has licensed and will utilize for the receipt of Proposals in this RFP. Proposers must submit their Proposals through the Electronic Procurement Platform. See Appendix B and Appendix D for more details.

3.3 Information Exchange

A virtual Community Meeting for this RFP was held on March 11, 2024. Meeting materials, including a draft version of the RFP, were made available on www.hawaiianelectric.com/competitivebidding. A Developer Meeting was virtually held on March 20, 2024. The Commission also hosted a series of five public meetings between October 2023 and February 2024 regarding equity issues related to the RFP process, pursuant to Order No. 40290 in Docket No. 2022-0250. Community feedback in response to the posted draft RFP was accepted during the meetings, via e-mail and through the Company's online feedback survey. Comments will continue to be accepted through the Company's RFP Email Address and through Docket No. 2024-0258 until final issuance. Comments received by Company will be filed in the docketed proceeding, with all contact information redacted.

A virtual Technical Status Conference will also be held at a date to be determined. (see Section 3.1 Table 2 above).

Prospective Proposers may submit written questions regarding the RFP and their potential Proposal(s) to the RFP Email Address set forth in Section 1.7. Proposers should copy the Independent Observer when submitting questions to the RFP Email Address. In addition to the Independent Observer, who should be included on all correspondence to the Company, Proposers should also include the Independent Engineer on any questions to the RFP Email Address of a technical nature. The Company will endeavor to address all questions submitted to the RFP Email Address, but does not guarantee a response. Questions related to the Company's system must include information about the proposed Project as responses may require context to specific situations. The Company response will depend on the clarity and accuracy of the information provided by a prospective Proposer, along with the level of specificity and detail offered for the proposed Project. Questions and responses that may be helpful to other prospective Proposers will be shared on a Q&A section on the RFP website. Prospective Proposers should review the RFP website's Q&A section prior to submission of a Proposal. Duplicate questions will not be answered.

As previously discussed, Proposers must also request a PIR and participate in an individual PIR Meeting, as described in Section 1.6 of this RFP.

[48] Referred to as PowerAdvocate in prior RFPs, PowerAdvocate became Wood Mackenzie Supply Chain. Any reference to PowerAdvocate in this RFP is referring to the Wood Mackenzie Supply Chain Intelligence Platform.

3.4 Preparation of Proposals

3.4.1 Each Proposer shall be solely responsible for reviewing the RFP (including all attachments, links, and updates) and for thoroughly investigating and informing itself with respect to all matters pertinent to this RFP, the Proposer's Proposal, and the Proposer's anticipated performance under the applicable IGP Contract. It is the Proposer's responsibility to ensure it understands all requirements of the RFP, to seek clarification if the RFP's requirements or the Company's request is not clear, and to ask for any confirmation of receipt of submission of information. As noted in Section 3.6.5, a Proposer is solely responsible for all errors in its Proposal(s). The Company has no obligation to inform a Proposer of any error in a Proposal, and the Company will not accept any explanation by a Proposer that it was incumbent on the Company to catch any error in a Proposal.

3.4.2 Proposers shall rely only on official information provided in writing by the Company, as described in this RFP, when preparing a Proposal. The Company will rely only on the information included in the Proposal, and additional information solicited by the Company to Proposers in the format requested, to evaluate the Proposals received. Evaluation will be based on the stated information in this RFP and on information submitted by Proposers in response to this RFP. Proposals must clearly state all capabilities, functionality and characteristics of the Project, must clearly detail plans to be performed, must explain applicability of information, and must provide all referenced material if it is to be considered during the Proposal evaluation. Referencing previous RFP submissions or projects for support will not be considered. Proposers should not assume that any previous RFP decisions or preferences will also apply to this RFP.

3.4.3 Each Proposer shall be solely responsible for, and shall bear all of its costs incurred in the preparation of its Proposal and/or its participation in this RFP, including, but not limited to, all costs incurred with respect to the following: (1) review of the RFP documents; (2) information conference participation; (3) third-party consultant consultation; (4) investigation and research relating to a Proposal and this RFP; and (5) costs associated with the PIR and PIR Meeting process described in Section 1.6. The Company will not reimburse any Proposer for any such costs, including the selected Proposer(s).

3.4.4 Each Proposal must contain the full entity name and business address of the Proposer and must be signed by an authorized officer or agent[49] of the Proposer.

3.5 Organization of the Proposal

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

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

3.5.2 The Proposer must contact the Company to request any deviation from the proposal format in Appendix B if the Proposer determines that such format will not allow the pricing, capabilities, functionality or characteristics of the Project to be captured in the Proposal. The Company will consider a request for deviation from the proposal format, provided that the Proposer's request is made with sufficient time for the Company to review and respond to the request.

3.6 Proposal Submission Requirements

3.6.1 All Proposals must be prepared and submitted in accordance with the procedures and format specified in the RFP. Proposers are required to respond to all questions and provide all information requested in the RFP, as applicable, and only via the communication methods specified in the RFP.

3.6.2 Detailed requirements regarding the form, submission, organization and information for the Proposal are set forth in this Chapter 3 and Appendix B to this RFP.

3.6.3 Proposals must not rely on any information that is not contained within the Proposal itself in demonstrating compliance for any requirement in this RFP.

3.6.4 In submitting a Proposal in response to this RFP, each Proposer certifies that the Proposal has been submitted in good faith and without fraud or collusion with any other unaffiliated person or entity. The Proposer shall acknowledge this in the Response Package submitted with its Proposal. Furthermore, in executing the NDA provided as Appendix E, the Proposer agrees on behalf of its Representatives (as defined in the NDA) that the Company's negotiating positions will not be shared with other Proposers or their respective Representatives.

In addition, in submitting a Proposal, a Proposer must provide the Company with its counsel's written certification in the form attached as Attachment 2 to Appendix E certifying in relevant part, that irrespective of any Proposer's direction, waiver, or request to the contrary, the attorney will not share a Proposer's confidential information associated with such Proposer with others, including, but not limited to, such information such as a Proposer's or the Company's negotiating positions. If counsel represents multiple unaffiliated Proposers whose Proposals are selected for the Final Award Group, such counsel will also be required to submit a similar certification at the conclusion of contract negotiations that he or she has not shared a Proposer's confidential information or the Company's confidential information associated with such Proposer with others, including but not limited to, such information as a Proposer's or the Company's negotiating positions.

3.6.5 All Proposals must be submitted via the Electronic Procurement Platform by 2:00 pm HST on the respective Proposal Due Date shown in the RFP Schedule in Section 3.1, Table 2. The Company will not accept a hard copy of any Proposal.

It is the Proposer's sole responsibility to ensure that complete and accurate information has been timely submitted and is consistent with the requirements of this RFP. With this assurance, the Company shall be entitled to rely upon the completeness and accuracy of

every Proposal. Any errors identified by the Proposer or the Company after the Proposal Due Date has passed may jeopardize further consideration of the Proposal. If an error or errors are later identified, the Company, in consultation with the Independent Observer, may permit the error(s) to be corrected without further revision to the Proposal, or may require the Proposer to adhere to terms of the Proposal as submitted without correction. Additionally, and in the Company's sole discretion, if such error(s) would materially affect the Priority List or Final Award Group, the Company reserves the right, in consultation with the Independent Observer, to remove or disqualify a Proposal upon discovery of the material error(s). The Proposer of such Proposal shall bear the full responsibility for such error(s) and shall have no recourse against the Company's decision to address Proposal error(s), including removal or disqualification. The Energy Contract Manager, in consultation with the Independent Observer, will confirm that all Proposals were submitted by the respective Proposal Due Dates shown in Section 3.1, Table 2. The Electronic Procurement Platform automatically closes to further submissions after the IPP Proposal Due Date shown in Section 3.1, Table 2.

3.7 Proposal Fee

3.7.1 IPP and Affiliate Proposers are required to tender a non-refundable Proposal Fee of $10,000.00 for each Proposal submitted.

3.7.2 Proposers may submit up to three (3) variations of a Proposal, one of which is the base variation of the Proposal, under a single Proposal Fee.

3.7.2.1 Only variations of GCOD,[50] Facility size, or configuration with/without storage (solar energy must include storage) can be offered as variations within a Proposal. Other changes can be proposed as separate Proposals, with all the supporting information required of a Proposal, and a separate Proposal Fee. All unique information for each variation of a Proposal, no matter how minor such variation is, must be clearly identified and separated by following the instructions in Appendix B pertaining to "(Optional) Minor Proposal Variations".

3.7.3 The Proposal Fee must be in the form of a cashier's check from a U.S.-chartered bank made payable to "Hawaiian Electric Company, Inc." and must be delivered and received by the Company by 2:00 pm HST on the respective Proposal Due Date shown in the RFP Schedule in Section 3.1, Table 2. The cashier's check should include a reference to the Proposal(s) for which the Proposal Fee is being provided. In the Proposal Response Package (instructions in Appendix B, Section 1.3.1), a Proposer must identify the delivery method for its Proposal Fee. Proposers are strongly encouraged to utilize a delivery service method that provides proof of delivery to validate delivery date and time of the Proposal Fee.

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

[50] All GCODs must comply with the GCOD Eligibility Requirement in Section 4.2.

Hawaiian Electric Company, Inc.
Attn: Renewable Acquisition – RFP
Attn: IGP RFP Energy Contract Manager
Mail Code AL12-IU
PO Box 2750
Honolulu, HI 96840

If the Proposal Fee is delivered by other courier services, the Proposer shall send the Proposal Fee to the following address:

Hawaiian Electric Company, Inc.
Ward Receiving
Attn: Renewable Acquisition - RFP
Attn: IGP RFP Energy Contract Manager
Mail Code AL12-IU
799 S. King St.
Honolulu, HI 96813

In-person delivery of Proposal Fees will not be permitted.

3.8 Procedures for any Hawaiian Electric Proposal or Affiliate Proposal

3.8.1 The Company or its Affiliates may submit a Proposal in response to this RFP subject to the requirements of this RFP per the Framework ("Hawaiian Electric Proposal"). Accordingly, the Company must follow certain requirements and procedures designed to safeguard against and address concerns associated with: (1) preferential treatment of the Hawaiian Electric Proposal or members, agents, or consultants of the Company formulating the Hawaiian Electric Development Team; and (2) preferential access to proprietary information by the Hawaiian Electric Development Team. These requirements are specified in the Code of Conduct required under the Framework and implemented by certain rules and procedures found in the Procedures Manual submitted with this RFP and attached as Appendix C. The Code of Conduct will apply to this RFP, regardless of whether the Company submits a Hawaiian Electric Proposal.

The Framework also allows Affiliates of the Company to submit Proposals[51] to RFPs issued by the Company. All Hawaiian Electric Proposals and Affiliate Proposals are subject to the Company's Code of Conduct and the Procedures Manual. Affiliate Proposals are also subject to any applicable Affiliate Transaction Requirements issued by the PUC in Decision and Order No. 35962 on December 19, 2018, and subsequently modified by Order No. 36112, issued on January 24, 2019, in Docket No. 2018-0065. Affiliate Proposals will be treated identically to IPP Proposals and must be submitted electronically through the Electronic Procurement Platform by the Hawaiian Electric and Affiliate Proposal Due Date in RFP Section 3.1, Table 2.

[51] A Proposal will also be treated as an Affiliate Proposal if the Affiliate is a partner for the Proposal.

3.8.2 The Company will require that the Hawaiian Electric Proposal(s) and Affiliate Proposals be submitted electronically through the Electronic Procurement Platform. Hawaiian Electric and Affiliate Proposals will be due a minimum of one (1) day before other Proposals are due. A Hawaiian Electric and Affiliate Proposal will be uploaded into the Electronic Procurement Platform in the same manner Proposals from other Proposers are uploaded. The Energy Contract Manager, in consultation with the Independent Observer, will confirm that the Hawaiian Electric and Affiliate Proposals are timestamped by the Hawaiian Electric and Affiliate Proposal Due Date found in the RFP Schedule in Section 3.1, Table 2 of the RFP.

3.8.3 Detailed requirements for a Hawaiian Electric Proposal can be found in Appendix G. These requirements are intended to provide a level playing field between Hawaiian Electric Proposals and third-party Proposals. Except where specifically noted, a Hawaiian Electric Proposal must adhere to the same price and non-price Proposal requirements as required of all Proposers, as well as certain IGP Contract requirements, such as milestones and liquidated damages, as described in Appendix G. The non-negotiability of the Technical and Operational Requirements shall apply to any Hawaiian Electric Proposal to the same extent it would for any other Proposal. Notwithstanding the fact that it will not be required to enter into a IGP Contract with the Company, a Hawaiian Electric Proposal will be required to note its exceptions, if any, to the IGP Contract in the same manner required of other Proposers, and will be held to such modified parameters if selected. In addition to its Proposal, the Hawaiian Electric Development Team will be required to submit the Hawaiian Electric Development Team Certification Form provided as Attachment 1 of Appendix G, acknowledging it has followed the rules and requirements of the RFP to the best of its ability and has not engaged in any collusive actions or received any preferential treatment or information providing an impermissible competitive advantage to the Hawaiian Electric Development Team over other Proposers responding to this RFP, as well as adherence to IGP Contract terms and milestones required of all Proposers and the Hawaiian Electric Proposal's proposed cost protection measures.

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

At the core of a Hawaiian Electric Proposal are its total project capital cost and any associated annual O&M costs. During the RFP's initial pricing evaluation step, these capital costs[52] and O&M costs will be used in a revenue requirement calculation to determine the estimated revenues needed from customers which would allow the Company to recover the total cost of the project. The Hawaiian Electric Proposal revenue requirements are then used to determine a levelized energy price ("LEP" in

[52] Hawaiian Electric Proposals will be required to provide a table identifying project costs by year. These capital costs should be all inclusive, including but not limited to costs associated with equipment, Engineering, Procurement, and Construction, interconnection, overhead, and Allowance for Funds Used During Construction.

$/MWh), which will then be used for comparison to IPP and any Affiliate Proposals (see Section 4.4.1).

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

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

3.9 Proposal Limitations

In submitting a Proposal, Proposers expressly acknowledge and agree that Proposals are submitted subject to the following limitations:

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

- The Company reserves the right, in consultation with the Independent Observer, to request additional information from any or all Proposers relating to their Proposals or to request that Proposers clarify the contents of their Proposals. Proposers who are not responsive to such information requests may risk elimination of the Proposal from further consideration after consultation with the Independent Observer.

- The Company reserves the right, in consultation with the Independent Observer, to solicit additional Proposals from Proposers after reviewing the initial Proposals received by the respective Proposal Due Date. Other than as provided in this RFP, no Proposer will be allowed to alter a Proposal or add new information to a Proposal after the Proposal Due Date.

- All material submitted in response to this RFP will become the sole property of the Company, subject to the terms of any NDA executed by the Company and a Proposer.

Proposers understand and agree that if a Proposal is selected by the Company to the Final Award Group, such selection shall in no way constitute the Company's confirmation that

a Proposer's Project will meet the requirements under this RFP (e.g., that the Project's proposed interconnection is feasible and will meet the Company's requirements). The Proposer is ultimately responsible for ensuring that its Project meets the technical requirements specified in this RFP, and if the Company and Seller execute an IGP Contract, the requirements specified in the IGP Contract.

3.10 Proposal Compliance and Bases for Disqualification

A Proposal may be removed from consideration in this RFP for the following reasons including, but not limited to:

- Any unsolicited contact by a Proposer or prospective Proposer with personnel of the Company pertaining to this RFP as described in Section 1.5.10.
- Any illegal or undue attempts by or on behalf of the Proposer or others to influence the Proposal Review process.
- The Proposal does not meet one or more of the Eligibility Requirements specified in Section 4.2.
- The Proposal does not meet one or more of the Threshold Requirements specified in Section 4.3.
- The Proposal is deemed unacceptable through the fatal flaws analysis described in Section 4.4.2.1.
- The Proposer does not respond to a Company request for additional information to clarify the contents of its Proposal within the timeframe specified by the Company.
- The Proposal contains misrepresentations or errors and wholesale omissions of required information.

3.11 IGP Contracts

The IGP Contract for any PV Paired Project, wind Generation Project, or wind Paired Project selected under this RFP will be in the form of the Company's RDG PPA attached as Appendix J.

The IGP Contract for any Firm Project selected under this RFP will be in the form of the Company's Firm PPA attached as Appendix L. The IGP Contract for any Standalone Storage Project selected under this RFP will be in the form of the Company's ESPA, attached as Appendix M.

Any Co-located Project selected under this RFP will be governed by a combination of the IGP Contracts, and as a single contract. In any Proposal for a Co-located Project, a Proposer must submit (a) any proposed modification(s) to both the Firm PPA attached as Appendix L and ESPA attached as Appendix M; or (b) any proposed modification(s) to

both the RDG PPA attached as Appendix J and ESPA attached as Appendix M. The generation component of a proposed Co-located Project must meet the requirements of either the RDG PPA or the Firm PPA; and the energy storage component of a proposed Co-located Project must meet the requirements of the ESPA.

3.11.1 If selected, any Affiliate Proposers will be required to enter into the applicable IGP Contract with the Company.

3.11.2 If selected, a Hawaiian Electric Development Team will not be required to enter into a IGP Contract with the Company. However, the Hawaiian Electric Development Team will be held to the proposed modifications to the applicable IGP Contract, if any, it submits as part of the Hawaiian Electric Proposal in accordance with Section 3.8. Moreover, the Hawaiian Electric Proposal must adhere to the same performance metrics and milestones set forth in the applicable IGP Contract to the same extent as all Proposers, as attested to in the Hawaiian Electric Proposal's Appendix G, Attachment 1, Hawaiian Electric Development Team Certification submittal. If liquidated damages are assessed, such liquidated damages will be paid from shareholder funds and returned to customers through the Purchased Power Adjustment Clause or other appropriate rate adjustment mechanisms.

To retain the benefits of operational flexibility for a Company-owned facility, the Hawaiian Electric Proposal will be permitted to adjust operational requirements and performance metrics with Commission approval. The process for adjustment would be similar to a negotiated amendment to a IGP Contract that requires Commission approval.

3.11.3 In general, under the RDG PPA and ESPA, payment to the Seller consists of a Lump Sum Payment to cover the costs of the Project. For Firm Projects only, under the Firm PPA, in addition to a Capacity Charge payment, the Company will allow Proposers to also include an Energy Charge payment component ($/MWh) to cover variable operations and maintenance costs that cannot be captured within the Capacity Charge payment. Costs not incorporated into and clearly stated in the Lump Sum Payment, Capacity Charge payment, or Energy Charge payment calculations shall not be paid by the Company and shall be borne by the Seller. In return for the payments, the Seller shall guarantee minimum performance and availability metrics to ensure that the Facility is maintained and available for energy, storage (if applicable) and dispatch, as well as provide an indication of the available energy in near real-time for the Company's dispatch. The Company will not pay for test energy generated by the Facility except under the limited circumstances specified in Attachment J of the applicable IGP Contract. Proposers are reminded that grid energy consumed prior to the Project achieving Commercial Operations is subject to Company energy charges and the applicable rate tariffs, and costs thereof will be solely borne by the Seller in accordance with the executed contract.

3.11.4 The Technical and Operational Requirements identified in the applicable IGP Contract and in Section 2.1 establish the minimum requirements a Proposal must satisfy to be eligible for consideration in this RFP. A proposed Facility's ability to meet these Technical and Operational Requirements is both a Threshold Requirement and a non-

price evaluation criterion under Sections 4.3 and 4.4.2, respectively. As such, these Technical and Operational Requirements are non-negotiable by any Proposer. As previously stated, if a Proposal utilizes technology type that is not already represented in any IGP Contract, the terms of the applicable IGP Contract will be modified to address the specific technology and/or component. Proposers must provide documentation to support any requests for contract modifications resulting from the differing technology type. For example, for firm generation facilities, recognizing some firm technologies operate significantly differently, necessary modifications required for particular technologies will be permitted if a Proposer provides technical specifications that support the need for such proposed modifications. Proposers may propose modifications to other sections of the IGP Contracts (see Section 3.11.7 below) but are encouraged to accept such terms as drafted in order to expedite the overall RFP process and potential negotiations of the IGP Contracts. As a component of their respective Proposals, all Proposers electing to propose modifications to the IGP Contracts, including the Hawaiian Electric Development Team, shall provide a Microsoft Word red-line version of the relevant IGP Contract identifying specific proposed modifications to the IGP Contract language that the Proposer is agreeable to, as well as a detailed explanation and supporting rationale for each modification.

3.11.4.1 With respect to the IGP Contract red-line described in Section 3.11.5 above, general comments, drafting notes and footnotes such as "parties to discuss," and reservation of rights to propose modifications at a later time, are unacceptable and will be considered non-responsive. Proposed modifications to any IGP Contract will be evaluated as a non-price evaluation criterion as further described in Section 4.4.2. In order to facilitate this process, the Company will make electronic versions of the IGP Contracts available on the RFP website and through the Electronic Procurement Platform for the RFP. Any proposed modifications to any IGP Contract will be subject to negotiation between the Company and Proposer selected to the Final Award Group. No proposed modifications should be assumed to have been accepted either as a result of being selected to the Final Award Group or based on any previously executed power purchase agreement, and no adjustments to a Proposal (e.g., pricing or schedule) will be permitted based on any such misplaced assumption that any proposed modifications to the applicable IGP Contract (including, without limitation, proposed modifications to the performance metrics, Technical and Operational requirements, or liquidated damages provisions) will be accepted. As stated above, the Company will not negotiate provisions simply marked by such general comments, drafting notes, and footnotes since general comments, drafting notes, and footnotes without accompanying specific proposed language modifications are unacceptable and non-responsive.

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

3.11.5 Proposals that do not include specific proposed modifications to the attached IGP Contracts will be deemed to have accepted the IGP Contract in its entirety.

3.11.6 As stated in Section 3.11.5 above, Proposers may propose modifications to sections of the IGP Contracts. However, certain sections specified below in the various IGP Contracts are non-negotiable.

3.11.6.1 For the RDG PPAs, Technical and Operational Requirements are non-negotiable. Also, as identified in the Schedule of Defined Terms in the RDG PPAs that contain an energy storage component under "BESS Allocated Portion of the Lump Sum Payment", the allocated portion of the Lump Sum Payment specified for energy storage for the Facility for determining liquidated damages is 50% and shall be a non-negotiable percentage in the RDG PPA. Further, as stated in Section 3.14.2 below, Proposers shall not propose an amount lower than that set forth in the RDG PPA for Development Period Security and Operating Period Security.

3.11.6.2 For the Firm PPA, Technical and Operational Requirements are non-negotiable, except as recognized in Section 3.11.5 above, and as stated in Section 3.14 below, Proposers shall not propose an amount lower than that set forth in the Firm PPA for Development Period Security and Operating Period Security.

3.11.6.3 For the ESPA, Technical and Operational Requirements are non-negotiable, and, as stated in Section 3.14.2 below, Proposers shall not propose an amount lower than that set forth in the ESPA for Development Period Security and Operating Period Security.

3.11.6.4 Additionally, for the RDG PPA, ESPA, and Firm PPA, the following sections are non-negotiable:

RDG PPA	**ESPA**	**Firm PPA**
Article 1 Parallel Operation	Article 1 Parallel Operation	Article 2.1(H) Parallel Operation
Article 3 Facility Owned and/or Operated by Seller	Article 3 Facility Owned and/or Operated by Seller	N/A
Article 4 Company-Owned Interconnection Facilities	Article 4 Company-Owned Interconnection Facilities	Article 3.1(C) Interconnection Facilities
Article 6 Forecasting	Article 6 Monitoring	N/A
Article 8 Company Dispatch	Article 8 Company Dispatch	Article 3.3(A)(1) Routine Dispatch
Article 9 Personnel and System Safety	Article 9 Personnel and System Safety	Article 4.1(A) Safety of Persons and/or Property
Article 11 Governmental Approvals, Land Rights and Compliance with Laws	Article 11 Governmental Approvals, Land Rights and Compliance with Laws	Article 3.2(A)(4) Seller's Governmental Approvals and Land Rights; Article 3.2(E) Compliance with Laws; Attachment G (Section 9 – Governmental Approvals for

RDG PPA	ESPA	Firm PPA
		Any Company-Owned Interconnection Facilities Constructed by Seller or Company and Section 10 – Land Rights)
Article 19 Transfers, Assignments and Facility Debt	Article 19 Transfers, Assignments and Facility Debt	Article 20 Transfers, Assignments and Financing Debt
Article 20 Sale of Energy to Third Parties	Article 20 Sale of Energy to Third Parties	Article 22 Sale of Energy to Third Parties
Article 26 Equal Employment Opportunity	Article 26 Equal Employment Opportunity	Article 23 Equal Employment Opportunity
Article 28 Dispute Resolution	Article 28 Dispute Resolution	Article 17 Dispute Resolution
Attachment B (Section 1(b)(iii)(I) Resilience Requirements)	Attachment B (Section 1(b)(iii)(H) Resilience Requirements)	Attachment B (Section 1(b)(iii)(I) Resilience Requirements)
Attachment H Form of Bill of Sale and Assignment	Attachment H Form of Bill of Sale and Assignment	Attachment H Form of Bill of Sale and Assignment
Attachment V Summary of Maintenance and Inspection Performed in Prior Calendar Year	Attachment V Summary of Maintenance and Inspection Performed in Prior Calendar Year	Attachment V Summary of Maintenance and Inspection Performed

3.11.7 A Proposer with an existing Project and an existing PPA submitting a Proposal in response to this RFP must clearly state the following in its Proposal: (a) the Proposer's intent to terminate or declare its existing PPA null and void pursuant to the terms of such agreement; and (b) that its Proposal is not contingent on any other resolution to such existing agreement if such existing agreement will not expire, unless otherwise terminated or declared null and void, before the start of the term set forth in the Proposal. The Company's selection of an existing Project does not signify any agreement by the Company to a Proposer's intent regarding its existing PPA with the Company. Such treatment shall be subject to negotiation in conjunction with and concurrently with negotiations between the parties on the applicable IGP Contract. Unless otherwise agreed by the Company, in its sole discretion, resolution of the existing PPA shall be required as a condition to entering into any IGP Contract with a Proposer with an existing PPA with the Company.

3.12 Pricing Requirements

3.12.1 Proposers must submit pricing for each variation associated with each Proposal if variations as described in Section 3.7.2 are submitted. Proposers are responsible for understanding the terms of the applicable IGP Contract. Pricing cannot be specified as contingent upon any other factor (e.g., changes to federal tax policy, assuming that all applicable federal tax credits are received, assuming that the Company will accept any proposed change to the applicable IGP Contract, assuming changes to Company's credit rating).

3.12.2 Escalation in Lump Sum Payment or Capacity Charge rate over the term of the IGP Contract is prohibited.

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

3.12.4 The Proposer's Response Package must include the following prices for each Proposal (and variation):

For IPP or Affiliate proposals:

- [For PV+BESS, Wind, Wind+BESS, and Standalone Storage Projects]
    - **Lump Sum Payment ($/year):** Payment amount for full dispatchability of the Facility. Payment will be made in monthly increments.
- [For Firm Projects]
    - **Capacity Charge rate ($/kW Available Capacity/Month):** Rate used to calculate the Capacity Charge payment for the capacity available to the Company's System from the Facility, including any applicable fixed O&M costs.
    - **Energy Charge ($/kWh, $/Service Hour and $/Start)**: Payment for delivery of net energy and service hours from the generation resource(s). As stated in Attachment J of the Firm PPA, the Energy Charge payment consists of two components: a Fuel Component (if applicable) and a Variable O&M Component. The Fuel Component includes the actual cost of fuel. The Variable O&M Component consists of the following components as applicable to the unit:
        - A Per kWh Variable Component that includes O&M Costs that vary with the energy output of the generating unit.
        - A Per Hour Variable Component that includes O&M costs that are incurred based on a given number of service hours.
        - A Per Start Variable Component that includes O&M costs that are incurred based on a given number of starts.

      The Variable O&M Component must be guaranteed and not be tied to an index. The Variable O&M Component may include escalations; however, such escalation must be in the form of a guaranteed percentage.

Maintenance manuals or other information used to formulate the basis for the Variable O&M costs shall be provided. No Energy Charge will be provided for any energy delivery that is sourced originally from the grid (Company's System).

- **Heat Rate Curve (as applicable)**: A guaranteed heat rate curve specified as a three-term second-order polynomial describing the heating value (mmbtu) needed to produce a given MW output. The heat rate curve must be valid from the facility generator's minimum load to maximum load. The efficiency curve(s) will be used in conjunction with the projected fuel cost and heating value, used for modeled and actual dispatch to determine the variable fuel cost for a given MW output.

For Hawaiian Electric Proposals:

- **Total Project Capital Costs ($/year):** Total capital costs for the project (identified by year).
- **Annual O&M Costs ($/year):** Initial year operations and maintenance costs, annual escalation rate.
- **Annual Revenue Requirement ($/year):** Annual revenue requirements ("ARR") calculated for each year.
- [For Hawaiian Electric Firm Project Proposals]
  - **Heat Rate Curve (as applicable)**: A guaranteed heat rate curve specified as a three-term second-order polynomial describing the heating value (mmbtu) needed to produce a given MW output. The heat rate curve must be valid from the facility generator's minimum load to maximum load. The efficiency curve(s) will be used in conjunction with the projected fuel cost and heating value, used for modeled and actual dispatch to determine the variable fuel cost for a given MW output.

See Appendix G for descriptions and detail on the Total Project Capital Costs, Annual O&M Costs, and ARR for Hawaiian Electric Proposals.

3.12.5 To allow Proposers to offer the most competitive pricing while offering protection during times of market volatility, the Company will allow an indexed one-time capped pricing adjustment explained in Section 4.6.3 below.

3.12.6 The Company anticipates that one or both of the following will occur by the Construction Financing Closing Milestone: (a) a successful IPP or Affiliate Proposer selected into the Final Award Group will enter into a step-in agreement, or other substantially equivalent assurance from federal or state entities in the event of default by Company of its contractual payment obligations under this Agreement (hereinafter, regardless of the form such assurance takes, a ("Step-In Agreement"), with the State of Hawai'i or an applicable department thereof when a PPA is executed, or as soon as reasonably possible thereafter, in accordance with H.B. 974 and S.B. 1501 from the 2025 Hawai'i State Legislative Session or a subsequent similar bill (the "IPP Bill"), and/or (b) the Company's parent entity's ("HEI") credit rating reaches Investment Grade Status pursuant to the terms of the applicable IGP Contract. Proposal pricing in Section 1.1 of Attachment 1 to Appendix B shall apply in either or both of these circumstances ("Investment Grade

Pricing").[53] All Proposals shall also include pricing in Section 1.2 of Attachment 1 to Appendix B that applies if, by the Construction Financing Closing Milestone: (y) the IPP Bill does not pass and become law or if the IPP Bill becomes law, the State elects not to execute a Step-In Agreement with the IPP or Affiliate Proposer, despite the IPP or Affiliate Proposer's good faith and best efforts; and (z) HEI's credit rating does not reach Investment Grade Status ("Non-Investment Grade Pricing").[54] A Proposal's Non-Investment Grade Pricing shall be supported by accompanying documentation from the IPP's or Affiliate Proposer's anticipated financing parties, including any increased financing costs attributable to HEI's financial status. Similarly, a Proposal shall identify the assumed financing costs associated with the Investment Grade Pricing and Non-Investment Grade Pricing as stated in Appendix B.

If the Non-Investment Grade Pricing of a Proposal applies, such Proposer will be required to, at any time during the term of the IGP Contract, adjust its Non-Investment Grade Pricing downward to the Proposal's Investment Grade Pricing, if (1) the IPP or Affiliate Proposer executes a Step-In Agreement with the State under the IPP Bill; or (2) HEI's credit rating reaches Investment Grade Status. For purposes of sub-part (1) above, the affected IPP or Affiliate Proposer may not opt out of the Step-In Agreement in order to maintain its Non-Investment Grade Pricing. Additionally, in the event that the Non-Investment Grade Pricing of an IPP or an Affiliate Proposer applies, and if the IPP's or Affiliate Proposer's actual financing costs are lower than assumed in developing the Non-Investment Grade Pricing, such Proposer will be required to adjust its Non-Investment Grade Pricing downward on a pro rata basis to reflect such lower financing costs.

3.13 Confidentiality

3.13.1 Each prospective Proposer must submit an executed NDA in the form attached as Appendix E by the date specified in Section 1.6.1 as part of its PIR Request. The form of the NDA is not negotiable. Information designated as confidential by the Company will be provided on a limited basis, and only those prospective Proposers who have submitted an executed NDA will be considered. The Company will not accept NDAs that were executed for prior procurements. Proposers must clearly identify all confidential information in their Proposals. However, Proposers should designate as confidential only those portions of their Proposals that genuinely warrant confidential treatment. The Company discourages the practice of marking every page of a Proposal as confidential. The Company will make reasonable efforts to protect any such information that is clearly marked as confidential. Consistent with the terms of the NDA, the Company reserves the right to share any information, even if marked confidential, to its agents, contractors, or

[53] The term "Investment Grade Pricing" includes the Investment Grade Lump Sum Payment for PV+BESS, Wind, Wind+BESS, and Standalone Storage Projects and Investment Grade Capacity Charge Rate for Firm Projects from Section 1.1 of Attachment 1 to Appendix B.

[54] The term "Non-Investment Grade Pricing" includes the Non-Investment Grade Lump Sum Payment for PV+BESS, Wind, Wind+BESS, and Standalone Storage Projects and Non-Investment Grade Capacity Charge Rate for Firm Projects from Section 1.2 of Attachment 1 to Appendix B. For Firm Projects, only changes to the Capacity Charge Rate are allowed for Non-Investment Grade Pricing. All other components of a Proposer's pricing shall be the same as under Investment Grade Pricing.

the Independent Observer for the purpose of evaluating the Proposal and facilitating potential IGP Contract negotiations.

3.13.2 Proposers, in submitting any Proposal(s) to Company in response to this RFP, certify that such Proposer has not shared its Proposal(s), or any part thereof, with any other Proposer of a Proposal(s) responsive to this RFP. The Proposer shall acknowledge this in the Response Package submitted with its Proposal. Notwithstanding such certification, if the Company observes or receives evidence from a Proposer that appears to place one or more Proposers in violation of this Section 3.13.2, e.g., a representative from one Proposer uses the same information in multiple Proposals submitted by different Proposers (e.g. individual Proposers with different names, joint ventures, etc.), Company will seek additional information and clarification from such Proposer(s) to determine whether such a violation does in fact exist (and, if so, in consultation with the Independent Observer, whether disqualification of one or more Proposals is appropriate).

3.13.3 The Company will request that the PUC issue a protective order to protect confidential information provided by Proposers to the Company and to be filed in a proceeding before the PUC. A copy of the protective order, once issued by the PUC, will be provided to Proposers. Proposers should be aware that the Company may be required to share certain confidential information contained in Proposals with the PUC, the Consumer Advocate, and the parties to any docket instituted by the PUC, provided that recipients of confidential information have first agreed in writing to abide by the terms of the protective order. Notwithstanding the foregoing, no Proposer will be provided with Proposals from any other Proposer, nor will Proposers be provided with any other information contained in such Proposals or provided by or with respect to any other Proposer.

3.14 Credit Requirements

3.14.1 Proposers with whom the Company enters into an RDG PPA, Firm PPA or ESPA must post Development Period Security and Operating Period Security in the form of an irrevocable standby letter of credit from a bank doing business in the United States and subject to United States state or federal regulations, with a credit rating of "A-" or better from Standard & Poor's ("S&P") or A3 or better from Moody's as required and set forth in Article 14 of the RDG PPA or ESPA, or Article 7 of the Firm PPA. Cash, a parent guaranty, or other forms of security will not be accepted in lieu of the irrevocable standby letter of credit.

3.14.2 The Development Period Security and Operating Period Security identified in the RDG PPA, Firm PPA or the ESPA are minimum requirements. Proposers shall not propose an amount lower than that set forth in the RDG PPA, Firm PPA or the ESPA, provided, however, that for existing projects, the Company, in its sole discretion, may consider a proposal from the Proposer for a lesser amount only for the Development Period Security depending on the expected work to be completed prior to the Guaranteed Commercial Operations Date and the level of perceived risk to the Company during such development period.

3.14.3 Each Proposer shall be required to provide a satisfactory irrevocable standby letter of credit in favor of the Company from a bank doing business in the United States and subject to United States state or federal regulations, with a credit rating of "A-" or better from S&P or A3 or better from Moody's to guarantee Proposer's payment of interconnection costs for all COIF in excess of the Total Estimated Interconnection Costs and/or all relocations costs in excess of Total Estimated Relocation Costs that are payable to Company as required and set forth in Attachment G to the RDG PPA, Firm PPA or the ESPA.

3.14.4 Proposers may be required to provide an irrevocable standby letter of credit in favor of the Company from a bank doing business in the United States and subject to United States state or federal regulation, with a credit rating of "A-" or better from S&P or A3 or better from Moody's in lieu of the required Source Code Escrow in an amount and as required and set forth in Attachment B to the RDG PPA, Firm PPA, or the ESPA.

3.14.5 The Company will not provide security (e.g., letter of credit or other guaranty) for the performance of its obligations under the IGP Contracts and will not accept any contract modifications proposed by any Proposer on the basis of the Company's credit rating.

3.15 Pre-selection Community Feedback

3.15.1 Within thirty (30) days after the Proposal Due Date, each Proposer shall hold a public meeting to obtain community feedback on the proposed Project ("Pre-selection Community Feedback"), in accordance with the requirements detailed in Section 1.1.k of Appendix N. Each Proposer shall compile the Pre-selection Community Feedback and transmit it to the Company, including copies of all comments received in their original, unedited form, via e-mail, in accordance with Sections 1.5, no later than twenty-one (21) days after the public meeting. The Pre-selection Community Feedback will be considered part of the Proposer's Proposal and included in the evaluation of the Community Engagement non-price criterion and for inclusion in the Company's submission to the PUC of its application for a satisfactory PUC Approval Order, if the Project is selected to the Final Award Group.

Chapter 4: Evaluation Process and Evaluation Criteria

4.1 Proposal Evaluation and Selection Process

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

The evaluation and selection process described in this Chapter 4 for Proposals received in this RFP will be conducted separately by island. The Company will seek a portfolio of Oʻahu projects to comprise the Final Award Group for Oʻahu, and a separate portfolio of Hawaiʻi Island projects to comprise the Final Award Group for Hawaiʻi Island (collectively, the "Final Award Group").

Upon receipt of all Proposals, the Company will review each Proposal submission to determine if it meets the Eligibility Requirements and the Threshold Requirements. The Company, in coordination with the Independent Observer, will determine if it will permit any Proposer to cure any aspect of its Proposal or whether the Proposal should be eliminated based on the failure to meet either Eligibility or Threshold Requirements.[55] If the Company permits a Proposer to cure any aspect of its Proposal in order to meet any Eligibility or Threshold Requirement, the Proposer shall provide a response within three (3) business days from the date of a notification to cure.[56] Proposals that successfully meet all Eligibility and Threshold Requirements will then enter the Initial Evaluation resulting in the development of a Priority List, followed by the opportunity for Priority List Proposals to provide a Best and Final Offer. Thereafter, the Company will conduct a Detailed Evaluation to arrive at the selection of a Final Award Group.

4.2 Eligibility Requirements Assessment

Upon receipt of the Proposals, the Company will review each Proposal to ensure that it meets the following Eligibility Requirements:

1. The Proposal, including required uploaded files, must be received by the applicable Proposal Due Date via the Electronic Procurement Platform.
2. The Proposal Fee must be received on or before the Proposal Due Date.[57]
3. The Proposal must not contain material omissions.
4. The Proposal must include an Authorization Letter signed and certified by an officer or other authorized person of the Proposer.
5. The Proposer must fully execute the NDA and any other document required pursuant to this RFP.
6. The Proposer must provide a Certificate of Vendor Compliance from the Hawai‘i Compliance Express with their Proposal that is current (dated and issued no earlier than sixty (60) days of the date of Proposal submission) and shows a status of “Compliant”. The Certificate of Vendor Compliance must show the Proposer is “Compliant” with the Hawai‘i Department of Taxation, Internal Revenue Service, and Hawai‘i Department of Commerce & Consumer Affairs (“DCCA”) . A Certificate of Good Standing from DCCA (dated and issued no earlier than sixty (60) days of the date of Proposal submission) and also federal and Hawai‘i state tax clearance certificates for the Proposer may be substituted for the Certificate of Vendor Compliance.

[55] As a general rule, if a Proposer does not include a requested document, inadvertently excludes minor information or provides inconsistencies in its information, it may be given a chance to cure such deficiency. If a Proposer fails to provide material required information in its Proposal and providing the Proposer an opportunity to cure is deemed by the Company, in consultation with the Independent Observer, as an unfair advantage to such Proposer, the Proposal could be classified as non-conforming and eliminated for failure to meet the Eligibility Requirements.
[56] The three (3) business day period will apply to the initial opportunity to cure. The Company may, at its discretion and in consultation with the Independent Observer, may allow for additional cure periods, if any, for subsequent inquiries.
[57] A Proposal Fee will not be required for any Hawaiian Electric Proposals.

7. The Proposal must not be contingent upon changes (or absence of changes) to existing county, state, or federal laws or regulations.
8. Proposals must specify a GCOD consistent with Section 2.1.1.
9. The proposed Project must be located as specified in Section 2.1.6.
10. The proposed Project must locate all Project infrastructure as specified in Section 2.1.9.
11. The proposed Project must interconnect to the Company System as specified in Section 2.1.11.
12. Proposers shall agree to post Development Period Security and Operating Period Security as described in Section 3.14.

4.3 Threshold Requirement Assessment

The Company will review all Proposals that meet all Eligibility Requirements to ensure compliance with all Threshold Requirements, which have been designed to screen out Proposals that are insufficiently developed, lack demonstrated technology, or will impose unacceptable execution risk for the Company.

Proposals must provide explanations and contain supporting information demonstrating how and why the proposed Project meets each of the Threshold Requirements. Proposals that fail to provide this information or meet a Threshold Requirement will be eliminated from further consideration upon concurrence with the Independent Observer.

The Threshold Requirements for this RFP are the following:

1. **Site Control:** The Proposal must demonstrate that the Proposer has Site Control, as defined below, for all real property required for the successful implementation of a specific Proposal at a Site not controlled by the Company, including any Interconnection Facilities, with the exception of right-of-way or easements for the interconnection route, for which the Proposer is responsible. The need for a firm commitment is necessary to ensure that Proposals are indeed realistic and can be relied upon as the Company moves through the remainder of the RFP process.

   For a Proposal to meet this Site Control requirement, Proposers must do one of the following:

   a) Provide documentation confirming (1) that the Proposer has an existing legally enforceable right to use and control the Site, either in fee simple or under leasehold for a term at least equal to the term of the IGP Contract ("Site Control") as specified in the Proposal (taking into account the timelines set forth in this RFP for selection, negotiation, and execution of a IGP Contract and PUC approval as applicable); and (2) the applicable zoning for the Site and that such zoning does not prohibit the development of the Site consistent with the Proposal; or
   b) Provide documentation confirming, at a minimum, (1) that the Proposer has an executed binding letter of intent, memorandum of understanding, option agreement, or similar document with the landowner (a "binding

commitment") which sets forth the general terms of a transaction that would grant the Proposer the required Site Control; and (2) the applicable zoning for the Site and that such zoning does not prohibit the development of the Site consistent with the Proposal. The binding commitment does not need to be exclusive to the Proposer at the time the Proposal is submitted and may be contingent upon selection of the Proposal to the Final Award Group. If multiple Proposals provide a binding commitment for the same Site, the documents granting the binding commitment for each Proposal must not prevent the Company from choosing the Proposal that otherwise would have been selected.

c) Government/Public Lands Only: Where government or publicly-owned lands are part of a Site or are required for successful implementation of a Proposal, the requirements in a) and b) above may not be feasible. In such a case, at minimum, the Proposer must provide a credible and viable plan, including evidence of any steps taken to date, to secure all necessary Site Control for the Proposal, including but not limited to evidence of sufficient progress toward approval by the government agency or other body vested with the authority to grant such approval (as demonstrated by records of the agency). The Proposer will still be required, however, to demonstrate Site Control as required in the applicable IGP Contract should the Proposal be selected to the Final Award Group.

While documentation confirming the Proposer's acquisition of land rights for the interconnection route is not required at the time of submission of the Proposal, (1) the Proposal must thoroughly describe the interconnection route as set forth in Attachment B, Section 2.5.4; and (2) the Proposer must provide a credible and viable plan, including evidence of any steps taken to date, to secure all necessary land rights for the interconnection route. If a Proposal is selected to the Final Award Group, and if the Proposer and Company execute an IGP Contract, Proposer will be solely responsible for obtaining all required land rights within the timeframes set forth in the IGP Contract. The Proposer must also provide a credible and viable plan for obtaining such rights-of-way or easement(s), including the proposed timeline, the identification of all steps necessary to obtain such right-of-way or easement(s), and evidence of any steps taken to date. In addition, developmental requirements and restrictions such as zoning of the Site and the status of easements must be identified and will be considered in determining whether a Proposal meets the Site Control threshold.

2. **Technical and Operational Requirements:** The proposed Facility must meet the performance attributes identified in the Technical and Operational Requirements of the applicable IGP Contract. The Company will review the Proposal information received, including design documents, equipment manuals and capabilities, and operating procedures materials provided in the Proposal, and evaluate whether the Project, as designed, is able to meet the Technical and Operational Requirements of the applicable IGP Contract. At minimum, in addition to meeting the Technical and Operational Requirements, Proposals shall include acceptable documentation,

provided in an organized manner, to adequately support the stated claim that the Facility will be able to meet the Technical and Operational Requirements. The Proposal shall include information required to make such a determination in an organized manner to ensure this evaluation can be completed within the evaluation review period.

3. **Proven Technology**: The Company will only consider Proposals utilizing technologies that have successfully reached Commercial Operations in commercial applications (for example, by demonstrating evidence of an executed PPA) at the scale proposed. The Proposal should include any supporting information for the Company to assess the commercial and financial maturity of the proposed technology. This requirement shall apply to the generation technology, storage technology (if applicable), fuel supply and infrastructure, or any other aspect of the project. The use of any emergent technology should be discussed and explained in Section 2.12 of Appendix B.

4. **Experience of the Proposer:** The Proposer, its affiliated companies, partners, and/or contractors and consultants on the Proposer's Project team must have experience in financing, designing, constructing, interconnecting, owning, operating, and maintaining at least one (1) electricity generation and/or standalone storage project that has reached Commercial Operations, including all components of the project (i.e., paired energy storage or other attributes), similar in size, scope, technology, and structure to the proposed Project. If a Proposer can provide sufficient information in its Proposal's RFP Appendix B, Section 2.13 tables demonstrating that at least one member of the Proposer's team (identified in the Proposal) has specific experience in each of the following categories, the Company will consider this Threshold Requirement met: financing, designing, constructing, interconnecting, owning, operating, and maintaining projects similar in size and scope to the Project being proposed. Existing facilities must have, at minimum, a proven history of successful operations, and in lieu of constructing and interconnecting, at least one member of the Proposer's team (identified in the Proposal) that has experience in completing, or demonstrating substantial completion of, a repowering of an existing facility similar to what is being proposed. Existing facilities with no change to its technology or scope may, upon evaluation and approval by the Company, request to be exempt from the designing, constructing, and interconnecting criteria.

5. **Financial Compliance:** The proposed Project must not cause the Company to be subject to consolidation, as set forth in Financial Accounting Standards Board ("FASB") Accounting Standards Codification Topic 810, Consolidation ("ASC 810"), as issued and amended from time to time by FASB. Proposers are required to state, to the best of their knowledge, with supporting information to allow the Company to verify such conclusion, that the Proposal will not result in the Seller under the IGP Contract being a Variable Interest Entity and result in the Company being the primary beneficiary of the Seller that would trigger consolidation of the Seller's finances on to the Company's financial statements under FASB ASC 810.

The Company will perform a preliminary consolidation assessment based on the Proposals received. The Company reserves the right to allow a Proposal to proceed through the evaluation process through selection of the Priority List and work with the Proposer on this issue prior to or during contract negotiations.

6. **Community Engagement:** A comprehensive community engagement and communications plan ("Community Engagement Plan") is an essential roadmap that guides a Proposer to work with various communities and stakeholders to gain community support for a Project. Proposers must include a Community Engagement Plan, to be submitted as a standalone document, that describes the Proposer's commitment to work with the neighboring community and stakeholders and to provide them timely Project information during all phases of the Project.[58] A Proposer must also submit a plan detailing the amount of funds that the Proposer will commit on an annual basis for community benefits, along with other intended community benefits ("Community Benefits Program").

   Please see Appendix N for complete instructions, details, and minimum requirements for the Community Engagement Plan and Community Benefits Program. Hawaiian Electric will carefully review the Community Engagement Plans and Community Benefits Programs to ensure that outreach to residents, area elected officials, and known community leaders and organizations is documented and that the plan is tailored by community and includes the outreach schedule, communication plans and required project information that will be shared in each engagement.

7. **Cultural Resource Impacts:** Proposers must be mindful of a proposed Project's potential impacts to historical and cultural resources. At a minimum, Proposers must retain a consultant with expertise in this field to begin a cultural assessment for the Project prior to the Proposal Due Date. The scope of the cultural assessment is described in the Cultural Resource Impacts in Section 4.4.2.1 below.

   Also, at minimum, Proposers must conduct and provide at least an initial Archaeological Literature Review of existing cultural documentation filed with the State Historic Preservation Division and a Field Inspection Report which identifies any known archaeological and/or historical sites within the project area. If sites are found, Proposers must provide a plan for mitigation from an archaeologist licensed in the State of Hawaii.

[58] Existing facilities are held to the same RFP requirements as newly proposed projects, which includes all requirements for Community Engagement and Cultural Resource Impacts. If assessments required by this RFP have been conducted for an existing facility in the past, and those assessments are still applicable to the project as proposed for this RFP (e.g., contract term) and otherwise comply with the RFP's requirements, they can be submitted as part of the Proposer's Proposal. Please note, however, any assessment submitted will still be subject to and evaluated against the RFP's requirements and scored accordingly. The age of any assessment will also be evaluated especially with respect to whether requirements have since been revised or updated since the date of the prior assessment.

8. **Preliminary Interconnection Report Review:** Proposals will be reviewed in alignment with the Preliminary Interconnection Report. The minimum project characteristics that must be consistent between the PIR Request[59] and the Proposal are as follows:

Section 2: Technology:
(a) Project size (MW)
(b) Interconnection voltage (kV)
(c) Generation technology
(d) Storage technology (if applicable)
(e) Fuel type (if applicable)

Section 3: Site Information:
(f) Grid Connection Point (GCP)
(g) Approximate location of the proposed Point of Interconnection (POI)

The Company will also allow Proposals to deviate from the PIR Request only as specified in Section 1.6.9 above.

9. **Technical Model:** Developing an accurate and functional facility technical model is imperative to commencing the Interconnection Requirement Study phase of the process. The Proposal must include the requisite models pursuant to Appendix B, Attachment 4, as well as documentation that the Proposer tested the Project models under all scenarios prescribed in Appendix B, Attachment 3.[60]

10. **Project Development and Schedule:** Each Project must fully demonstrate (1) a reasonable expectation the Project will reach the specified GCOD; and (2) the costs are sufficient to build the COIF. The Proposer must provide a critical path schedule that is supported by all critical path elements. The Project schedule must account for both the Proposer's Facility and interconnection work, as well as identify risks and schedule assumptions. Proposers must also demonstrate there is a reasonable expectation that the COIF costs, including Proposer-build costs, are sufficient.

To meet the requirement described above, the Proposal shall include:

- Gantt chart that clearly illustrates the overall integrated schedule and Commercial Operations by the specified GCOD. The Gantt chart shall include realistic task durations, accurate dependencies, tasks that will be fast tracked, as well as slack time and contingencies. The Gantt chart

[59] See Appendix O to the RFP.

[60] An existing facility must submit electrical models as part of its Proposal in response to this RFP. The RFP requires that any existing project's Proposal meet all of the terms of this RFP, including submission of the models that support the Interconnection Requirements Study and as required in Section 2.11 of Appendix B to the RFP. The expectation is that all Proposers, even those with existing facilities, meet all the model requirements in this RFP. As such, models previously provided to the Company will not be sufficient for meeting the requirements under this RFP. Proposers of an existing Project should contact the Company via the communication method identified in Section 1.7 to clarify any concerns they have about meeting all the model requirements in this RFP.

must also include the milestones identified in Appendix H, Section 3 and reflect the appropriate durations associated with such milestones. The Proposal must consider permitting and scheduling issues for any system upgrades.

- The Proposal shall identify all permits and permit dependencies necessary for the Project and provide realistic durations to obtain such permits. The Proposal shall also provide the current status of the permits (e.g., permit application identified, permit application submitted, permit received).
- The Proposal shall provide a breakdown of high-level Project costs consistent with Appendix H and its estimated Proposer-built COIF costs. A Proposal must also include COIF costs in the template provided in Appendix H, Attachment 1.
- A Proposal's GCOD and cost estimates therein must comply with Section 1.6 of this RFP.

11. **Environmental Compliance and Permitting Plan:** Each Proposal shall include an Environmental Compliance and Permitting Plan. This criterion will evaluate a Proposer's awareness and due diligence of the Project's potential environmental impacts and mitigation plans, current site conditions, zoning, permit requirements, and schedule. The required information and plans the Company requires is specified in Section 2.6 of Appendix B. If the Proposal (1) addresses each item in Section 2.6 of Appendix B; (2) clearly explains how the Proposer intends to mitigate risks and other impacts to avoid delays in the Project; and (3) provides reasonable timeframes for completion of any necessary investigations and studies and obtaining all permits and approvals, the Company will consider this Threshold Requirement met. Failure to provide any of the above in either the environmental compliance plan or the permitting plan will result in a failure of this Threshold Requirement.

12. **Financial Strength and Financing Plan:** This criterion addresses the comprehensiveness and reasonableness of the financial plan for the Project and assesses the financial strength and capability of the Proposer to develop the Project. The Proposer must provide a complete financial plan that addresses the following issues: (1) Project ownership; (2) capital cost and capital structure; (3) sources of debt and equity; (4) and evidence that credit-worthy entities are interested in financing the Project. The Proposal must demonstrate the financial strength of the Proposer or its credit support providers by providing all information required in Section 2.3.4 of Appendix B to this RFP.

4.4 Initial Evaluation – Price Analysis, Non-Price Analysis, and Additional Criteria

Proposals that meet both the Eligibility and Threshold Requirements are Proposals that will be subject to a price and non-price assessment. The Company will establish two teams to conduct the Proposal evaluation process: a Price Evaluation Team and Non-Price Evaluation Team. The results of the price and non-price analyses will be a relative ranking and scoring of all eligible Proposals. Price-related criteria will account for fifty percent (50%) of the total score and non-price-related criteria will account for fifty

percent (50%) of the total score. The initial evaluation of the price-related criteria is explained in Section 4.4.1 and the non-price criteria and methodology for applying the criteria are explained in Section 4.4.2. Additional criteria will then be evaluated, with points awarded to or deducted from the total score. The evaluation of the additional criteria considered is explained in Section 4.4.3.

The Company will employ a closed-bidding process for this solicitation pursuant to Section 1.3.1.

4.4.1 Initial Evaluation of the Price Related Criteria

For the initial price analysis, the Company will complete a levelized price calculation ("LEP") for each Project based on the contracted energy output (e.g., NEP) and/or capacity (e.g., MW, Contract Firm Capacity) using the fixed and variable pricing (as applicable pursuant to the IGP Contract type). For the initial price analysis, the Proposal will be evaluated on the Investment Grade Pricing if, as of the Proposal Due Date, either one or both of the following occur: a) the IPP Bill passes and becomes law, and/or (b) HEI's credit rating reaches Investment Grade Status. Otherwise, the initial price analysis will be based on the Non-Investment Grade Pricing provided with the Proposal.

In order to fairly evaluate Proposals with different technologies and characteristics, the Company will group Proposals into technology-based and storage-based evaluation categories,[61] dependent on the types and quantities of Proposals received in this RFP. For example: (1) Wind generation (MWh) only; (2) Wind generation (MWh) and Energy storage; (3) Solar generation (MWh) and Energy storage; (4) Standalone Energy Storage (MW/MWh); (5) Firm synchronous generation (MW).[62]

The eligible Proposal with the lowest LEP in each evaluation category will receive 500 points. All other eligible Proposals in that evaluation category will receive points based on a proportionate reduction using the percentage by which the eligible Proposal's LEP exceeds the lowest LEP in that evaluation category. Scores will be limited to a minimum floor of zero (0) points. For example, if a Proposal's LEP is ten percent (10%) higher than the lowest LEP in that evaluation category, the Proposal will be awarded 450 points (that is, 500 points less 10%). The result of this assessment will be a ranking and scoring of each Proposal within each evaluation category.

In instances where a Proposal variation is submitted for the same resource type in the same electrical location (i.e., POI), only the highest scoring variation for that location and technology type will be considered for the Priority List.

[61] If Proposals with various storage sizes are received in the RFP, different categories based on storage size will be established during the Initial Evaluation to enable the benefits of the Projects' storage to be assessed.
[62] There may be other technologies that are offered in this RFP. This list is illustrative of how technology-based evaluation categories will be established for the Initial Evaluation. The categorizing of Proposals will depend on the types and quantities of Proposals received in this RFP.

4.4.2 Initial Evaluation of the Non-Price Related Criteria

For the non-price analysis, each Proposal will be evaluated on each of the eight (8) non-price criteria categories set forth in Section 4.4.2.1 below. The non-price score accumulated after evaluation of such criteria is subject to reduction based on the Previous Performance evaluation described in Section 4.4.3.1 below.

4.4.2.1 Non-Price Criteria and Scoring

The non-price criteria are as follows and further described below:

1. Community Engagement
2. Project Development and Schedule
3. Technical and Operational Requirements
4. Experience and Qualifications
5. Proposed Contract Modifications
6. Carbon Emissions
7. Cultural Resource Impacts
8. Community Benefits Program

As described more fully below, a Proposal can receive up to ten (10) points for each of the first three criteria – Community Engagement, Project Development and Schedule, Technical and Operational Requirements – to reflect the impact of these criteria the successful completion of a Project. The remaining non-price criteria will receive numerical scores on a scale of 1 to 5.

1. Community Engagement will be scored on a scale of 1 to 10.
2. Project Development and Schedule receive the total of two sub-scores:
    a. Schedule: Scored on a scale of 1 to 5.
    b. Cost: Scored on a scale of 1 to 5.
3. Technical and Operational Requirements will be scored on a scale of 1 to 5 and will be double-weighted (e.g., if a Proposal receives a score of 5, it will receive 10 points for this criterion).

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

The non-price criteria are:

1. **Community Engagement** – Gaining community support is an important part of a Project's viability and success. An effective Community Engagement Plan will call for early meaningful communications with stakeholders – that include area

residents, elected officials and community leaders – and will reflect a deep understanding and respect for the community's desire for information and provide opportunities that enable them to make informed decisions about future projects in their communities. Therefore, a Proposal will be evaluated on the quality of the Community Engagement Plan to inform the Project's impacted communities.

The Proposal must include a Community Engagement Plan, as set forth in Appendix N, that describes the Proposer's commitment to work with the neighboring community and stakeholders and to provide timely Project information during Project development, construction and operation. The Proposal will be scored based on the robustness of the Community Engagement Plan and commitments defined therein, as well as any Pre-selection Community Feedback received on the Proposal, as specified in Section 3.15.1 of this RFP and Section 1.1.k of Appendix N to this RFP, and how the feedback was addressed as needed by the Proposer. The Community Engagement Plan should also include the area elected officials, community leaders, organizations, boards or associations, and other stakeholders engaged by Proposers in the community scoping process, along with the respective feedback collected and how the information is being used to inform the plan and project proposal.

2. **Project Development and Schedule** – Projects that are further along in development generally have lower project execution risk and a greater probability of being successfully placed into service prior to the GCOD specified in each Proposal. At minimum, the Proposal should clearly demonstrate how a Proposer plans to reach the proposed GCOD, including identification of risks and schedule assumptions, while capturing applicable tax benefits. The Project schedule must be created consistent with the instructions in Section 2.14 of Appendix B to this RFP. The Project schedule must identify an IRS completion date and PUC approval dates assumed. The Proposal must also include a detailed critical path schedule that integrates both Proposer's Facility and interconnection work, as evidence that the Project will be able to reach Commercial Operations as specified. This is particularly important for renewable firm capacity projects, as the need-by date in the RFP is critical to meet. Proposals shall include a Gantt chart that clearly illustrates the overall schedule and demonstrates achievement of Commercial Operations by the proposed GCOD. The Gantt chart shall include task durations and dependencies, identify tasks that will be fast tracked, and identify slack time and contingencies. The Gantt chart must also include the milestones identified in Section 3 of Appendix H and reflect the appropriate durations associated with such milestones.

   This criterion will examine whether a Proposal includes the breakdown of high-level Project costs set forth in Section 2.3.2.2 of Appendix B in the Proposal. The Proposal must also clearly demonstrate that the costs identified are sufficient to build the COIF. The Company will specifically look to see if the Proposal includes all cost line items from Appendix H applicable to the Project type for COIF. As required in Sections 2.4.1.2 and 4.3(10), the Proposal must include

COIF costs in the template provided in Attachment 1 to Appendix H. The Company reserves the right to discuss any cost and financial information with a Proposer to ensure the information provided is accurate and correct. The Proposer shall be responsible for the final determination of interconnection costs regardless of whether it is higher than the costs in its Proposal. A Proposal's schedule and cost estimate information must be consistent with the information submitted to the Company pursuant to Section 1.6 of this RFP.

The Project Development and Schedule scoring will be the sum of the schedule sub-score and the cost sub-score.

3. **Technical and Operational Requirements –** The proposed Facility must meet the performance attributes including, but not limited to, Technological and Operational Requirements identified in the applicable IGP Contract. The Company will review the Proposal information received, including design documents, equipment manuals and capabilities, and operating procedures materials provided to evaluate whether the Project is able to meet the Technical and Operational Requirements identified in the applicable IGP Contract and in this RFP. At minimum, in addition to meeting the Technical and Operational Requirements, the Proposal should include sufficient documentation, provided in an organized manner, to support the stated claim that the Facility will be able to meet the Technical and Operational Requirements. The Proposal should include information required to make such a determination in an organized manner to ensure this evaluation can be completed on a timely basis. Preference will be given to Proposals that provide detailed technical and design information showing how each standard can be met by the proposed Facility. Preference will also be given to Proposals whose facilities offer additional capabilities over and above the required performance attributes.

4. **Experience and Qualifications** – The Proposal will be evaluated based on the experience of the Proposer in financing, designing, constructing, interconnecting, owning, operating, and maintaining projects (including all components of the project) of similar size, scope and technology. The Proposal must demonstrate in the table format specified in Section 2.13 of Appendix B that at least one (1) project team member has specific experience in each of the following categories: financing, designing, constructing, interconnecting, owning, operating, and maintaining at least one electricity generation or standalone storage project that has reached Commercial Operations including all components of the project similar to the proposed Project. Proposals that require the repowering an existing facility must demonstrate in the table format specified in Section 2.13 of Appendix B that at least one (1) project team member has specific experience in each of the following categories: financing, designing, completing a repowering of an existing facility, owning, operating, and maintaining at least one electricity generation project similar to the proposed Project. Preference will be given to Proposers with experience in successfully developing multiple projects that are similar to the proposed Project and/or that have prior experience successfully developing and interconnecting a utility-scale project to the Company's System

within five (5) years of the Proposal Due Date of this RFP. Existing facilities currently in operation that propose utilizing the same interconnection, the same Facility technology, and utilizing the same operating team, do not present the same construction risks of a new project and will be scored more favorably.

5. **Proposed Contract Modifications** – Proposers are encouraged to accept the contract terms identified in the applicable IGP Contract in their entirety to expedite the overall RFP process and potential contract negotiations. Proposers that accept the IGP Contract without modifications will receive the highest score for this non-price evaluation criterion. Technology-specific or operating characteristic-required modifications, with adequate explanation as to the necessity of such modifications, will not jeopardize a Project's ability to achieve the highest score. Proposers that elect to propose modifications[63] to the IGP Contract shall provide a Microsoft Word red-line version of the applicable document identifying specific proposed modifications to the IGP Contract language, as well as a detailed explanation and supporting rationale for each modification. General comments without proposed alternate language, drafting notes without explanation or alternate language, footnotes such as "parties to discuss," or a reservation of rights to make additional modifications to the IGP Contracts at a later time are unacceptable, will be considered unresponsive, and will result in a lower score for this criterion.[64]

6. **Carbon Emissions** – The Proposal shall provide responses to the Carbon Criteria Questions provided in Section 2.15 of Appendix B, which will be used to score each Project depending on Project-specific design, siting, procurement, construction and O&M information likely to impact the Project's lifecycle GHG emissions. In line with carbon neutral goals set forth by Hawaiian Electric[65] and the State of Hawai'i,[66] preference will be given to Proposers expected to have lower lifecycle GHG emissions based on the responses to the Carbon Criteria Questions.

7. **Cultural Resource Impacts** – Proposers must be mindful of the Project's potential impacts to historical and cultural resources. Proposals must include a cultural assessment which shall identify (1) valued cultural, historical, or natural resources in the area in question, including the extent to which traditional and customary native Hawaiian rights are exercised in the area; (2) the extent to which those resources – including traditional and customary native Hawaiian rights – will be affected or impaired by the proposed action; and (3) the feasible action, if any, to be taken to reasonably protect any identified cultural, historical, or natural resources in the area in question, and the reasonable protection of traditional and customary native Hawaiian rights in the affected area.

[63] See Section 3.11.7 for all non-negotiable sections of the IGP Contracts.
[64] See also Section 3.11.
[65] See https://www.hawaiianelectric.com/about-us/our-vision-and-commitment/climate-change-action.
[66] See HRS § 225P-5.

The Proposal will be evaluated on the Proposer's plan and commitment to addressing cultural resource impacts on the Project, if any. Therefore, the Proposal should, at minimum, include the following documentation, as applicable: (1) Proposer's or its consultant's experience with cultural resource impacts on past projects; and (2) the status of the Proposer's cultural assessment plan. Should the Proposal cite a previously completed cultural assessment of the area, a copy of the assessment document should be included in the Proposal. The Proposal will be evaluated on the extent to which the Proposal's cultural assessment plan has been developed, and preference will be given to Proposals that are further along in the assessment process, including but not limited to, whether a mitigation/action plan has been provided that addresses any identified cultural resource issues, or a date for when such a plan will be available has been identified, or any portions of such plan have been completed.

The cultural assessment, Archaeological Literature Review, and Field Inspection Report should ideally be submitted at the appropriate Proposal Due Date in Table 2. However, if they are not submitted with the Proposal, the cultural assessment, Archaeological Literature Review, and Field Inspection Report must be submitted three (3) weeks before the Selection of Priority List date in Section 3.1, Table 2. If a Proposer is unable to deliver the required cultural documentation within the allocated timeframe due to access and right of entry issues, the Company will work with such Proposer to deliver a documented Field Inspection Report prior to the execution of any negotiated IGP Contract.

8. **Community Benefits Program** – The Proposal must, in conjunction with other Community Engagement efforts, include a documented plan for a Community Benefits Program highlighting the amount and distribution of funds that the Proposer will commit on an annual basis to providing as community benefits, along with other intended community benefits. Please see Appendix N to this RFP for specific program requirements. The Proposal will be evaluated on the extent to which the Community Benefits Program is developed, and preference will be given to Proposals accordingly.

The sum of the scores for each individual non-price criteria will make up the non-price score. The Company will then award non-price evaluation points in accordance with the relative ranking of scores within each evaluation category. The Proposal in each evaluation category with the highest total non-price score will receive 500 points, and all other Proposals will receive points equal to the Proposal's score divided by the top score, multiplied by 500.

During the non-price criteria evaluation, a fatal flaws analysis will also be conducted. Any Proposal that does not to meet the minimum standards level for three (3) or more non-price criteria will be disqualified, given that the Proposal failed to meet the required number of non-price factors that are indicative as to the general feasibility and operational viability of a proposed Project.

4.4.3 Evaluation of Additional Criteria

In this RFP, the Company will evaluate certain additional criteria that may inform the likelihood of a Project's success or encourage the incorporation of community feedback in the development process. Points will be awarded to or deducted from the Proposer's total score for these additional criteria.

4.4.3.1 Previous Performance Evaluation

This RFP will include a Previous Performance scoring criterion. Based on any underperformance experienced within the past five (5) years of the issue date of this RFP from any Proposer, its parent company, or an affiliate[67] of such Proposer, the Company will deduct points from the Proposer's total score, based on the infraction and unless otherwise stated below. The total point deductions may range from zero (0) to two hundred (200) points. If a Proposer or its affiliate(s) have not been awarded a project by the Company or does not have an existing or past contract with the Company within the past five (5) years, no points will be deducted.

The Company will evaluate Proposers for any past infractions listed below. For purposes of the Previous Performance scoring criterion, a Proposer will include the Proposer, its parent company, and any affiliate of the Proposer. For each of the following infractions identified for any of the Proposer's existing or past projects, up to a maximum of one hundred (100) points will be deducted from the Proposer's total score in this RFP. Any infraction caused by force majeure, as defined in the IGP Contracts, will not be counted toward the deductions.

1. Proposer declined a Priority List or Final Award Group invitation. [10 point deduction]
2. Proposer withdrew an awarded project after accepting a Final Award Group invitation. [20 point deduction]
3. Proposer either terminated an executed contract, except for a termination due to a event of default by Company, or declared an executed contract null and void, except for a null and void declaration due to an unfavorable PUC order, and, in either case, the executed contract was not reinstated or otherwise superseded by a subsequent contract. [20 point deduction]
4. Termination of an executed contract by Company due to an event of default by Proposer, or its parent company or affiliate, unless such default was cured by the contracting Proposer, parent company, or affiliate, as applicable, in an expeditious manner to the satisfaction of the Company. [20 point deduction]
5. Proposer breached any representations and warranties under a PPA. [5 point deduction]

[67] For purposes of the Previous Performance criteria, a Proposer's "affiliate" is defined as an entity that directly or indirectly through one or more intermediaries controls, is controlled by or is under common control with the Proposer, with the term "control" (including the terms "controlled by" and "under common control with") referring to the power to direct or cause the direction of the management and policies of the applicable entity, whether through the ownership of voting securities, by contract, or otherwise.

6. Proposer made material changes or additions to the Facility from what was submitted in its Proposal during the timeframe between Final Award Group acceptance and PPA execution, without the Proposer first having obtained prior written consent from the Company. [10 point deduction]

In addition to the above-referenced infractions, one hundred (100) points shall be deducted from any Proposal's non-price score in the event the Proposer, its parent company, or an affiliate of the Proposer is involved in any pending litigation in which the Proposer, parent company, or affiliate has made claims against the Company or in which the Company has made claims against the Proposer, parent company, or affiliate, which is not subject of a settlement agreement that is currently in effect. This one-hundred-point deduction for involvement in pending litigation is not subject to the maximum of one hundred (100) points that may be deducted for the other Previous Performance criteria described above. As such, a total of up to two hundred (200) points may be deducted from a Proposal's total score for infractions of Previous Performance criteria.

Proposers shall disclose their parent company and affiliates as described in Appendix B, Section 2.16. During the non-price criteria evaluation, should the Company identify any Previous Performance infractions, including the identification of pending litigation, the Company will notify Proposers of any potential deductions and provide them with the opportunity to respond with a written explanation within five (5) business days. The Company, in consultation with the Independent Observer, will review the explanations and determine whether there were instances outside of the Proposer's control or otherwise excusable. The Company will finalize deductions with the objective of determining the risk of future under/non-performance based on past experiences.

4.4.3.2 Community Co-Creation

Preference will be given to Proposers who commit to piloting the concept of community co-creation by identifying and working with organizations and leaders in host communities to engage in project development, including community benefits. Up to an additional eighty (80) points may be awarded to a Proposal demonstrating community co-creation efforts described below.

As part of the community co-creation concept, Proposers would identify influential community leaders and organizations in host communities through the scoping process, who are willing to help shape proposed projects and a community benefits program. This would help Proposers better understand the challenges, opportunities, assets, and demographics of the host community. Proposers are also strongly encouraged to review resources such as the Hawai‘i State Energy Office's community engagement strategy, called Energize Kākou, and the participatory budgeting framework set forth by the

Ulupono Initiative.[68] Through these co-creation and community decision-making efforts, community members will have an opportunity to provide feedback and voice concerns earlier in the planning process. This information from the community can be used by Proposers to improve their overall project, operations, inform strategy, and match community challenges and opportunities with local and organizational assets and advocacy efforts. In recognition of demonstrated co-creation efforts, a maximum of eighty (80) points may be added to the Proposal's total score. For further details of community co-creation plan requirements, please see Section 1.1.1 of Appendix N.

4.4.3.3 Project Siting

Recognizing that limited land is available for renewable projects, up to an additional eighty (80) points may be awarded to a Proposal for a Project sited in a preferred area and that shows efforts to minimize the impacts of development on the environment. These points are split into three areas: (1) Renewable Energy Zones, (2) Land Use and Impervious Cover, and (3) Wildfire Risk Areas.

4.4.3.3.1 Renewable Energy Zones

The Company partnered with the National Renewable Energy Laboratory to conduct a preliminary study to identify potential areas on Oʻahu, Hawaiʻi island and Maui that may be suitable for future renewable energy projects. This partnership resulted in data-driven maps showing potential "Renewable Energy Zones" ("REZ") representing where future clean energy projects could potentially be located.

Hawaiian Electric has established prioritized REZ in this RFP based on community feedback and geographic preference.

- As part of the IGP and REZ development process, the Company undertook community engagement efforts and invited members of the community to provide feedback on areas of the island that the community is or is not amenable to use for renewable energy projects and to provide other feedback that would be helpful in siting renewable energy projects. This information is available at hawaiipowered.com/rez.

- Additionally, the strong prevalence of generation on the west side of both Oʻahu and Hawaiʻi island has been recognized previously in Sections 2.1.1 and 2.3.1 of the RFP. This RFP seeks to promote a more even distribution of resources by incentivizing development in the central and east REZ of Oʻahu and the east and south REZ of Hawaiʻi island.

[68] Energize Kākou website is available at https://energy.hawaii.gov/get-engaged/energize-kakou/. The Playbook of community engagement best practices is available at https://energy.hawaii.gov/wp-content/uploads/2022/10/Energize-Kakou-Playbook_FINAL.pdf. Ulupono Initiative's Participatory Budget Project report, "Let Communities Decide: Using Participatory Budgeting for Renewable Energy Community Benefits Packages", is available at https://www.ulupono.com/media/4c1phrv0/pb-for-community-benefits-packages-jan-2023.pdf.

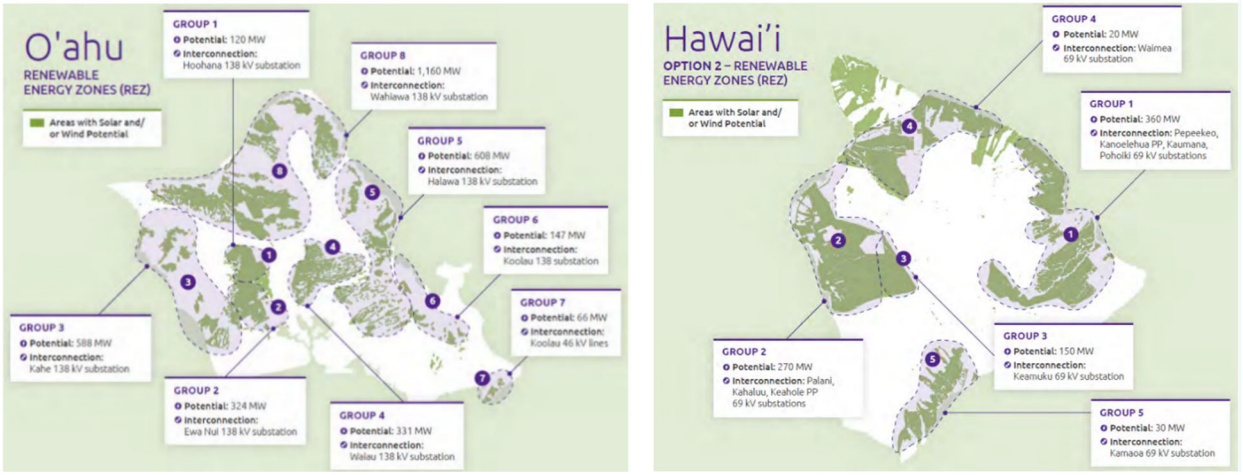
Accordingly, a Proposal for a Project sited, either completely or partially, within the following list of prioritized REZ zones will be awarded an additional ten (10) points to the Proposal's total price/non-price score:

O'ahu – Central O'ahu (Zones[69] 1, 2, and 4), Ko'olaupoko (Zone 6), and East Honolulu (Zone 7)

Hawai'i – East Hawai'i (Zone 1) and South Hawai'i (Zone 5)

For any proposed Project that interconnects to a preferred location identified in Table 1 of Section 2.3.1 of this RFP, an additional ten (10) points will be awarded to the Proposal's total price/non-price score. For proposed Projects interconnecting to a pre-screened line, the GCP must be within the bounds of prioritized REZ zones. The total amount of points available to award for REZ inclusion is twenty (20) points.

Proposers may request a set of Shapefiles illustrating the REZ boundaries and which allow for visual comparison and analysis in mapping tools. Requests shall be directed to the RFP Email Address in Section 1.7.



4.4.3.3.2 Land Use and Impervious Cover

Land conversion and construction practices across Hawai'i have a significant impact on the environment, including water quality, air quality and soil erosion. Mitigating the effects of these impacts can conversely create more livable communities and generate a healthier, better quality of life. The Company encourages Proposers to site Projects on developed lands and to preserve open spaces and agricultural lands:

- Land with greater existing impervious cover;

[69] For purposes of this section, Groups and Zones are used interchangeably.

- Land zoned industrial or industrial mixed use, commercial or business mixed use, or apartment or apartment mixed use, based on county zoning designations, with a preference in that order; or

- Land deemed as reclaimed, such as brownfield.

A Proposal for a Project that minimizes the net increase of impervious cover of the Project site and optimizes the use of limited land resources will be awarded up to an additional ten (10) points respectively, for a total of twenty (20) points.

4.4.3.3.3 Wildfire Risk Areas

Further to the Company's wildfire mitigation resilience efforts, the Company would like to recognize Projects that promote grid resiliency by being sited outside of medium- and high-risk wildfire areas. These areas are identified in the high-level maps mentioned in Section 2.3.1 that also identify the pre-screened lines and substations. Prospective proposers may request this map via the RFP Email Address after execution of the NDA.

A Proposal for a Project sited completely outside both high *and* medium risk wildfire areas will be awarded an additional twenty (20) points to the Proposal's total price/non-price score. A Proposal for a Project sited completely outside of high-risk wildfire areas, but at least partially within medium-risk wildfire areas, will be awarded an additional ten (10) points. A Proposal for a Project sited at least partially in a high-risk wildfire area will not receive any points under this section.

A Proposal that includes new line extension(s)[70] that are all sited completely outside both high *and* medium risk wildfire areas will be awarded an additional twenty (20) points to the Proposal's total price/non-price score. A Proposal that includes new line extension(s) that are all sited completely outside of high-risk wildfire areas, but at least partially within medium-risk wildfire areas, will be awarded an additional ten (10) points. A Proposal that includes any new line extension(s) sited at least partially in a high-risk wildfire area will not receive any points under this section.

Altogether, forty (40) total points are available to award for siting outside of high- and medium-risk wildfire areas.

4.5 Selection of a Priority List

At the conclusion of both the price and non-price analysis, a total score will be calculated for each Proposal using the 50% price-related criteria / 50% non-price-related criteria weighting outlined above. The price and non-price analysis, and the summation of both price and non-price scores described above, will result in a ranking of Proposals within each technology-based evaluation category.

[70] For purposes of this section, a "new line extension" is considered to extend between the Project and the GCP, up to and including the GCP.

Following the price and non-price scoring, an initial pool of top scoring Proposals for each technology-based category will be determined, with consideration for electrical location of each resource. The Company may consider using a computer model to optimize the pool of resources by technology category in order to select Proposals in each technology-based category to advance to the Priority List.

The collective export of portfolios will be reviewed against the existing transmission available MW capacity.

The selection to the Priority List does not assure an eligible Proposal's inclusion in the selection of the Final Award Group.

Proposers will not be able to update their Proposals based on any feedback provided by the Company after Proposal submission. Pricing components, as explained in Section 3.12.4, will not be allowed to change, except as allowed at the Best and Final Offer stage noted in Section 4.6.

4.5.1 Generation Facility Technical Model Requirements and Review Process

Proposers whose Proposals are selected to the Priority List are required to submit a payment of $12,000[71] to commence with a Generation Facility Technical Model Requirements and Review Process, as prescribed in Section 3 of Attachment 3 to Appendix B. The $12,000 payment shall be submitted in a manner consistent with the requirements applicable to the Proposal Fee, as set forth in Section 3.7.3. The $12,000 payment will be used to offset the costs to perform one (1) cycle of model reviews by the Company and its consultants related to the Generation Facility Technical Model Review Process. Any feedback provided to Proposers is expected to be actioned and resolved by the Proposer prior to the commencement of the IRS.

In order to minimize the cost and advance the schedule for all Proposers, as well as study the impacts of the portfolio of projects, portions of the System Impact Study will be performed as a group study, requiring all Proposer models to be accurate, functional, and deemed suitable by the Company prior to commencement of the study. The IRS process described in Section 5.1 includes a 30-day timeframe for all model reviews to be completed prior to commencement of the group study. If a Proposer's models are not acceptable at the start of the group study, the Project will be subject to a standalone IRS, which will result in increased cost and potential delays to the Proposal, as the study must be conducted after the group study is completed.

[71] The $12,000 payment is for review of one variation. If a Proposal has multiple variations that advance to the Priority List, only one variation will be required to perform a model review if all variations utilize the same equipment. Otherwise, additional reviews (and payments) may be required for the variations with different equipment. The feedback provided for the one variation selected can be utilized to assist the Proposer in preparing its models for other Priority List variation(s). The Proposer may request the Company perform a cycle of model reviews on other variations, but each variation request will require a $12,000 payment.

4.5.2 Community Engagement Plan and Cultural Resource Impacts

Within thirty (30) days of notifying a Proposer of the selection of its Proposal(s) to the Priority List (which is after the Initial Evaluation where Proposals are scored), the Company will provide feedback to such Proposer on the following portions of their Proposal(s): (1) Community Engagement Plan, (2) Community Benefits Program, and (3) Cultural Resource Impacts. Please see Section 2 of Appendix N for further details and requirements.

4.6 Best and Final Offer (BAFO)

4.6.1 The Company will solicit a Best and Final Offer from each Proposer whose Proposal(s) are selected to a Priority List in a technology-based evaluation category. Each Proposer whose Proposal(s) are selected to the Priority List, including any Hawaiian Electric Proposals,[72] will have the opportunity to update (downward only)[73] the pricing elements in their Proposal (e.g., Investment Grade Pricing and Non-Investment Grade Pricing) in order to improve the competitiveness of the Proposal prior to further assessment in the Detailed Evaluation phase. At the time of its solicitation, the Company may request specific circumstances and/or parameters to be considered and incorporated into the Best and Final Offer. For example, the Company may request a Best and Final Offer that includes a downward price adjustment if one or more future milestones is reached. At this point in the process, updates may only be made to the following pricing elements:

- [For PV+BESS, Wind, Wind+BESS, Standalone Storage Projects] Lump Sum Payment ($/year) amount.
- [For Firm Projects] Capacity Charge rate ($/kW/month) and Energy Charge payment ($/kWh) amount.
- [For Hawaiian Electric Proposals] Total Project Capital Costs ($/year), Annual O&M Costs ($/year), ARR ($/year).

Proposers will not be allowed to increase the price in their Proposals[74] but may elect to maintain the same pricing submitted in their original Proposals. Proposers will not be allowed to make any other changes to their Proposals during the Best and Final Offer.

[72] Similar to the Proposal Due Date, if any Hawaiian Electric Proposals or Affiliate Proposals are selected to the Priority List, the Company will require that the Hawaiian Electric Proposal(s) and Affiliate Proposals be submitted a minimum of one (1) day before other Proposals are due.

[73] Proposers will only be allowed to adjust pricing elements downward. No upward adjustment to the pricing elements will be permitted or considered. All other characteristics of the Proposal and Facility capabilities must remain valid and unchanged (e.g., NEP, Contract Firm Capacity, GCOD, etc.)

[74] Proposers will not be allowed to increase the pricing in their Proposals to address interconnection and/or System upgrade costs or for any other reason.

4.6.2 If a Proposer does not propose improvements to the pricing elements in its Proposal during the Best and Final Offer solicitation, the original Proposal pricing elements will be deemed its Best and Final Offer.[75]

4.6.3 In an effort to balance competitive pricing with a measure of protection during these times of market volatility, the Company will allow all Proposals that are selected into the Final Award Group a one-time pricing adjustment of their BAFO-defined Lump Sum Payment amounts for PV and wind Projects and Standalone Storage Projects, and Capacity Charge rate for Firm PPA Projects (or Total Project Capital Costs for the Hawaiian Electric Proposal) proportional to the percent change in the Gross Domestic Producer Price Index between the BAFO submission date and the Commission approval date of the IGP Contract. The price adjustment will be capped at no greater than a ten percent (10%) adjustment. If there is no inflation during the time period or the index decreases, pricing will remain as bid in the BAFO.

4.7 Detailed Evaluation

The Best and Final Offers of the Priority List Proposals from this RFP will be further assessed in the Detailed Evaluation to determine the Proposals selected to the Final Award Group.

Similar to the Initial Evaluation, for the Detailed Evaluation, Proposals will be evaluated on the BAFO Investment Grade Pricing if, as of the BAFO Due Date, either one or both of the following occur: a) the IPP Bill passes and becomes law, and/or (b) HEI's credit rating reaches Investment Grade Status. Otherwise, the Detailed Evaluation will be based on the BAFO Non-Investment Grade Pricing provided with the Best and Final Offer.

Computer modeling will evaluate integrating the portfolio onto the Company's System using the latest inputs and assumptions in the Integrated Grid Planning proceeding (Docket No. 2018-0165), described further below.

All Proposals from the Priority List will be input into the computer model using the Proposal's performance data (i.e., NEP, Contract Firm Capacity, BESS Contract Capacity), and Proposal costs (i.e., Lump Sum Payments, Capacity Charge payments, Energy Charge payments, etc.). An optimal, least-cost resource portfolio will be selected by the computer model, RESOLVE. RESOLVE will be used to determine the optimal type and quantity of resource additions based on a range of constraints such as pricing, GCOD, reliability, operational characteristics and services offered. Depending on the number of Proposals on the Priority List, multiple iterations of the computer model may be needed. Additional modeling scenarios or portfolios may also be completed in consultation with the Independent Observer. The evaluation will be based on the costs and benefits to the Company of integrating the combination of Priority List Proposals onto the Company's System which includes:

[75] The Company reserves the right, in consultation with the Independent Observer, to adjust the parameters of the BAFO, in the event that Company needs have evolved in a way that the Proposals received do not fully address.

1. The cost to dispatch the Project or combination of Projects and the energy and storage purchased;

2. The fuel cost savings (benefits) and any other direct savings (IPP savings from dispatchable fossil fuel savings, where applicable) resulting from the displacement of generation by the Priority List Proposals, including consideration of round-trip efficiencies for Facilities with storage;

3. The estimated increase (or decrease) in operating cost, if any, incurred by the Company to maintain System reliability; and

4. The cost of imputed debt, if applicable.

The Company may complete additional analyses of the portfolio in consultation with the Independent Observer to verify other operating requirements are met.

The Company may take into account the cost of rebalancing its capital structure resulting from any debt or imputed debt impacts associated with each Proposal (including any costs to be incurred by the Company, as described above, that are necessary in implementing the Proposal). The Company proposes to use the imputed debt methodology published by S&P that is applicable to the Proposal being evaluated. S&P views long-term PPAs as creating fixed, debt-like financial obligations that represent substitutes for debt-financed capital investments in generation capacity. By adjusting financial measures to incorporate PPA-fixed obligations, greater comparability of utilities that finance and build generation capacity and those that purchase capacity to satisfy new load is achieved. During the Detailed Evaluation and before the Proposals advance to the Final Award Group, the Company will perform load flow analyses to determine if certain Projects or combinations of Projects introduce line constraints that will factor into the selection process. This is to address the possibility that even though sufficient available MW capacity may be identified for an individual Project, Projects that are in close proximity with each other could introduce additional line constraints. The Company reserves the right, in consultation with the Independent Observer, to allow minor modifications and/or downsize the project in a Proposal to avoid such additional constraints, or the Proposer can choose to perform interconnection upgrades to eliminate the constraints. If such modification resulted in a reduced size of the Facility, the pricing proposed would also need to be revised. Under no circumstances would a Proposer be allowed to increase the price in any Proposal as a result of such minor modification.

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

Projects, system stability,[76] localized requirements,[77] and any development risks associated with new Projects as compared to existing Projects.

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

4.8 Selection of the Final Award Group

Based on the results of the Detailed Evaluation and review of the results with the Independent Observer, the Company will select a Final Award Group to begin contract negotiations. The Company intends to select Proposals that meet the targeted needs and provide customer benefits. The Company will notify all Proposers whose Proposals are selected to the Priority List whether their Proposals are selected to the Final Award Group.

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

Up to the announcement of the Final Award Group, should any new legislation for renewable energy be enacted that would offer Proposers further tax credits, the Company reserves the right to require Proposers to provide a downward pricing adjustment to their Proposals reflective of such savings for the benefit of the Company's customers.

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

Following any removal of a Proposal from the Final Award Group, either by disqualification noted immediately above, or via any other removal or withdrawal of a Proposal, including failure to reach agreement to the IGP Contract, the Company, taking into consideration the timing of such removal and the current status of the Company's needs under the RFP, in consultation with and concurrence from the Independent Observer, may review the Priority List to determine (1) if another Proposal should be

[76] Prior studies indicated system stability was achieved with the addition of 350 MW of grid-forming inverter-based resources on Oahu and 115 MW of grid-forming inverted-based resources on Hawai'i Island. The exact number of MWs needed to achieve system stability will be evaluated based on a portfolio of projects as different resources provide different contributions to the stability of the system.

[77] One example of localized requirements is the need for reactive power support in East and South Hawai'i Island, which could be provided by resource addition(s).

added to the Final Award Group; or (2) if the remaining Proposals in the Final Award Group should remain unchanged.

Chapter 5: Post Evaluation Process

5.1 Project Interconnection Process

At Proposal Submission

Development of accurate and functional facility technical model is imperative to the successful completion of the IRS, the accuracy of study results, and, by extension, the reliability of the System. Models must be accurate representations of the Facility and its operation. The Company validates the quality of the models and acceptability for the IRS though a model checkout process. Proposers should have developed, executed, tested, and documented results of their models prior to submitting a proposal.

A complete package of Project Interconnection Requirement Data Request worksheets, Project single-line diagrams, models (see Appendix B, Attachment 3), and documentation prescribed in Appendix B, Attachment 4, including a report, with plots, documenting that Proposers have tested their models under all scenarios, is required upon Proposal submission. See Section 2.11 of Appendix B.

The models required are set forth in Appendix B, Attachment 4. PSSE Generic models, PSSE User models, and ASPEN models shall be configured to represent all of the functional equipment with settings in place to comply with the Company's IGP Contract performance requirements. These must be checked for functionality by the Proposer or its vendors and consultants prior to submission to the Company (see Appendix B, Attachment 3). Similar and fully accurate PSCAD models shall be submitted in a condition that complies with the PSCAD modeling guidelines provided by the Company.

Post Selection to Final Award Group

Within thirty (30) days after selection of the Final Award Group, final submissions, incorporating any updates, and the inclusion of any additional information or drawings as required, shall be made for the Project data and modeling submittals described above.

The Company will inspect the data packages for general completeness. For any incomplete submissions, a list of missing or non-functional items will be provided. A Proposer will be given fifteen (15) days to resolve data and modeling deficiencies. The Company, in consultation with the Independent Observer, may remove Proposals from Final Award Group, or may terminate contract negotiations or executed IGP Contracts if submission requirements are deemed incomplete for the lack of requested models. A formal, technical model checkout will be performed when IRS Letter Agreements and deposits are in place, so that the expert subject matter work can be provided by the Company's IRS consultant(s).

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

In order to minimize the cost and advance the schedule for all Proposers, as well as study the impacts of the portfolio of Projects, portions of the System Impact Study will be performed as a group study, requiring all Proposer models to be accurate, functional, and deemed suitable by the Company prior to commencement of the study. Within thirty (30) days after selection of the Final Award Group, final submissions, incorporating any updates, shall be made for the Project data and modeling submittals. The IRS process includes a 30-day timeframe, following this model submittal deadline, for all model reviews to be completed prior to commencement of the group study. Should a Proposer's model not be ready by that time, the Project will be subject to a standalone IRS, which will result in increased cost and potential delays to the Proposal, as the study will have to be conducted after the group study is completed.

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

Proposers shall be responsible for the cost of the IRS, under separate agreements for the System Impact Study and the Facility Study. The Company will not begin the IRS process until the IRS Letter Agreement is returned fully executed and the Proposer has made the IRS payments noted in the IRS Letter Agreement. The overall IRS will provide information including, but not limited to, an estimated cost and schedule for the required Interconnection Facilities for a particular Project and any required mitigation measures. Proposers will be responsible for the actual final costs of all SOIF and COIF. Upon reviewing the results of the IRS, Proposers will have the opportunity to not move forward with the Project and therefore not complete execution of the IGP Contract in the event that the estimated interconnection costs and schedule for the Project are higher than what was estimated in the Project Proposal.

Proposers should assume, at a minimum, a 12-month process for the completion of the IRS, and the execution and filing of the IGP Contract for approval. Such assumption is

dependent on, among other factors, working and finalized models being timely provided for study by Proposers in accordance with the requirements of this Section 5.1.

5.2 Contract Negotiation Process

Within five (5) business days of being notified by the Company of its intent to enter into contract negotiations, each Proposer whose Proposal is selected for the Final Award Group will be required to indicate, in writing to the Company's primary contact for this RFP, whether the Proposer intends to proceed with its Proposal. Each Proposer who elects for its Proposal to remain in the Final Award Group will be required to keep the Proposal valid through the award period.

Within fifteen (15) days after selection of the Final Award Group, each Proposer whose Proposal is selected for the Final Award Group will be required to provide the name of its Project Entity for the Project. The Project Entity will be the party that is legally and financially responsible for all agreements with the Company (e.g., IRS Letter Agreement, GHG Letter Agreement, PPA) regarding the Project. Additionally, a bank account in the name of the Project Entity must be established for financial transaction purposes.

As described in Section 5.1 above, a draft IRS Letter Agreement will be provided upon notification of selection to the Final Award Group. The IRS process will commence upon payment of the deposit and execution of the IRS Letter Agreement. Contract negotiations will commence in parallel with the IRS process. The IGP Contract will not be executed until completion of the IRS, and any impacts from the IRS will be folded into the IGP Contract. The submission of an executed IGP Contract for PUC approval will take place thereafter. In the event that the IRS process is delayed, for whatever reason, and the proposed GCODs of Projects negotiating a IGP Contract is jeopardized by the delayed IRS Process, the Company may propose to the Proposer to execute the IGP Contract prior to completion of the IRS process. If the Parties agree, the Parties may further agree to require the Company to submit the completed IGP Contract to the PUC for approval with the IRS to be completed as soon as possible thereafter. After the IRS is completed and any necessary amendments to the technical terms of the IGP Contract are completed, the Company will submit such amendment to the PUC as a notice filing for further action as the PUC may direct.

5.3 Community Engagement

The public meeting and comment solicitation process described in Section 3.15 above and this section, as well as Section 29.21 of the RDG PPA and ESPA or Section 12.1(L) of the Firm PPA (Community Engagement Plan) and Appendix N of the RFP do not represent the only community engagement activities that can or should be performed by a Proposer.

The Company will publicly announce the Final Award Group no later than six (6) business days after the notification is given to Proposers whose Proposals are selected to the Final Award Group. Selected Proposers shall not disclose their selection to the public before the Company publicly announces the Final Award Group selection.

Each Proposer whose Proposal is selected shall, at a minimum, fulfill the post-award community engagement requirements specified in Section 5 (Post-Award Requirements) of Appendix N of this RFP, including a post-award community meeting and project website that includes an updated Community Engagement Plan and Community Benefits Program information.

5.4 Greenhouse Gas Emissions Analysis

Unless the PUC grants a waiver for any project from the requirements for a greenhouse gas ("GHG") emissions assessment,[78] a Proposer selected to the Final Award Group shall cooperate with and promptly provide to the Company and/or Company's consultant(s) all information necessary upon request, in the Company's sole and exclusive discretion, for such consultant(s) to prepare a GHG emissions assessment and report in support of a IGP Contract Application (the "GHG Review"). Each Proposer shall be responsible for the full cost of the GHG Review associated with its Project pursuant to a GHG Letter Agreement between the Proposer and the Company. Based on prior project experience, this GHG Review can range between $90,000 to $120,000 based on the scope of the project, but actual costs may be higher or lower than estimated. The GHG Review is anticipated to address whether the GHG emissions that would result from approval of the IGP Contract and the addition of the Project to the Company's System are greater than the GHG emissions that would result from the operations of the Company's System without the addition of the Project, whether the cost for renewable, dispatchable generation, and/or energy storage services as applicable under the IGP Contract is reasonable in light of the potential for GHG emissions, and whether the terms of the IGP Contract are prudent and in the public interest in light of its potential hidden and long-term consequences.

5.5 Early Engineering

The purpose of early engineering is to start the engineering design ahead of completing the IRS phase utilizing the preliminary Facility Study. This includes internal engineering for COIF by the Company and review of the Proposer's drawings for the COIF that would be affected by SOIF (typically up to 60%). This helps to achieve the proposed GCOD. All Projects selected to the Final Award Group that include new COIF or significant changes to existing COIF shall be required to perform early engineering. The commitment to perform early engineering will be included in the written intent to proceed with Proposals. Early engineering will be conducted concurrently with the IRS to provide up to 60% design engineering of COIF. Early engineering will be performed at the Proposer's cost and will begin after acceptance of the preliminary Facility Study (roughly three (3) months after execution of the IRS Letter Agreement). An initial

[78] See HRS § 269-6(b) (providing that "the [PUC] may waive the requirement for a lifecycle greenhouse gas emissions assessment for energy projects that do not involve combustion."); see also Order No. 41041, *Granting the Hawaiian Electric Companies' Request for Waiver of Greenhouse Gas Emissions Assessments for Energy Projects that Do Not Involve Combustion Pursuant to Act 54 and Addressing Related Motions to Intervene*, issued in Docket No. 2014-0217 on September 18, 2024, at 59-60 (granting the Company's waiver request for PV plus BESS projects selected to the Stage 3 procurement's final award group).

payment of $500,000 on average will be required for early engineering. Final costs will be determined based on the required scope of work.

5.6 PUC Approval

Any signed IGP Contract resulting from this RFP is subject to PUC approval as described in the applicable IGP Contract. Any ancillary PUC approvals required for a Project in addition to the IGP Contract are subject to the PUC approval process described in the applicable IGP Contract. Transmission projects require additional approvals from the PUC as described below:

Pursuant to HRS § 269-27.5, when a new 46kV or greater transmission line is constructed through any residential area, a public hearing will be required prior to approval.

Pursuant to HRS § 269-27.6, the PUC shall determine whether 46kV or greater transmission lines shall be overhead or underground.

The Company intends to seek PUC approval of the applicable IGP Contract and any applicable transmission through a single application after completion of the IRS, any other applicable studies, and execution of the applicable IGP Contract.

5.7 Facility In-Service

To facilitate timely commissioning of Projects selected through this RFP, the Company requires the following be included with the 60% design drawings: relay settings and protection coordination study, including fuse selection and AC/DC schematic trip scheme.

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

If approved drawings are not available, or if the Facility is otherwise not test ready as scheduled, the Project may lose its place in the queue, with the Company retaining the flexibility to adjust scheduling as it sees fit. If tests are not completed within the allotted scheduled testing time, the Project will be moved to the end of the Company's testing queue. The Proposer will be allowed to cure if successful testing is completed within the allotted scheduled time. No adjustments will be made to IGP Contract milestones if tests are not completed within the original allotted time. Daily delay damages for missed milestones will be assessed pursuant to the IGP Contract.

5.8 Archaeological Literature Review and Field Inspection Report

Each Proposer whose Proposal is selected to a Final Award Group must, within five (5) months of selection, complete and submit to the Company a plan for mitigation from an archaeologist licensed in the State of Hawai‘i for any archaeological and/or historical

sites identified in the completed Archaeological Literature Review and Field Inspection Report (LRFI) of existing cultural documentation filed with the State Historic Preservation Division.

Any results available at the time of the Community Engagement meeting required prior to IGP Contract execution discussed in Section 5.3 must be presented at that time, along with an update regarding the Proposer's cultural impact plan.

DRAFT

REQUEST FOR PROPOSALS

FOR

RENEWABLE DISPATCHABLE GENERATION

AND

ENERGY STORAGE

APRIL 3, 2025

Appendix A – Definitions

Hawaiian Electric

"AAA" means the American Arbitration Association.

"Affiliate" means any person or entity that possesses an "affiliated interest" in a utility as defined by section 269-19.5, Hawaii Revised Statutes ("HRS"), including a utility's parent holding company but excluding a utility's subsidiary or parent which is also a regulated utility.

"BAFO Investment Grade Pricing" means the Investment Grade Pricing submitted by a Proposer in its Best and Final Offer.

"BAFO Non-Investment Grade Pricing" means the Non-Investment Grade Pricing submitted by a Proposer in its Best and Final Offer.

"BESS" means the battery energy storage system.

"BESS Contract Capacity" means the anticipated maximum net instantaneous active power (MW) and maximum energy storage capability (MWh stored that represents a 100% State of Charge) for export to the Point of Interconnection upon Commercial Operations for Paired Project and Standalone Storage Project Proposals.

"Best and Final Offer" or "BAFO" means the final offer from a Proposer, as further described in Section 4.6 of this RFP.

"Capacity Charge" means the amount to be paid by Company to Seller pursuant to the terms and conditions in the Firm PPA.

"Code of Conduct" means a written code developed by the Company and approved by the Commission to ensure fairness and integrity of this RFP, the requirements of which are contained in Appendix C to this RFP.

"Co-located Project" means a Generation Project or a Paired Project with a separate co-located energy storage component subject to independent dispatch by the Company.

"Commercial Operations" has the meaning set forth in the applicable IGP Contract.

"Community Benefits Program" is a community benefit plan as described in Sections 4.3 and 4.4.2 and Appendix N to this RFP.

"Community Engagement Plan" is a community engagement and communication plan described in Section 4.3 and 4.4.2 of this RFP.

"Company" means Hawaiian Electric Company, Inc., Hawai‘i Electric Light Company, Inc., or both Companies.

"Company-Owned Interconnection Facilities" or "COIF" has the meaning set forth in the applicable IGP Contract.

"Company System" means the electric system owned and operated by the Company on the island of O'ahu and the island of Hawai'i (including any non-utility owned facilities) consisting of power plants, transmission and distribution lines, and related equipment for the production and delivery of electric power to the public.

"Competitive Bidding Framework" or "Framework" means the Integrated Grid Planning Framework for Competitive Bidding approved for use in this RFP by Order No. 41568, issued in Docket No. 2018-0165 on February 25, 2025.

"Construction Financing Closing Milestone" has the meaning set forth in the applicable IGP Contract.

"Consumer Advocate" means the Division of Consumer Advocacy of the Department of Commerce and Consumer Affairs of the State of Hawai'i.

"Contract Firm Capacity" means the amount of MW of net dependable active power anticipated to be made available to the Company from the Facility at the metering point, subject to Company dispatch upon Commercial Operations and as described in Section 2.1.19 of this RFP and in the Firm PPA.

"Detailed Evaluation" means the assessment of Proposals selected to the Priority List and as described in Section 4.7 of this RFP.

"Development Period Security" has the meaning set forth in Section 3.14.1 of this RFP.

"Dispatchable" means the ability to turn on or turn off a generating resource at the request of the utility's system operators, or the ability to increase or decrease the output of a generating resource from moment to moment in response to signals from a utility's Automatic Generation Control System, Energy Management System or similar control system, or at the request of the utility's system operators.

"Electronic Procurement Platform" means the third-party web-based sourcing platform that will be used for the intake of Proposals and associated electronic information, storage and handling of Proposer information, and communication.

"Eligibility Requirements" has the meaning set forth in Section 4.2 of this RFP.

"Energy Charge" means the amount to be paid by Company to Seller for electric energy delivered to the Company pursuant to the terms and conditions in the Firm PPA.

"Energy Contract Manager" is the primary Company contact for this RFP.

"EPC Specifications" means the Engineer, Procure, Construct Specifications for Hawaiian Electric Power Lines and Substations that may be provided to prospective Proposers upon the execution of both an NDA and HHA.

"ESPA" means the Model Energy Storage Purchase Agreement attached as Appendix M to this RFP.

"Evaluation Team" means agents of the Company who evaluate Proposals.

"Facility" has the meaning set forth in the applicable IGP Contract.

"Facility Study" means a study, paid for by a Proposer selected to the Final Award Group, to develop the interconnection facilities cost and schedule estimate including the cost associated with the design and construction of the Company-owned interconnection facilities.

"Federal Site" means the pre-determined project site(s) described in Section 2.5.3 of this RFP.

"Final Award Group" means the group of Proposals selected by the Company from the Priority List, with which the Company will begin contract negotiations, based on the results of the Company's detailed evaluation.

"Firm PPA" means the Model Firm Renewable Dispatchable Generation Power Purchase Agreement attached as Appendix L to this RFP.

"Generation Project" means a Project with a generation component but no energy storage component.

"Greenhouse Gas" or "GHG" are gases that contribute to the greenhouse gas effect and trap heat in the atmosphere.

"GHG Review" means any GHG emissions assessment and report in support of a IGP Contract Application and as described in Section 5.4 of this RFP.

"Grid Connection Point" or "GCP" has the meaning set forth in Tariff Rule No. 19.

"Guaranteed Commercial Operations Date" or "GCOD" means the date Proposer guarantees that it will achieve Commercial Operations.

"Hawaiian Electric" is a trade name with the State of Hawai'i Department of Commerce and Consumer Affairs, as evidenced by Certificate of Registration No. 4235929, dated December 4, 2024. Hawaiian Electric Company, Inc., Maui Electric Company, Limited, and Hawai'i Electric Light Company, Inc. are each doing business as "Hawaiian Electric" and have jointly registered "Hawaiian Electric" as a trade name.

"Hawaiian Electric Companies" or "Companies" means Hawaiian Electric Company, Inc. and its subsidiaries, Hawai'i Electric Light Company, Inc. and Maui Electric Company, Limited.

"Hawaiian Electric Proposal" means a Proposal submitted by the Company that is responsive to the resource need identified in the RFP, as required by Section VI of the Framework.

"Hawaiian Electric Development Team" means agents of the Company who develop Self-Build proposals.

"HHA" means the Hold Harmless Agreement in Attachment 1 to Appendix E of this RFP.

"Host Community" has the meaning set forth in the applicable IGP Contract.

"HRS" means the Hawai‘i Revised Statutes as of the date of this Request for Proposals.

"IGP Contract" means the applicable contract for that technology – i.e., RDG PPA, Firm PPA, or ESPA.

"IGP Contract Application" means the Company's application for approval of an executed IGP Contract to the Commission.

"IGP Report" is the Companies' Integrated Grid Plan filed in Docket No. 2018-0165 on May 12, 2023 and the Supplemental Response filed in Docket No. 2018-0165 on November 15, 2023.

"Imputed Debt" means adjustments to the debt amounts reported on financial statements prepared under generally accepted accounting principles ("GAAP"). Certain obligations do not meet the GAAP criteria of "debt" but have debt-like characteristics; therefore, credit rating agencies "impute debt and interest" in evaluating the financial ratios of a company.

"Independent Engineer" has the meaning set forth in Section 1.4 of this RFP.

"Independent Observer" has the meaning set forth in Section 1.4 of this RFP.

"Independent Power Producer" or "IPP" means an entity that owns or operates an electricity generating facility that is not included in the Company's rate base.

"Initial Meeting" has the meaning set forth in Section 1.8.1.1 of this RFP.

"Interconnection Facilities" means the equipment and devices required to permit a Facility to operate in parallel with, and deliver electric energy to, the Company's System (in accordance with applicable provisions of the Commission's General Order No. 7, Company tariffs, operational practices, interconnection requirements studies, and planning criteria), such as, but not limited to, transmission and distribution lines, transformers, switches, and circuit breakers. Interconnection Facilities includes Company-Owned Interconnection Facilities and Seller-Owned Interconnection Facilities.

"Interconnection Related Dispute Resolution Process" or "IDRP" shall have the meaning approved by Order No. 39163 and clarified by Order No. 39286, issued in Docket 2017-0352.

"Interconnection Requirements Study" or "IRS" means a study, performed in accordance with the terms of the IRS Letter Agreement, to assess, among other things, the Project's performance and impact on the system, the system requirements and equipment requirements to interconnect the Facility with the Company's System, the Technical and Operational Requirements of the Facility, and an estimate of interconnection costs and project schedule for interconnection of the Facility.

"Investment Grade Pricing" has the meaning set forth in Section 3.12.6 of the RFP.

"Investment Grade Status" has the meaning set forth in the applicable IGP Contract.

"IPP Bill" has the meaning set forth in Section 3.12.6 of the RFP.

"IRS Letter Agreement" means a letter agreement between the Company and a selected Proposer that will govern the work performed to conduct the IRS.

"kV" means kilovolt.

"Land RFI" refers to a Request for Information conducted by the Company to identify interested parties willing to make land available for utility-scale renewable energy projects and gather relevant property information.

"LEP" means a levelized energy price ($/MWh) calculated and used for comparison of Proposals based on information provided in the Proposal submission in this RFP.

"Lump Sum Payment" has the meaning set forth in the applicable IGP Contract. It may also be referred to as a monthly Lump Sum Payment to reflect the portion of the payment made each month.

"MCBH" means Marine Corps Base Hawai‘i.

"Mediation" means the confidential mediation conducted in Honolulu, Hawai‘i, pursuant to and in accordance with the Mediation Rules, Procedures, and Protocols of the American Arbitration Association then in effect and as defined in Section 1.8.1.2 of this RFP.

"MVA" means megavolt ampere.

"MW" means megawatt.

"MWh" means megawatt hour.

"NDA" means the Mutual Confidentiality and Non-Disclosure Agreement attached to this RFP as Appendix E.

"NEP" means Net Energy Potential as described in Section 2.1.18 and as defined in the IGP Contract, as applicable.

"Net Nameplate Capacity" means the net maximum instantaneous active power capability of the Facility at the point(s) of interconnection, considering nameplate power rating of energy generating equipment sizing, expected losses in delivery of power to the point(s) of interconnection, and any project control system involved in managing the delivery of power to the point(s) of interconnection. This value, subject to verification by the Company, will determine how a project is evaluated relative to the terms and requirements of the RFP, including, but not limited to ability to interconnect to a transmission line and validation of the maximum output levels used to calculate the NEP RFP Projection. For the purposes of calculating the NEP RFP Projection it should be assumed all energy is being delivered directly to the point(s) of interconnection from the renewable resource as it is generated and never in excess of the Project's Net Nameplate Capacity, independent of the existence of any storage device. In the applicable IGP Contract, this value will be the default Contract Capacity.

"Non-Investment Grade Pricing" has the meaning set forth in Section 3.12.6 of the RFP.

"Non-Price Evaluation Team" means Employees and consultants of the Company who evaluate the Proposal non-price related criteria as set forth in Section 4.4 of this RFP. Non-Price Evaluation Team members will not include any Shared Resources and will be solely made up of Company RFP Team Members.

"O&M" means operation and maintenance.

"Operating Period Security" has the meaning set forth in Section 3.14.1 of this RFP.

"Paired Project" means a Project with both a variable renewable generation component and an energy storage component, where the generation and energy storage components are controlled by Company dispatch as a single combined resource.

"PIR Fee" has the meaning set forth in Section 1.6.5 of this RFP.

"PIR Meeting" has the meaning set forth in Section 1.6.1 of this RFP.

"Point of Interconnection" or "POI" has the meaning set forth in the applicable IGP Contract.

"Power Purchase Agreement" or "PPA" means an agreement between an electric utility company and the developer of a renewable energy generation facility to sell the power generated by the facility to the electric utility company.

"Preferred Plan" has the meaning set forth in the IGP Report.

"Preliminary Interconnection Report" or "PIR" has the meaning set forth in Section 1.6.1 of this RFP.

"Price Evaluation Team" means Employees and consultants of the Company who evaluate the Proposal price related criteria as set forth in Section 4.4 of this RFP. Price Evaluation Team members will not include any Shared Resources and will be solely made up of Company RFP Team Members.

"Priority List" means the group of Proposals selected by the Company as described in Section 4.5 of this RFP.

"Procedures Manual" means the manual approved by the PUC, which was put in place to address and to safeguard against preferential treatment or preferential access to information in a Company RFP process. The Procedures Manual is attached as Appendix C to this RFP.

"Project" means a Facility proposed in a Proposal in response to this RFP.

"Project Site" means a proposed site in a Proposal submitted in response to this RFP and as described in Section 2.1.9 of this RFP.

"Proposal" means a proposal submitted to the Company by a Proposer in response to this RFP.

"Proposal Due Date" means the date stated in RFP Schedule, Table 2, Section 3.1 for the Hawaiian Electric Proposal and the IPP and Affiliate Proposals of this RFP.

"Proposal Fee" means the non-refundable fee of $10,000 for each proposal submitted as set forth in Section 3.7 of this RFP.

"Proposer" means a person or entity that submits a Proposal to the Company pursuant to this RFP.

"Proposer's Response Package" means the form in which the Proposal should be submitted, which is attached as Appendix B to this RFP.

"PUC" or "Commission" means the State of Hawai'i Public Utilities Commission.

"PV" means photovoltaic.

"RDG PPA" means the Model Power Purchase Agreement For Renewable Dispatchable Generation [Wind or PV + BESS] attached as Appendix J to this RFP.

"Renewable Portfolio Standards" or "RPS" means the Hawai'i law that is currently codified as HRS §§ 269-91 through 269-95 and establishes requirements for the production of renewable electrical energy, as defined therein.

"Request for Proposals" or "RFP" means a request for Proposals issued pursuant to a competitive bidding process authorized, reviewed, and approved by the PUC.

"Resilience Requirements" has the meaning set forth in the applicable IGP Contract.

"RFP Email Address" has the meaning set forth in Section 1.5.2 and specified in Section 1.7 of this RFP.

"RFP Schedule" means the schedule set forth in Table 2, Section 3.1 of this RFP.

"RTE" or "Round Trip Efficiency" has the meaning set forth in the applicable IGP Contract.

"Seller" means the entity that the Company is contracting with, as set forth in the applicable IGP Contract.

"Seller-Owned Interconnection Facilities" has the meaning set forth in the applicable IGP Contract.

"Site" means the parcel of real property on which the Facility, or any portion thereof, will be constructed and located, together with any Land Rights reasonably necessary for the construction, ownership, operation and maintenance of the Facility.

"Site Control" has the meaning set forth in Section 4.3 of this RFP.

"Standalone Storage Project" means a Project with an energy storage component but no generation component.

"System Impact Study" means a study which evaluates a Project's performance and impact on the Company's system, and specifies if any mitigating facilities, system upgrades, or other requirements are necessary to interconnect the Project in a safe and reliable manner.

"Technical and Operational Requirements" means the various technical and operational requirements for the operation of the Facility and the delivery of electric energy from the Facility to the Company as set forth in this RFP and the Technical and Operational Requirements as defined in the applicable IGP Contract.

"Threshold Requirements" has the meaning set forth in Section 4.3 of this RFP.

Any capitalized term not defined in this RFP has the meaning set forth in the applicable IGP Contract.

DRAFT

REQUEST FOR PROPOSALS

FOR

RENEWABLE DISPATCHABLE GENERATION

AND

ENERGY STORAGE

APRIL 3, 2025

Appendix B – Proposer's Response Package / Project Interconnection Data Request

Hawaiian Electric

1.0 GENERAL INSTRUCTIONS TO PROPOSERS

Wood Mackenzie Supply Chain Platform[1] is the Electronic Procurement Platform that the Company has licensed and will utilize for the RFP process. All Proposals and Proposal supporting information must be submitted via the Electronic Procurement Platform, in the manner described in this RFP.

Proposers must adhere to the response structure and file naming conventions identified in this Appendix for the Proposer's response package. Information submitted in the wrong location/section or submitted though communication means not specifically identified by the Company will not be considered by the Company.

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

Proposers must clearly identify all confidential information in their Proposals, as described in more detail in RFP Section 3.13 Confidentiality.

All information (including attachments) must be provided in English. All financial information must be provided in U.S. Dollars and using U.S. credit ratings.

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

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

1.1 ELECTRONIC PROCUREMENT PLATFORM

To access the RFP event, the Proposer must register as a "Supplier"[2] on the Wood Mackenzie Supply Chain Intelligence Platform. One Proposal may be submitted with each Supplier registration. Minor variations, as defined in RFP Section 3.7.2 and 3.7.2.1 may be submitted along with the Proposal under the same registration.

If a Proposer is already registered on the Wood Mackenzie Supply Chain Intelligence Platform, the Proposer may use their current login information to submit their first Proposal. Up to three (3) variations of a Proposal, one of which is the base variation of the Proposal, may be submitted together as a Proposal by following the instructions outlined in this Appendix (see Appendix B Section 3 and 4 below). If the Proposer chooses to submit more than one Proposal, the Proposer must register as a new "Supplier" for each additional Proposal.

Each registration will require a unique username, unique Email address, and unique Company name. Proposers that require multiple registrations to submit multiple Proposals should use the Company name field to represent the Company name and Proposal number (ex: CompanyNameP1). Proposers may use shorthand or clear abbreviations. The unique Email address used to create the Wood Mackenzie Supply Chain account does not necessarily have to match the Email address specified in this Appendix B Section 2.2.1 below. For example, if

[1] Also referred to as PowerAdvocate in prior RFPs, PowerAdvocate became Wood Mackenzie Supply Chain. Any reference to PowerAdvocate in this RFP is referring to the Wood Mackenzie Supply Chain Intelligence Platform.
[2] "Supplier" is a term used by Sourcing Intelligence and refer to the RFP's Proposer.

the Proposer is submitting multiple Proposals, all of the Proposer's Proposals could specify the same primary point of contact Email address if that is what the Proposer requests contact through for all their proposals.

There are no license fees, costs, or usage fees to Proposers for the use of the Electronic Procurement Platform. See Appendix D –for more user information on the Electronic Procurement Platform.

1.2 PROPOSAL SUBMISSION PROCEDURES

An Email notification will be sent to all registered Proposers when the event has been opened to receive Proposals.

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

- "**1. Download Documents:**" RFP documents made available for Proposers' use and information will be stored under this tab. Documents can be downloaded and/or printed, as required.
- "**2. Upload Documents:**" Proposal submission documents requested in this Appendix B must be uploaded using this tab.
- Note that "3. Commercial Data:", "4. Technical Data:", and "5. Pricing Data:" tabs are NOT USED for this RFP.

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

1. Proposers must upload their Proposal files, including all required forms and files, to submit a complete Proposal. All files must be uploaded before the respective Proposal Due Date (RFP Section 3.1, Table 2).

2. Submit (upload) files representing your Proposal via the "2. Upload Documents" tab. Generally, one main consolidated PDF file is submitted (referred to as the "Proposal PDF" below), along with supporting files in their native file formats. That Proposal PDF must abide by the format specified in this Appendix B. A Microsoft Word template that outlines the format of this document is available under the "1. Download Documents" tab for the Proposer's use. **Response information must be provided in the order, format, and manner specified in this Appendix B and must clearly identify and reference the Appendix B section number that the information relates to**.
    a. Proposers shall use a filename denoting the following for its Proposal PDF: CompanyName_Proposal#.pdf. (example: AceEnergy_P1.pdf)

3. Supporting Proposal information that cannot be easily consolidated into the Proposal PDF described in Step 2 (such as large-scale drawing files) or files that must remain separate from the Proposal PDF in native file format (such as Appendix B Attachment 1 Proposal Pricing file, all IRS computer model files, Microsoft Excel spreadsheets, Microsoft Word redlined Model IGP Contracts, etc.) shall be **uploaded separately but must be referenced from within the Proposal PDF** (e.g., "See AceEnergyP1V2_2.5_SiteControlMap.kmz"). Such additional files must follow the naming convention below:
    a. File names must include, in order, Company Name, Proposal number (if more than one Proposal being submitted per Proposer), Variation (if any variations are being submitted), Appendix B section number, and a file descriptor, as shown in the example file name below:

AceEnergyP1V2_2.5_SiteControlMap.kmz

Proposers may use abbreviations if they are clear and easy to follow.

b. As specified in the RFP, it is the Proposer's responsibility to ensure the Proposal information is submitted and contained within the defined proposal sections as specified in Appendix B and provided in an organized manner to support the Proposal's evaluation.

c. **All pricing information for a Proposal must only be contained in a separate Proposal Pricing file that is included in the Proposal upload, but separate from the Proposal PDF or other Proposal files.**

4. Upload files using the "**2. Upload Documents**" tab on the Electronic Procurement Platform.
   a. Select "Choose File..." Navigate to and choose the corresponding file from your computer.
   b. For all documents identify the "Document Type" as "Technical Information." (Do not identify any documents as "Commercial and Administrative" or "Pricing.")
   c. "Reference ID" may be left blank.

   There is no limit to the number or size of files that can be uploaded. Multiple files may be grouped into a .zip archive for upload. (Any zipped files must still adhere to the naming directions in #3 above.) When successfully uploaded, documents will appear under the "Bid Submissions" section on the bottom of the tab's page, organized within the "Technical Information" Document Type. Repeat steps a, b, and c, as required for each file upload.

   If a file with the same name is uploaded twice, the Platform will provide notification of the duplication and automatically append a unique numerical extension to the Document Name. To delete a file that has been previously uploaded, click on the "X" button in the "Actions" column. Do not upload any files prior to the issuance of the Final RFP.

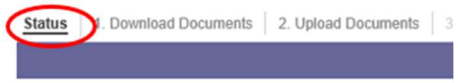
5. The Company will not be responsible for technical problems that interfere with the upload or download of Proposal information. Support is available to answer technical questions about Wood Mackenzie Supply Chain from 8 AM to 8 PM Eastern Time (2 AM to 2 PM Hawai'i Standard Time when daylight savings is in effect) Monday to Friday, except for Holidays posted on the Electronic Procurement Platform's website, both by phone (857-453-5800) and by Email (support@poweradvocate.com).

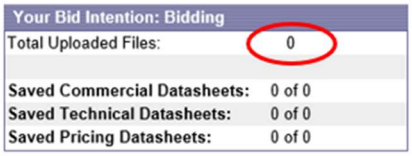
6. Proposers are **strongly encouraged to start uploading early** and avoid waiting until the deadline to upload their Proposals and the required information. Proposers are allowed to add, modify, and/or delete documents that have been previously submitted any time prior to the event close deadline. It is the Proposer's responsibility to ensure a complete Proposal is uploaded into the Electronic Procurement Platform before the Proposal Due Date. At the precise time (typically 2:00pm HST) and date specified for the Proposal Due Date, the Electronic Procurement Platform will automatically close and no files will be accepted by the platform. Proposers are also responsible for following instructions and uploading documents into their appropriate locations in the Electronic Procurement Platform. Documents uploaded in the wrong tab will not be considered by the Company.

7. Any questions or concerns regarding the RFP may be submitted via the RFP Email address provided in RFP Section 1.7. Per RFP Section 1.4.2, the Independent Observer will monitor communication within the bid event. Proposers should always include the Independent Observer when submitting questions to the RFP Email Address.

1.3 PROPOSAL COMPLETION AND CONFIRMATION PROCEDURES

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





As stated above in Appendix B Section 1.2, nothing should be uploaded to the Commercial, Technical or Pricing Datasheet tabs. Documents uploaded there will not be included in your Proposal submission.

2.0 PROPOSAL SUMMARY TABLE (2.0 BASE VARIATION, 3.0 VARIATION A, 4.0 VARIATION B, AS APPLICABLE)

Summary tables for each Proposal variation. If proposal variations are submitted, summary information for such variations must be identified in similar tables placed in Appendix B Section 3 and Section 4, as applicable.

To be filled out in its entirety by all Proposers:

1	**Proposer Name (Company Name)**	
2	**Parent Company/Owner/Sponsor/Business Affiliation/etc.**	
3	**Project Name**	
4	**Net Nameplate Capacity** (MW) [3]	
4a	**Installed Nameplate Capacity**: the aggregate sum of the net nameplate active power capabilities of all generator and converter equipment (i.e. storage) installed.	
5	**Proposed Facility Location**, Street Address if available, or what City/Area on the island is it near	
6	**TMK(s) of Facility Location** (use 9 digits TMK format)[4]	

[3] A Project's Net Nameplate Capacity is as defined in the applicable IGP Contract.

[4] Island Number (1 digit); Zone Number (1 digit); Section Number (1 digit); Plat Number (3 digits, add leading zeros if less than 3 digits); Parcel Number (3 digits, add leading zeros if less than 3 digits)

7	**Point of Interconnection's Circuit** or **Substation Name**	
7a	**Coordinates for Point(s) of Interconnection** and **Grid Connection Point(s)**, if GCP different from POI (use decimal degrees) [5]	
8	**Proposal Contract Term** (Years)	
9	**Proposal Guaranteed Commercial Operations Date** (MM/DD/YYYY)	
10	**Identify the Project's Generation Technology** (N/A if none) [Firm Projects] **Indicate if Bulk Energy Generating Resource or a Fast Start Generating Resource**	
10a	[PV+BESS, Wind+BESS Projects] **Net Energy Potential (NEP) RFP Projection for the Facility** (MWh) [Firm Projects] **Capacity of the Facility** (MW)	
10b	[Firm Projects] **Renewable Fuel Source for Generation**	
10c	[Firm Projects] **Fossil Fuel Source for Generation**	
11	**Identify the Project's Energy Storage Technology** (N/A if none)	
11a	**Energy Storage Capability for the Facility** (MW and MWh)	
11b	**Is the Project capable of being 100% charged from the grid from the GCOD?** (Yes/No)	
12	**Does the Proposal include any federal tax credits in its pricing?** (Yes/No)	
13	**Does the Project have grid-forming capabilities?** (Yes/No)	
14	**Does the Project have black start capability?** (Yes/No)	
15	**The Proposer hereby certifies that the Project meets all technical and operational requirements identified in the respective IGP Contract (as specified in RFP Section 2.2)?** (Yes/No)	
15a	If the response to #15 is "No", **specify the requirements of the IGP Contract that the Proposal cannot meet and explain in this Appendix B Section 2.10.5 the reasons it cannot.**	
16	**Does the Project have any operational constraints that limit its capabilities?** (Yes/No)	
16a	If the response to #16 is "Yes", **list all operational constraints, and in Appendix B Section 2.2.4 explain and detail every constraints.**	
17	**The Proposer hereby certifies that no single point of failure from the Facility shall result in a decrease of active power measured at the Facility point of interconnection greater than what is specified in RFP Section 2.1.12?** (Yes/No)	
18	**The Proposer hereby certifies that the Proposal (including its pricing elements) is not contingent upon changes to existing County, State or Federal laws or regulations or certain IGP Contract modifications being accepted.** (Yes/No)	
19	**The Proposer hereby certifies under penalties of perjury that this Proposal has been made in good faith and without collusion or fraud with any other person. As used in this certification, the word "person" shall mean any natural person, business partnership,**	

[5] Decimal degrees (YY.YYYYYY, -XXX.XXXXXX) latitude and longitude coordinates of the Point of Interconnection for the project. If there is more than one interconnection point, specify each.

	corporation, union, committee, club, or organization, entity, or group of individuals. (Yes/No)	
20	**The Proposer hereby acknowledges that the Company reserves the right to select more or less than the full amount of generation solicited in this RFP in the event that specific Hawaiian Electric system needs are revised during the course of the RFP process.** (Yes/No)	
21	**Does the Proposer accept the contract terms identified in the applicable Model IGP Contract in its entirety?** (Yes/No)	
21a	If the response to #21 is "No", **specify the name of the Microsoft Word red-line file that identifies the proposed modifications to the agreement, provided, however, that such proposed modifications shall be limited to targeted revisions to, and not deletions or waivers of, the agreement's terms, conditions, covenants, requirements or representations.**	
22	**The Proposer hereby agrees to provide Development Period Security and Operating Period Security as set forth in the applicable model IGP Contract for this Project.** (Yes/No)	
23	**The Proposer hereby certifies that the Proposer, its parent company, or any affiliate of the Proposer: (1) has <u>not</u> defaulted on a current contract with the Company, unless such default was cured by the contracting Proposer, parent company, or affiliate in an expeditious manner to the satisfaction of the Company; (2) has not had a contract terminated by the Company, which was not reinstated or otherwise superseded by a subsequent contract; or (3) has <u>no</u> pending litigation in which the Proposer, parent company, or affiliate has made claims against the Company which is not subject of a settlement agreement that is currently in effect?** (Yes/No)	
23a	If the response to #23 is "No", **specify what part or parts of #23 prevents the Proposer from stating Yes.**	
24	**Is the Proposer (or any partner of the Proposer) an Affiliate of the Company?** (Yes/No)	
25	**The Proposer hereby certifies under penalties of perjury that it has not shared this Proposal, or any part thereof, with any other Proposer of a Proposal responsive to this RFP.** (Yes/No)	
26	**Has the Proposer received a PIR for this Project and completed a PIR Meeting for this Project?** (Yes/No) A copy of the report or the PIR Meeting summary is required in this Appendix B Section 2.1.1.	
26a	**Identify the date and time of the PIR Meeting attended by the Proposer.**	
27	**Identify the Proposal Fee submission information** – Date Sent, Delivery Service Used, Tracking Number, U.S.-chartered cashier's check bank name, and check number.	

2.1 REQUIRED FILES ACCOMPANYING PROPOSAL PDF

The following files must accompany each Proposal PDF. All files must be uploaded via the "2. Upload Documents" tab.

2.1.1 These documents can either be merged into the Proposal PDF as part of Section 2.1.1 or they can be submitted as separate files with appropriate pointers to the filenames of the separate files.

- Document signed by an officer or other Proposer representative **authorizing the submission** of the Proposal.
- Fully executed IGP **NDA** (Appendix E to the RFP).
- **Certificate of Vendor Compliance** for the Proposer.
    - In lieu of the Certificate of Vendor Compliance, a **Certificate of Good Standing** for the Proposer and **Federal and State tax clearance certificates** for the Proposer may be provided.
- **Certification of Counsel for Proposer**, if applicable. (See Appendix B Attachment 1.)
- Copy of the **PIR**, or **PIR Meeting written meeting summary** from the Company verifying the project's ability to interconnect at the POI (e.g., capacity available) and/or system upgrades required for the interconnection of the Project.
- [For Hawaiian Electric Proposals Only] **Hawaiian Electric Proposal Team Certification** form**.** See Appendix G Attachment 1.

2.1.2 These documents must be submitted as separate files with appropriate pointers to the filenames of the separate files within each respective Proposal PDF section. These documents which are a necessary part of the Proposal submission must be uploaded along with the Proposal PDF before the Proposal Due Date.

- **Proposal Pricing** file (Appendix B Section 2.2.3 below).
- **All IRS files** specified in Appendix B Section 2.11.1 below.
- Microsoft Word document of **redlines to respective model IGP Contract** (Appendix B Section 2.4.2 below).
- **Community Engagement Plan**, including any community co-creation (See Appendix N).
- **Community Benefits Package** (See Appendix N).
- [For Hawaiian Electric Proposals Only] **Revenue Requirements Worksheets** that support the annual revenue requirements estimates shall be submitted. A starter revenue requirements template file can be requested by the Hawaiian Electric Proposal Team via email to the RFP Email Address once the RFP event opens. The revenue requirements worksheets submitted will be customized by the Hawaiian Electric Proposal Team to reflect the details of the Project's Proposal. All assumptions used will be reflected in an assumptions input tab.
- **Pro Forma Cashflow** for each variation (Appendix B Section 2.3.2.2 below).

2.2 PROPOSAL SUMMARY/CONTACT INFORMATION

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

- Name
- Title
- Mailing Address

- Phone Number
- Email Address – this will be the official communication address used during the RFP process

2.2.2 **Executive Summary of Proposal.** The executive summary must include an approach and description of the important elements of the Proposal, including variation descriptions if variations to the base variation are being submitted. Refer to RFP Section 3.7.2 and 3.7.2.1 for an explanation of minor variations allowed.

If variations to the base variation are proposed, a **table summarizing the differences between all variations** shall be created and included in this section.

RFP Section 2.2.3 states the Company is not seeking proposals for microgrid. However, if a Project includes microgrid capabilities, as stated in RFP Section 2.2.3 the Proposer shall identify the capabilities and restrictions in this section.

2.2.3 **Pricing information. Proposal pricing information must only be provided in the Proposal Pricing file that is kept as a separate file from the Proposal PDF. (Appendix B Attachment 1)** If variations to the base variation are proposed, each variation's pricing summary must also only be identified in the Proposal Pricing file within the respective worksheet section for the variation as applicable. Proposers must provide pricing information only in the Proposal Pricing file – do not embed pricing information in any other portion of the Proposal. Cost information is allowed in the pro forma cashflow for the Project required with each Proposal. [**For Hawaiian Electric Proposals Only**] Cost information is allowed in the Revenue Requirements Worksheet file that supports the annual revenue requirements estimates.

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

- Installed Nameplate Capacity (MW_{AC} and MW_{DC})
- Net Nameplate Capacity of the Facility at the Point(s) of Interconnection (MW_{AC})
- Identified available MW capacity at the Point(s) of interconnection (MW_{AC}).
  - Identify the communication from where the POI has the capacity to interconnect the project (e.g., Company's response to Proposer's inquiry on X date/time).
- Identify all System upgrades the Proposal includes to allow Project to interconnect to System above the identified available MW capacity.
  - Identify the communication from where the System upgrade information was acquired (e.g., Company's response to Proposer's inquiry on X date/time).
- For existing projects, the Proposal must identify and state in this section any changes required to meet the requirements of this RFP and/or applicable IGP Contract.

Projects that include a generation component must specify:

- Technology Type of Generation
- Number of Generators
- Rated Output of each Generator
- Generator Facility Design Characteristics
- Fuel Source for Generation (both Renewable Fuel and Fossil Fuel)

- Provide all applicable operational constraints known such as, but not limited to, those for environmental and/or permit compliance. (e.g. hot/cold start times to full output, start-up fuel requirements, start-up and shut-down sequence, limitation on number of start-ups/shutdowns per day, operational constraints due to noise restrictions, minimum/maximum run hour requirements, minimum up time, minimum down time, etc.)

Generation projects that include a storage component or stand-alone storage projects must specify:

- Technology Type of Storage (e.g., lithium ion battery)
- Interconnection type (AC or DC)
- BESS Contract Capacity (MW / MWh), as defined in the applicable contract
- Operational Limitations, such as, but not limited to: grid charging limits (with respect to ITC), energy throughput limits (daily, monthly, annually), Stage of Charge ("SOC") restrictions (min/max SOC while at rest (not charging/discharging)), etc. Proposed Operational Limits cannot be in conflict with the energy discharge requirement in the RFP's Section 2.1 Scope of the RFP. If such a conflict is identified, the Proposal may be disqualified.
- Round Trip Efficiency ("RTE"). Specify a single value (percentage) that the Facility is required to maintain throughout the term of the applicable contract. The RTE must consider and reflect:
    - the technical requirements of the Facility (as further set forth in the applicable contract);
    - that the measurement location of charging and discharging energy is at the Point of Interconnection;
    - electrical losses associated with the point of interconnection measurement location;
    - any auxiliary and station loads that need to be served by BESS energy during charge and discharge that may not be done at BESS Contract Capacity or over a fixed duration; and
    - that the data used to validate the RTE will be captured during a full charge cycle (0%-100% SOC) directly followed by a full discharge cycle (100%-0% SOC).
- Number of charge/discharge cycles per year the storage component is capable of
- Allowed Losses (kWh/24-hour period)
- Describe any augmentation plans for the storage component to maintain the functionality and characteristics of the storage during the term of the applicable contract. Include any expected interval of augmentation (months/years).
- Estimated useful life of the storage component (including augmentation if used) (years)
- For generation coupled with energy storage, described the Allowed Percentage of Storage Component's charging that can come from the System Grid, if any, and any conditions of charging (when, percentage of annual total energy input, etc.)

Firm generation projects that operate on fuel must provide the following information for both its primary biofuel and its alternate fossil fuel:

- Specify if the Proposer agrees to commit to provide the fuel for the entire proposed term of the Firm PPA? (yes/no)
- Provide a guaranteed heat rate curve for the Facility must be provided with your Proposal. The guaranteed heat rate curve must be specified as a three-term second-order polynomial.
- Specify and describe any minimum monthly/quarterly/annual fuel purchases required in your fuel contract, or specify if no minimum fuel purchase is required.

- Specify and describe any minimum loads or minimum up-times that are driven by the technical and operational capabilities of your Facility, or specify if there is no minimum.
- Describe their preliminary plan to ensure an Adequate Fuel Supply required for the operation and maintenance of the facility as described in Attachment Y, Section 14 of the Model Firm PPA.
- For all projects other than biofuel, provide evidence that the fuel will be secured for the duration of the Firm PPA term. For biofuel source Projects, provide evidence of a fuel supply for at least the first 3 years of the Firm PPA term.
- Provide an approximate number of days per year of planned maintenance.
- For Biofuel source Projects, describe:
  - Operational requirements for switching between biofuel and fossil fuel such as:
    - Will all equipment needed to perform a fuel switch be held at the Facility
    - Time to perform a switch, notification period required before a fuel switch, and whether a Facility will be unavailable during the switch
    - Whether operation on fossil fuel will impact financing, land lease agreements, or result in additional permits/permit revisions
  - Operational requirements for operating on a blend of biofuel and fossil fuel, if able, such as:
    - Minimum blend of biofuel that the equipment may run on without modification
    - Time required to adjust blend, notification period required before adjustment of blend, and whether the Facility will be unavailable during the adjustment
    - Whether operation on a fossil fuel blend will impact financing, land lease agreements, or result in additional permits/permit revisions
- For Biofuel source Projects provide a biofuel, fossil fuel, or, if applicable, blend price forecast or formula with your Proposal.

2.3 FINANCIAL BACKGROUND

Provide the following financial information identified below. As specified in the General Instructions in Appendix B Section 1.0 above, all information (including attachments) must be provided in English, be provided in U.S. Dollars and use U. S. credit ratings.

2.3.1 Identification of Equity Participants

2.3.1.1 Who are the **equity participants** in the Project (or the equity partners' other partners)?

2.3.1.2 Provide an **organizational structure** for the Proposer including any general and limited partners and providers of capital that identifies:

- Associated responsibilities from a financial and legal perspective
- Percentage interest of each party

2.3.2 Project Financing

2.3.2.1 **How will the Project be financed** (including construction and term financing)? Address at a minimum:

- The Project's projected financial structure
- Expected source of debt and equity financing

2.3.2.2 [For IPP and Affiliate Proposals] Proposers must identify all **estimated development and capital costs** for the Proposal. Provide a **pro forma cashflow** sheet for each proposal variation (base and optional variations). A separate pro forma cashflow sheet shall be provided for both Investment Grade Pricing and Non-Investment Grade Pricing versions of each variation. Should any conflict arise between the information provided in the Pro Forma Cashflow sheet or the Proposal PDF, the Proposal PDF shall take precedence. The pro forma cashflow should resemble the format provided in Appendix B Attachment 5. A template can be downloaded from the "1. Download Documents" tab in the Electronic Procurement Platform**.** The template is labelled as IGP RFP Appx B - Att 5 Pro Forma. In addition to the pro forma cashflow for each variation, descriptions of the following costs and breakdowns must be provided:

- Equipment
  - Identify the manufacturer and model number for all major equipment
- Construction
  - Identify and breakdown what is included in this category and any assumptions made
- Engineering
- Seller-Owned Interconnection Facilities
  - Identify and breakdown what is included in this category and any assumptions made
- Company-Owned Interconnection Facilities
  - Identify and breakdown what is included in this category and any assumptions made, including:
    - Company costs per Appendix H
    - Proposer's estimated costs for Proposer-Built COIF
  - Provide the cost breakdown and assumptions using the template provided in Appendix H, Attachment 1
- System upgrades necessary to interconnect Project to existing transmission line/substation
  - Identify and breakdown what is included in this category and any assumptions made, including:
    - Proposer's estimated costs for all System upgrades identified in Company's feedback of upgrades required for Project interconnection.
    - Proposer's estimated costs for all System upgrades beyond what was identified in Company's feedback.
  - Provide the cost breakdown and assumptions using the template provided in Appendix H, Attachment 1
- Land
- Financing Costs
- Annual O&M
- (For Projects that include a storage component) Specify a percentage of the total project cost that is estimated to be attributed to the storage functionality of the Facility. As the storage functionality is treated as a lease, the Company will use the percentage for its preliminary calculation of the lease liability only. This percentage requested for the Company's accounting purposes does not affect nor alter the liquidated damage provisions of the PPA, as those provisions reflect the benefit the Company seeks from the Project's storage functionality.

[For Hawaiian Electric Proposers Only] Proposer must identify all **estimated development and capital costs** for the Proposal. At a minimum, the following costs and breakdowns must be provided:

- Facility (including any generation and storage components)
- Outside Services
- Interconnection
    - Seller-Owned Interconnection Facilities
        - Identify and breakdown what is included in this category and any assumptions made
    - Company-Owned Interconnection Facilities
        - Identify and breakdown what is included in this category and any assumptions made, including:
            - Company costs per Appendix H
            - Proposer's estimated costs for Proposer-Built COIF
        - Provide the cost breakdown and assumptions using the template provided in Appendix H, Attachment 1
- Overhead Costs
- Allowance for Funds Used During Construction
- Annual O&M
- Specify the percentage of the total cost associated with the storage component of the Facility
- (For Projects that include a storage component) Specify a percentage of the total project cost that is estimated to be attributed to the storage functionality of the Facility. As the storage functionality is treated as a lease, the Company will use the percentage for its preliminary calculation of the lease liability only. This percentage requested for the Company's accounting purposes does not affect nor alter the liquidated damage provisions of the PPA, as those provisions reflect the benefit the Company seeks from the Project's storage functionality.

2.3.2.3 Discuss and/or provide **supporting information on any project financing guarantees**.

2.3.2.4 Describe any **written commitments obtained from the equity participants**.

2.3.2.5 Describe any **conditions precedent to project financing**, and the Proposer's plan to address them, other than execution of the IGP Contract or any other applicable project agreements and State of Hawaii Public Utilities Commission approval of the IGP Contract and other agreements.

2.3.2.6 Provide any **additional evidence to demonstrate that the Project is financeable**.

2.3.3 Project Financing Experience of the Proposer

Describe **the project financing experience of the Proposer** in securing financing for projects of a similar size (i.e., no less than two-thirds the size) and technology as the one being proposed including the following information for any referenced projects:

- Project Name
- Project Technology
- Project Size
- Location
- Date of Construction and Permanent Financing
- Commercial Operations Date

- Proposer's Role in Financing of the Project
- Off-taker
- Term of the Interconnection Agreement
- Financing Structure
- Major Pricing Terms
- Name(s) of Finance Team Member(s); Time (i.e., years, months) worked on the project and Role/Responsibilities

2.3.4 Evidence of the Proposer's Financial Strength

2.3.4.1 Provide **copies of the Proposer's audited financial statements** (balance sheet, income statement, and statement of cash flows):

- Legal Entity
  - Three (3) most recent fiscal years
  - Quarterly report for the most recent quarter ended
- Parent Company
  - Three (3) most recent fiscal years
  - Quarterly report for the most recent quarter ended

2.3.4.2 Provide the **current credit ratings** for the Proposer (or Parent Company, if not available for Proposer), affiliates, partners, and credit support provider:

- Standard & Poor's
- Moody's
- Fitch

2.3.4.3 Describe any **current credit issues** regarding the Proposer or affiliate entities raised by rating agencies, banks, or accounting firms.

2.3.4.4 Provide any **additional evidence that the Proposer has the financial resources and financial strength** to complete and operate the Project as proposed.

2.3.5 Provide **evidence** that the Proposer can **provide the required securities**

2.3.5.1 Describe the Proposer's **ability (and/or the ability of its credit support provider) and proposed plans to provide the required securities** including:

- Irrevocable standby letter of credit
- Sources of security
- Description of its credit support provider

2.3.6 Disclosure of Litigation and Disputes

Disclose any **litigation, disputes, and the status of any lawsuits or dispute resolution** related to projects owned or managed by the Proposer or any of its affiliates.

2.3.7 State to the best of the Proposer's knowledge: Will the Project result in **consolidation** of the Developer entity's finances onto the Company's financial statements under FASB ASC 810. **Provide supporting information** to allow the Company to verify such conclusion.

2.4 PROPOSED CONTRACT MODIFICATIONS

2.4.1 **State whether the Proposer accepts the contract terms identified in the model IGP Contract** in its entirety or if modifications to the model agreements are proposed. For the RDG PPA, Proposers should additionally review and mark for deletion any technology-specific provisions that are not applicable to the proposed project (e.g., wind provisions, if proposing a PV project). Such information is denoted with brackets within the model contracts.

2.4.2 If Proposers elect to propose modifications to the applicable IGP Contract, **identify the name of the Microsoft Word red-line file** in the proposal submission that offers the proposed modifications to the model language that the Proposer is agreeable to. Proposers electing to propose modifications must **provide a Microsoft Word red-line version of the applicable IGP Contract** identifying specific proposed modifications to the model language that the Proposer is agreeable to and a detailed explanation and supporting rationale for each modification. General comments, drafting notes and footnotes such as "parties to discuss" are unacceptable and will be considered non-responsive.

Proposers that do not upload redlines of the applicable IGP Contract with their Proposal submission will be deemed to have accepted the Model IGP Contract in its entirety. If no modifications are proposed, please state in this section "no modifications to the Model IGP Contract".

As set forth in RFP Section 3.11.5.1, proposed modifications to the IGP Contract will be subject to negotiation between the Company and the Final Award Group and should not be assumed to have been accepted either as a result of being selected to the Final Award Group or based on any previously executed PPA.

2.5 SITE INFORMATION

2.5.1 The Proposal must demonstrate that the Proposer has Site Control for all real property required for the successful implementation of a specific Proposal at a Site not controlled by the Company, including any Interconnection Facilities, with the exception of right-of-way or easements for the interconnection route, for which the Proposer is responsible. In addition to the information required below, Proposals must identify in this section any developmental requirements and restrictions such as zoning of the Site, whether the Site is within a special management area or within conservation district lands, and the status of all required easements. **Proposer must provide documentation set forth in RFP Section 4.3 to prove Site Control.**

2.5.2 Provide a **map of the Project site** that clearly identifies:

- Location of the parcel on which the site is located
- Tax map key number (9-digit format: Island Number (1 digit), Zone Number (1 digit), Section Number (1 digit), Plat Number (3 digits, add leading zeros if less than 3 digits), Parcel Number (3 digits, add leading zeros if less than 3 digits)
- Site boundaries (if the site does not cover the entire parcel)
- Total acreage of the site
- Point(s) of Interconnection
- Grid Connection Point(s)
- Relationship of the site to other local infrastructure
- Existing easements encumbering the parcel on which the site is located

2.5.3 Provide a **site layout plan** which illustrates:

- Proposed location of all equipment
- Proposed location of all facilities on the site, including any proposed line extensions

2.5.4 Describe the **Interconnection route** and include:

- Site sketches of how the facility will be interconnected to the Company's System (above-ground and/or underground).
- Identify the approximate latitude and longitude of the proposed Point of Interconnection, in decimal degrees format, to six (6) decimal places.
- Description of the rationale for the interconnection route.

2.5.5 Identify **any rights-of-way or easements** that are required for access to the site or for interconnection route:

- Describe the status of rights-of-way or easement acquisition.
- Describe the detailed plan for securing the necessary rights-of-way or easement, including the proposed timeline and any evidence of any steps taken to date. Proposers must provide a credible and viable plan for obtaining such rights-of-way or easement(s), including the proposed timeline, the identification of all steps necessary to obtain such right-of-way or easement(s), and evidence of any steps taken to date.

2.5.6 Provide the following information related to **land use and impervious cover**[6] of the proposed Project:

- **Land use map** including current zoning of the proposed Project site and adjacent properties; indicate percentage of the proposed Project site for each zoning type identified.
- **Hawaii Land Study Bureau map** identifying the overall productivity rating class(es) for all lands located within the boundaries of the proposed Project site.
- **Map depicting existing impervious cover** of the proposed Project site; must include the current percentage of impervious cover of the utilized area for the proposed Project.
- **Map depicting final impervious cover** of the proposed Project site; must include the proposed percentage of impervious cover of the utilized area for the proposed Project.
    - In calculations, Proposer must use a consistent area as the base (denominator) between percentages for existing and final impervious cover.
- If the proposed Project is on reclaimed land, such as brownfield,[7] included a **complete description of the reclaimed land and any current land use restrictions**.

[6] As defined by the EPA (8 Tools of Watershed Protection in Developing Areas | Watershed Academy Web | US EPA), impervious cover is "the sum total of all hard surfaces within a watershed including rooftops, parking lots, streets, sidewalks, driveways, and surfaces that are impermeable to infiltration of rainfall into underlying soils/groundwater." For purposes of evaluation, PV panels shall be considered impervious.

[7] As defined by the EPA (Overview of EPA's Brownfields Program | US EPA), brownfield is "a property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant."

2.6 ENVIRONMENTAL COMPLIANCE AND PERMITTING PLAN

Proposals must address each item listed below and provide evidence of analysis of environmental impacts associated with the Project, regulatory requirements, and mitigation efforts. Each proposal must incorporate the list below as an outline, together with complete and thorough responses to each item.

2.6.1 Proposers must identify and disclose all significant permits, approvals, appurtenances, and entitlements (including applicable access, rights of way and/or easements, environmental permits, and other determinations) (collectively, the "permits") required and have a plan and schedule for securing such permits. The Proposer must disclose all identified (a) discretionary permits required, i.e., those requiring public or contested case hearings and/or review and discretionary approval by an appropriate government agency, and (b) ministerial conditions without discretionary approval conditions. In all cases, the Proposer must provide a credible and viable plan to secure all necessary and appropriate permits for the Project. Proposer shall identify the need for such permit, exemption or amendment and provide a list of required prerequisites and/or conditions and a realistic timeline necessary to obtain such permit, exemption or amendment satisfactory for Proposer to meet its designated GCOD. For example, suppose the Project is located within an agricultural district. In that case, the Proposer shall provide evidence of the Proposer's verification with the appropriate government agency that the Project complies with HRS Section 205-2 and Section 205-4.5, relating to solar energy facilities placed on agricultural land, provided, however, that where a special use permit (under Section 205-6), exemption (under Section 205-6), or amendment to land use district boundary lines (under Section 205-4) is required to secure such compliance.

2.6.1.1 Describe your **overall land use and environmental permits and approvals strategy** and approach to obtaining successful, positive results from the agencies and authorities having jurisdiction. Your proposal must include:

- Explanation of the conceptual plans for siting
- Studies/assessments completed and still required
- All permits and approvals for the project site, including those for the interconnection route.
- The Gantt format schedule identifies the sequencing of the permit application, approval activities, and critical path. (schedule must be in MM/DD/YY format.)

2.6.1.2 Discuss the **city zoning, state land use classification, and Federal land use**:

- Identify present and required zoning and the ability to site the proposed Project within those zoning allowances.
- Identify present and required land use classifications and the ability to site the proposed Project within those classifications.
- Provide evidence of proper zoning and land use classifications for selected sites and interconnection routes.
- If changes in the above are required for the proposed Project, provide a plan and timeline to secure the necessary approvals.

2.6.1.3 Identify all required discretionary and non-discretionary **land use, environmental and construction permits, and approvals** as are necessary for the development, financing, construction, and operation of the proposed Project, including but not limited to zoning changes, Environmental Assessments, and/or Environmental Impacts Statements. Provide a **listing of such permits and approvals** indicating:

- Permit Name

- Federal, State, or Local agencies and authorities having jurisdiction over the issuance
- Status of approval and anticipated timeline for seeking and receiving the required permit and/or license
- Explanation of your basis for the assumed timeline, including input from regulators
- Explain any situation where a permit or license for one aspect of the Project may influence the timing or permit of another element (e.g., a case where one permit is contingent upon completion of another permit or license), if applicable.
- Explain your plans to secure all permits and approvals required for the Project.
- Air Permits: Firm projects with combustion sources must address the following items.
    - Identify the type of permit required (Prevention of Significant Deterioration (PSD), Covered Source Permit (CSP), Noncovered Source Permit (NSP))
    - Identify if the Project has an existing air permit or requires a new source permit or a modification to an existing air permit.
    - Identify amounts and types of pollutants and permit thresholds or provide a statement if not applicable to the proposed source.
    - Identify the best available control technology anticipated to be used.
    - If responder is bidding using an existing plants, please submit max capacity factor and a permit for allowed capacity factor.

2.6.2 Provide a **preliminary environmental assessment of the site** (including any environmental and/or biological reports and identifying future additional studies needed). The evaluation should include potential short- and long-term **impacts** associated with, or resulting from, the proposed Project – including direct, indirect, and cumulative effects associated with the proposed Project's development, construction, operation, and maintenance in every area identified below. Discuss if alternatives have been or will be considered. Potential impacts should be determined based on each resource area's proposed actions area of potential effect (APE). The assessment shall also include Proposer's short- and long-term plans to mitigate such impacts and if they impact the overall Project timeline, and an explanation of the mitigation strategies for, but not limited to, each of the significant environmental areas as presented below:

- Natural Environment
    - Air quality
        - For all fuels that may be used, discuss estimated emissions and greenhouse gas calculations (including biogenic emissions), their potential impacts, and mitigation related to air quality
        - Include short-term impacts and mitigation measures for the construction phase (dust control, etc.)
    - Natural Resources
        - At a minimum, Proposer will include preliminary information on existing habitat(s), critical habitats, avian protection, wetlands, wildlife refuges, flora and fauna, essential fish habitats, and threatened and/or endangered species.
        - Include existing or planned mitigation and comprehensive surveys/studies.
    - Climate:
        - Discuss any impacts to climate and any potential effects that climate change (sea-level rise etc.) may have on the Project over the course of the Project term.
    - Geology and Soils
        - Describe the applicable proposed sites' topography, soil classification, underlying geology, and volcanic/seismic activity
        - Discuss any impacts and mitigation efforts for soils and topography erosion, changes to impervious cover before and after development, run-off concerns etc.)
        - Discuss any potential effects of volcanic/seismic activity on the Project
        - If applicable, discuss bathymetry and seasonal sea states

- Land Regulation
  - Land Uses, including any land use restrictions and/or pre-existing environmental conditions/contamination
    - At a minimum, Proposer will include information on past use of the property, any previous Phase I and/or Phase II Environmental Site Assessments (ESAs), information on any known releases to the environment and/or contamination, any State of Hawaii Department of Health (DOH) Environmental Hazard Management Plans (EHMPs), or environmental covenants.
    - Discuss any additional planned Phase I and/or Phase II ESAs
  - Flood and tsunami hazards (including the site's flood zone based on the Hawaii Department of Land and Natural Resources flood map)
  - Discuss current uses (i.e., recreational, agricultural, fishing, hunting, boating, gathering, views [parks, scenic overlooks, scenic drives, others], etc.) of the property and any potential impacts and mitigations to those uses
  - Noise
    - Discuss any potential short- and long-term noise impacts on the surrounding community
    - Discuss any mitigation measures for potential noise impacts
- Solid Waste & Utilities
  - Discuss any solid waste streams that will be generated during construction and throughout the life of the Project. Define any disposal plans for such waste streams and discuss potential impacts and mitigations
  - Discuss the impacts on community utilities (water use, sewer, etc.)
- Hazardous Materials and Wastes
  - Discuss any hazardous materials to be utilized or hazardous wastes generated and define disposal plans (if applicable)
- Socioeconomics
  - Describe the socioeconomics of the proposed site location
  - Discuss potential socioeconomic impacts such as food security and mitigations
- Transportation
  - Discuss any potential impacts on transportation infrastructure use and traffic patters (i.e., availability and use of deep draft harbors, airports, airspace, roads, sea space, etc.). Also, discuss potential mitigations.
- Water Resources
  - Discuss any impacts to water quality and demonstrate that the Project complies with the Federal Clean Water Act and any applicable State and County regulations related to water quality.
  - Discuss dewatering Best Management Practices (BMPs), Stormwater Pollution Prevention Plans, and National Pollutant Discharge System (NPDES) (if applicable)
  - Describe the aquifer, water availability, and amounts of water to be used over the stages of the Project with potential impacts and mitigations
- Public Safety Services (Police, Fire, Emergency Medical Services)
  - Describe any potential Project impacts to Public Safety Services
  - Fire mitigation plans (including a description of fire suppression systems), site emergency response plans, security plans, and coordination with local Public Safety Services should be discussed.
- Potential Cumulative and Secondary Impacts

2.6.3 Provide a **decommissioning plan**, including:

- Developing and implementing program for recycling to the fullest extent possible, or otherwise properly disposing of installed infrastructure, if any, and
- Demonstrating how restoration of the Site to its original ecological condition is guaranteed in the event of default by the Proposer in the applicable Site Control documentation.

2.7 CULTURAL RESOURCE IMPACTS

2.7.1 Provide a **proposal to ensure cultural sites are identified and carefully protected** as part of a cultural impact plan as it pertains to the Project Site and interconnection route. This proposal must include at a minimum:

- A high-level plan to complete, within the timeline set forth in RFP Section 4.4.2.1 , a **cultural assessment** that identifies:
    1) valued cultural, historical, or natural resources in the area in question, including the extent to which traditional and customary native Hawaiian rights are exercised in the area;
    2) the extent to which those resources – including traditional and customary native Hawaiian rights – will be affected or impaired by the proposed action; and
    3) the feasible action, if any, to be taken to reasonably protect any identified cultural, historical, or natural resources in the area in question, and the reasonable protection of traditional and customary native Hawaiian rights in the affected area.
- Proposer's **experience with cultural resource impacts** on past projects
- Consultant's experience with cultural resource impacts on past projects (name, firm, relevant experience, and a signed letter as proof that a Consultant is on retainer)
- **Status of the cultural impact plan** (including, but not limited to: Cultural Impact Assessment, Cultural Landscape Study, Cultural Resource Management Plan, Ethnographic Survey, Consultation on Section 106 Process, and/or Traditional Cultural Property Studies)

2.7.2 **Archaeological Literature Review** of existing cultural documentation filed with the State Historic Preservation Division and a **Field Inspection Report** which identifies any known archaeological and/or historical sites within the project area. If sites are found, Proposers must provide a plan for mitigation from an archaeologist licensed in the State of Hawaii.

2.8 COMMUNITY ENGAGEMENT

Detailed instructions and requirements related to community outreach and engagement are identified in the RFP's **Appendix N (Community Engagement Requirements)**, including the requirements to submit the Project's **Community Engagement Plan**, any referenced material that is to be considered when evaluating the Community Engagement Plan, and the **Project's Community Benefits Program** with your Proposal submission.

The Proposer's Community Engagement Plan (including any **Community co-creation plan**, if applicable) and Community Benefits Program shall be submitted as standalone documents. As instructed in step 3 of Appendix B Section 1.2 above, pointers to those standalone document files must be specified identifying the file names of those standalone documents.

2.8.1 Identify the Community Engagement Plan filename.

2.8.2 Identify the Community Benefits Program filename.

2.9 OPERATIONS AND MAINTENANCE (O&M)

2.9.1 To demonstrate the long-term operational viability of the proposed Project, describe the **planned operations and maintenance**, including:

- Operations and maintenance funding levels, annually, throughout the term of the contract.
- Description of the operational requirements by frequency (daily, weekly, monthly, yearly, as-necessary, run hour interval) and maintenance requirements by frequency (daily, weekly, monthly, yearly, as-necessary, run hour interval).
- A discussion of the staffing levels proposed for the Project and location of such staff. If such staff is offsite, describe response time and ability to control the Project remotely.
- Technology specific maintenance experience records.
- Identification of any O&M providers.
- The expected role of the Proposer (Owner) or outside contractor.
- Scheduling of major maintenance activity.
- Plan for testing equipment.
- Estimated life of Generation and/or Storage Facilities and associated Interconnection Facilities.
- Safety plan, including historical safety records with environmental history records, violations, and compliance plans.
- Security plan.
- Site maintenance plan.
- Substation equipment maintenance plan.

2.9.2 State whether the Proposer would **consider 24-hour staffing**. Explain how this would be done.

2.9.3 Describe the **Proposer's contingency plan**, including the Proposer's mitigation plans to address failures. Such information should be described in the Proposal to demonstrate the Project's reliability with regard to potential operational issues.

2.9.4 Describe if the Proposer will **coordinate their maintenance schedule** for the Project with the Company's annual planned generation maintenance.

2.9.5 Describe the **status of any O&M agreements or contracts** that the Proposer is required to secure. Include a discussion of the Proposer's plan for securing a long-term O&M contract.

2.9.6 Provide **examples of the Proposer's experience with O&M services** for other similar projects.

2.10 TECHNICAL AND OPERATIONAL REQUIREMENTS

Please also see the Technical and Operational Requirements evaluation criteria (Threshold Requirement in RFP Section 4.3. and Non-Price in RFP Section 4.4.2.1) to better understand the desired contents of the Proposal and how they will be evaluated.

2.10.1 Provide a preliminary **description of the Facility and its design** in accordance with the applicable IGP Contract. Proposals shall provide at a minimum the items listed below:

- Site Plan and General Facility Arrangement Layout
- Details of the major equipment as indicated in Section 5 of Attachment A (Equipment) of the applicable IGP contract. Proposers response should include documentation of the detailed equipment specifications, characteristics, and performance to prove satisfaction of the technical and operational requirements. A completed version of Section 5 (Equipment) Attachment A (Equipment) of the applicable IGP contract is to also be included.
- Drawings, Diagrams, Lists, Settings, and As-Builts
    - Diagrams approved by a Professional Electrical Engineer registered in the State of Hawai‘i, indicated by the presence of the Engineer’s Professional seal on all drawings and documents. Including but not limited to:
        - A single-line diagram, relay list, trip scheme and settings of the generating facility, which identifies the Point of Interconnection, demarcation between Seller-Owned and Company-Owned Interconnection Facilities, circuit breakers, relays, switches, synchronizing equipment, monitoring equipment, and control and protective devices and schemes.
- Overview of the **Facility Control Systems** – descriptions of central control and inverter- or resource-level control; including the philosophy of control.

2.10.2 Provide the **sample rate of critical telemetry** (i.e. local frequency and voltage) used for Plant responses as inputs to the Facility and equipment control systems. Further, provide the expected control cycle time for each Facility Control System.

2.10.3 **[For Facilities that include BESS inverters]** Provide a description of the Facility’s **grid-forming mode.**

2.10.4 Provide a description of the Facility’s **self-energization and black start capabilities** as further distinguished and described in Section 3 (technical and operational requirements) of Attachment B (Facility owned by Seller) of the applicable IGP contract.

2.10.5 **Capability of meeting Technical and Operational Requirements**. The proposed Facility must meet the performance attributes identified in Attachment B, Section 3 (technical and operational requirements) of the applicable IGP Contract. Proposers **must provide confirmation that the proposed Facility meets the requirements identified in the model IGP Contract** or provide clarification or comments about the Facility’s ability to meet the technical and operational requirements. Proposals should include sufficient documentation to support the stated claim that the Facility will be able to meet each technical and operational requirement set forth in Section 3 of Attachment B of the applicable IGP Contract. The Proposal should include information required to make such a determination in an organized manner to ensure this evaluation can be completed within the evaluation review period. For each technical and operational requirement, relevant sections of equipment documentation that indicate the requirement can be

met should be extracted into the Proposer's response for each requirement, as well as appropriate reference to the documentation for where the information was extracted from. Examples of documentation to prove certain capabilities include but are not limited to:

- Reactive vs. Active power capability curves
- Absolute equipment limit capability curves or data showing expected performance through the continuous operating and ride-through regions
- Control System design documents
- Active power dispatch constraints (i.e. permit limits and/or equipment limits)

2.10.6 **Coordination of Operations**: Provide a description of the control facilities required to coordinate generator operation with and between the Company's System Operator and the Company's System.

- Include a description of the equipment and technology used to facilitate dispatch to the Company and communicate with the Company.
- Include a description of the control and protection requirements of the generator and the Company's System.

2.10.7 **Active Power Control Interface**: Describe the means of implementing active power control and the Power Possible, including the contribution to the dispatch signal from paired storage, if any. Provide the Proposer's **experience** dealing with active power control, dispatch, frequency response, and ride-through.

2.10.8 **Energy Storage Technology Specific Requirements**: For stand-alone storage projects or generation projects that include a storage component, provide information and documentation to support the ability to meet the requirement in Section 9(d) Battery Energy Storage System of Attachment B, including any additional limitations not already specified.

2.10.9 For RDG Facilities, provide the following items related to the NEP RFP Projection[8]:

- Projected **hourly annual energy potential production profile of the Facility (24 hours x 365 days, 8760 generation profile)**
- Preliminary design of the facility
- Typical meteorological year file used to estimate the Renewable Resource Baseline, Article 6.6
- Explanation of the methodology and underlying information used to derive the Project's NEP RFP Projection. Including, but not limited to:
  - Preliminary design of the Facility and the typical meteorological year file used to estimate the Renewable Resource Baseline, as required in the model RDG Contract.
  - Long-term resource data used, gross and net generation (MWh), and assumptions (loss factors, uncertainty values, any grid or project constraints)

[8] See RFP Section 2.1.18.

2.11 IRS SUBMITTAL INFORMATION

2.11.1 Provide the appropriate completed **Project Interconnection Data Request worksheets** for the proposed technology with the Proposal submission. (The worksheets can be found in the Electronic Procurement Platform's "1. Download Documents" tab as IGP RFP Appx B - Att 2a Data Request (PV Gen) 240409.xls, IGP RFP Appx B - Att 2b Data Request (Wind Gen) 240409.xls or IGP RFP Appx B - Att 2c Data Request (Synch Gen) 240409.xls Microsoft Excel files.) Standalone Storage Projects will use the IGP RFP Appx B - Att 2a Data Request (PV Gen) 240409.xls worksheet and omit the PV sections.

2.11.2 Also provide all **project single line diagram(s)** with the Proposal submission**.**

2.11.3 **Models for equipment and controls** (see Appendix B Attachment 4)**, complete documentation and user manuals for all technical models** (for inverters and power plant controller)**, generation unit manufacturer datasheet(s), generation unit reactive power capability curve(s), overlaid generation facility technical model output data for three-phase fault and single-phase fault,** and a **report, with plots, documenting that Proposers have tested their models under all scenarios prescribed** shall be submitted within the timeframes specified in RFP Section 5.1. Proposers may also download the **Hawaiian Electric Generation Facility Technical Model Requirements and Review Process** documentation labelled as IGP RFP Appx B - Att 3 Tech Model Reqmts Review Process.pdf from the "1. Download Documents" tab.

2.11.4 See Appendix B Attachment 4 for a summary of the model requirements and IRS task scope.

2.12 PROVEN TECHNOLOGY

2.12.1 Provide all supporting information for the Company to assess the **commercial and financial maturity of the technology** being proposed. Provide any supporting documentation that shows examples of projects that:

- Use the technology at the scale being proposed
- Have successfully reached commercial operations in commercial applications (for example, by demonstrating evidence of an executed PPA)
- Demonstrate experience in providing active power dispatch

2.13 EXPERIENCE AND QUALIFICATIONS

Proposers, its affiliated companies, partners, and/or contractors and consultants are required to demonstrate project experience and management capability to successfully develop and operate the proposed Project.

2.13.1 Provide a hierarchical **organizational/management chart** for the Project that lists all key personnel and project participants dedicated to the Project and identifies the management structure and responsibilities. In addition to the chart, Proposers must provide biographies/resumes of the key personnel, including position, years of relevant experience and similar project experience. Proposers must provide specifics on each participants' area of expertise in renewable energy projects. Identify architects and engineers or provision to provide same that are licensed to practice in the State of Hawai'i. Proposers must also provide a completed table:

- For each of the project participants (including the Proposer, partners, and proposed contractors), **fill out the table below** and provide statements that list the specific experience of the individual

in: financing, designing, constructing, interconnecting, owning, operating, and maintaining renewable energy generating or storage facilities, or other projects of similar size and technology, and

- Provide any evidence that the project participants have worked jointly on other projects.

	EXPERIENCE: In the applicable columns below, include project details (i.e., project name, location, technology, size) and relevant job duties (role/responsibilities) and time (in years/months) spent on the project. List multiple projects if applicable. Do not list projects that did not reach commercial operations.						
Participant Name:	**Financing**	**Designing**	**Constructing**	**Interconnecting**	**Owning**	**Operating**	**Maintaining**
1.							
2.							
3.							
…							

2.13.2 Identify those **members of the team** the Proposer is submitting in the Experience Table above to meet the experience and qualifications requirement, included in the Threshold Requirement. Identify those **members of the team with the experience and qualifications,** including affiliates, and their principal personnel who will be involved in the project. If the Proposer consists of multiple parties, such as joint ventures or partnerships, demonstrate each member(s) firm commitment to provide services to the project (e.g., letter of intent); provide this information for each party, clearly indicating the proposed role of each party, including an ownership chart indicating direct and indirect ownership, and percentage interests in the partnership or joint venture.

2.13.3 Provide a **listing in the table format below, of all renewable energy generation or energy storage projects** the Proposer has successfully developed or that are currently under construction. Describe the Proposer's role and responsibilities associated with these projects (lead developer, owner, investor, etc.). Provide the following information as part of the response:

Project Name	**Location (City, State)**	**Technology (wind, PV, hydro, plus storage, etc.)**	**Size (MW/ MWh)**	**Commercial Operation Date**	**Offtaker (if applicable)**	**Role & Responsibilities**
1.						
2.						
3.						
…						

2.14 PROJECT DEVELOPMENT AND SCHEDULE

2.14.1 Provide a **project schedule in GANTT chart format** with complete **critical path activities** identified for the Proposal from the Notice of Selection of the Proposal through Commercial Operations.

- The **schedule** must include:
  - Interconnection Requirement Study (IRS) assumptions
  - Anticipated contract negotiation period assumptions

- Regulatory assumptions (including PPA/PUC filings and assumed durations)
- Anticipated submittal and approval dates for permitting (including but not limited to environmental and archaeological compliance)
- Siting and land acquisition
- Cultural Resource implications and mitigation activities
- Community outreach and engagement activities
- Energy resource assessment
- Financing
- Engineering
- Procurement (include current lead times for long lead equipment)
- Facility construction including construction management events
- Applicable reporting milestone events specified in the Model IGP Contract
- Testing
- Interconnection (including engineering, procurement, and construction)
- Commercial Operations Date (COD)
- All other important elements outside of the direct construction of the Project
- For existing projects, any changes required to meet the terms of this RFP and/or applicable IGP Contract
- Durations should be consistent with appendix H, when applicable

- The project schedule must be created in Microsoft Project and submitted in <u>both</u> a .mpp file format <u>and</u> in .pdf file format.
- For each project element, list the start and end date (must be in MM/DD/YY format), and include predecessors to clearly illustrate schedule dependencies and durations.
- Proposers must also list and describe critical path activities and milestone events, particularly as they relate to the integration and coordination of the project components and the Company's Electric System. Proposers must ensure that the schedule provided in this section is consistent with the milestone events contained in the IGP Contract and/or other agreements.
- Appropriate mitigation or contingency plans should be included with any risk of achieving the proposed COD.

2.14.2 Describe the **construction execution strategy** including:

- Identification of contracting/subcontracting plans
- Modular construction
- Safety plans[9]
- Quality control and assurance plan
- Labor availability
- Likely manufacturing sites and procurement plans
- Similar projects where these construction methods have been used by the Proposer

2.14.3 Provide a description of any **project activities that have been performed to date**.

[9] A document that describes the various safety procedures and practices that will be implemented on the Project and how applicable safety regulations, standards, and work practices will be enforced on the Project.

2.14.4 If applicable, explain any planned actions to reach safe harbor milestones or other schedule-affecting tax credit activities and guaranteed commercial operations, including durations and dependencies which support this achievement.

2.15 CARBON EMISSION QUESTIONNAIRE

2.15.1 Answer the following Carbon Criteria questions. Please provide conservative answers where answers are unknown or uncertain. Guidance for providing conservative answers has been provided for each question. If a Category or Question is not applicable to the Project, please leave blank (e.g., if the Project generation technology does not include solar, leave questions in Category "3e. Procurement – Solar" blank). The use of carbon certificates or carbon market offsets will not be considered a direct benefit of and are outside the lifecycle boundaries of proposed Projects.

Category	**#**	**Question**	***Answer Choices***
1. Siting	1	Please provide the Project's expected developed Site area in units of m^2. *If the answer to this question is unknown or uncertain, please conservatively provide the largest expected developed Site area in units of m^2.*	*Numerical write in*
	2	What is the expected distance from the Project's generation/storage location to the point of interconnection? *If the answer to this question is unknown or if there are multiple possibilities, please conservatively provide the furthest expected distance from the Project's generation/storage location to the point of interconnection*	*Numerical write in*
	3	What fraction of the Project's Site is a "greenfield", e.g., has not been previously developed? *If the answer to this question is unknown or uncertain, please conservatively provide the maximum expected "greenfield" fraction.*	*Numerical write in*
	4	What fraction of the Project's Site requires grading? *If the answer to this question is unknown or uncertain, please conservatively provide the maximum expected fraction.*	*Numerical write in*
	5	What is the expected fraction (in terms of CAPEX) of infrastructure being reused (includes roads, buildings, trenches, pads) for the Project? *If the answer to this question is unknown or uncertain, please conservatively provide the minimum expected fraction.*	*Numerical write in*
2. Procurement	6	What fraction of concrete, fencing, gravel and other roadway materials used for the Project will be locally sourced on island?	*Numerical write in*

		If the answer to this question is unknown or uncertain, please conservatively provide the minimum expected fraction.	
	7	What fraction of roadway materials and gravel used for the Project will be made from recycled materials? *If the answer to this question is unknown or uncertain, please conservatively provide the minimum expected fraction.*	*Numerical write in*
3a. Procurement – Biofuels ***please answer only if the project includes biofuels-based generation***	8a	Please provide the Project's expected annual and lifetime production in units of MWh. *If the answer to this question is unknown or uncertain, please conservatively provide the minimum expected annual production capacity in units of MWh.*	*Numerical write in*
	9a	What fraction of the biofuel feedstock used for the Project is a waste product or grown specifically for fuel usage? *Please provide the answer as a ratio between "Waste for fuel" vs. "Grow for fuel". If the answer to this question is unknown or uncertain, please conservatively provide the minimum expected fraction.*	*Numerical write in*
	10a	Please provide carbon footprints for major components and feedstock as well as manufacturer-specific supporting documentation, if available. Please provide the carbon footprint in units of kg CO2e/MMBtu energy content for feedstock. *If this information is unavailable, please answer "Not available at this time".*	*Numerical write in*
	11a	What fraction of the harvested biofuel feedstock used for the Project will be replaced and regrown within one year of harvesting? *If the answer to this question is unknown or uncertain, please conservatively provide the minimum fraction.*	*Numerical write in*
	12a	How much hydrogen will be used in the biofuel production process for hydroprocessing (kg hydrogen/kg biofuel produced)? *If the answer to this question is unknown or uncertain, please conservatively provide the maximum expected amount in units of kg hydrogen/kg biofuel produced.*	*Numerical write in*
	13a	What is the expected overall efficiency of the Project (electricity generated by the Project divided by the energy in the biofuels combusted)?	*Numerical write in*

		If the answer to this question is unknown or uncertain, please conservatively provide the minimum expected overall efficiency.	
3b. Procurement – Biomass ***please answer only if the project includes biomass-based generation***	8b	Please provide the Project's expected annual and lifetime production in units of MWh. *If the answer to this question is unknown or uncertain, please conservatively provide the minimum expected annual production capacity in units of MWh.*	*Numerical write in*
	9b	What is the expected overall efficiency of the Project's biomass conversion to electricity (electricity generated by the Project divided by the energy in the biomass combusted)? *If the answer to this question is unknown or uncertain, please conservatively provide the minimum expected overall efficiency.*	*Numerical write in*
	10b	What is the expected biomass combustion efficiency of the biomass used for the Project (actual heat produced by combustion divided by the total heat potential of the biomass combusted)? *If the answer to this question is unknown or uncertain, please conservatively provide the minimum expected biomass combustion efficiency.*	*Numerical write in*
	11b	Please provide carbon footprints for major components and feedstock as well as manufacturer-specific supporting documentation, if available. Please provide the carbon footprint in units of kg CO_2e/kWh for power generating components, such as a biomass combustor, and in units of kg CO_2e/MMBtu energy content for feedstock. *If this information is unavailable, please answer "Not available at this time".*	*Numerical write in*
	12b	What fraction of the harvested biomass feedstock used for the Project will be replaced and regrown within one year of harvesting? *If the answer to this question is unknown or uncertain, please conservatively provide the minimum fraction.*	*Numerical write in*
3c. Procurement – Energy Storage ***please answer only if the project includes energy storage***	8c	Please provide the Project's expected annual energy delivered by the system in units of MWh. *If the answer to this question is unknown or uncertain, please conservatively provide the minimum expected annual energy delivery in units of MWh.*	*Numerical write in*
	9c	What is the expected return efficiency of the Project's energy storage system (MWh returned to the grid/MWh stored)?	*Numerical write in*

		If the answer to this question is unknown or uncertain, please conservatively provide the minimum expected return efficiency.	
	10c	How many cycles will the batteries used for the Project's energy storage system undergo annually? *If the answer to this question is unknown or uncertain, please conservatively provide the maximum expected number of cycles.*	*Numerical write in*
	11c	Please provide carbon footprints for major components and feedstock as well as manufacturer-specific supporting documentation, if available. Please provide the carbon footprint in units of kg CO2e/kWh for power generating components, such as a battery. *If this information is unavailable, please answer "Not available at this time".*	*Numerical write in*
	12c	What is the expected battery lifetime before degradation of the Project's energy storage efficiency below 80%? *If the answer to this question is unknown or uncertain, please conservatively provide the minimum expected lifetime.*	*Numerical write in*
3d. Procurement – Geothermal ***please answer only if the project includes geothermal generation***	8d	Please provide the Project's expected annual and lifetime production in units of MWh. *If the answer to this question is unknown or uncertain, please conservatively provide the minimum expected annual production capacity in units of MWh.*	*Text write in*
	9d	Will the Project's geothermal process be an enhanced geothermal system (EGS), flash/dry steam, or binary steam power plant? *If the answer to this question is unknown or uncertain, please conservatively answer "Not known at this time".*	*Text write in*
	10d	Will the Project's geothermal process be closed loop? *If the answer to this question is unknown or uncertain, please conservatively answer "No".*	*Yes / No*
	11d	What percentage of mass of fluid will be cascaded compared to total extracted fluid mass? *If the answer to this question is unknown or uncertain, please conservatively provide the minimum expected percentage.*	*Numerical write in*

	12d	Please provide carbon footprints for major components as well as manufacturer-specific supporting documentation, if available. Please provide the carbon footprint in units of kg CO_2e/kWh for power generating components. *If this information is unavailable, please answer "Not available at this time".*	*Numerical write in*
	13d	Will new geothermal wells need to be drilled for the Project? *If the answer to this question is unknown or uncertain, please conservatively answer "Yes".*	*Yes / No*
3e. Procurement – Solar ***please answer only if the project includes solar generation***	8e	Please provide the Project's expected annual and lifetime production in units of MWh. *If the answer to this question is unknown or uncertain, please conservatively provide the minimum expected annual production capacity in units of MWh.*	*Numerical write in*
	9e	What is the expected solar irradiance for the Project (kW/m^2)? *If the answer to this question is unknown or uncertain, please conservatively answer "Not known at this time".*	*Numerical write in*
	10e	Which type of solar panels will be installed for the Project? a. Cadmium Telluride b. Single Crystalline Silicon c. Multi Crystalline Silicon d. Other, if yes, please provide details regarding solar panel technology type. *If the answer to this question is unknown or uncertain, please conservatively answer "Not known at this time".*	*Text write in;* *If "Other", include write-in*
	11e	What is the solar conversion efficiency of the solar panels (solar kW/m^2 / kW/m^2 produced) used for the Project? *If the answer to this question is unknown or uncertain, please conservatively provide the minimum solar conversion efficiency.*	*Numerical write in*
	12e	Please provide carbon footprints for major components as well as manufacturer-specific supporting documentation, if available. Please provide the carbon footprint in units of kg CO_2e/kWh for power generating components, such as solar panels. *If this information is unavailable, please answer "Not available at this time".*	*Numerical write in*
3f. Procurement - Waste-to-Energy	8f	Please provide the Project's expected annual and lifetime production in units of MWh.	*Numerical write in*

please answer only if the project includes waste-to-energy generation		*If the answer to this question is unknown or uncertain, please conservatively provide the minimum expected annual production capacity in units of MWh.*	
	9f	What fraction of the waste feedstock used for the Project will be organic waste (food, waste paper, green/compostable waste, etc.)? *If the answer to this question is unknown or uncertain, please conservatively provide the minimum expected fraction.*	*Numerical write in*
	10f	What fraction of the fleet used to transport the waste feedstock to the Facility will consume renewable diesel or be electric? *If the answer to this question is unknown or uncertain, please conservatively provide the minimum expected fraction.*	*Numerical write in*
	11f	If the Waste-to-Energy process used for the Project will emit greenhouse gases, what fraction of the greenhouse gases will be captured? *If the answer to this question is unknown or uncertain, please conservatively provide the minimum expected fraction.*	*Numerical write in*
	12f	What is the expected overall electrical efficiency of the Project process (electricity produced divided by the energy utilized for the waste-to-energy process) (kWh produced/kWh utilized for processing)? *If the answer to this question is unknown or uncertain, please conservatively provide the minimum overall electrical efficiency expected.*	*Numerical write in*
	13f	Please provide carbon footprints for major components and feedstock as well as manufacturer-specific supporting documentation, if available. Please provide the carbon footprint in units of kg CO2e/kWh for power generating components and in units of kg CO2e/MMBtu energy content for feedstock. *If this information is unavailable, please answer "Not available at this time".*	*Numerical write in*
3g. Procurement – Wind ***please answer only if the project includes wind generation***	8g	Please provide the Project's expected annual and lifetime production in units of MWh. *If the answer to this question is unknown or uncertain, please conservatively provide the minimum expected annual production capacity in units of MWh.*	*Numerical write in*

	9g	What fraction of the rotors used for the Project will be made from recycled materials? *If the answer to this question is unknown or uncertain, please conservatively provide the minimum expected fraction.*	*Numerical write in*
	10g	Please provide the average wind speed for the Project location, in units of mph or m/s. *If the answer to this question is unknown or uncertain, please conservatively provide the minimum expected wind energy availability.*	*Numerical write in*
	11g	Please provide the expected power generation rate (i.e., capacity factor) of the Project. *If the answer to this question is unknown or uncertain, please conservatively provide the minimum expected power generation ratio.*	*Numerical write in*
	12g	What percentage by weight of the turbine tower will be steel? *If the answer to this question is unknown or uncertain, please conservatively provide the maximum expected percentage.*	*Numerical write in*
	13g	Please provide carbon footprints for major components as well as manufacturer-specific supporting documentation, if available. Please provide the carbon footprint in units of kg CO_2e/kWh for power generating components, such as wind turbines. *If this information is unavailable, please answer "Not available at this time".*	*Numerical write in*
3h. Procurement – Hydrogen ***please answer only if the project includes hydrogen generation***	8h	Please provide annual and lifetime production in units of MWh. *If the answer to this question is unknown or uncertain, please conservatively provide the minimum expected annual production capacity in units of MWh.*	*Numerical write in*
	9h	What is the expected overall efficiency of the Project (electricity generated by the Project divided by the fuel energy in the H_2 consumed/combusted)? *If the answer to this question is unknown or uncertain, please conservatively provide the minimum expected overall efficiency.*	*Numerical write in*
	10h	Please briefly describe the feedstock of the hydrogen and the hydrogen production process (e.g., natural gas, steam methane reforming, water electrolysis).	*Text write in*

		If hydrogen is from multiple feedstock sources, please provide a percentage from each feedstock/source.	
	11h	Please provide the carbon intensity in units of kg CO2e/MMBtu energy content for hydrogen. *If this information is unavailable, please answer "Not available at this time".*	*Numerical write in*
	12h	Please specify whether the power generation technology involves combustion (e.g., combined-cycle gas turbine) or not (e.g., fuel cell power generation).	*Text write in*
3i. Procurement – Hydropower ***please answer only if the project includes hydropower generation***	8i	Please provide the Project's expected annual and lifetime production in units of MWh. *If the answer to this question is unknown or uncertain, please conservatively provide the minimum expected annual production capacity in units of MWh.*	*Numerical write in*
	9i	What is the type of hydropower plant of the Project? *Please specify whether the Project is an impoundment, run-of-river, or pumped storage hydropower plant.*	*Text write in*
	10i	Does the Project require construction of a new dam; if so, what is the material of the dam? *Please specify whether the Project would require new construction or significant expansion of a dam or reservoir.*	*Text write in*
	11i	Does the project have other combustion or fugitive GHG emissions (e.g., backup generator during downtime, or fugitive CH4 emissions from the reservoir). *Please briefly describe the type of emission source(s) if answered "Yes".*	*Text write in*
	12i	Please provide carbon footprints for major components as well as manufacturer-specific supporting documentation, if available. Please provide the carbon footprint in units of kg CO_2e/kWh for power generating components, such as the hydropower turbines. *If this information is unavailable, please answer "Not available at this time".*	*Text write in*
3j. Procurement – Other *please answer only if the project is NOT a generation/storage*	8j	Please provide the Project's expected annual and lifetime production in units of MWh. *If the answer to this question is unknown or uncertain, please conservatively provide the minimum expected annual production capacity in units of MWh.*	*Numerical write in*

project listed in 3a through 3i	9j	Briefly describe the power generating mechanism. Be sure to include fuel type, key equipment, whether combustion is involved, and other materials that have high emissions or GWP (e.g., HFCs & CFCs). *If this information is unavailable, please answer "Not available at this time".*	*Text write in*
	10j	What are the feedstock and production process of fuel? *If the answer to this question is unknown or uncertain, please conservatively provide all potential feedstock and production process*	*Text write in*
	11j	What is the expected overall efficiency of the Project (electricity generated by the Project divided by the energy input)? *If the answer to this question is unknown or uncertain, please conservatively provide the minimum expected overall efficiency.*	*Numerical write in*
	12j	Please provide carbon footprints for major components and feedstock as well as manufacturer-specific supporting documentation, if available. Please provide the carbon footprint in units of kg CO_2e/kWh for power generating components, and/or in units of kg CO_2e/MMBtu energy content for feedstock. *If this information is unavailable, please answer "Not available at this time".*	*Text write in*
4. Construction	15	What fraction of the equipment used during the construction phase of the Project will consume renewable fuel? *If the answer to this question is unknown or uncertain, please conservatively provide the minimum expected fraction.*	*Numerical write in*
	16	Will the Site have an anti-idle policy for the equipment used during the construction phase of the Project? *If the answer to this question is unknown or uncertain, please conservatively answer "No".*	*Yes / No*
	17	How many hours of helicopter use will be required for construction phase of the Project? *If helicopter is not used, please answer "0". If the answer to this question is unknown or uncertain, please conservatively estimate the hours needed.*	*Numerical write in*
	18	What fraction of construction workers traveling to the Site during the construction phase of the Project will be local to the Project Island?	*Numerical write in*

		If the answer to this question is unknown or uncertain, please conservatively provide the minimum fraction of construction workers traveling to the Site during the construction phase of the Project may be local to Hawai'i.	
5. Operations & Maintenance	19	What fraction of Project equipment and materials will need to be replaced during the Project's proposed Contract Term (e.g., Project lifetime) as a percentage of capital cost? *If the answer to this question is unknown or uncertain, please conservatively provide the maximum expected fraction of Project equipment and materials may need to be replaced during the Project's proposed Contract Term by using an above-average scenario for number of equipment failures and wear-and-tear on project materials.*	*Numerical write in*
	20	Will any equipment containing high global warming potential gases (such as sulfur hexafluoride (SF_6) or hydrofluorocarbons (HFCs)) be installed or used during operation? If yes, please provide the type of equipment and high global warming potential greenhouse gas and approximate quantity (kg) leaked per year. *If the answer to this question is unknown or uncertain, please conservatively assume "Yes" and provide a maximum expected quantity (kg) leaked per year.*	*Yes / No* *If "Yes", include numerical write in*
	21	What is the on-site electricity demand to maintain normal operation as a percentage of annual electricity production over the Project's proposed Contract Term? *Please provide the response as a percentage of Project's total electricity production. Be sure to include both parasitic electricity demand from on-site generation and from the grid. Provide the response as a percentage of Project's total electricity production.*	*Numerical write in*
	22	What fraction of the equipment used for the Operations & Maintenance of the Project will consume renewable fuel or be electric? *If the answer to this question is unknown or uncertain, please conservatively provide the minimum expected fraction.*	*Numerical write in*
6. General	23	Please provide any additional information that is currently available on the Project's lifecycle greenhouse gas emissions and/or actions that will be taken to reduce the Project's impacts (i.e., including raw materials and extraction, transportation, construction, operations & maintenance, and decommissioning & disposal). *Please state if no actions are intended at this time.*	*Text write in*

2.16 PREVIOUS PERFORMANCE

2.16.1 Proposers shall identify all affiliates (as defined in the RFP) which have been a party to a renewable energy contract with the Company within the past five (5) years.

(OPTIONAL) MINOR PROPOSAL VARIATIONS

Proposers submitting minor variations to their base variation (as allowed in RFP Section 3.7.2.1) must provide the **details of each variation in the below section(s)**. In the proposal variation section below, Proposers must (1) provide a completed Proposal Summary Table identical to Appendix B Section 2.0 in any Section 3 and Section 4 (if applicable). The information in these tables must specifically reflect the information for the variation being proposed. Additionally, Proposers must (2) identify all changes to the information provided in response to Appendix B Sections 2.2.4 through 2.14 for the Proposal variation. If differences from any section in Sections 2.2.4 through 2.14 are not identified, the Company will assume that the information contained in the base variation (Sections 2.2.4 through 2.14) also applies to the Proposal variation.

Note: Appendix B Section 2.2.2 above requires the inclusion of a table summarizing the differences among the variations, if variations are proposed.

(AS NECESSARY)

3.1 RESERVED
3.2 VARIATION A SUMMARY
3.3 VARIATION A FINANCIAL BACKGROUND
3.4 VARIATION A PROPOSED CONTRACT MODIFICATIONS
3.5 VARIATION A SITE INFORMATION
3.6 VARIATION A ENVIRONMENTAL COMPLIANCE AND PERMITTING PLAN
3.7 VARIATION A CULTURAL RESOURCE IMPACTS
3.8 VARIATION A COMMUNITY ENGAGEMENT
3.9 VARIATION A O&M
3.10 VARIATION A TECHNICAL AND OPERATIONAL REQUIREMENTS
3.11 VARIATION A IRS SUBMITTAL INFORMATION
3.12 VARIATION A PROVEN TECHNOLOGY
3.13 VARIATION A EXPERIENCE AND QUALIFICATIONS
3.14 VARIATION A PROJECT DEVELOPMENT AND SCHEDULE
3.15 VARIATION A CARBON EMISSION QUESTIONNAIRE

(AS NECESSARY)

4.1 RESERVED
4.2 VARIATION B SUMMARY
4.3 VARIATION B FINANCIAL BACKGROUND
4.4 VARIATION B PROPOSED CONTRACT MODIFICATIONS
4.5 VARIATION B SITE INFORMATION
4.6 VARIATION B ENVIRONMENTAL COMPLIANCE AND PERMITTING PLAN
4.7 VARIATION B CULTURAL RESOURCE IMPACTS

4.8 VARIATION B COMMUNITY ENGAGEMENT
4.9 VARIATION B O&M
4.10 VARIATION B TECHNICAL AND OPERATIONAL REQUIREMENTS
4.11 VARIATION B IRS SUBMITTAL INFORMATION
4.12 VARIATION B PROVEN TECHNOLOGY
4.13 VARIATION B EXPERIENCE AND QUALIFICATIONS
4.14 VARIATION B PROJECT DEVELOPMENT AND SCHEDULE
4.15 VARIATION B CARBON EMISSION QUESTIONNAIRE

IPP or AFFILIATE PROPOSAL PRICING

ONLY provide Proposal pricing on this separate Appendix B Attachment 1. Do NOT embed proposal pricing anywhere else in your Proposal, including in the cover letter or executive summary.

1	**Proposer Name (Company Name)**	
2	**Parent Company/Owner/Sponsor/Business Affiliation/etc.**	
3	**Project Name**	
4	**Net Nameplate Capacity** (MW) [1]	

SECTION 1.1 (INVESTMENT-GRADE PRICING)

In accordance with Section 3.12.6 of the RFP, the following pricing will apply if either or both of the following circumstances occurs: (a) a successful IPP or Affiliate Proposer selected into the Final Award Group enters into a Step-In Agreement with the State of Hawai‘i or an applicable department thereof when a PPA is executed, or as soon as reasonably possible thereafter, in accordance with the IPP Bill; and/or (b) HEI’s credit rating reaches Investment Grade Status.

[For PV+BESS, Wind, Wind+BESS, and Standalone Storage Projects]

1	**Lump Sum Payment** ($/Year)	

[For Firm Projects only]

1	**Capacity Charge** payment ($/kWAvailable Capacity/Month)	
1a	**Demonstrated Firm Capacity**	
1b	**Available Capacity Factor**	
1c	**Capacity Charge Rate** ($/kW/month)	
1d	**Fixed O&M Component Rate** ($/kW/month)	
2	**Energy Charge**, **if any** ($/kWh, $/service hour, $/start)	
2a	**Fuel Component** ($/kWh)	

[1] A Project’s Net Nameplate Capacity is as defined in the applicable IGP Contract.

2b	**Per kWh Variable Component** ($/kWh)	
2c	**Per Service Hour Variable Component** ($/service hour)	
2d	**Per Start Variable Component** ($/start) [IF APPLICABLE]	
2e	**Fixed Escalation Rate** (%)	

SECTION 1.2 (NON-INVESTMENT-GRADE PRICING)

In accordance with Section 3.12.6 of the RFP, the following pricing will apply if, by the Construction Financing Closing Milestone: (a) the IPP Bill does not pass and become law or if the IPP Bill becomes law, the State elects not to execute a Step-In Agreement with the IPP or Affiliate Proposer, despite the IPP or Affiliate Proposer's good faith and best efforts; and (b) HEI's credit rating does not reach Investment Grade Status. Notwithstanding the foreoing, if such Non-Investment Grade Pricing of an IPP or Affiliate Proposer applies, such Proposer will be required to adjust its Non-Investment Grade Pricing downward to such Proposer's Investment Grade Pricing (established in Section 1.1 (Investment Grade Pricing) above), if, at any time during the term of the IGP Contract, the IPP or Affiliate Proposer executes a Step-In Agreement with the State under the IPP Bill; or (2) HEI's credit rating reaches Investment Grade Status pursuant to the terms of the applicable IGP Contract. For purposes of sub-part (1) above, the affected IPP or Affiliate Proposer may not opt out of the Step-In Agreement in order to maintain its Non-Investment Grade Pricing.
[For PV+BESS, Wind, Wind+BESS, and Standalone Storage Projects]

1	**Lump Sum Payment** ($/Year)	

[For Firm Projects only]

For Firm Projects, with the exception of the Capacity Charge Rate, all components of a Proposer's pricing shall be the same for both Investment Grade Pricing and Non-Investment Grade Pricing.

1	**Capacity Charge** payment ($/kW/Month)	See Section 1.1
1a	**Demonstrated Firm Capacity**	See Section 1.1
1b	**Available Capacity Factor**	See Section 1.1
1c	**Capacity Charge Rate** ($/kW/month)	
1d	**Fixed O&M Component Rate** ($/kW/month)	See Section 1.1
2	**Energy Charge, if any** ($/kWh, $/service hour, $/start)	See Section 1.1

2a	**Fuel Component** ($/kWh)	See Section 1.1
2b	**Per kWh Variable Component** ($/kWh)	See Section 1.1
2c	**Per Service Hour Variable Component** ($/service hour)	See Section 1.1
2d	**Per Start Variable Component** ($/start) [IF APPLICABLE]	See Section 1.1
2e	**Fixed Escalation Rate** (%)	See Section 1.1

HAWAIIAN ELECTRIC PROPOSAL COST INFORMATION

ONLY provide Proposal pricing on this separate Appendix B Attachment 1. Do NOT embed proposal pricing anywhere else in your Proposal, including in the cover letter or executive summary.

1	**Year** (YYYY)	**Project Capital Cost** ($)
2	**Year** (YYYY)	**O&M Cost** ($)
3	**Year** (YYYY)	**Annual Revenue Requirement** ($)

Extend the table for the Project Capital Cost, O&M Cost, and Annual Revenue Requirement for as many years as the Proposal extends.

Project Interconnection - Data Request
FOR PV and/or BESS GENERATION
PROJECT: _____
DATE: _____
(Nonexclusive Preliminary List)

	Data required at time of Proposal Submittal
	Remaining data required to be provided with model package submittal following selection to Final Award Group

		Response
1)	**Please provide a plan map of the Generation facility. Please indicate the interconnection point to the Hawaiian Electric system. Please also submit a .kmz file**	
2)	**Please provide the following generation and load information for the Renewable Generation facility:**	
	a. Gross and net output of the facility	
	b. Expected KW and KVAR loads including, but not limited to, generators' auxiliary load curve, process load(s) profile(s), etc.	
	c. Expected minimum and maximum MW and MVAR "import from" AND "export to" HECO.	
3)	**Please provide Single-Line Diagram(s), Three-Line Diagram(s), and Protective Relay List & Trip Schedule for the generation and interconnection facilities:**	
	a. Single-line diagrams should be provided for both the generation plant and the interconnection substation.	
	b. The Single-line diagram(s) should include:	
	i. For main and generator step up transformer(s), please show:	
	• Transformer voltage and MVA ratings.	
	• Transformer impedance(s).	
	• Transformer winding connections and grounding. If neutrals are grounded through impedance, please show the impedance value.	
	ii. The protective relaying and metering for the generators, transformers, buses, and all other main substation equipment.	
	iii. For the potential transformers, please indicate the type, quantity, ratio, and accuracy rating.	
	iv. For the current transformers, please indicate the type, quantity, ratio, and accuracy rating, and thermal rating factor.	
	v. Auxiliary power devices (e.g. capacitors, reactors, storage systems, etc.) and their rating(s); additional inquiries may be made to obtain technical data for these devices.	
	vi. For the interconnection / tie lines (overhead or underground) and the plant's generation system, please provide the following, as applicable:	
	• Installation details such as cross-section(s), plan and profiles, etc.	
	• Conductor data such as size, insulation, length etc.	
	• Continuous and emergency current ratings.	
	• Voltage rating (nominal and maximum KV).	
	• Short-circuit current capability.	
	• BIL rating.	
	• Positive, negative, and zero-sequence impedances (resistance, reactance, and susceptance)	
	• Capacitance or charging current.	
	vii. Include station power for facility and all applicable details.	
	viii. All applicable notes pertaining to the design and operation of the facility.	
	c. The Three-line diagram(s) should include:	
	i. For main and generator step up transformer(s), please show:	
	• Transformer voltage and MVA ratings.	
	• Transformer impedance(s).	
	• Transformer winding connections and grounding. If neutrals are grounded through impedance, please show the impedance value.	
	ii. The protective relaying and metering for the generators, transformers, buses, and all other main substation equipment.	
	iii. For the potential transformers, please indicate the type, quantity, ratio, and accuracy rating.	
	iv. For the current transformers, please indicate the type, quantity, ratio, and accuracy rating, and thermal rating factor.	
	v. Auxiliary power devices (e.g. capacitors, reactors, storage systems, etc.) and their rating(s); additional inquiries may be made to obtain technical data for these devices.	
	vi. For the interconnection / tie lines (overhead or underground) and the plant's generation system, please provide the following, as applicable:	
	• Installation details such as cross-section(s), plan and profiles, etc.	
	• Conductor data such as size, insulation, length etc.	
	• Continuous and emergency current ratings.	

Project Interconnection - Data Request
FOR PV and/or BESS GENERATION
PROJECT: _____
DATE: _____
(Nonexclusive Preliminary List)

	Data required at time of Proposal Submittal
	Remaining data required to be provided with model package submittal following selection to Final Award Group

	Response
• Voltage rating (nominal and maximum KV).	
• Short-circuit current capability.	
• BIL rating.	
• Positive, negative, and zero-sequence impedances (resistance, reactance, and susceptance)	
• Capacitance or charging current.	
vii. Include station power for facility and all applicable details.	
viii. All applicable notes pertaining to the design and operation of the facility.	
d. The Protective relay list & trip schedule should list the protected equipment; the relay description, type, style number, quantity, ANSI Device No., and range; and the breaker(s)/switching device(s) tripped, for both the generator protection and the interconnection facilities protection.	

4)

For the PV Inverter Based Generating Faciltiy, please provide the following data, as applicable:	
a. Inverter manufacturer, Type, Size, Impedances. Attach copy of inverter data sheet.	
b. Power Factor Range Capability at POI	
c. Inverter Reactive Power Capability Curve	
d. Auxillary loads (P, Q, Power Factor)	
e. Inverter's Internal Isolation Transformer Grounding Method, if used (i.e. effectively grounded, resonant grounded, low inductance grounded, high-resistance grounded, low-resistance grounded, ungrounded). If the transformer is not solidly grounded , provide the impedance value for the grounding neutral and the impedance for the isolation transformer.	
f. Diagram for Inverter's internal isolation transformer	
g. Protection data (voltage ride-through and trip settings, frequency ride-through and trip settings etc.). Include setpoint and clearing time ranges for voltage and frequency settings.	
h. Switching and service restoration practice	
i. Description of harmonic spectrum of inverter injection (order, magnitude)	

5)

For the BESS Inverter Based Generating Faciltiy, please provide the following data (if system is DC coupled, please note DC coupling and reference to 4).	
a. Inverter manufacturer, Type, Size, Impedances. Attach copy of inverter data sheet.	
b. Power Factor Range Capability at POI	
c. Inverter Reactive Power Capability Curve	
d. Auxillary loads (P, Q, Power Factor)	
e. Inverter's Internal Isolation Transformer Grounding Method, if used (i.e. effectively grounded, resonant grounded, low inductance grounded, high-resistance grounded, low-resistance grounded, ungrounded). If the transformer is not solidly grounded , provide the impedance value for the grounding neutral and the impedance for the isolation transformer.	
f. Diagram for Inverter's internal isolation transformer	
g. Protection data (voltage ride-through and trip settings, frequency ride-through and trip settings etc.). Include setpoint and clearing time ranges for voltage and frequency settings.	
h. Switching and service restoration practice	
i. Description of harmonic spectrum of inverter injection (order, magnitude)	

Project Interconnection - Data Request
FOR PV and/or BESS GENERATION
PROJECT: _____
DATE: _____
(Nonexclusive Preliminary List)

	Data required at time of Proposal Submittal
	Remaining data required to be provided with model package submittal following selection to Final Award Group

		Response
6)	**Energy Storage System, if applicable**	
	a. Operation characteristics	
	b. Voltage level	
	c. Energy storage system data sheet	
7)	**For the PV plant's collector system, please provide the following, as applicable:**	
	a. Conductor data such as size, insulation, etc.	
	b. Continuous and emergency current ratings.	
	c. Voltage rating (nominal and maximum kV).	
	d. BIL rating.	
	e. Positive, negative, and zero-sequence impedances (resistance, reactance, and susceptance).	
	f. Capacitance or charging current.	
	g. Short-circuit current capability.	
8)	**For the BESS plant's collector system, please provide the following, as applicable (if system is DC coupled, please note DC coupling and reference to 7):**	
	a. Conductor data such as size, insulation, etc.	
	b. Continuous and emergency current ratings.	
	c. Voltage rating (nominal and maximum kV).	
	d. BIL rating.	
	e. Positive, negative, and zero-sequence impedances (resistance, reactance, and susceptance).	
	f. Capacitance or charging current.	
	g. Short-circuit current capability.	
9)	**For the main transformer and generator step-up transformers, please provide:**	
	a. Transformer voltage and MVA ratings, and available taps. Attach copy of transformer test report or data sheet	
	b. Positive, negative, and zero sequence impedance values.	
	c. The tap settings used.	
	d. The LTC Control Scheme.	
	e. Transformer winding connections and grounding used. If the transformer is not solidly grounded, provide the impedance value for the grounding method.	
10)	**For the circuit breakers and fault-clearing switching devices, including the generator breakers, please provide:**	
	a. The voltage, continuous current and interrupting capability ratings.	
	b. The trip speed (time to open).	

Project Interconnection - Data Request
FOR PV and/or BESS GENERATION
PROJECT: _____
DATE: _____
(Nonexclusive Preliminary List)

	Data required at time of Proposal Submittal
	Remaining data required to be provided with model package submittal following selection to Final Award Group

		Response
11)	**For the power fuses, please provide:**	
	a. The manufacturer, type, size, and interrupting capability.	
	b. The minimum melt and total clearing curves.	

12)	**For the protective relaying, please provide:**	
	a. Data for the CTs used with the relaying including the manufacturer, type of CT, accuracy class, and thermal rating factor.	
	b. Data for the PTs used with the relaying including the manufacturer, type of PT, voltage ratings, and quantity.	

Project Interconnection - Data Request
FOR WIND and/or BESS GENERATION
PROJECT: _____
DATE: _____
(Nonexclusive Preliminary List)

	Data required at time of Proposal Submittal
	Remaining data required to be provided with model package submittal following selection to Final Award Group

		Response
1)	**Please provide a plan map of the Generation facility. Please indicate the interconnection point to the HECO system. Please also submit a .kmz file**	
2)	**Please provide the following generation and load information for the NUG facility:**	
	a. Gross and net output of the facility	
	b. Expected KW and KVAR loads including, but not limited to, generators' auxiliary load curve, process load(s) profile(s), etc.	
	c. Expected minimum and maximum MW and MVAR "import from" AND "export to" HECO.	
3)	**Please provide Single-Line Diagram(s), Three-Line Diagram(s), and Protective Relay List & Trip Schedule for the generation and interconnection facilities:**	
	a. Single-line diagrams should be provided for both the generation plant and the interconnection substation.	
	b. The Single-line diagram(s) should include:	
	i. For main and generator step up transformer(s), please show:	
	• Transformer voltage and MVA ratings.	
	• Transformer impedance(s).	
	• Transformer winding connections and grounding. If neutrals are grounded through impedance, please show the impedance value.	
	ii. The protective relaying and metering for the generators, transformers, buses, and all other main substation equipment.	
	iii. For the potential transformers, please indicate the type, quantity, ratio, and accuracy rating.	
	iv. For the current transformers, please indicate the type, quantity, ratio, and accuracy rating, and thermal rating factor.	
	v. Auxiliary power devices (e.g. capacitors, reactors, storage systems, etc.) and their rating(s); additional inquiries may be made to obtain technical data for these devices.	
	vi. For the interconnection / tie lines (overhead or underground) and the plant's generation system, please provide the following, as applicable:	
	• Installation details such as cross-section(s), plan and profiles, etc.	
	• Conductor data such as size, insulation, length etc.	
	• Continuous and emergency current ratings.	
	• Voltage rating (nominal and maximum KV).	
	• Short-circuit current capability.	
	• BIL rating.	
	• Positive, negative, and zero-sequence impedances (resistance, reactance, and susceptance)	
	• Capacitance or charging current.	
	vii. Include station power for facility and all applicable details.	
	viii. All applicable notes pertaining to the design and operation of the facility.	
	c. The Three-line diagram (s) should include:	
	i. For main and generator step up transformer(s), please show:	
	• Transformer voltage and MVA ratings.	
	• Transformer impedance(s).	
	• Transformer winding connections and grounding. If neutrals are grounded through impedance, please show the impedance value.	
	ii. The protective relaying and metering for the generators, transformers, buses, and all other main substation equipment.	
	iii. For the potential transformers, please indicate the type, quantity, ratio, and accuracy rating.	
	iv. For the current transformers, please indicate the type, quantity, ratio, and accuracy rating, and thermal rating factor.	
	v. Auxiliary power devices (e.g. capacitors, reactors, storage systems, etc.) and their rating(s); additional inquiries may be made to obtain technical data for these devices.	
	vi. For the interconnection / tie lines (overhead or underground) and the plant's generation system, please provide the following, as applicable:	
	• Installation details such as cross-section(s), plan and profiles, etc.	
	• Conductor data such as size, insulation, length etc.	
	• Continuous and emergency current ratings.	

Project Interconnection - Data Request
FOR WIND and/or BESS GENERATION
PROJECT: _____
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(Nonexclusive Preliminary List)

	Data required at time of Proposal Submittal
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	Response
• Voltage rating (nominal and maximum KV).	
• Short-circuit current capability.	
• BIL rating.	
• Positive, negative, and zero-sequence impedances (resistance, reactance, and susceptance)	
• Capacitance or charging current.	
vii. Include station power for facility and all applicable details.	
viii. All applicable notes pertaining to the design and operation of the facility.	
d. The Protective relay list & trip schedule should list the protected equipment; the relay description, type, style number, quantity, ANSI Device No., and range; and the breaker(s)/switching device(s) tripped, for both the generator protection and the interconnection facilities protection.	

4)	**For the Wind Generating Faciltiy, please provide the following data:**	
	a. Turbine manufacturer, Type, Size, Impedances. Attach copy of turbine data sheet.	
	b. Power Factor Range Capability	
	c. Turbine Reactive Power Capability Curve	
	d. Auxillary loads (P, Q, Power Factor)	
	e. Grounding Method (i.e. effectively grounded, resonant grounded, low inductance grounded, high-resistance grounded, low-resistance grounded, ungrounded). If the transformer is not solidly grounded or ungrounded, provide the impedance value for the grounding neutral, if applicable.	
	f. Provide grounding diagram.	
	g. Protection data (voltage ride-through and trip settings, frequency ride-through and trip settings etc.). Include setpoint and clearing time ranges for voltage and frequency settings.	
	h. Switching and service restoration practice	
	i. Description of harmonic spectrum of inverter injection (order, magnitude)	

5)	**Energy Storage System, if applicable**	
	a. Operation characteristics	
	b. Voltage level	
	e. Energy storage system data sheet	

6)	**For the Wind plant's collector system, please provide the following, as applicable:**	
	a. Conductor data such as size, insulation, etc.	
	b. Continuous and emergency current ratings.	
	c. Voltage rating (nominal and maximum kV).	
	d. BIL rating.	
	e. Positive, negative, and zero-sequence impedances (resistance, reactance, and susceptance).	
	f. Capacitance or charging current.	
	g. Short-circuit current capability.	

_____

Project Interconnection - Data Request
FOR WIND and/or BESS GENERATION
PROJECT: _____
DATE: _____
(Nonexclusive Preliminary List)

	Data required at time of Proposal Submittal
	Remaining data required to be provided with model package submittal following selection to Final Award Group

		Response
7)	**For the main transformer and generator step-up transformers, please provide:**	
	a. Transformer voltage and MVA ratings, and available taps. Attach copy of transformer test report or data sheet	
	b. Positive, negative, and zero sequence impedance values.	
	c. The tap settings used.	
	d. The LTC Control Scheme.	
	e. Transformer winding connections and grounding used. If the transformer is not solidly grounded, provide the impedance value for the grounding method.	
8)	**For the circuit breakers and fault-clearing switching devices, including the generator breakers, please provide:**	
	a. The voltage, continuous current and interrupting capability ratings.	
	b. The trip speed (time to open).	
9)	**For the power fuses, please provide:**	
	a. The manufacturer, type, size, and interrupting capability.	
	b. The minimum melt and total clearing curves.	
10)	**For the protective relaying, please provide:**	
	a. Data for the CTs used with the relaying including the manufacturer, type of CT, accuracy class, and thermal rating factor.	
	b. Data for the PTs used with the relaying including the manufacturer, type of PT, voltage ratings, and quantity.	

Project Interconnection - Data Request
FOR SYNCHRONOUS GENERATION
PROJECT: _____
DATE: _____
(Nonexclusive Preliminary List)

	Data required at time of Proposal Submittal
	Remaining data required to be provided with model package submittal following selection to Final Award Group

		Response
1)	**Please provide a plan map of the Generation facility. Please indicate the interconnection point to the Hawaiian Electric system. Please also include a .kmz file.**	
2)	**Please provide the following generation and load information for the NUG facility:**	
	a. Gross and net output of the facility	
	b. Expected KW and KVAR loads including, but not limited to, generators' auxiliary load curve, process load(s) profile(s), etc.	
	c. Expected minimum and maximum MW and MVAR "import from" AND "export to" HECO.	
3)	**Please provide Single-Line Diagram(s), Three-Line Diagram(s), and Protective Relay List & Trip Schedule for the generation and interconnection facilities:**	
	a. Single-line diagrams should be provided for both the generation plant and the interconnection substation.	
	b. The Single-line diagram(s) should include:	
	i. For main and generator step up transformer(s), please show:	
	• Transformer voltage and MVA ratings.	
	• Transformer impedance(s).	
	• Transformer winding connections and grounding. If neutrals are grounded through impedance, please show the impedance value.	
	ii. The protective relaying and metering for the generators, transformers, buses, and all other main substation equipment.	
	iii. For the potential transformers, please indicate the type, quantity, ratio, and accuracy rating.	
	iv. For the current transformers, please indicate the type, quantity, ratio, and accuracy rating, and thermal rating factor.	
	v. Auxiliary power devices (e.g. capacitors, reactors, storage systems, etc.) and their rating(s); additional inquiries may be made to obtain technical data for these devices.	
	vi. For the interconnection / tie lines (overhead or underground) and the plant's generation system, please provide the following, as applicable:	
	• Installation details such as cross-section(s), plan and profiles, etc.	
	• Conductor data such as size, insulation, length etc.	
	• Continuous and emergency current ratings.	
	• Voltage rating (nominal and maximum KV).	
	• Short-circuit current capability.	
	• BIL rating.	
	• Positive, negative, and zero-sequence impedances (resistance, reactance, and susceptance)	
	• Capacitance or charging current.	
	vii. Include station power for facility and all applicable details.	
	viii. All applicable notes pertaining to the design and operation of the facility.	
	c. The Three-line diagram (s) should include:	
	i. For main and generator step up transformer(s), please show:	
	• Transformer voltage and MVA ratings.	
	• Transformer impedance(s).	
	• Transformer winding connections and grounding. If neutrals are grounded through impedance, please show the impedance value.	
	ii. The protective relaying and metering for the generators, transformers, buses, and all other main substation equipment.	
	iii. For the potential transformers, please indicate the type, quantity, ratio, and accuracy rating.	
	iv. For the current transformers, please indicate the type, quantity, ratio, and accuracy rating, and thermal rating factor.	
	v. Auxiliary power devices (e.g. capacitors, reactors, storage systems, etc.) and their rating(s); additional inquiries may be made to obtain technical data for these devices.	
	vi. For the interconnection / tie lines (overhead or underground) and the plant's generation system, please provide the following, as applicable:	
	• Installation details such as cross-section(s), plan and profiles, etc.	
	• Conductor data such as size, insulation, length etc.	
	• Continuous and emergency current ratings.	

Project Interconnection - Data Request
FOR SYNCHRONOUS GENERATION
PROJECT: _____
DATE: _____
(Nonexclusive Preliminary List)

	Data required at time of Proposal Submittal
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	Response
• Voltage rating (nominal and maximum KV).	
• Short-circuit current capability.	
• BIL rating.	
• Positive, negative, and zero-sequence impedances (resistance, reactance, and susceptance)	
• Capacitance or charging current.	
vii. Include station power for facility and all applicable details.	
viii. All applicable notes pertaining to the design and operation of the facility.	
d. The Protective relay list & trip schedule should list the protected equipment; the relay description, type, style number, quantity, ANSI Device No., and range; and the breaker(s)/switching device(s) tripped, for both the generator protection and the interconnection facilities protection.	

4)	**For the Synchronous Generating Faciltiy, please provide the following data:**	
	a. Generator manufacturer, Model, Type. Attach copy of genertor data sheet.	
	b. Generator Characteristics (SEE "GENERATOR DATA" TAB)	
	c. Auxillary loads (P, Q, Power Factor)	
	d. Protection data (voltage ride-through and trip settings, frequency ride-through and trip settings etc.). Include setpoint and clearing time ranges for voltage and frequency settings.	
	e. Switching and service restoration practice	
	f. Description of harmonic spectrum of generator injection (order, magnitude)	

5)	**Energy Storage System, if applicable**	
	a. Operation characteristics	
	b. Voltage level	
	c. Energy storage system data sheet	

6)	**For the main transformer and generator step-up transformers, please provide:**	
	a. Transformer voltage and MVA ratings, and available taps. Attach copy of transformer test report or data sheet	
	b. Positive, negative, and zero sequence impedance values.	
	c. The tap settings used.	
	d. The LTC Control Scheme.	
	e. Transformer winding connections and grounding used. If the transformer is not solidly grounded, provide the impedance value for the grounding method.	

Project Interconnection - Data Request
FOR SYNCHRONOUS GENERATION
PROJECT: _____
DATE: _____
(Nonexclusive Preliminary List)

	Data required at time of Proposal Submittal
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		Response
7)	**For the circuit breakers and fault-clearing switching devices, including the generator breakers, please provide:**	
	a. The voltage, continuous current and interrupting capability ratings.	
	b. The trip speed (time to open).	
8)	**For the power fuses, please provide:**	
	a. The manufacturer, type, size, and interrupting capability.	
	b. The minimum melt and total clearing curves.	
9)	**For the protective relaying, please provide:**	
	a. Data for the CTs used with the relaying including the manufacturer, type of CT, accuracy class, and thermal rating factor.	
	b. Data for the PTs used with the relaying including the manufacturer, type of PT, voltage ratings, and quantity.	

Interconnection Requirement Study - Data Request
FOR SYNCHRONOUS GENERATION
PROJECT: _____
DATE: _____
*****ALL ITEMS ARE REQUIRED AND ALL RESPONSES MUST BE FILLED UNLESS NOT APPLICABLE.*****

A)

Please provide the following generator machine information:	**Response**
a. Generator Base MVA	
b. Generator Rated Terminal Voltage (kV)	
c. Power Factor Range Capability	
d. Generator Reactive Power Capability Curve	
e. Generator impedance in per unit	
i. Positive sequence	
ii. Negative sequence	
iii. Zero sequence:	
f. Combined Turbine-Generator Inertia Constant, H (kW-sec / KVA)	
g. Speed damping factor (D)	
h. Generator Open-Circuit Saturation Factors. Attach Generator Saturation Curves.	
i. S(1.0):	
ii. S(1.2):	
i. Generator V-curve	

B)

Please provide the following generator reactance data (in per unit on Machine MVA Base):	**Response**		**Response**
Direct Axis		**Quadrature Axis**	
a. Synchronous - Saturated (Xdv)		a. Synchronous - Saturated (Xqv)	
b. Synchronous - Unsaturated (Xdi)		b. Synchronous - Unsaturated (Xqi)	
c. Transient - Saturated (X'dv)		c. Transient - Saturated (X'qv)	
d. Transient - Unsaturated (X'di)		d. Transient - Unsaturated (X'qi)	
e. Subtransient - Saturated (X"dv)		e. Subtransient - Saturated (X"qv)	
f. Subtransient - Unsaturated (X"di)		f. Subtransient - Unsaturated (X"qi)	
g. Negative Sequence - Saturated (X2v)			
h. Negative Sequence - Unsaturated (X2i)			
i. Zero Sequence - Saturated (X0v)			
j. Zero Sequence - Unsaturated (X0i)			
k. Leakage Reactance (Xlm)			

C)

Please provide the following generator time constants (in seconds):	**Response**		**Response**
Direct Axis		**Quadrature Axis**	
a. Transient Open Circuit (T'do)		a. Transient Open Circuit (T'qo)	
b. Subtransient Open Circuit (T"do)		b. Subtransient Open Circuit (T"qo)	
c. Transient Short Circuit (T'd)		c. Transient Short Circuit (T'q)	
d. Subtransient Short Circuit (T"d)		d. Subtransient Short Circuit (T"q)	

HAWAIIAN ELECTRIC GENERATION FACILITY TECHNICAL MODEL REQUIREMENTS AND REVIEW PROCESS

March 26, 2025



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1 INTRODUCTION

This document summarizes requirements of generation facility technical model submittals and describes the review process for model submittals. The requirements and examples provided are based on Hawaiian Electric's current information as of the date of this document and are subject to change.



2 FACILITY TECHNICAL MODEL REQUIREMENTS

To fully investigate impacts of the proposed utility scale generation facility on Hawaiian Electric's system and correctly identify any mitigation measures, the proposed generation facility technical models, along with related technical documents, will need to be submitted for review prior to System Impact Study (SIS).

2.1 Overview of Submission

For all generation facility types, the technical model submittal shall include the following, unless directed otherwise by Hawaiian Electric:

1. PSCAD facility model and user manual
2. PSS/E power flow facility model
3. Standard Library PSS/E dynamic model
4. User defined PSS/E dynamic model and user manual
5. ASPEN OneLiner model (utilizing the Converter Interfaced Resource (CIR) and Voltage-Controlled Current Source (VCCS) model format) and user manual

For generation facilities categorized as Inverter-Based Resources (IBRs), the respective procurement will dictate whether Grid Following (GFL) and/or Grid Forming (GFM) mode capability will be required from the project. The submitted technical model(s) shall accurately reflect the equipment including the operating mode (GFM or GFL) of the facility resource(s).

It is expected that the supplied technical models represent the entire generation facility. For the requested GFM mode model, the provided facilities models should include all generation resources on-line with any GFM resource operating in GFM mode and if included in the facility design any GFL resource operating in GFL mode. For example, this could be an AC coupled Photovoltaic (PV) Solar and Battery Energy Storage System (BESS) facility.

Along with the technical models, the following documents shall also be submitted for review for all generation facility types:

6. Completed Project Interconnection form
7. User manual for all technical models, including a description of GFM functionality if GFM is used.
    a. This documentation should include specific guidance on which control parameters determine the facilities power – frequency droop, power – frequency deadband, and voltage reactive power droop. Additionally, this documentation should clearly indicate what the technical models are configured to in the submission.
    b. The grid forming control block diagram shall be submitted to Hawaiian Electric for review. This shall include initial settings for tunable controls parameters based on modeling.
8. For Inverter-Based Resources provide attestation from the equipment Original Equipment Manufacturer (OEM) that that the provided PSCAD model conforms with PSCAD Model Requirements document from Electranix Corporation.
9. For all Generation Resources or supporting dynamic devices within the Generation Facility provide a tabular summary of all the protection and tripping mechanisms implemented in inverter and



power plant controller on OEM letterhead. This summary should list all protection/tripping settings, a brief description of the setting, the default value and ranges of allowable settings, and an indication of whether the protection setting is included in the supplied technical models (PSCAD or PSS/E). For synchronous machine-based generation facility, this submittal requirement is not applicable.

10. Generation facility single-line diagram
11. Generation unit manufacturer datasheet(s)
12. Generation unit reactive power capability curve(s)
13. Completed "Technical Model Package Submission Checklist", see Appendix A
14. Completed "Technical Model Review Form", see Appendix B
15. Model Performance Test (MPT) report for submitted Technical Models demonstrating satisfactory performance for the required tests outlined in Appendix C

2.2 Background Functional Description of GFM and GFL

Grid Following and Grid Forming are terms with some ambiguity in current industrial usage. Within the scope of this document, the following definitions are provided as high-level functional descriptions. For more detailed descriptions of what is required for each of these control modes, it is recommended to carefully review descriptions of the functional tests which will be performed.

Grid Following (GFL) Mode:

Grid Following is defined as follows: An inverter-based resource that relies on fast synchronization with the external grid to tightly control the inverter's active and reactive current outputs. If these inverters are unable to remain synchronized effectively during grid events or under challenging network conditions, they will be unable to maintain controlled, stable output. Advanced versions of these devices (Advanced Inverters) can provide grid supporting functions such as: voltage and frequency ride-through, volt-var, frequency-watt, volt-watt, etc. when they are able to remain synchronized.

Grid Forming (GFM) Mode:

Grid Forming is defined as follows: GFM controls set an internal voltage waveform reference such that an inverter with the GFM control shall be able to synchronize with the grid and regulate active and reactive power generation appropriately, regardless of the grid's strength, or operate independently of other generation. An inverter with GFM control shall immediately respond to grid disturbances to support stability of the grid and maintain its own control stability during the system disturbances.

2.3 General requirements for all technical models

All technical models need to represent the whole generation facility, not only a generation unit such as one inverter or as separate files representing pieces of the facility. At minimum, the following equipment shall be included in the single whole generation facility model:

1. Generation unit, such as:
    a) Inverter with DC side model
    b) A rotating machine with explicit representation of excitation system, governor, over excitation limiter, and under excitation limiter



2. Step up transformer, or inverter pad mount transformers, with correct impedances and winding configuration
3. Collection system, aggregated per WECC guidance[1]
4. Main interconnection transformer, or GSU, with its tap changer, if applicable, including correct impedances and winding configuration
5. Grounding transformer if used
6. VAR compensation device, such as cap bank or STATCOM, if applicable
7. Power plant controller (not for ASPEN model)
8. Gen-tie line (as applicable)
9. Battery resources must include the capability to represent the full range of state-of-charge levels.
10. PV and wind resources must have the capability to represent full range of active power availability.
11. All plant level communication delays should be included in the model, including transport delays, measurement delays, delays due to bus (eg. MODBUS) communication, sample and hold logic at the inverter or the PPC, and any other delay that may influence overall plant response in the time-frame of the study.

Equivalent or aggregated representations of the collection system, generator step-up transformers, and inverter systems are acceptable if it can accurately represent the generation facility and its response characteristics.

2.4 Requirements for generation facility PSCAD model

In addition to the general requirements mentioned in Sections 2.1, 2.2, and 2.3, the submitted generation facility PSCAD model should be provided in a standalone package ready for simulation with the facility configured as intended for the SIS. This model should have the same settings as those used in performance of the model performance tests outlined in Section 3; however, it should not include the specific test circuits, or project duplicate. A maximum of two generation facility PSCAD models may be provided as follows (Clearly indicate which model is which in the provided submission package):

1. One model that is intended for the System Impact Study (SIS), if GFM is used for the facility GFM model should be enabled by default and not trigger based on an external event (e.g., breaker status).
2. Optionally, a second model may be provided with different control settings that can be used for Black Start Tests. If this second black start model is provided, please provide a summary document detailing the parameters which are different between them.

The provided PSCAD model(s) shall satisfy the following requirements:

1. Requirements as described in the latest version of the PSCAD Model Requirements document from Electranix Corporation [2] (https://www.electranix.com/the-electranix-library/) and any additional outlined by Hawaiian Electric (including this document).

[1] https://www.wecc.org/Reliability/WECCWindPlantPowerFlowModelingGuide.pdf

[2] https://www.electranix.com/the-electranix-library/)



   a. Additionally, for Inverter-Based Resources an attestation from the equipment Original Equipment Manufacturer (OEM) that that the provided PSCAD model conforms with PSCAD Model Requirements document from Electranix Corporation shall be provided.
2. The generation facility PSCAD model shall be provided for PSCAD versions 4.6.3 and 5.
3. The project shall be modeled at full contract capacity output, with all resources in-service, per the project's Interconnection Request. For example, with an AC coupled solar and storage facility both the aggregate solar and aggregate storage inverters should be in-service in the provided model(s) and able to be dispatched at any desired MW output via explicit means (e.g. constants, PSCAD sliders, etc.). The dispatch commands must be variables, such that they can be adjusted during a simulation (in runtime).

The control implementation (e.g., turbine controls, inverter controls, protection and measurement algorithms, and plant-level controller) in the generation facility PSCAD model shall implement the actual control code from the equipment. The PSCAD model shall provide end-user visible output channels of measured by the Facility and used for Facility's control and protection.

For a generation facility with grid-forming control, a document which describes the general mechanism and implementation of the grid-forming control is required.

2.5 Requirements for generation facility PSS/E power flow model

The generation facility PSS/E power flow model shall be provided for PSS/E versions 33, 34, and 35. Besides the general requirements mentioned above, the following modeling data shall be provided in the model:

1. Conductor
   a. Impedance, both positive sequence and zero sequence
   b. Rating: Rating A – normal rating, and Rating B – emergency rating
2. Transformer
   a. Nominal voltages of windings
   b. Impedance data: specified R and X
   c. Tap ratios
   d. Min and Max tap position limits
   e. Number of tap positions
   f. Regulated bus
   g. Ratings: Rate A – normal rating; Rate B – emergency rating
   h. Winding configuration
3. Reactive power compensation, if applicable
   a. Fixed Shunts: G-Shunt (MW), B-Shunt (MVAr)
   b. Switched Shunts: Voltage limits (Vhi and Vlow), mode of operation (fixed, discrete, continuous), regulated bus, Binit (MVAr), steps and step size (MVAr) and expected control scheme
4. Generation unit
   a. Pmax
   b. Pmin
   c. Qmax (supported by the equipment P-Q capability curves)
   d. Qmin (supported by the equipment P-Q capability curves)



e. Name plate MVA
f. Transformer data: R Tran, X Tran, and Gentap (which should be set to 0,0,1).
g. Voltage control point
h. The project shall be modeled at full contract capacity output, with all resources in-service, per the project's Interconnection Request. For example, with an AC coupled solar and storage facility both the aggregate solar and aggregate storage inverters should be in-service in the provided model and able to be dispatched at any desired output.

5. Station service load
    a. MW
    b. MVar

2.6 Requirements for generation facility user-defined PSS/E dynamic model

The submitted user defined PSS/E dynamic model shall meet the following requirements:

1. The generation facility PSS/E dynamic model shall be provided for PSS/E versions 33, 34 and 35.
2. The project shall be modeled at full contract capacity output, with all resources in-service, per the project's Interconnection Request. For example, with an AC coupled solar and storage facility both the aggregate solar and aggregate storage inverters should be in-service in the provided model and able to be dispatched at any desired output. A maximum of two generation facility PSSE dynamic models may be provided per PSS/E version as follows (Clearly indicate which model is which in the provided submission package):
    a. One model that is intended for the System Impact Study (SIS), if GFM is used for the facility GFM model should be enabled by default and not trigger based on an external event (e.g., breaker status).
    b. Optionally, a second model may be provided with different control settings that can be used for Black Start Tests. If this second black start model is provided, please provide a summary document detailing the parameters which are different between them.
3. User defined dynamic models must accurately model all the relevant control modes and characteristics of the equipment, such as:
    a. All available voltage/reactive power control modes
    b. Frequency/governor response control modes
    c. Voltage and frequency ride-through characteristics
    d. Power plant controller or group supervisory functionality
    e. Appropriate aggregate modeling capability
    f. Charging mode if applicable (e.g., for a battery energy storage device)
4. Dynamic model source code (.flx, .for, .f90, .f, etc.), or dynamic linked library (.dll), and PSS/E dyr file shall be provided.
5. User-defined dynamic model plant-specific settings shall comply with requirements listed in the Power Purchase Agreement (PPA), including ride-through thresholds and other specified control settings if applicable.
6. User-defined dynamic models related to individual units shall be editable in the PSS/E graphic user interface. All model parameters (CONS, ICONS, and VARS) shall be accessible and shall match the description in the model's accompanying documentation.



7. User-defined dynamic models shall have all their data reportable in the "DOCU" listing of dynamics model data, including the range of CONS, ICONS, and VARS numbers. Models that apply to multiple elements (e.g., park controllers) shall also be fully formatted and reportable in DOCU.
8. User-defined dynamic models shall be capable of correctly initializing and run through the simulation throughout the range of expected steady-state starting conditions without additional manual adjustments.
9. Each user-defined dynamic model shall be capable of correctly writing out dyr data/file.
10. User-defined dynamic models shall be capable of allowing all documented (in the model documentation) modes of operation without error.
11. User-defined dynamic model shall be accompanied by the following documentation:
    a. A user's guide for each model
        i. This documentation should clearly state the OEMs allowable and recommended simulation time-steps
    b. Appropriate procedures and considerations for using the model in dynamic simulations
    c. Technical description of characteristics of the model
    d. Block diagram for the model, including overall modular structure and block diagrams of any sub-modules, for various control modes of the model
    e. List of plant-specific settings, which may include:
        i. Ride-through thresholds and parameters
        ii. Plant-level voltage controller settings
        iii. Power ramp rate settings
        iv. ICON flag parameters for specific control modes
        v. Deadbands
        vi. Initial State of Charge (SOC)
    f. Values, names, and detailed explanation for all model parameters
    g. List of all state variables, including expected ranges of values for each variable

2.7 Requirements for generation facility generic PSS/E dynamic model

The submitted generic PSS/E dynamic model should meet the following requirements:

1. All generic PSS/E dynamic models must be standard library models in PSS/E.
2. The generation facility PSS/E dynamic model shall be provided for PSS/E versions 33, 34 and 35.
3. The project shall be modeled at full output, with all resources in-service, per the project's Interconnection Request. For example, with an AC-coupled solar and storage facility both the aggregate solar and aggregate storage inverters should be in-service in the provided model and able to be dispatched at any desired output.
4. Generic dynamic models must accurately model all the relevant control modes and characteristics of the equipment, such as:
    a. All available voltage/reactive power control modes
    b. Frequency/governor response control modes
    c. Voltage and frequency ride-through characteristics
    d. Power plant controller or group supervisory functionality
    e. Appropriate aggregate modeling capability
    f. Charging mode if applicable (e.g., for a battery energy storage device)



5. PSS/E dyr file shall be provided.
6. Generic dynamic models' plant-specific settings should comply with requirements listed in the Power Purchase Agreement (PPA), including ride-through thresholds and other specified control settings if applicable.
7. Generic dynamic models shall be capable of correctly initializing and run through the simulation throughout the range of expected steady state starting conditions without additional manual adjustments.
8. Generic dynamic models shall be accompanied by the following documentation:
    a. A user's guide for each model
    b. Appropriate procedures and considerations for using the model in dynamic simulations
    c. Technical description of characteristics of the model
    d. List of plant-specific settings, which may include:
        i. Ride-through thresholds and parameters
        ii. Plant-level voltage controller settings
        iii. Power ramp rate settings
        iv. ICON flag parameters for specific control modes
        v. Deadbands
        vi. Initial State of Charge (SOC)

2.8 Requirements for generation facility ASPEN model

ASPEN OneLiner models shall be provided in both the Converter Interfaced Resource (CIR) and Voltage-Controlled Current Source (VCCS) model formats. Inverter OEM shall provide an attestation of the short circuit capabilities of its equipment. If the inverter OEM believes the CIR model format does not accurately represent their equipment, a request can be made to submit the ASPEN model in only Voltage-Controlled Current Source (VCCS) model format.

The provided ASPEN OneLiner model should represent the entire generation facility operating at maximum output and all electrical equipment. For example, with an AC coupled solar and storage facility both the aggregate solar and aggregate storage inverters should be in-service in the provided model.

Besides the general requirements, validation results of three-phase fault current from the generation unit represented in the generation facility ASPEN OneLiner model shall be provided in OLR format.



3 GENERATION FACILITY TECHNICAL MODEL REVIEW PROCESS

To review the generation facility technical models, the following procedures are performed in the PSCAD, PSS/E, and ASPEN OneLiner software. A review of the results will be documented and provided to the Customer for confirmation of model acceptance or further model updates. See Appendix C for additional clarification of the test cases to perform. The Company may make these example test cases, in PSSE and PSCAD, available to Proposers upon execution of the applicable Non-Disclosure Agreement and Hold Harmless Agreement for the respective procurement.

3.1 Technical Model Data Review

For all submitted technical models a review for data accuracy and consistency will be performed in accordance with the form outlined in Appendix B. This review will evaluate both steady-state and dynamic model data for the submitted technical models. A completed version of the "Technical Model Data Review" form should be submitted as part of the technical model submittal for all generation facility types Note, this list is subject to change and additional information may be requested by Hawaiian Electric as necessary for verification of technical model quality.

3.2 Model Review in PSCAD

In addition to the "Technical Model Data Review" process outlined in Appendix B, the following items will be reviewed for the submitted PSCAD technical model:

1) Review model data against latest version of the PSCAD Model Requirements document from Electranix Corporation (https://www.electranix.com/the-electranix-library/) provided by Hawaiian Electric. In this step, it will be determined whether the model is complete, generation facility settings are according to the Power Purchase Agreement (PPA), and if the model can be compiled and run without any error. Checklists are provided in this document which are useful for both preparing a model submission and for reviewing a model submission.
    a. For Inverter-Based Resources, provide attestation from the equipment Original Equipment Manufacturer (OEM) that that the provided PSCAD model conforms with PSCAD Model Requirements document from Electranix Corporation
2) Perform Model Performance Testing outlined in Appendix C.

3.3 Model Review in PSS/E

In addition to the "Technical Model Data Review" process outlined in Appendix B, the Model Performance Testing outlined in Appendix C will be performed.

3.4 Model review in ASPEN OneLiner

In addition to the "Technical Model Data Review" process outlined in Appendix B, a review of the ASPEN OneLiner generation model(s) will be performed.

The provided ASPEN OneLiner model(s) should represent the entire generation facility operating at maximum output and all electrical equipment. For example, with an AC coupled solar and storage facility both the aggregate solar and aggregate storage inverters should be in-service in the provided model.



The model review will check if the components of a project are modeled properly, such as transformers, equivalent collector system, equivalent generator, etc., and that the model data is consistent to the completed Project Interconnection Form, submitted single-line diagrams, PSS/E technical model data, and PSCAD technical model data.

A fault simulation test will also be performed using the complete Facility Model. The total current at the fault location and contribution from generation unit will be reviewed and documented.

3.5 GFM Model review in PSCAD and PSS/E

For generation facility which have grid-forming control capability (GFM) their GFM models shall be tested according to the tests described in Table 2 of Appendix C.



4 TYPICAL ISSUES IDENTIFIED FROM THE FACILITY MODEL SUBMITTALS DURING THE PAST RFP PROCESS

1. **Missing/Incorrect documentation**
   Only generation technical facility models are submitted, but no model user manual or any other documentation, or documentation that does not match the models used. Without accurate model documentation, it is very difficult to know the correct procedures for using the technical models and identifying issues during the review.

2. **Model incompleteness**
   Often, the model of a single generation unit, such as an inverter, is submitted instead of model of the whole generation facility, which is insufficient. Additionally, for DC-Coupled hybrid generation, the whole generation facility should have explicit representation of all generation sources (e.g. PV and BESS complete with power conversion models for a PV/BESS hybrid plant). The model of the generation facility should include models for all equipment listed in the section of "General requirements for all technical models".

3. **Settings in the model**
   The following are some settings issues that are typically observed:

   - The PSCAD (GFL and/or GFM) and PSS/E model voltage or frequency ride-through settings do not achieve the minimum requirements outlined in the Power Purchase Agreement (PPA).
   - Electrical equipment parameters, transformer winding configurations, or controller settings are not consistent between submitted Technical Models.
   - Generation facility real power cannot achieve contract capacity.
   - Model facility frequency is set for 50 Hz instead of 60 Hz.

4. **Model function issues**
   Some models do not function as expected during different test scenarios. For example:

   - Fault current contribution from the generation facility is higher than what is described in the generation facility datasheet.
   - Generation level is not stable with provided settings during the initialization test.
   - Inadequately damped oscillations observed in the ringdown test.
   - Facility model(s) is unable to achieve Contract Capacity at POI.
   - Ride-through performance does not reach the minimum requirements defined in the Power Purchase Agreement (PPA).
   - Dynamic response is not consistent between models implemented in different software (e.g. PSS/E vs PSCAD).
   - Provided PSS/E models cannot achieve acceptable initial conditions for all desired operating conditions.



5. Power Plant Controller (PPC)

Often, the PPC control had not yet been fully considered when models are submitted, which results in improperly configured PPC controls, or model submissions missing the PPC altogether. The PPC(s) included in the facility model should include coordination functionality between the plant components and should represent the actual planned implementation. All plant level communication delays should be included in the model, including transport delays, measurement delays, delays due to bus (eg. MODBUS) communication, sample and hold logic at the inverter or the PPC, and any other delay that may influence overall plant response in the time-frame of the study.



REFERENCES

[1] WECC Wind Power Plant Power Flow Modeling Guide: https://www.wecc.org/Reliability/WECCWindPlantPowerFlowModelingGuide.pdf
[2] Latest Revision of Electranix PSCAD Requirements: https://www.electranix.com/the-electranix-library/



APPENDIX A: TECHNICAL MODEL PACKAGE SUBMISSION CHECKLIST

For all generation facilities the following “Technical Model Package Submission Checklist” should be completed and provided with the data package. The checklist summarized in Table A-1 outlines the mandatory data items for a compete model package submission. Note, this list is subject to change and additional information may be requested by Hawaiian Electric as necessary for verification of technical model quality.

Table A-1
Technical Model Package Submission Checklist

Ref No.	Item	Reference File(s)	Notes
1	**PSCAD Facility Model (GFL and/or GFM as required)** *For specific guidance refer to Section 2.4.* - *Models should be provided in PSCAD Versions 4.6.3 and 5* - *Please indicate the OEMs allowable and recommended simulation time-steps. This should also be included in any supplied user documentation.*	Please List:	**PSCAD Facility Model Simulation Time-Step** = *Fill in the OEMs allowable and recommended simulation time-steps*
2	**PSS/E Power Flow Facility Model (GFL and/or GFM as required)** *For specific guidance refer to Section 2.5* - *Models should be provided in PSS/E Versions 33, 34, and 35*	Please List	
3	**User Defined PSS/E Dynamic Model (GFL and/or GFM as required)** *For specific guidance refer to Section 2.6* - *For User Defined models please indicate the OEMs allowable and recommended simulation time-steps. This should also be included in any supplied user documentation.*	Please List	**User Defined PSS/E Dynamic Model Simulation Time-Step** = *Fill in the OEMs allowable and recommended simulation time-steps*
4	**Standard Library PSS/E Dynamic Model (If Applicable)** *For specific guidance refer to Section 2.7* - *Models should be provided in PSS/E Versions 33, 34, and 35* *Subject to Hawaiian Electric's approval, if the original equipment manufacturer (OEM) can certify current standard library dynamic models accurately represent their equipment, standard library dynamic models may be provided and used in lieu of user defined dynamic models. As an example, if the generation facility is a traditional synchronous machine, of which the technology is standardized and widely understood across the industry, it can generally be accurately represented with current standard library dynamic models and thus a user defined dynamic model will not be required.*	Please List	
5	**ASPEN OneLiner Facility Models** *For specific guidance refer to Section 2.8*	Please List	

6	**Completed Project Interconnection Form** *The data within this form should be consistent with the data included in the facility single line diagrams as well as within all submitted technical models.*	Please List	
7	**User Manuals for All Submitted Technical Models**	Please List	**PSS/E Facility Inverter Manual**= Please List **PSS/E Facility PPC Manual** = Please List **PSCAD Facility Inverter Manual**= Please List **PSCAD Facility PPC Manual** = Please List **ASPEN OneLiner Inverter Documentation**= Please List
8	**Description of GFM Functionality (If GFM is used)** *This documentation should include specific guidance on which control parameters determine the facilities power – frequency droop, power – frequency deadband, and voltage reactive power droop. Additionally, this documentation should clearly indicate what the technical models are configured to in the submission.* *The grid forming control block diagram shall be submitted to Hawaiian Electric for review. This shall include initial settings for tunable controls parameters based on modeling.*	Please List	
9	**Attestation That PSCAD Facility Model Conforms with Modeling Requirements (Necessary for all Inverter-Based Resources)** *For Inverter-Based Resources provide attestation from the equipment Original Equipment Manufacturer (OEM) that that the provided PSCAD model conforms with latest PSCAD Model Requirements document from Electranix Corporation* (https://www.electranix.com/the-electranix-library/)	Please List	
10	**Generation Resource Protection Summary** *For the individual generation resources (e.g., PV Inverter, BESS Inverter, Turbine Generator) and supporting devices (e.g., STATCOM) within a Generation Facility* provide a tabular summary of all the protection and tripping mechanisms implemented in inverter and power plant controller on OEM letterhead. This summary should list all protection/tripping settings, a brief description of the setting, the default value and ranges of allowable settings, and an indication of if the protection setting is included in the supplied technical models (PSCAD or PSS/E). For synchronous machine-based generation facility, this submittal requirement is not applicable.	Please List	

11	**Generation Facility Single-Line Diagram**		
12	**Generation Facility Relay Single-Line Diagram** *Diagrams should be provided for the entire facility which indicate the location of measurement devices as well as the location and types of protection devices.a*		
13	**Generation Unit Manufacturer Datasheet(s)**		
14	**Generation Unit Reactive Power Capability Curve(s)**		
15	**Completed Technical Model Review Form, See Appendix B**		
16	**Completed Model Performance Test (MPT) Report, See Appendix C** *This report should demonstrate satisfactory performance for the required tests outlined in Appendix C*		

APPENDIX B: TECHINCAL MODEL DATA REVIEW

For all submitted technical models a review for data accuracy and consistency will be performed in accordance with Tables B-1 and B-2. A completed version of the "Technical Model Data Review" form should be submitted as part of the technical model submittal for all generation facility types Note, this list is subject to change and additional information may be requested by Hawaiian Electric as necessary for verification of technical model quality.

Figure B-1 provides an example power – frequency droop characteristic which is referenced within Table 2.

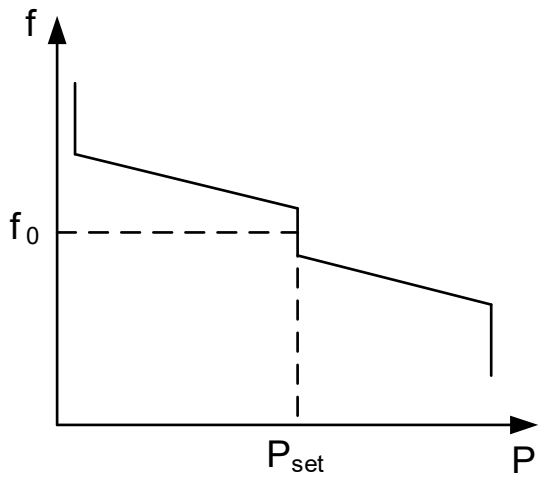


Figure B-1 – Example of Frequency Droop Control Characteristic with Deadband

Table B-1
Steady-State Model Data Review

Ref No.	Equipment	Requirement	Acceptable (Yes/No)	Notes
1	**Generation Unit (s)** *Key Items of consistency include:* - *Unit model* - *Unit MVA rating* - *Number of units* - *Unit terminal voltage* - *Maximum and Minimum Gross Electrical Output (MW)* - *Maximum inductive and capacitive limits at rated and zero real power output (MVAR)* - *Location of voltage control*	Application Data, Single-Line Diagram (SLD), Capability Curve, PSS/E, PSCAD and ASPEN models should match		
2	**Inverter Pad Mount Transformer(s) or Synchronous Generator Step-Up Transformers** *Key Items of consistency include:* - *Unit MVA rating* - *Number of units* - *Winding configuration* - *Winding voltages* - *Tap ratios* - *If applicable, Min and Max tap position limits* - *If applicable, point of voltage regulation* - *Positive and Zero sequence impedance*	Application Data, SLD, PSS/E, PSCAD and ASPEN models should match		
3	**Collector System Equivalent** *Key Items of consistency include:* - *Rated Voltage* - *Positive and Zero Sequence Impedance*	Application Data, SLD, PSS/E, PSCAD and ASPEN models should match		
4	**Reactive Power Compensation (If applicable)** *Key Items of consistency include:* - *Location* - *For fixed compensation: number of steps and MVAR for fixed compensation* - *For switched compensation: number of steps, MVAR of each step, voltage control limits, mode of operation, regulated bus*	Application Data, SLD, PSS/E, PSCAD and ASPEN models should match		

5	**Station Service Load (If applicable)** *Key Items of consistency include:* - *Location* - *Total load amount MW and MVAR*	Application Data, SLD, PSS/E, PSCAD and ASPEN models should match		
6	**Main Power Transformer(s)** *Key Items of consistency include:* - *Unit MVA ratings* - *Number of units* - *Winding configuration* - *Winding voltages* - *Tap ratios* - *If applicable, Min and Max tap position limits* - *If applicable, point of voltage regulation* - *Positive and Zero sequence impedance*	Application Data, SLD, PSS/E, PSCAD and ASPEN models should match		
7	**Generator Tie Line(s)** *Key Items of consistency include:* - *Rated Voltage* - *Line Length* - *Positive and Zero Sequence Impedance (R, X, and B on 100 MVA base)* - *Line rating*	Application Data, SLD, PSS/E, PSCAD and ASPEN models should match		
8	**Plant Power Factor (PF) Capability** *Key Items of consistency include:* - *Facility can meet contract capacity MW requirements while at a minimum supplying 0.95 PF inductive and capacitive at the POI.* - *Note, specific PF requirements to be specified by project PPA.*	Application Data, SLD, PSS/E, PSCAD and ASPEN models should match		
9	**Other Required Items Per PPA**			

Table B-2
Dynamic Model Data Review

Ref No.	Equipment	Requirement	Acceptable (Yes/No)	Notes
1	**Power Plant Controller (PPC)** *Key Items of consistency include:* - *Number of PPCs (Should represent actual setup of plant when in-service).* - *Original Equipment Manufacturer (OEM) supplied model documentation for all software.* - All plant level communication delays should be included in the model, including transport delays, measurement delays, delays due to bus (e.g., MODBUS) communication, sample and hold logic at the inverter or the PPC, and any other delay that may influence overall plant response in the time-frame of the study.	PSS/E and PSCAD models should match		
2	**Control Flags** *Key Items of consistency include:* - *Control modes and settings are consistent between models, such as voltage control mode, frequency response mode, GFL/GFM setting, etc.*	PSS/E and PSCAD models should match		
3	**Voltage Control** *Key Items of consistency include:* - *Point of voltage control* - *Location of voltage measurement and reactive power measurement* - *Voltage - Reactive Power droop is consistent; documentation clearly indicates which variables impact voltage – reactive power droop* - *By default set Voltage – Reactive Power droop in accordance with PPA* ○ ***Droop is calculated as p.u.V/p.u.VAR where the Var base is Facility Contract Capacity*** - ***In the Notes column indicate the default voltage – reactive power droop values in the submitted technical models as well as the PSS/E and PSCAD variables that determine them.***	PSS/E and PSCAD models should match and meet PPA requirements		**PSS/E Voltage – Reactive Power Droop** = Set in accordance with PPA • *Fill in value and variable that determines droop setting* **PSCAD Voltage – Reactive Power Droop** = Set in accordance with PPA • *Fill in value and variable that determines droop setting*

4	**Power and Frequency Control** *Key Items of consistency include:* - *Point of control* - *Location of power and frequency measurements* - *In PSCAD library components are not used for frequency measurement.* - *Power – Frequency droop and deadband are consistent, documentation clearly indicates which variables impact power – frequency droop and deadband.* - *By default set the Power – Frequency droop and deadband in accordance with PPA* ○ *Droop is calculated as the percent change in frequency over 100% real power. Meaning, for a 4% droop a 4% increase in grid frequency, the facility should reduce it's output to 0 MW.* - ***In the Notes column indicate the default droop and deadband values in the submitted technical models as well as the PSS/E and PSCAD variables that determine them.*** - The frequency deadband should be settable in the range from +/- 0.01 Hz to +/- 1.0 Hz and the frequency droop shall be settable in the range of 0.1% to 10% with a typical value of 4%.	PSS/E and PSCAD models should match and meet PPA requirements		**PSS/E Power – Frequency Power Droop** = Set in accordance with PPA • *Fill in value and variable that determines droop setting* **PSCAD Power – Frequency Power Droop** = Set in accordance with PPA • *Fill in value and variable that determines droop setting* **PSS/E Power – Frequency Deadband = Set in accordance with PPA** • *Fill in value and variable that determines droop setting* **PSCAD Power – Frequency Deadband** = Set in accordance with PPA • *Fill in value and variable that determines droop setting*
5	**Initial State of Charge (SOC), if applicable** *Key Items of consistency include:* - *Make sure the initial state of charge is set up correctly to prevent initialization issues.*	Correctly set up in the models		
6	**Energy Availability** - Battery resources must include the capability to represent the full range of state-of-charge levels. - PV and wind resources must have the capability to represent full range of active power availability.	Correctly set up in the models		

7	**Voltage and Frequency Ride Through** *Key Items of consistency include:* - *The voltage and frequency ride through settings should be consistent between submitted Technical Models and should be OEM attested.* - Facility should not have arbitrary trip settings set to exactly the PPA minimum ride through requirements. - ***In the Notes column provide a table which summarizes the Voltage and Frequency ride through settings as well as the PSS/E and PSCAD variables that dictate them.***	PSS/E and PSCAD models should match and meet PPA requirements		
8	**P/Q Priority Data** *Key Items of consistency include:* - *The P/Q priority flags should match in the PSS/E user written, PSS/E generic, and PSCAD models.*	PSS/E and PSCAD models should match and meet PPA requirements		
9	**Synchronous Machine Data, if applicable** *Key Items of consistency include:* - *Generator model data (impedance values, time constants, saturation, inertia)* - *Excitation system model data* - *Governor model data* - *Under excitation limiter* - *Over excitation limiter* - *Power system stabilizer*	PSS/E and PSCAD models should match and meet PPA requirements		
10	**Other Required Items Per PPA**			

APPENDIX C: MODEL PERFORMANCE TEST

To assess the performance of submitted technical models Model Performance Testing (MPT) will be performed in PSS/E and PSCAD. A report summarizing the testing outlined within this Appendix should be included for all generation facilities as part of a complete "Technical Model Package Submission". Independently Hawaiian Electric will perform this analysis for verification of Facility model performance.

The testing shall be performed using the provided standalone complete Facility model package. The MPT analysis outlined within this Appendix should all be performed with the same Facility model without the need to adjust control settings or parameters between tests. The only allowable setting changes between requested tests are adjustments to the facility voltage schedule and generator unit power dispatch.

Control setting changes are only permitted for the Black Start tests (if applicable to the Facility under study). If control setting changes are made for the Black Start test, please clearly indicate which settings were changed.

The following Tables provide a summary of the required simulation events (Cases), required Facility generation dispatch (Mode of Operation), system representation, and acceptance criteria:

- Tables C-1 and C-2 outline the required tests for a given facility.
    - Table C-1 is required for GFL and GFM facilities.
    - Table C-2 is only required for GFM facilities.
        - Applicable for generation facilities which have grid-forming control capability.
        - Assumption is that BESS has available energy and is dispatched suitably for the tests.
        - The project should be configured to be in GFM mode throughout these tests.
- Table C-3 provides an explanation of the various requested Facility "Modes of Operation" i.e., generation dispatch scenarios for a given Facility.
- Tables C-4 and C-5 provide an explanation of the various test systems and test system equivalents.

For each examined case, the following RMS quantity plots should be provided for both PSCAD and PSSE:

- For each aggregate generator
    - V, P, and Q at the generator terminals (RMS Quantities)
    - Relevant protection flags, if available
    - Active Current and Reactive Current
- Grid Frequency for the facility (calculated by PPC, PLL output, or other)
- POI Quantities
    - V, P, and Q (RMS Quantities)

Figures C-3 through C-5 provide example illustrations of overlaid PSCAD and PSS/E plots which should be provided for verification purposes.

Table C-1
Standard Model Testing for GFL and GFM Facilities

Case No.	Case Description	Mode of Operation (See Table C-3)	System Representation (See Tables C-4 and C-5)	Acceptance Criteria	Acceptable (Yes/No)	Notes
Flat Start Test						
1-1	Facility initializes at ordered set points. Perform test in: PSCAD and PSS/E 20 second simulation for both	GEN output only	Single Machine Infinite Bus (SMIB) @ SCR = 2.5 and X/R = 5	1) Model initializes as quickly as possible (e.g., <1-3 seconds) to user defined conditions. 2) Voltage and power flow matches between PSCAD and PSS/E or differences are reasonable and explained.		
1-2		BESS output only				
1-3		Grid charging BESS				
1-4		GEN charging BESS				
1-5		GEN and BESS at 0 MW				
1-6		GEN at 50%, BESS at 0 MW				
Voltage Ride-Through Test						
2-1	POI Voltage is varied to test the facility's ride-through capabilities and response to POI voltage excursions. Voltage ride-through curve as specified by PPA to be tested Perform test in: PSCAD and PSS/E	GEN at 50%, BESS at 0 MW	Infinite Bus	1) No tripping observed for specified or PPA-required voltage ride-through curve. 2) No momentary cessation of inverter current observed. 3) Reasonable real and reactive power response observed. 4) Facility real power output does not have a sustained output exceeding the Contract Capacity.		

Table C-1 (Continued)
Standard Model Testing for GFL and GFM Facilities

Case No.	Case Description	Mode of Operation (See Table C-3)	System Representation (See Tables C-4 and C-5)	Acceptance Criteria	Acceptable (Yes/No)	Notes
Frequency Ride-Through Test						
3-1	POI Frequency is varied to test the facility's ride-through capabilities and response to POI voltage excursions. The frequency step should have a 10 Hz/second rate of change (For Synchronous Machines this can be 5 Hz/Second) Frequency ride-through curve as specified by PPA to be tested. Perform test in: PSCAD and PSS/E	GEN at 25%, BESS at 25%	Infinite Bus	1) No tripping observed for PPA required frequency ride-through curve. 2) No momentary cessation of inverter current observed. 3) Reasonable real and reactive power response observed. 4) Facility real power output does not have a sustained output exceeding the Contract Capacity.		
Rate-Of-Change-Of-Frequency (ROCOF) Test						
4-1	Step the grid frequency from 60 Hz to 58 Hz at 5 Hz/sec. Perform test in: PSCAD only	GEN at 50%, BESS at 0 MW	Single Machine Infinite Bus (SMIB) @ SCR = 2.5 and X/R = 5	1) No tripping observed for ROCOF event. 2) No momentary cessation of inverter current observed. 3) Reasonable real and reactive power response observed.		
Voltage Response Step Test						
5-1	A small step (≤5%) is applied in the infinite bus voltage and the reactive power response of the facility is observed. Step size should be sufficiently small such that the facility does not hit a control limit (voltage, reactive power, or current). Perform test in: PSCAD and PSS/E	GEN output only Or BESS output only (for BESS only facilities)	Single Machine Infinite Bus (SMIB) @ SCR = 2.5 and X/R = 5	1) Facility reaches 90% of the final value in MVARs within 1 second, or according to PPA. If response time must be longer because of equipment limitations, provide explanation. 2) Response is well damped or according to PPA. 3) Plant begins to respond between 100 ms and 200 ms following change in system voltage[3] 4) Response consistent with facility voltage – reactive power droop.		
Power-Frequency Response Step Test						
6-1	A 0.5 Hz reduction in system frequency is applied to the system equivalent and the facilities real power response is observed. The frequency step should have a 20 Hz/second rate-of-change. Perform test in: PSCAD and PSS/E	GEN at 50%, BESS at 0 MW	Single Machine Infinite Bus (SMIB) @ SCR = 2.5 and X/R = 5	1) Facility reaches 90% of the final value in MWs within 4 seconds, or according to PPA. If response time must be longer because of equipment limitations, provide explanation. 2) Response is well damped or according to PPA. 3) Response consistent with facility power – frequency droop.		

[3]Response (Reaction) should begin in less than 200 ms unless allowed to be longer by regional standards. Many models have not included delays caused by measurement, communication, data buses, or sample-and-hold, so reaction times less than 100 ms should be confirmed to be accurate

Table C-1 (Continued)
Standard Model Testing for GFL and GFM Facilities

Case No.	Case Description	Mode of Operation (See Table C-3)	System Representation (See Tables C-4 and C-5)	Acceptance Criteria	Acceptable (Yes/No)	Notes
Fault Simulation Test: Three-Phase Grounded (3LG) Fault at Facility Point of Interconnection (POI)						
7-1	POI 3LG fault (such that three-phase average voltage is ~0%) with 6-cycle clearing Perform test in: PSCAD and PSS/E 30 second simulation in PSS/E and PSCAD	GEN output only	Single Machine Infinite Bus (SMIB) @ SCR = 2.5 and X/R = 5	1) No tripping observed. 2) No momentary cessation observed. 3) Reasonable fault current contribution. 4) If Applicable, Facility measured current at POI meets PPA requirements a. For example, provides current injection in agreement with IEEE Std 2800 clause 7.2.2.3.4		
7-2		BESS output only				
7-3		GEN charging BESS				
Fault Simulation Test: Single-Phase (1LG) Fault at Facility Point of Interconnection (POI)						
8-1	POI 1LG fault with 6-cycle clearing Perform test in: PSCAD Only 30 second simulation in PSCAD	GEN output only	Single Machine Infinite Bus (SMIB) @ SCR = 2.5 and X/R = 5	1) No tripping observed. 2) No momentary cessation observed. 3) Reasonable fault current contribution. 4) If Applicable, Facility measured current at POI meets PPA requirements a. For example, provides current injection in agreement with IEEE Std 2800 clause 7.2.2.3.4		
8-2		BESS output only				
8-3		GEN charging BESS				

Table C-1 (continued)
Additional Model Review for GFL and GFM Facilities in PSCAD and PSS/E

Case No.	Case Description	Mode of Operation (See Table C-3)	System Representation (See Tables C-4 and C-5)	Acceptance Criteria	Acceptable (Yes/No)	Notes
Weak Grid Operation Test						
9-1	Start with the facility connected to a SMIB test system. Apply a 6-cycle three-phase grounded POI bus fault and change the system strength at the time of fault clearing. The sequence outlined in Figure 1 should be used for this test.	GEN at 50%, BESS at 0 MW	Variable Thevenin equivalent per Figure C-1	1) For information only not a pass/fail	For Information Only	
9-2	Perform test in: PSCAD and PSS/E	BESS output only				
Phase Angle Step Test						
10-1	Perform a small step (~10 degrees) in the positive sequence phase angle of system voltage. Note, the end-user may need to adjust the size of the step such that the inverter does not hit a current limit. The end-user may also need to increase the system SCR such that the Facility has a stable response. Perform test in: PSCAD only	GEN at 50%, BESS at 0 MW	Single Machine Infinite Bus (SMIB) @ a minimum SCR = 2.5 (may need to be larger for a stable response) and X/R = 5	1) For information only not a pass/fail	For Information Only	

Table C-2
Additional Model Review for GFM Facilities in PSCAD and PSS/E

Case No.	Case Description	Mode of Operation (See Table C-3)	System Representation (See Tables C-4 and C-5)	Acceptance Criteria	Acceptable (Yes/No)	Notes
Black Start Test (If Facility is providing black start capability)						
11-1	Perform the following black start sequence of events (allow system to settle between disturbances): • Energize Facility MPT from generation resource • Connect load (50% of BESS MW at unity PF) at Facility POI • Apply 6-cycle Three-Phase Grounded (3LG) bus fault at POI Allowed to be a separate facility model from the rest of the tests. Perform test in: PSCAD and PSS/E	GEN OFF and BESS (or other black start resource) On-Line output as needed from simulation	None	1) No tripping or undesirable behavior. 2) Voltage and frequency should be stable and settle back to close to their nominal values after the disturbances.		

Table C-2 (continued)
Additional Model Review for GFM Facilities in PSCAD and PSS/E

Case No.	Case Description	Mode of Operation (See Table C-3)	System Representation (See Tables C-4 and C-5)	Acceptance Criteria	Acceptable (Yes/No)	Notes
Loss of the Last Synchronous Machine						
12-1	With system operating in steady-state condition, trip the last Synchronous Generator. Facilities must automatically ride through grid loss; a trip signal or flag cannot be sent to the Facility or Duplicate Facility. *Note: for Facilities where operating with "GEN Oneline at 0 MW" is not a valid operating conditions this case should be examined with BESS on-line only.* *Additional Guidance in:* *NERC White Paper – Grid Forming Functional Specifications for BPS-Connected Battery Energy Storage Systems, September 2023 [C-1]* Perform test in: PSCAD and PSS/E	**Scenario 1**: Facility: GEN Online at 0 MW, BESS discharging at 20% Duplicate Facility: GEN Online at 0 MW, BESS discharging at 20%	3-Machine Test System: GENROU, SCRX or eq., TGOV1 or eq., P/Q Load, and Facility (with one duplicates) The P/Q Load should be set to 1.5x the Contract Capacity of the facility under study at 0.9 PF inductive (E.g., for a 100 MW facility the load would be 150 MW and 72 Mvar)	1) Immediately following the trip, BESS output should be well controlled. System frequency and voltage should not oscillate excessively or deviate from steady-state levels for any significant amount of time. 2) Voltage and frequency settle to a stable operating point that is expected based on droop and deadband settings. 3) Any oscillation shall be damped and any distortion observed in phase quantities should dissipate over time. 4) **For Scenario 1**: P and Q from each BESS should move immediately to meet the load and voltage regulation requirements. 5) **For Scenario 2**: P and Q from each BESS should move immediately to meet the load and voltage regulation requirements. 6) **For Scenario 3**: P from BESS 1 should move immediately to meet the load requirements. The P from BESS 2 should not exceed its maximum discharge power limit. The Q from each BESS should move immediately to meet the voltage regulation requirements.		
12-2		**Scenario 2**: Facility: GEN Online at 0 MW, BESS charging at 50% Duplicate Facility: GEN Online at 0 MW, BESS charging at 50%				
12-3		**Scenario 3**: Facility: GEN Online at 0 MW, BESS at 0 MW. Duplicate Facility: GEN Online at 0 MW, BESS discharging at maximum.				

[C-1] NERC White Paper – Grid Forming Functional Specifications for BPS-Connected Battery Energy Storage Systems, September 2023
Link: https://www.nerc.com/comm/RSTC_Reliability_Guidelines/White_Paper_GFM_Functional_Specification.pdf

Table C-2 (continued)
Additional Model Review for GFM Facilities in PSCAD and PSS/E

Case No.	Case Description	Mode of Operation (See Table C-3)	System Representation (See Tables C-4 and C-5)	Acceptance Criteria	Acceptable (Yes/No)	Notes
Harmonious Operation Test						
13-1	With the system operating in steady-state conditions with a load at the Facility POI (P = 60% of the Facilities' Contract Capacity at unity PF) perform the following sequence of events (allow system to settle between disturbances): • Increase the load at the Facility POI by 40% of Facilities' contractual capacity at unity PF. Final load size of 100% of the Facilities' contractual capacity at unity PF. • Apply a 6-cycle three-phase grounded POI bus fault. Perform test in: PSCAD and PSS/E	GEN at 60%, BESS at 0 MW Duplicate Facility: GEN at 0 MW, BESS at 0 MWs	3-Machine Test System: GENROU, SCRX or eq., TGOV1 or eq., P/Q Load, and Facility (with one duplicates)	1) After disturbance, voltage and frequency should be stable and settle back to close to nominal, within tolerance of droop and deadband settings. 2) Voltage and frequency settle to a stable operating point that is expected based on droop and deadband settings. 3) Frequency deadband is settable from +/- 0.01 Hz to +/-1.0 Hz.		
GFM Performance Test						
14-1	Using a SMIB source with an externally controllable frequency, voltage and phase angle (on the voltage source side of the source impedance) simulate the fault event outlined in Figure C-2. Perform test in: PSCAD only	GEN at 0%, BESS at 50%	Single Machine Infinite Bus (SMIB) @ SCR = 1.5 and X/R = 5	1) For information only not a pass/fail	For Information Only	
14-2		GEN at 0%, BESS at 100%				

Table C-3

Description of Generation Dispatch by Type of Resource

Ref. No.	Generation Dispatch Description	Equivalent Dispatch for Type of Resource [1,2]				
		PV+BESS	Wind/PV Only	BESS Only	Synchronous Machine + BESS	Synchronous Machine Only
1	GEN output only	PV Max, BESS Online at 0 MW	Generation Max	--	Synch. Machine at Max, BESS Online at 0 MW	Synch. Machine at Max
2	BESS output only	PV Online at 0 MW, BESS Discharging at Maximum	--	Discharging at Maximum	Synch. Machine at Minimum, BESS Discharging at Maximum	--
3	Grid charging BESS	PV Online at 0 MW, BESS Charging at Maximum	--	Charging at Maximum	Synch. Machine at Minimum, BESS Charging at Maximum	--
4	GEN charging BESS	PV Max, BESS Charging at Maximum	--	--	Synch. Machine at Max, BESS Charging at Maximum	--
5	GEN and BESS at 0 MW	PV Online at 0 MW, BESS Online at 0 MW	Generation at 0 MW	BESS at 0 MW	Synch. Machine at Minimum, BESS Online at 0 MW	Synch. Machine at Minimum
6	GEN at 50%, BESS at 0 MW	PV at 50%, BESS at 0 MW	Generation at 50%	BESS Discharging at 50%	Synch. Machine at 50%, BESS at 0 MW	Synch. Machine at 50%
7	GEN at 25%, BESS at 25%	PV at 25%, BESS at 25%	Generation at 50%	BESS Discharging at 50%	Synch. Machine at 25%, BESS at 25%	Synch. Machine at 50%

[1] Note for all dispatches the power flow at the POI should be equal to or less than the Contract Capacity.
[2] If a dispatch doesn't exist for a given resource, indicated by a "--", then the specific test from Table C-1 or C-2 does not need to be performed.

Table C-4
System Representation Sample Diagrams of Single-Machine Tests for Model Review

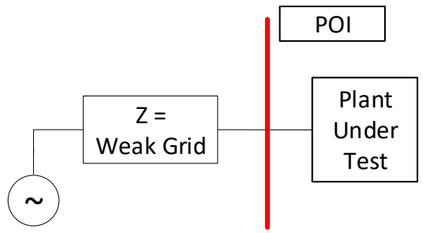
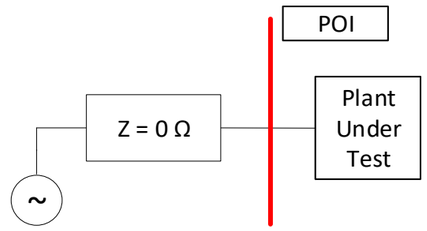
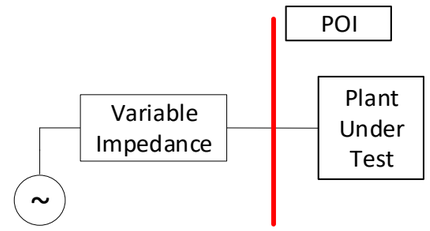
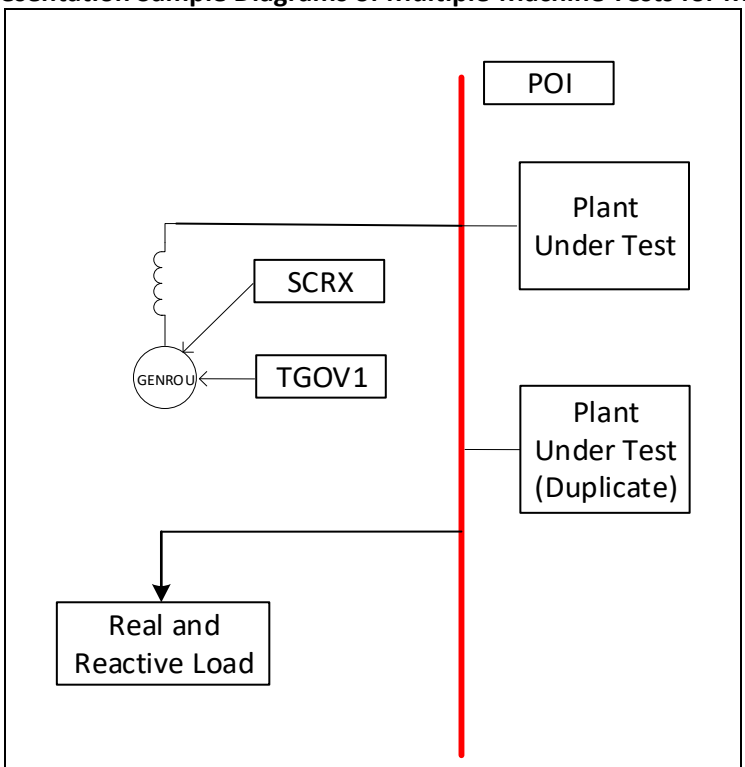
 Single Machine Infinite Bus (SMIB) @ a minimum SCR = 2.5	 Infinite Bus	 Variable Thevenin Equivalent
Minimum Test Strength of SCR = 2.5 Calculated based on Contract Capacity at POI. For example, for a 30 MW facility, the tested short-circuit capacity 75 MVA regardless of plant operating conditions. **PSSE Representation** A GENCLS model must be used for tests in Table 1 and Table 2 that does not require a voltage or frequency signal to be played back. The GENCLS model should be with inertia and damping value of 0. A playback model (e.g. PLBVFU1) must be used for tests that require a voltage and/or frequency signal to be varied. For the playback model, generator should be represented as follows in steady-state Mbase = 100 and Xsource = 0.001	**PSSE Representation** A GENCLS model must be used for tests in Table 1 and Table 2 that does not require a voltage or frequency signal to be played back. The GENCLS model should be with inertia and damping value of 0.	Variable Thevenin Equivalent Ideally, the variable impedance would be represented as a number of parallel impedance branches. **PSSE Representation** A GENCLS model must be used for tests in Table 1 and Table 2 that does not require a voltage or frequency signal to be played back. The GENCLS model should be with inertia and damping value of 0.

Table C-5
System Representation Sample Diagrams of Multiple-Machine Tests for Model Review



3-Machine Test System

In the "3-Machine Test System", the synchronous machine MVA rating is 3 times the Facilities "Contract Capacity" with Xsource = 0.1714 p.u.

3-Machine Test System Equivalent Machine Dynamic Parameters

9700 'TGOV1' '1' 0.05 0.2 1.0 0.0 1.0 0.5 0.0 /
9700 'GENROU' '1' 4.5 0.035 2.5 0.035 4 0.0 1.76 1.76 0.28 0.347 0.1714 0.154 0.09 0.39 /
9700 'SCRX' '1' 0.324 1.082 52.4 0.107 -3.67 3.0 0.0 10.0 /

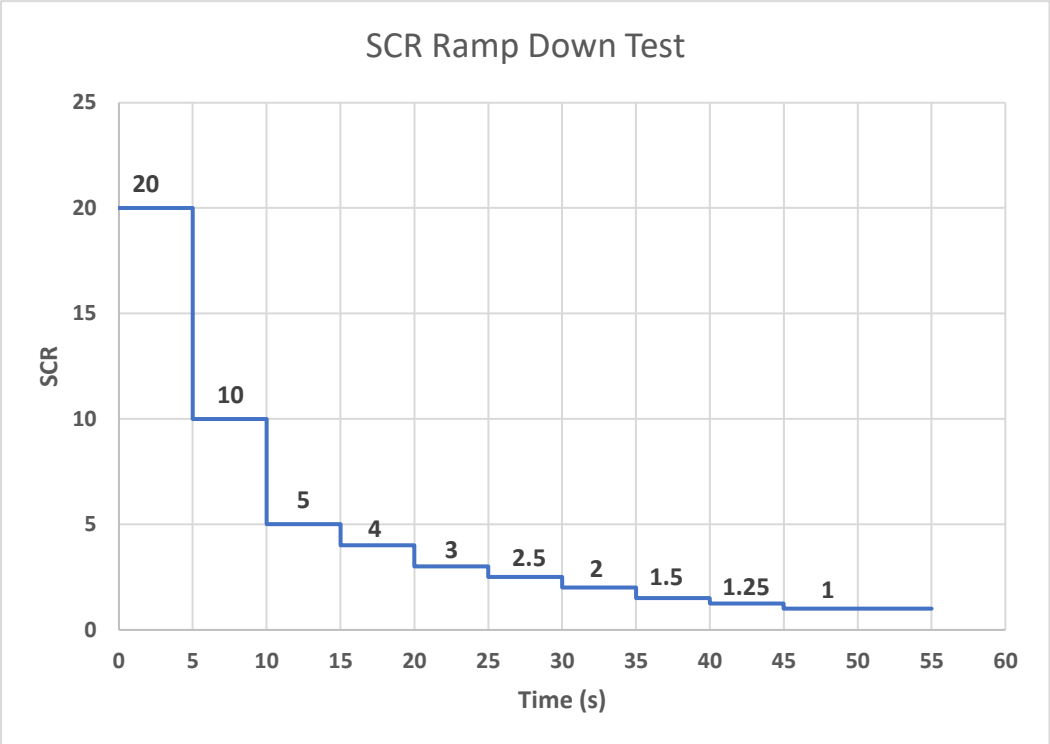


Figure C-1: Variable SCR Value for Weak Grid Operation Test
[Electranix PSCAD Model Requirements Rev. 12]

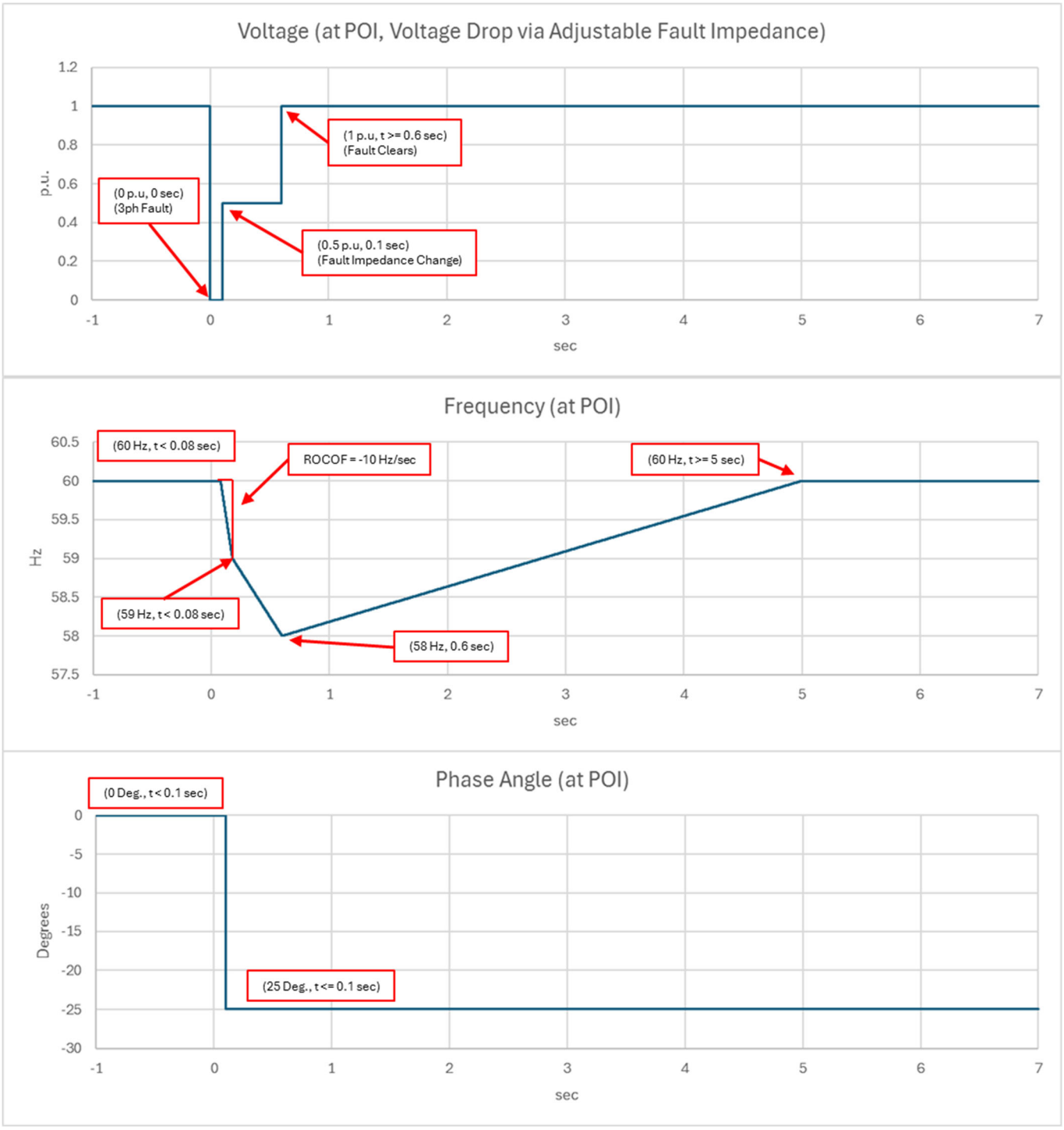


Figure C-2: GFM Performance Test SMIB Source Characteristics

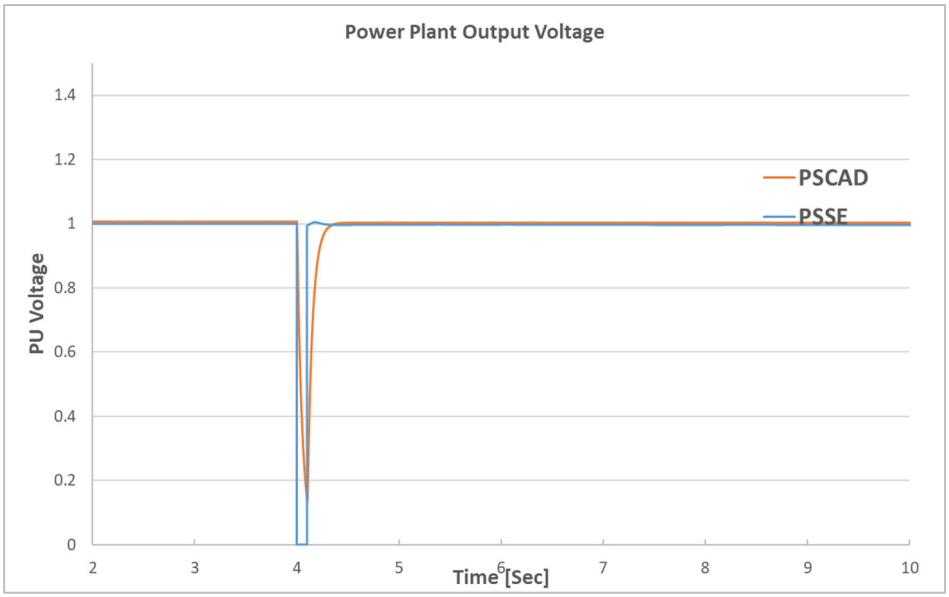


Figure C-3: Overlaid plot for Facility POI Voltage

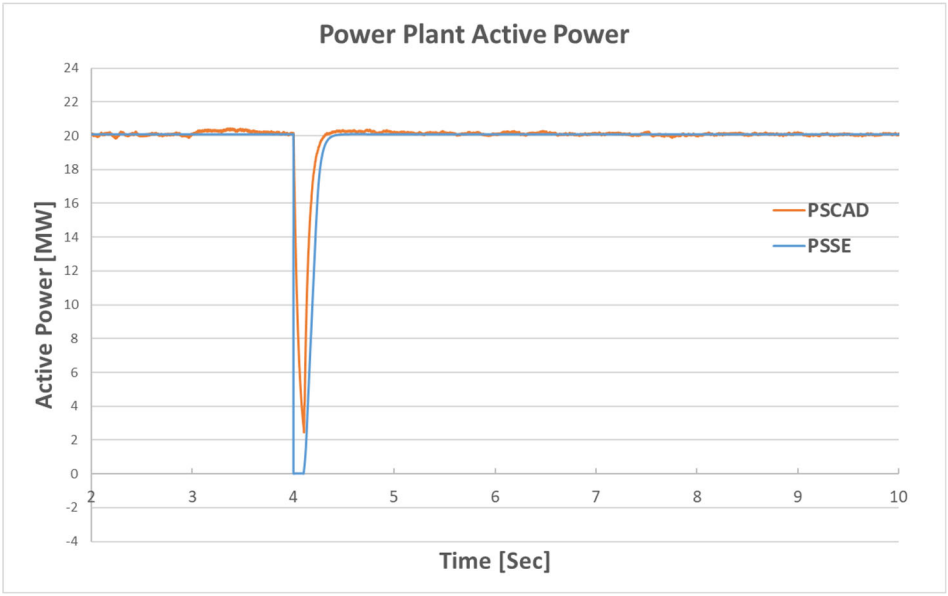


Figure C-4: Overlaid plot for Facility POI Real Power

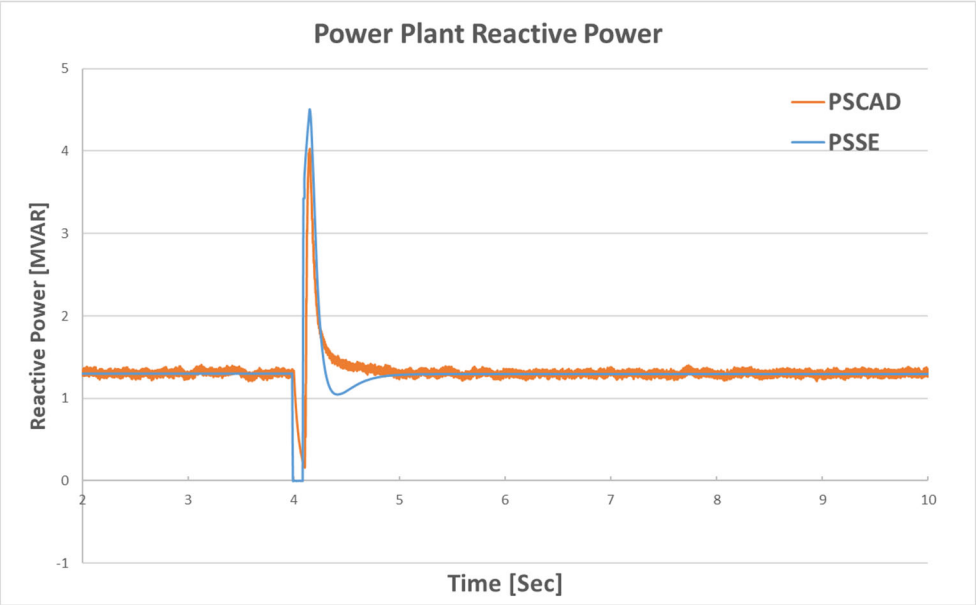


Figure C-5: Overlaid plot for Facility POI Reactive Power

Island	Oahu	Oahu	Oahu
Size	Connecting to 138kV Wind	Connecting to 138kV PV+ESS, Wind+ESS, or Standalone ESS	Connecting to 138kV Synchronous Generation
Models[1]	PSS®E Generic, PSS®E User Defined, PSCAD, and ASPEN.	PSS®E Generic, PSS®E User Defined, PSCAD, and ASPEN.	PSS®E Generic, PSCAD, and ASPEN.
System Impact Study Scope	**Tasks** (Include selected tasks in the IRS. Exclude tasks that are unselected)	**Tasks** (Include selected tasks in the IRS. Exclude tasks that are unselected)	**Tasks** (Include selected tasks in the IRS. Exclude tasks that are unselected)
	☒ Interconnection One-Line and Equipment List	☒ Interconnection One-Line and Equipment List	☒ Interconnection One-Line and Equipment List
	☒ Project Data Requirements and Facility Technical Model Review	☒ Project Data Requirements and Facility Technical Model Review	☒ Project Data Requirements and Facility Technical Model Review
	☒ Pre-Project System Performance (Base-Case)	☒ Pre-Project System Performance (Base-Case)	☒ Pre-Project System Performance (Base-Case)
	☒ Post-Project System Performance (IRS Case)	☒ Post-Project System Performance (IRS Case)	☒ Post-Project System Performance (IRS Case)
	☒ Steady-State Power Flows ☒ Reverse Power Flow ☒ Reactive Power Requirements (Voltage Regulation)	☒ Steady-State Power Flows ☒ Reverse Power Flow ☒ Reactive Power Requirements (Voltage Regulation)	☒ Steady-State Power Flows ☒ Reverse Power Flow ☒ Reactive Power Requirements (Voltage Regulation)
	☒ Protection Review	☒ Protection Review	☒ Protection Review
	☐ Voltage Flicker	☐ Voltage Flicker	☐ Voltage Flicker
	☒ Voltage Transients (In-Rush Current)	☒ Voltage Transients (In-Rush Current)	☒ Voltage Transients (In-Rush Current)
	☒ System Stability ☐ PSSE Analyses ☒ PSCAD Analyses for Weak Grid Conditions ☒ Grid Forming Analyses (if applicable)	☒ System Stability ☐ PSSE Analyses ☒ PSCAD Analyses for Weak Grid Conditions ☒ Grid Forming Analyses	☒ System Stability ☐ PSSE Analyses ☒ PSCAD Analyses for Weak Grid Conditions ☐ Grid Forming Analyses
	☒ Ride-Through Requirements	☒ Ride-Through Requirements	☒ Ride-Through Requirements
	☒ Effective Grounding ☒ Transient Overvoltage (TrOV) ☒ Ground Fault Overvoltage (GFOV)	☒ Effective Grounding ☒ Transient Overvoltage (TrOV) ☒ Ground Fault Overvoltage (GFOV)	☒ Effective Grounding ☒ Transient Overvoltage (TrOV) ☒ Ground Fault Overvoltage (GFOV)
	☒ Harmonics ☒ Harmonics Monitoring Assessment (pre-project & post-project)	☒ Harmonics ☒ Harmonics Monitoring Assessment (pre-project & post-project)	☒ Harmonics ☒ Harmonics Monitoring Assessment (pre-project & post-project)
Reference Single Line Diagram	See Appendix H	See Appendix H	See Appendix H

[1] It is expected that the supplied technical models represent the entire generation facility. If providing grid forming (GFM) capability, the provided facilities models should include all generation resources on-line with any GFM resource operating in GFM mode and if included in the facility design any grid following (GFL) resource operating in GFL mode.

Island	Oahu
Size	Connecting to 138kV Synchronous Generation + ESS
Models[1]	PSS®E Generic, PSS®E User Defined, PSCAD, and ASPEN.
System Impact Study Scope	**Tasks** (Include selected tasks in the IRS. Exclude tasks that are unselected)
	☒ Interconnection One-Line and Equipment List
	☒ Project Data Requirements and Facility Technical Model Review
	☒ Pre-Project System Performance (Base-Case)
	☒ Post-Project System Performance (IRS Case)
	☒ Steady-State Power Flows ☒ Reverse Power Flow ☒ Reactive Power Requirements (Voltage Regulation)
	☒ Protection Review
	☐ Voltage Flicker
	☒ Voltage Transients (In-Rush Current)
	☒ System Stability ☐ PSSE Analyses ☒ PSCAD Analyses for Weak Grid Conditions ☒ Grid Forming Analyses
	☒ Ride-Through Requirements
	☒ Effective Grounding ☒ Transient Overvoltage (TrOV) ☒ Ground Fault Overvoltage (GFOV)
	☒ Harmonics ☒ Harmonics Monitoring Assessment (pre-project & post-project)
Reference Single Line Diagram	See Appendix H

Island	O`ahu	O`ahu,	O`ahu,
Size	Connecting to 46kV Wind	Connecting to 46kV PV+ESS, Wind+ESS, or Standalone ESS	Connecting to 46kV Synchronous Generation
Models[1]	PSS®E Generic, PSS®E User Defined, PSCAD, and ASPEN.	PSS®E Generic, PSS®E User Defined, PSCAD, and ASPEN.	PSS®E Generic, PSCAD, and ASPEN.
System Impact Study Scope	**Tasks** (Include selected tasks in the IRS. Exclude tasks that are unselected)	**Tasks** (Include selected tasks in the IRS. Exclude tasks that are unselected)	**Tasks** (Include selected tasks in the IRS. Exclude tasks that are unselected)
	☒ Interconnection One-Line and Equipment List	☒ Interconnection One-Line and Equipment List	☒ Interconnection One-Line and Equipment List
	☒ Project Data Requirements and Facility Technical Model Review	☒ Project Data Requirements and Facility Technical Model Review	☒ Project Data Requirements and Facility Technical Model Review
	☒ Pre-Project System Performance (Base-Case)	☒ Pre-Project System Performance (Base-Case)	☒ Pre-Project System Performance (Base-Case)
	☒ Post-Project System Performance (IRS Case)	☒ Post-Project System Performance (IRS Case)	☒ Post-Project System Performance (IRS Case)
	☒ Steady-State Power Flows ☒ Reverse Power Flow ☒ Reactive Power Requirements (Voltage Regulation)	☒ Steady-State Power Flows ☒ Reverse Power Flow ☒ Reactive Power Requirements (Voltage Regulation)	☒ Steady-State Power Flows ☒ Reverse Power Flow ☒ Reactive Power Requirements (Voltage Regulation)
	☒ Protection Review	☒ Protection Review	☒ Protection Review
	☒ Voltage Flicker	☒ Voltage Flicker	☒ Voltage Flicker
	☒ Voltage Transients (In-Rush Current)	☒ Voltage Transients (In-Rush Current)	☒ Voltage Transients (In-Rush Current)
	☒ System Stability ☐ PSSE Analyses ☒ PSCAD Analyses for Weak Grid Conditions ☒ Grid Forming Analyses (if applicable)	☒ System Stability ☐ PSSE Analyses ☒ PSCAD Analyses for Weak Grid Conditions ☒ Grid Forming Analyses	☒ System Stability ☐ PSSE Analyses ☒ PSCAD Analyses for Weak Grid Conditions ☐ Grid Forming Analyses
	☒ Ride-Through Requirements	☒ Ride-Through Requirements	☒ Ride-Through Requirements
	☒ Effective Grounding ☒ Transient Overvoltage (TrOV) ☒ Ground Fault Overvoltage (GFOV)	☒ Effective Grounding ☒ Transient Overvoltage (TrOV) ☒ Ground Fault Overvoltage (GFOV)	☒ Effective Grounding ☒ Transient Overvoltage (TrOV) ☒ Ground Fault Overvoltage (GFOV)
	☒ Harmonics ☒ Harmonics Monitoring Assessment (pre-project & post-project)	☒ Harmonics ☒ Harmonics Monitoring Assessment (pre-project & post-project)	☒ Harmonics ☒ Harmonics Monitoring Assessment (pre-project & post-project)
Reference Single Line Diagram	See Appendix H	See Appendix H	See Appendix H

Island	Oahu
Size	Connecting to 46kV Synchronous Generation + ESS
Models[1]	PSS®E Generic, PSS®E User Defined, PSCAD, and ASPEN.
System Impact Study Scope	**Tasks** (Include selected tasks in the IRS. Exclude tasks that are unselected)
	☒ Interconnection One-Line and Equipment List
	☒ Project Data Requirements and Facility Technical Model Review
	☒ Pre-Project System Performance (Base-Case)
	☒ Post-Project System Performance (IRS Case)
	☒ Steady-State Power Flows ☒ Reverse Power Flow ☒ Reactive Power Requirements (Voltage Regulation)
	☒ Protection Review
	☒ Voltage Flicker
	☒ Voltage Transients (In-Rush Current)
	☒ System Stability ☐ PSSE Analyses ☒ PSCAD Analyses for Weak Grid Conditions ☒ Grid Forming Analyses
	☒ Ride-Through Requirements
	☒ Effective Grounding ☒ Transient Overvoltage (TrOV) ☒ Ground Fault Overvoltage (GFOV)
	☒ Harmonics ☒ Harmonics Monitoring Assessment (pre-project & post-project)
Reference Single Line Diagram	See Appendix H

Island	Hawai`i Island	Hawai`i Island	Hawai`i Island
Size	Connecting to 69kV Wind	Connecting to 69kV PV+ESS, Wind+ESS, or Standalone ESS	Connecting to 69kV Synchronous Generation
Models[1]	PSS®E Generic, PSS®E User Defined, PSCAD, and ASPEN.	PSS®E Generic, PSS®E User Defined, PSCAD, and ASPEN.	PSS®E Generic, PSCAD, and ASPEN.
System Impact Study Scope	**Tasks** (Include selected tasks in the IRS. Exclude tasks that are unselected)	**Tasks** (Include selected tasks in the IRS. Exclude tasks that are unselected)	**Tasks** (Include selected tasks in the IRS. Exclude tasks that are unselected)
	☒ Interconnection One-Line and Equipment List	☒ Interconnection One-Line and Equipment List	☒ Interconnection One-Line and Equipment List
	☒ Project Data Requirements and Facility Technical Model Review	☒ Project Data Requirements and Facility Technical Model Review	☒ Project Data Requirements and Facility Technical Model Review
	☒ Pre-Project System Performance (Base-Case)	☒ Pre-Project System Performance (Base-Case)	☒ Pre-Project System Performance (Base-Case)
	☒ Post-Project System Performance (IRS Case)	☒ Post-Project System Performance (IRS Case)	☒ Post-Project System Performance (IRS Case)
	☒ Steady-State Power Flows ☒ Reverse Power Flow ☒ Reactive Power Requirements (Voltage Regulation)	☒ Steady-State Power Flows ☒ Reverse Power Flow ☒ Reactive Power Requirements (Voltage Regulation)	☒ Steady-State Power Flows ☒ Reverse Power Flow ☒ Reactive Power Requirements (Voltage Regulation)
	☒ Protection Review	☒ Protection Review	☒ Protection Review
	☐ Voltage Flicker	☐ Voltage Flicker	☐ Voltage Flicker
	☒ Voltage Transients (In-Rush Current)	☒ Voltage Transients (In-Rush Current)	☒ Voltage Transients (In-Rush Current)
	☒ System Stability ☐ PSSE Analyses ☒ PSCAD Analyses for Weak Grid Conditions ☒ Grid Forming Analyses (if applicable)	☒ System Stability ☐ PSSE Analyses ☒ PSCAD Analyses for Weak Grid Conditions ☒ Grid Forming Analyses	☒ System Stability ☐ PSSE Analyses ☒ PSCAD Analyses for Weak Grid Conditions ☐ Grid Forming Analyses
	☒ Ride-Through Requirements	☒ Ride-Through Requirements	☒ Ride-Through Requirements
	☒ Effective Grounding ☒ Transient Overvoltage (TrOV) ☒ Ground Fault Overvoltage (GFOV)	☒ Effective Grounding ☒ Transient Overvoltage (TrOV) ☒ Ground Fault Overvoltage (GFOV)	☒ Effective Grounding ☒ Transient Overvoltage (TrOV) ☒ Ground Fault Overvoltage (GFOV)
	☒ Harmonics ☒ Harmonics Monitoring Assessment (pre-project & post-project)	☒ Harmonics ☒ Harmonics Monitoring Assessment (pre-project & post-project)	☒ Harmonics ☒ Harmonics Monitoring Assessment (pre-project & post-project)
Reference Single Line Diagram	See Appendix H	See Appendix H	See Appendix H

[1] It is expected that the supplied technical models represent the entire generation facility. If providing grid forming (GFM) capability, the provided facilities models should include all generation resources on-line with any GFM resource operating in GFM mode and if included in the facility design any grid following (GFL) resource operating in GFL mode.

Island	Hawai`i Island
Size	Connecting to 69kV Synchronous Generation+ESS
Models[1]	PSS®E Generic, PSS®E User Defined, PSCAD, and ASPEN.
System Impact Study Scope	**Tasks** (Include selected tasks in the IRS. Exclude tasks that are unselected)
	☒ Interconnection One-Line and Equipment List
	☒ Project Data Requirements and Facility Technical Model Review
	☒ Pre-Project System Performance (Base-Case)
	☒ Post-Project System Performance (IRS Case)
	☒ Steady-State Power Flows ☒ Reverse Power Flow ☒ Reactive Power Requirements (Voltage Regulation)
	☒ Protection Review
	☐ Voltage Flicker
	☒ Voltage Transients (In-Rush Current)
	☒ System Stability ☐ PSSE Analyses ☒ PSCAD Analyses for Weak Grid Conditions ☒ Grid Forming Analyses
	☒ Ride-Through Requirements
	☒ Effective Grounding ☒ Transient Overvoltage (TrOV) ☒ Ground Fault Overvoltage (GFOV)
	☒ Harmonics ☒ Harmonics Monitoring Assessment (pre-project & post-project)
Reference Single Line Diagram	See Appendix H

Hawaiian Electric

2025 Request for Proposal
Cashflow to the Project

Proposal Name:

IRR for PPA Period:
IRR for Project Life:

PPA Type:
PPA Term:

Item	Unit		Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15
Revenue																		
Net Capacity - Generation	MW		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Demonstrated Firm Capacity	MW		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Available Capacity Factor			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Net MW Capacity - Energy Storage	MW		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Net MWh Capacity - Energy Storage	MWh		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Net Annual Energy Production - Generation	MWh		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Net Annual Energy Discharge - Energy Storage	MWh		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PPA Revenue																		
Lump Sum Payment	$		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Energy Charge Payment	$		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Fuel Component (within Energy Charge Payment)	$		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Capacity Charge Payment	$		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Post-PPA Revenue assumptions	$		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total Revenue	***$***		***$0***	***$0***	***$0***	***$0***	***$0***	***$0***	***$0***	***$0***	***$0***	***$0***	***$0***	***$0***	***$0***	***$0***	***$0***	***$0***
Operating Expenses																		
Fixed O&M Cost	$		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Variable O&M Cost	$		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Fuel Cost	$		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Initial Overbuild Remainder	MWh		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cumulative Battery Capacity Degradation	MWh		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Battery Capacity Level	MWh		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Battery Augmentation	MWh		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Battery Augmentation	$		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Property Taxes	$		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Land Lease	$		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Insurance	$		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Community Benefits	$		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Letter of Credit (as applicable)	$		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Letter of Credit fees (as applicable)	$		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Other Operating Expenses	$		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total Operating Expense	***$***		***$0***	***$0***	***$0***	***$0***	***$0***	***$0***	***$0***	***$0***	***$0***	***$0***	***$0***	***$0***	***$0***	***$0***	***$0***	***$0***
Depreciation and Amortization																		
MACRS Schedule																		
5-year MACRS Depreciation	%		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
7-year MACRS Depreciation	%		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
10-year MACRS Depreciation	%		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
15-year MACRS Depreciation	%		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
20-year MACRS Depreciation	%		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Federal																		
Bonus Depreciation			$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Adjusted Depreciation Basis for MACRS			$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
5-year MACRS Depreciation	$	*0%*	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
7-year MACRS Depreciation	$	*0%*	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
10-year MACRS Depreciation	$	*0%*	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
15-year MACRS Depreciation	$	*0%*	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
20-year MACRS Depreciation	$	*0%*	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0

Amortization of Out-of-Basis Cost	$		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Federal Depreciation			***$0***	***$0***	***$0***	***$0***	***$0***	***$0***	***$0***	***$0***	***$0***	***$0***	***$0***	***$0***	***$0***	***$0***	***$0***	***$0***
Hawaii State																		
Depreciation Basis for MACRS			$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
5-year MACRS Depreciation	$	*0%*	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
7-year MACRS Depreciation	$	*0%*	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
10-year MACRS Depreciation	$	*0%*	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
15-year MACRS Depreciation	$	*0%*	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
20-year MACRS Depreciation	$	*0%*	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Amortization of Out-of-Basis Cost	$		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Hawaii State Depreciation			***$0***	***$0***	***$0***	***$0***	***$0***	***$0***	***$0***	***$0***	***$0***	***$0***	***$0***	***$0***	***$0***	***$0***	***$0***	***$0***
Net Income																		
EBITDA	$		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Depreciation Expense	$		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Federal Tax																		
EBIT	$		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Federal Taxable Income	$		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Federal Tax Credit	$		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Federal Tax Benefit/Liability	***$***	*21%*	***$0***	***$0***	***$0***	***$0***	***$0***	***$0***	***$0***	***$0***	***$0***	***$0***	***$0***	***$0***	***$0***	***$0***	***$0***	***$0***
Hawaii State Tax																		
EBIT	$		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
HI Taxable Income	$		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
HI Tax Credit	$		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
HI General Excise Tax Refund	$	*4%*	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
HI Tax Benefit/Liability	***$***	*6.4%*	***$0***	***$0***	***$0***	***$0***	***$0***	***$0***	***$0***	***$0***	***$0***	***$0***	***$0***	***$0***	***$0***	***$0***	***$0***	***$0***
Other Incentives	$		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Net Income			***$0***	***$0***	***$0***	***$0***	***$0***	***$0***	***$0***	***$0***	***$0***	***$0***	***$0***	***$0***	***$0***	***$0***	***$0***	***$0***
Project Capital Cost and Benefit																		
Project Capital Costs																		
EPC Costs																		
Generation Facility Major Equipment	$		$0															
Energy Storage Major Equipment	$		$0															
Balance of Systems	$		$0															
Installation Labor/Site Work	$		$0															
Interconnection Costs - Developer Owned	$		$0															
Other EPC Costs	$		$0															
Other Project Costs																		
Interconnection Requirements Study (IRS)	$		$0															
Interconnection Costs - Company Owned, Developer Build	$		$0															
Interconnection Costs - Company Owned, Company Build	$		$0															
Land Acquisition Price	$		$0															
Land Sale Price	$		$0															
Other Owners' Cost	$		$0															
Total Installation Cost	$		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Depreciation Expense - add back	$		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Plant Removel Cost	$		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Plant Salvage Value	$		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Net Project Cash Flow			***$0***	***$0***	***$0***	***$0***	***$0***	***$0***	***$0***	***$0***	***$0***	***$0***	***$0***	***$0***	***$0***	***$0***	***$0***	***$0***

Year 16	Year 17	Year 18	Year 19	Year 20	Year 21	Year 22	Year 23	Year 24	Year 25	Year 26	Year 27	Year 28	Year 29	Year 30
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
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DRAFT

REQUEST FOR PROPOSALS

FOR

RENEWABLE DISPATCHABLE GENERATION

AND

ENERGY STORAGE

APRIL 3, 2025

Appendix C – Code of Conduct Procedures Manual

Hawaiian Electric

I. INTRODUCTION

The Integrated Grid Planning Framework for Competitive Bidding ("Framework") adopted on February 25, 2025, by the Public Utilities Commission of the State of Hawaii (the "Commission") pursuant to Decision and Order No. 41568 (Docket No. 2018-0165, Instituting a Proceeding to Investigate Integrated Grid Planning) requires that the utility develop and follow a Code of Conduct whenever a utility or its affiliate seeks to advance a system resource proposal pursuant to a request for proposals ("RFP") issued by the Company. Section III.A.3 of the Framework required the utility to submit to the Commission for review and approval (subject to modification if necessary) a code of conduct prior to the commencement of any competitive bid process under the Framework. The proposed *Code of Conduct Pertaining to the Implementation of a Competitive Bidding Process for the Integrated Grid Planning (IGP) RFP* (the "Code of Conduct") requires the Company to also propose this *Code of Conduct Procedures Manual* (the "Procedures Manual") to implement the requirements of the Framework and the Code of Conduct.

This Procedures Manual has been developed to outline the procedures to be followed and the policies that have been developed surrounding the implementation of the Company's competitive bidding process for system resources. This Procedures Manual has been developed for the Company's *Integrated Grid Planning (IGP) RFP* and in accordance with the requirements of Section IV.H.9.a(iii) of the Framework and outlines requirements (1), (3) and (4) of such section, namely: (1) the protocols for communicating with Proposers, the Hawaiian Electric Development Team, and others; (3) the documentation forms, including logs for any communications with proposers; and (4) other information consistent with the requirements of the solicitation process. Requirement (2) of the section, the evaluation process in detail and the methodologies for undertaking the evaluation process for the RFP are described in detail in the *IGP RFP*. The bid evaluation process and methodology will consider both price/system impacts and non-price criteria in accordance with Section IV.E of the Framework and Tariff Rule 19.

The procedures and policies set forth herein have been designed to ensure that the procurement process is undertaken in a fair and equitable manner and that each Proposer is afforded an equal opportunity to participate and compete within the RFP requirements.

This Procedures Manual is intended to be followed by Company personnel in connection with implementing the Company's solicitation process and to manage communications between Company personnel and consultants participating in the RFP processes covered by the Framework. Necessary additions, deletions, and/or changes depending on the circumstances surrounding the RFP and directions from the IO may be required.

II. DEFINITIONS

- Affiliate – Any person or entity that possesses an "affiliated interest" in a utility as defined by section 269-19.5, Hawaii Revised Statutes ("HRS"), including a utility's parent holding company but excluding a utility's subsidiary or parent which is also a regulated utility.
- Affiliate Team – Employees and consultants of an Affiliate of the Company who prepare a proposal to be submitted to the Company in response to a Company RFP.
- ATRs – The Affiliate Transaction Requirements, issued by the Commission, applicable to the Companies and Affiliates, attached as Exhibit B to Order No. 36112 issued on January 24, 2019 in Docket No. 2018-0065.
- Code of Conduct – The *Code of Conduct Pertaining to the Implementation of a Competitive Bidding Process for the Integrated Grid Planning (IGP) RFP* developed by Hawaiian Electric Company, Inc., Maui Electric Company, Ltd., and Hawai'i Electric Light Company, Inc. (each, a "Company" and collectively, the "Companies") to ensure the fairness and integrity of the competitive bidding process, in particular where the host utility or its affiliate seeks to advance its own system resource proposal in response to an RFP. The Code of Conduct follows the requirements described in Section IV.H.9.c of the Framework.

- Code of Conduct Acknowledgement – The Competitive Bidding Code of Conduct Acknowledgement of Receipt form acknowledging review of, and agreeing to abide by, the Code of Conduct and this Procedures Manual.
- Communications Log – A written record to note activities and/or information shared between the Company RFP Team or Hawaiian Electric Development Team with Shared Resources or Unassigned Company Resources, accessed via the RFP Communication Tool Kit SharePoint Site.
- Company Executive in Charge – The Company executive responsible for ensuring compliance with this Code of Conduct and serving as the point of contact for the Independent Observer for reporting any violations by the Company of the Code of Conduct. The Company Corporate Compliance Officer shall remain responsible for the Company's independent corporate code of conduct and may support compliance matters and questions arising with employees, agents and other representatives of the Company, e.g., conflicts of interest, with respect to this Code of Conduct.
- Company RFP Team – The Company personnel and outside consultants responsible for the development of the Company's RFP conducted under the Framework and the evaluation of bids submitted in response to this RFP. Except as specifically permitted herein, and subject to the transfer rules specified herein, the Company RFP Team will have fixed team members who will not have any involvement with the Hawaiian Electric Development Team for the subject RFP.
- Confidential Information – Any non-public information developed and provided by the Company (i.e., proprietary system information, etc.) or Proposers during the RFP process (such non-public information may include, for example, the identity of competing Proposers, and their technical, trade or financial information). This term includes any material non-public information regarding the RFP process developed for and used during the competitive bidding solicitation process, such as the evaluation process or criteria. Confidential Information does not include public information, such as information in the Company's public filings with the Commission.
- Director of Renewable Acquisition – The director of the Division that will oversee the Company's competitive bidding process for the IGP RFP.
- Eligible Proposer – A Proposer who has met the minimum requirements and

threshold requirements in the RFP necessary to remain eligible to compete in the process.

- Energy Contract Manager – The staff position(s) within the Company's Renewable Acquisition Division responsible for managing the Company RFP Team. The Energy Contract Manager shall be a member of the Company RFP Team.
- Framework – The Integrated Grid Planning Framework for Competitive Bidding contained in Decision & Order No. 41568 issued by Commission on February 25, 2025, to establish rules for competitive bidding in response to a request for proposals when a utility seeks to acquire new system resources.
- Hawaiian Electric Development Team – The Company personnel and outside consultants responsible for the development of the Hawaiian Electric Development Team's responses to the RFP. Except as specifically permitted herein, and subject to the transfer rules specified herein, the Hawaiian Electric Development Team will have fixed team members who will not have any involvement with the Company RFP Team for this RFP.
- Independent Engineer ("IE") – The neutral person or entity appointed by the Commission to assist in matters related to interconnection, as ordered by the Commission, for the RFP.
- Independent Observer ("IO") – The neutral person or entity appointed by either the Commission or utility to monitor the utility's competitive bidding process, and to advise the utility and Commission on matters arising out of the competitive bidding process, as described in Part III.C of the Framework.
- Manager of Energy Procurement – The supervisor of the department within the Company's Renewable Acquisition Division responsible for directing the resources responsible for the implementation of the competitive bidding process pursuant to the Framework. The Manager of Energy Procurement will report to the Director of Renewable Acquisition on the status of the competitive bidding process and shall be a member of the Company RFP Team.
- Non-Price Evaluation Team – Employees and consultants of the Company who evaluate the proposal non-price related criteria as set forth in the RFP. Non-Price Evaluation Team members will not include any Shared Resources and will be solely made up of Company RFP Team Members.

- Price Evaluation Team – Employees and consultants of the Company who evaluate the proposal price related criteria set forth in the RFP. Price Evaluation Team members will not include any Shared Resources and will be solely made up of Company RFP Team Members.
- Proposer – Entity who submits or plans to submit a proposal in response to a Company-issued RFP. An Affiliate of the Company or a Hawaiian Electric Development Team participating in the RFP and submitting a proposal shall be considered a Proposer.
- RFP – A written request for proposals issued by the Company to publicly solicit bids to supply future system resources to the Company pursuant to the competitive bidding process established in the Framework.
- Roster – A consolidated list of members that comprise the Company RFP Team, Hawaiian Electric Development Team, Shared Resources and Unassigned Company Resources located in the RFP Communication Tool Kit SharePoint Site. Names and roles of Company employee and consultants will be identified.
- Shared Resource – Company employees and consultants who, because of the scarcity of their expertise within the Company, are designated and authorized to provide information or input to both the Company RFP Team and the Hawaiian Electric Development Team (but not any Affiliate Team) and is not a resource dedicated to either team. For example, Shared Resources may include an environmental attorney and members of the Company's Risk Management Department.
- Unassigned Company Resource – Company employees unassigned to an essential team that may be called upon by the Company RFP Team and/or the Hawaiian Electric Development Team (but not any Affiliate Team) to assist in meeting unforeseen tasks for the RFP or the Hawaiian Electric proposal. For example, the Company RFP Team may be unable to evaluate an unforeseen technical specification included in a bid. In that event, the Company RFP team would need to request assistance from a Company employee or a consultant that is not already assigned to an essential team and possesses the specific expertise. Such personnel are intended to assist the requesting team only in an ad hoc manner, limited in scope and purpose to the particular task required.

III. STATEMENT OF OBJECTIVES

The Code of Conduct and this Procedures Manual address (1) communication requirements and procedures associated with the relationship between utility employees (Company RFP Team, Hawaiian Electric Development Team, Shared Resources and Unassigned Company Resources); (2) communication requirements and procedures associated with the relationship between the Company RFP Team, the Hawaiian Electric Development Team and Proposers; and (3) communication requirements associated with the relationship between Company management and the Company RFP Team.

The Code of Conduct and this Procedures Manual also include procedures for the sharing of resources, where appropriate, by the Company RFP Team and the Hawaiian Electric Development Team for the purposes of completing their efforts to effectively evaluate the RFP or to submit a bid in response to the RFP. The small size of the Company and limitation of resources will require specialized services, information exchange and sharing of resources in certain limited circumstances. Company personnel and consultants identified as "Shared Resources" shall be designated by the Company for this specific purpose.

IV. ORGANIZATION AND COMMUNICATION RESPONSIBILITIES

This section outlines the RFP organizational structure for the development of the RFP and the Hawaiian Electric Development Team options and the organization's responsibilities to ensure that communications between Company personnel and consultants working on their respective RFPs or Hawaiian Electric Development Team projects are conducted in a fair, consistent, and equitable basis so that the Hawaiian Electric Development Team does not enjoy any unfair advantage over other Proposers responding to an RFP.

A. Organization

The Company shall identify and maintain two separate teams to facilitate the independence and objectivity of the Company resources working on the RFP and ensure an arms-length relationship with the resources working on the Hawaiian Electric Development Team's project to avoid any real or perceived inequity in the RFP process. The two essential teams shall be the "Company RFP Team" and the "Hawaiian Electric Development Team."

Other limited Company resources, such as select staff from various functional areas of the Company that are in short supply and thus cannot be dedicated solely to either team, may be designated as "Shared Resources" to perform services for the Company RFP Team and Hawaiian Electric Development Team. Shared Resource employees are allowed to carry on with both their RFP (for either the Company RFP Team and/or the Hawaiian Electric Development Team) and regular functions throughout the resource planning process (including the development of any Company Parallel or Contingency Plan as defined in the Framework), which may require communications with or services performed for the Hawaiian Electric Development Team. Shared Resource employees, however, will not participate in the evaluation and selection process of proposals submitted in response to the RFP. Rules for communications between Shared Resources and the essential teams are specified below.

Company employees unassigned to the RFP may be called upon by the Company RFP Team, Hawaiian Electric Development Team, or both for help to meet unforeseen tasks. After completing the Code of Conduct training, these "Unassigned Company Resources" are eligible to assist on an ad hoc basis with the requirement that all communications as an Unassigned Company Resource must be memorialized and logged in the same manner as communications with Shared Resources on the Communication Log. If an Unassigned Company Resource is called upon repeatedly for a substantial amount of assistance by a particular team, the employee should be assigned to such team or evaluated for designation as a shared resource.

B. Essential Teams

1. Company RFP Team. The Company RFP Team, tasked with preparing the RFP and evaluating the responses and bids in response to the RFP, will be led by a Director/Manager level employee and consist primarily of experienced employees together with possible outside consultants, with backgrounds in a number of disciplines necessary to conduct a thorough evaluation of each proposal. The Company RFP Team will be comprised of a Price Evaluation Team and a Non-Price Evaluation Team and will be prepared to evaluate proposals on the basis of their price and non-price aspects pertaining to their level of expertise. Members of the Company RFP Team will include professionals with experience in the following areas of expertise: engineering, siting/land use, environmental, transmission planning, fuel procurement, legal, financial planning, system operations, integrated resource planning, generation planning, production cost analysis, and others as needed.

The Price Evaluation Team and the Non-Price Evaluation Team will conduct their sections of the bid evaluation process separately and will not share the results of their evaluation with members of the other sub-team. Each team will submit their evaluation results to an oversight team, which will be responsible for compiling the results of the evaluations and selecting the Priority List.

The Energy Contract Manager will be responsible for directing the evaluation efforts of the Company RFP Team when the proposals are received. The Energy Contract Manager will be responsible for maintaining the documentation underlying the evaluation of each proposal as well as all communications with Proposers.

2. The Hawaiian Electric Development Team. The Hawaiian Electric Development Team, tasked with preparing any Company proposal to be submitted by the Company in response to the Company RFP, will consist primarily of Company employees, along with possible outside consultants with backgrounds in a number of disciplines necessary to complete a competitive proposal in response to the Company RFP. The members of the team will include professionals with experience in the following areas of

expertise: engineering, siting/land use, environmental, transmission planning, fuel procurement, legal, financial planning, system operations, integrated resource planning, generation planning, production cost analysis, and others as needed.

3. Affiliate Team. Any Affiliate Team will be comprised solely of employees and consultants of the Affiliate and no Company employee or consultant shall serve as a member of an Affiliate Team; provided, however, that a consultant may perform services for an Affiliate and the Company so long as appropriate "walls" are established satisfactory to the Company that ensures that employees of the consultant working for the Affiliate Team do not also perform work for the Company nor communicate with employees of the consultant performing work for the Company, and vice versa. The Company will inform consultants providing services for the Company RFP Team of these separation requirements, and will seek confirmation in writing from any consultant performing services for an Affiliate and the Company that such separation requirements will be met. Affiliate Teams will be considered and treated as separate independent third-party Proposers for all purposes within the RFP and shall have no access to, interaction or communications with Shared Resources or Unassigned Company Resources for the purpose of completing a proposal in response to the RFP. Affiliate Teams shall also be subject at all times to the terms, conditions and restrictions specified in the Company's ATRs.

4. Transfers between Teams. As members of both the Company RFP Team and the Hawaiian Electric Development Team are intended to be fixed during the pendency of any stage or phase of an RFP, transfers between teams should not be permitted. However, there will be instances where a member of a particular team (whether Company RFP or Hawaiian Electric Development) transfers to a position in which he/she may be requested, as part of his/her new job responsibilities, to participate as a member of the other team. Such employee shall not be permitted to transfer from one team to the other during the pendency of any stage or phase of the RFP. After completion of a stage or phase of the RFP (i.e., the development, evaluation and selection of the Final Award Group) under which the employee recently participated, the employee may transfer to the other team under the following conditions: (a) the employee is prohibited from disclosing any Confidential Information known to such employee as a result of being a

member of his/her former team with members of the new team he/she is joining; and (b) for a period of one (1) year, such employee shall not participate or be involved in establishing the evaluation criteria and the evaluation of the next subsequent stage or phase of the RFP which such employee participated in with his/her former team; or (b) participate or be involved in the formulation and/or origination of a proposal for the next subsequent stage or phase of the RFP which such employee participated in with his/her former team.

Transfers of employees between the Company and any Affiliate and their subsequent work on RFPs, including any stage or phase of a particular RFP, shall be subject to the terms, conditions and restrictions specified in the ATRs.

C. Communications Protocols

1. Overview and General Requirements.

The Company has developed policies and procedures governing communication between the Company RFP Team, the Hawaiian Electric Development Team, Shared Resources, the Proposers, the IO, the IE, and with the Commission regarding RFP design and bid evaluation. Bid information and evaluation data and information shall not be communicated between members of the Company RFP Team, outside parties and other employees within the Company except to those with a business need to know.

To ensure that the competitive bidding process is fair and unbiased, that all Proposers have access to the same information so that no Proposer has an unfair advantage, and that any Hawaiian Electric and/or Affiliate proposals do not have any unfair competitive advantage over third-party bids, the Company shall follow the Code of Conduct whenever the utility or its Affiliate is seeking to advance a resource proposal as provided in Section IV.H.9.b of the Framework.

Each employee or consultant on the Company RFP Team, Hawaiian Electric Development Team and Shared Resources shall read, acknowledge and sign the Code of Conduct Acknowledgement. Unassigned Company Resources who are called upon by the

Company RFP Team or Hawaiian Electric Development Team for help to meet unforeseen tasks shall also read, acknowledge and sign the Code of Conduct Acknowledgement.

The Company issuing the RFP will establish a shared drive on its corporate computer network designed to maintain the bid evaluation documentation and other information associated with the bidding process. Only Company RFP Team members will have access to all the files on the shared drive.

In cases where staffing and resources are limited or constrained, the Company may identify Shared Resources or those employees eligible to provide information or serve as a resource to both the Company RFP Team and the Hawaiian Electric Development Team. Specific rules to log communications with the Company RFP Team or the Hawaiian Electric Development Team are described below.

Shared Resources will not have access to the Company's shared drive established for the RFP process which will include the documentation of the bid evaluation results.

Team members should clearly mark all e-mails, documents, or other communications that contain Confidential Information and make clear which team should not receive it with the following header or a substantially similar message: "This communication contains Hawaiian Electric Development Team information that must be kept confidential. DO NOT copy, forward, or discuss the contents with Company RFP Team members" OR "This communication contains Company RFP Team information that must be kept confidential. DO NOT copy, forward, or discuss the contents with Hawaiian Electric Development Team members."

2. Communications Between the Company RFP Team and Proposers, including the Hawaiian Electric Development Team and any Affiliate Team.

During the RFP process, the Energy Contract Manager shall serve as the primary contact person for all RFP communications with Proposers. This is important from the standpoint of maintaining consistency and confidentiality of information between Proposers and the Company. For documentation and oversight purposes, all communications from Proposers must be submitted via the communication means specified in the RFP (e.g., specified website link provided by the Company (the "Company RFP website"), specified RFP electronic procurement platform, and/or specified RFP electronic mail address ("email")). The IO will monitor all communications through any communication means specified in the RFP. The IE will also monitor all communications related to interconnection as specified in the RFP. To ensure fair and equal access to information, any Hawaiian Electric Development Team and/or Affiliate Team shall be considered a Proposer for communication purposes and any request for information from the Hawaiian Electric Development Team or Affiliate Team to the Company RFP Team shall be through the communication means specified in the RFP.

Additionally, the Company may facilitate and participate in pre-proposal meetings directly with potential Proposers upon their request, including the Hawaiian Electric Development Team or any Affiliate Team, to discuss interconnection and technical related questions about the potential Proposer's interconnection plan ("Authorized Meetings"). The Authorized Meetings shall be conducted in an unbiased manner and is intended to provide potential Proposers with information to better assess their proposal's potential interconnection costs. The specifics, limitations, and details of the Authorized Meetings will be defined in the RFP. If the IO and IE are appointed prior to final issuance of the RFP, the IO and IE shall be consulted and provide feedback to the Companies on the specifics, limitations and details of the Authorized Meetings. The IO, and IE for interconnection related matters, shall be invited to all Authorized Meetings and/or, to the extent possible and agreed to, provided a recording of the Authorized Meeting if unable to attend in person.

Subject to confidentiality obligations, it is the objective of the Code of Conduct that all Proposers, including the Hawaiian Electric Development Team and any Affiliate Team, receive access to information released by the Company RFP Team, whether in response to a question from a Proposer or not, at the same time.

The communications process for addressing questions and requests for information from Proposers, and for the Company RFP Team to provide information to Proposers, is provided below:

a. Other than during Company sponsored conferences and Authorized Meetings, Proposers must submit all questions to the Company via the communication means specified in the RFP.

b. Questions will be reviewed and responses will be coordinated with the appropriate functional area within the Company for a response. Every reasonable effort will be made to provide responses in a timely manner.

c. All responses, including the classification of such response, i.e., whether non-confidential or confidential as described below, will be made available to the IO, and IE for interconnection related matters, for monitoring purposes. The IO and IE may choose to comment on any response at its discretion.

d. Depending on the questions received, responses may involve Confidential Information of the Company and/or Proposers. Release of any Company Confidential Information must be approved in advance by the Company executive authorized to release the Confidential Information. Any release of Company Confidential Information shall be accompanied by appropriate confidentiality and non-disclosure agreements, protective orders or other means required to maintain the confidentiality of the Company Confidential Information while still permitting its

disclosure under circumstances deemed appropriate by the responsible Company executive. Other non-Company Confidential Information will not be shared without the prior written consent of the owner of such Confidential Information and the execution of appropriate confidentiality and non-disclosure agreements by all recipients of such Confidential Information. Responses will be categorized as follows:

i. Non-Confidential Responses: Questions and responses will either be posted directly on the Company RFP website (process-related questions or simple, non-substantive information) or a description of the information that can be made available will be posted and Proposers will be instructed to submit a request to the Company via the communication means specified in the RFP to receive a copy.

ii. Confidential Responses: Questions and a description or notice of a Confidential Information response will be posted on the Company RFP website and Proposers will be instructed to submit a request to the Company via the communication means specified in the RFP to receive instructions on how to access the Confidential Information. The Confidential Information will only be provided to the requestor after receipt of an executed confidentiality and non- disclosure agreement. Only those who have qualified to submit a bid (i.e., Eligible Proposers) and have executed a confidentiality and non-disclosure agreement will be considered for receipt of Confidential Information.

iii. Process for Distribution of Confidential Information: Confidential Information provided in response to questions from proposers may be made available only to parties as indicated above via the following:

A. Confidential Information that is approved for exchanging on a secured access site: (1) Confidential Information may be made available on a secured website with an individual password provided to each approved Proposer; and (2) Confidential Information in documents may be transmitted to approved recipients through the Company's secure email system.

B. Confidential Information that can be made available for inspection only, but cannot be copied: There may be some types of Confidential Information that the Company may consider making available for inspection only with no copies allowed. This type of Confidential Information will be made available on Company premises for inspection only. Proposers will be advised via the communication means specified in the RFP to make arrangements with Company staff to view the Confidential Information.

C. Confidential Information that may not be released: In the event that Proposers submit questions that require responses that the Company feels are not appropriate to provide for reasons which may include, but not be limited to, safety, security, protection of trade secrets or intellectual property rights, Proposers will be advised as such via the communication means specified in the RFP.

e. Prior to and during the RFP, developers may direct questions to the Company prior to submitting a Proposal to discuss specific questions regarding their specific Proposal. Questions shall be directed to the communication means specified in the RFP. Questions and responses that do not contain Confidential Information and which are deemed relevant to all Proposers will be

published without identifying information via the Company RFP website.

f. Once bids are received, the Company may submit information requests to Proposers to clarify their proposals or request additional information. All contacts with Proposers will be through the communication means specified in the RFP. All contacts and information exchanged will be under the oversight of the IO, and IE for any interconnection related matters.

g. A single exception to the communication process outlined above shall be instituted for the purpose of facilitating the verification of proposed project models and documentation required to perform the IRS. For this limited scope, the Company's Manager of Interconnection Services will serve as the primary contact person for all such interconnection communications with the Proposers on the Priority List, provided that all necessary confidentiality and non-disclosure agreements are in place. The Manager of Interconnection Services and personnel in the Interconnection Services Department shall be members of the Company RFP Team. Interconnection communications will be limited to a Proposer's bid and no more information other than as necessary to facilitate such communications will be permitted. Discussion of locations of proposed projects shall be limited to that necessary only to determine the interconnection requirements of such project. The IO and IE shall have the right to monitor all such communications in his/her discretion.

3. Communications Between the Company and the Commission.

The Company's Regulatory Affairs staff will be responsible for initiating communication with the Commission regarding the RFP or the Company's evaluation process. Regular updates may be provided to the Commission regarding the RFP process if requested.

4. Communications Between the Company RFP Team and the IO, and IE for interconnection related matters.

Communications between the Company RFP Team and the IO, and IE, for interconnection related matters, will be required for many aspects of the evaluation process. The IO and IE are also required to maintain confidentiality of any Confidential Information. The IO and IE will coordinate all activities through the Energy Contract Manager. The IO and IE will be invited to participate in any meetings or discussions between the Company RFP Team and the Proposers and other communications as noted above. Sufficient notice will be provided whenever possible and teleconference and/or web conference alternatives may be utilized.

5. Communications Between the Company RFP Team and the Hawaiian Electric Development Team or any Affiliate Team.

Any communication between the Company RFP Team and the Hawaiian Electric Development Team or any Affiliate Team with respect to the RFP shall be handled no differently than with Proposers and other outside parties. Accordingly, the Hawaiian Electric Development Team or any Affiliate Team will be required to submit any questions or information requests to the Company RFP Team via the communication method specified in the RFP and all responses will be provided in the same manner as to other Proposers. Accordingly, as stated in Section 2 above, responses will be provided to the IO, and IE for interconnection related matters, for monitoring purposes via email or the PowerAdvocate messaging system. Members of the Company RFP Team are prohibited

from providing any input into the development of a proposal by the Hawaiian Electric Development Team or an Affiliate. Company RFP Team members are prohibited from sharing any Confidential Information (i.e., detailed evaluation criteria, other proposals, etc.) with any Hawaiian Electric Development or Affiliate Teams except in accordance with the procedures in the Code of Conduct, this Manual or the RFP.

Company RFP Team members and Hawaiian Electric Development Team members may continue to work with each other on projects not related to a pending RFP still in the selection process. Further, members of each respective team do not have to be physically separated from each other, but members of each team must make reasonable efforts to keep all Confidential Information (including electronic data) secure and inaccessible to the other team.

Company RFP Team members and Affiliate Team members may continue to work with each other on matters not related to the RFP as permitted under the ATRs.

6. Communications among the Company RFP Team, the Hawaiian Electric Development Team and Shared Resources.

Shared Resources may provide services to the Company RFP Team and the Hawaiian Electric Development Team (but not any Affiliate Team). Shared Resources shall be limited as much as possible to instances where Company resources cannot provide a dedicated member to the Company RFP Team and the Hawaiian Electric Development Team at the same time and still provide the necessary functions of its area to the Company as a whole. Shared Resources are expressly prohibited from providing any information developed on behalf of the Company RFP Team to the Hawaiian Electric Development Team or any information developed on behalf of the Hawaiian Electric Development Team with the Company RFP Team, except through the formal communication process outlined above, i.e., through the communication means specified in the RFP.

Additionally, a written record of the time, date and substance of all

conversations, data and written material directly or indirectly exchanged with the Company RFP Team or the Hawaiian Electric Development Team that pertain to the RFP shall be maintained on the Communications Log. The RFP Communication Tool Kit SharePoint Site will be set up and managed by the Energy Contract Manager to provide an easy to use and understand mechanism to log and memorialize these conversations.

Shared Resources will not have direct access to the Company's shared drive developed for the RFP process which will include documentation of the bid evaluation results.

7. Communications between the Company RFP Team, the Hawaiian Electric Development Team and any Unassigned Company Resource or consultant that is not a Shared Resource.

There may be times where a Company RFP or Hawaiian Electric Development Team (but not an Affiliate Team) member may need ancillary or other ministerial or administrative assistance that requires communication and/or assistance from Company personnel who are neither on any team nor considered a Shared Resource. Under those circumstances, such personnel may assist the requesting team member on an ad hoc basis upon the following conditions:

a. The essential team member making the request must inform the Company personnel that sharing of the requested information or assistance with the other team, be it the Company RFP or Hawaiian Electric Development Team, is expressly prohibited under the Code of Conduct.

b. The assisting Company personnel shall complete the Code of Conduct training and sign the Code of Conduct Acknowledgement.

c. The assisting Company personnel shall be directed to the Roster provided by such requesting team member to determine and/or confirm the restrictions on communication with the other team members. The

essential team member making the request will ensure the Roster is updated by the Energy Contract Manager to include the assisting Company personnel.

d. A written record of the time, date and substance of all conversations, data and written material directly or indirectly exchanged with the Company RFP Team or the Hawaiian Electric Development Team that pertain to the RFP shall be maintained on the Communication Log. The RFP Communication Tool Kit SharePoint Site will be set up and managed by the Energy Contract Manager to provide an easy to use and understand mechanism to log and memorialize these conversations.

e. If assistance from an Unassigned Company Resource becomes more than occasional or more substantive than ancillary, ministerial or administrative services, the Unassigned Company Resource should be considered for inclusion on the team that he/she has been assisting on such basis. Additionally, the Unassigned Company Resource may also be considered for inclusion as a Shared Resource. Members of the Company RFP Team and/or Hawaiian Electric Development Team shall consult with the Company executive for resolution.

8. Communications between the Company RFP Team, the Hawaiian Electric Development Team and Company Management.

The Company RFP Team and the Hawaiian Electric Development Team will necessarily require management approval of the RFP and the Hawaiian Electric proposal. Because of the size of the Company, it may be possible that a single employee (at whatever level) (the "Approver") may have approval responsibility for matters affecting the RFP and the Hawaiian Electric proposal. Approvers in this situation must use their best judgment in making decisions reviewing and approving matters for the respective teams. The Code of Conduct must be adhered to in these situations and the Approver must not communicate matters learned from the Company RFP Team with the Hawaiian

Electric Development Team.

If an Approver feels that he/she cannot manage this potential conflict, the Approver is recommended to consult with his/her immediate supervisor to determine whether such higher authority could be appointed with the task of reviewing and approving matters for a designated team, either the Company RFP Team or the Hawaiian Electric Development Team. In matters where a team of employees (including one or more Approvers) is responsible for reviewing and approving matters for the respective teams, approving employees (from whatever level, including executives) with information from reporting personnel beneath them from both the Company RFP Team and the Hawaiian Electric Development Team may consider recusing himself/herself from the decision making if such employee cannot objectively make a decision on the matter.

Finally, an Approver may be a member of the Company RFP Team and have a subordinate reporting to him/her that is a member of the Hawaiian Electric Development Team (or vice versa). In such situations, because the Code of Conduct prohibits communication between the teams, the Approver must recuse himself/herself from the decision making and request his/her manager to review and approve the matter in his/her place.

In all instances, it is possible that any particular situation above may be addressed and/or resolved by the terms and conditions of the Company's internal code of conduct implemented for all employees and consultants of the Company. As appropriate, an Approver or any other team member, Energy Contract Manager or Company executive in Charge may involve the Company's Corporate Compliance Officer for input and possible resolution under the Company's internal corporate code of conduct.

V. WHEN THE CODE OF CONDUCT BECOMES EFFECTIVE

A. Concurrent with the development of the requirements for the RFP, the Code of Conduct for the RFP will be reviewed for possible updates and activated as soon as possible. However, if the Hawaiian Electric Development Team determines at any time that it will not pursue a Hawaiian Electric Development Team option for a particular RFP,

the Code of Conduct may be de-activated.

B. Upon the activation of the Code of Conduct, members of the Company RFP Team and the Hawaiian Electric Development Team must then conduct activities on the RFP or Hawaiian Electric proposal process in compliance with the Code of Conduct. Once identified and having commenced work, no information may be shared outside the respective team members with respect to the RFP or a Hawaiian Electric proposal except through the formal communication processes outlined above.

C. Immediately upon assignment to a Company team (RFP Team or Hawaiian Electric Development Team), designation as a Shared Resource, or request to assist as an Unassigned Company Resource, each such employee or consultant must review this Manual, and sign the Code of Conduct Acknowledgement.

D. It is the responsibility of each team to fill vacant team positions with employees that have not been previously assigned as a team member for the other team (e.g., the RFP Team and the Development Team) except, if applicable, in accordance with the transfer rules of Part III.B.4 herein.

E. Each employee and consultant working on the RFP shall review the Code of Conduct and sign the Code of Conduct Acknowledgement attesting to his/her compliance with the Code of Conduct until the employee is no longer working in the position he/she was in while working on the RFP.

F. The Energy Contract Manager will be responsible for maintaining the Roster and the signed Code of Conduct Acknowledgements. The Company Executive in Charge shall be responsible for ensuring compliance with the Code of Conduct and shall have the written authority and obligation to enforce the Code of Conduct.

VI. IMMEDIATE ACTIONS UPON ACTIVATION OF THE CODE OF CONDUCT

The following items are required to be completed as soon as possible after

activation of the Code of Conduct, but no later than the designated events specified for each item below.

A. Prior to development of the requirements for the RFP, a Roster listing employees and consultants in their role; Company RFP Team, Hawaiian Electric Development Team, Shared Resource or Unassigned Company Resource will be generated. When the IO is appointed, this Roster shall be provided to him/her. The Roster shall be placed in the RFP Communication Tool Kit SharePoint Site so that any Company personnel can access the database to determine the identity of the respective teams and Shared Resources.

B. Upon the finalization of the Roster for the RFP, the Energy Contract Manager shall verify that all employees (whether full-time, part-time, temporary, or contract) and consultants involved in the competitive bidding process, such as members of the Company RFP Team, the Hawaiian Electric Development Team, Shared Resources or Unassigned Company Resources, have acknowledged receipt of the Code of Conduct and his or her responsibility to comply with the Code of Conduct by submitting the Code of Conduct Acknowledgement (with electronic acknowledgment being acceptable). If an employee or consultant is later added to a team, the Energy Contract Manager shall also verify that such employee or consultant has submitted the Code of Conduct Acknowledgment.

C. Prior to any solicitation for comments or questions to the RFP, establishment of the Company email address to accept requests for information from Proposers, including the Hawaiian Electric Development Team or any Affiliate Team.

D. Prior to the drafting of any documents for any particular RFP, establishment of the Company-secured site that houses the accessible database (such as SharePoint).

VII. WHEN THE CODE OF CONDUCT TERMINATES

A. The Code of Conduct for the RFP will terminate after the following two conditions are met when:

- the Final Award Group has been announced, or when written notice of termination of the RFP to be conducted under the Framework is provided by the Manager of Energy Procurement or his/her designee to the IO and the Commission, and
- a certification of Code of Conduct compliance by all employees participating in the RFP process is submitted by affidavit by the Company Executive in Charge.

VIII. DOCUMENTATION FORMS

The following documentation forms may be utilized by those Company personnel involved in the RFP. These forms may be amended from time to time as necessary. Additional forms may also be developed as determined necessary.

- Code of Conduct Acknowledgement
- Communications Log
- Roster

IX. APPLICABILITY OF THE ATRs

Except as specifically made applicable under Section V.C.1.i of the ATRs with respect to wholesale power procurement from Affiliates, the ATRs shall not apply to RFP matters covered by the Framework, the Code of Conduct and this Procedures Manual as it relates to the Company's interactions between the Company RFP Teams and Affiliate Teams. Reference to the ATRs in the Code of Conduct and/or this Manual are specifically for matters outside the Company's administration of the RFP; provided, however, that such applicability may be revised as necessary and as may be directed by the Commission for any RFP.[1]

[1] See Decision and Order No. 35962, filed on December 19, 2018, in Docket 2018-0065, at 56-57.

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REQUEST FOR PROPOSALS

FOR

RENEWABLE DISPATCHABLE GENERATION

AND

ENERGY STORAGE

APRIL 3, 2025

Appendix D – Electronic Procurement Platform User Information

Hawaiian Electric

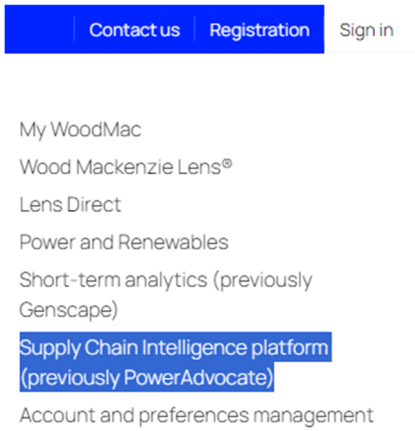
Wood Mackenzie Supply Chain Intelligence Platform[1]

Quick Start for Suppliers[2]

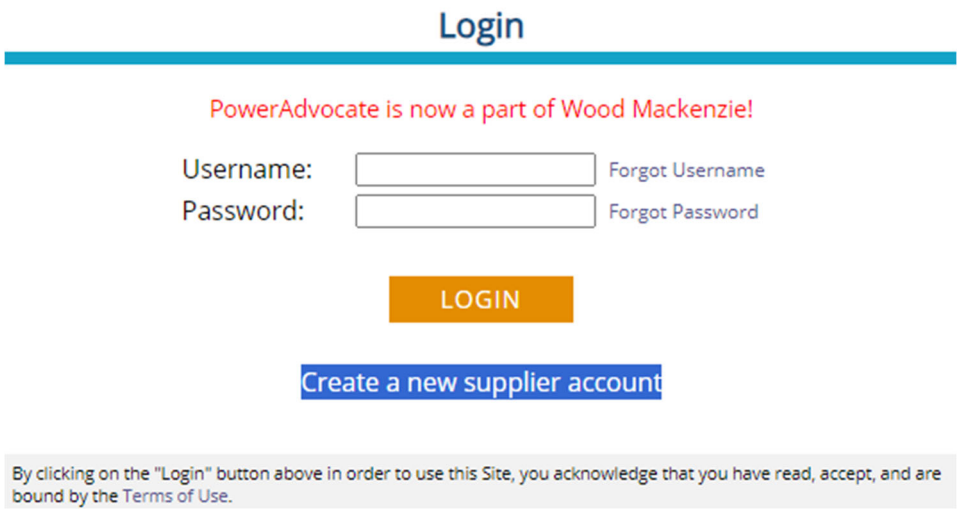
Registering

Proposers can register for an account by going to: **www.woodmac.com**

In the top right corner of the webpage, there is a "Sign in" pull down menu. Select "Supply Chain Intelligence platform (previously PowerAdvocate)".



At the login screen, select "Create a new supplier account".



[1] Also referred to as PowerAdvocate in prior RFPs, PowerAdvocate became Wood Mackenzie Supply Chain. Any reference to PowerAdvocate in this RFP is referring to the Wood Mackenzie Supply Chain Intelligence Platform.
[2] If any language in this RFP refers to a "Bid Event Coordinator", "Supplier", or "bid event", these are terms used by Sourcing Intelligence and refer to the RFP's Energy Contract Manager, Proposer, and RFP, respectively.

The Proposer's use of the Electronic Procurement Platform is governed by Wood Mackenzie Supply Chain Intelligence Platform's Terms of Use. By registering as a "Supplier" on the Electronic Procurement Platform, the Proposer acknowledges that the Proposer has read these Terms of Use and accepts and agrees that,each time the Proposer uses the Electronic Procurement Platform, the Proposer will be bound by the Terms of Use accessible through the link(s) on the Supply Chain Intelligence Platform login page.

Once a Proposer has successfully registered as a "Supplier" with Supply Chain Intelligence Platform, the Proposer shall request access to the subject RFP event from the Company Contact via Email through the RFP Email Address set forth in Section 1.7 of the RFP. The Email request must list the Company Name field and username under which the Proposer has registered. If the Proposer plans to submit multiple Proposals and has registered multiple accounts in accordance with the instructions above, the Email request must contain the Company Name field and username for each account that will be used to submit the Proposals. After being added to the event, the Proposer will see the bid event on their dashboard upon logging into the Electronic Procurement Platform. Once the RFP event opens, the Proposer may begin submitting their Proposal(s).

After registering and prior to the opening of the RFP, Proposers are encouraged to familiarize themselves with the Electronic Procurement Platform, including its tabs and dashboards. Proposers should note that they will not be able to access any documents made available to download until the event officially opens.

Proposers may contact Wood Mackenzie Supply Chain's Support for help with registration or modification of registration if desired. Support is available both by phone (857-453-5800) and by Email (support@poweradvocate.com) Monday to Friday from 8 AM to 8 PM Eastern Time (2 AM to 2 PM Hawai'i Standard Time when daylight savings is in effect), except for Holidays posted on the Wood Mackenzie Supply Chain website.[3]

Once the RFP event is opened, registered Proposers will have online access to any documents made available for download via the Electronic Procurement Platform. Proposers should also always monitor the RFP Website throughout the RFP event.

Logging In

1. Launch a web browser and go to **https://www.woodmac.com/products/supply-chain-intelligence/**
2. Either click on the "Power Advocate Login →" or click the Sign in button and select **Supply Chain Intelligence platform (previously PowerAdvocate)**.
3. Enter your account **User Name** and **Password** (both are case-sensitive) and click **Login.**
4. Click the **Events** tab if it is not already displayed.

[3] Contact information for Wood Mackenzie Supply Chain's Support can also be found on the bottom border of the Wood Mackenzie Supply Chain website.

Dashboard

The Sourcing Intelligence Dashboard lists the events you have been invited to. A line divides currently accessible events from others.



- Click an event name to view its Status tab, which displays a summary of the event activity and key event dates. To view specific details of an event, click the buttons 1-5 to view the corresponding tab.
- To return to the Dashboard, click **Dashboard** in the navigation bar at the top of the window.
- An event will not appear on your Dashboard until you have been added as a participant.

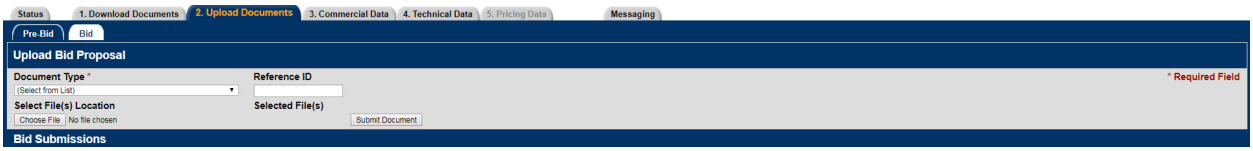
Downloading Bid Package Support Documents

Any documents offered from Electronic Procurement Platform will be available from the "1. Dowload Documents" tab of an event. To view these documents,

- To view or download a document, click the file name.
- To download multiple documents:
    1. Select the checkbox in the Download column for each document you wish to download or click **Select All**.
    2. Click **Download Selected Files**.
    3. Click **Start** to download a zip file containing the selected documents.

Uploading Documents

To upload your documents, click "2" on your Dashboard, or on the **2. Upload Documents** tab from within the event.



- To upload a document to the Bid tab:
  1. Specify a **Document Type** (Reference ID can be left blank).
  2. Click **Choose File**, navigate to and select the document, and then click Open; multiple files can also be compressed into one .zip file for upload.
  3. Click **Submit Document**.

Datasheets

Datasheets (3. Commercial Data, 4. Technical Data, 5. Pricing Data) will not be used in this RFP event. All Proposal information will be uploaded for submission through the **2. Upload Documents** tab. (Buttons/tabs should be grayed out as the event is not using any type of datasheet.)

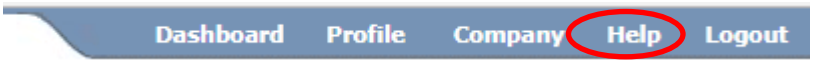


Communicating with the Bid Event Coordinator/Company Contact

Suppliers should use Email to contact the Company Contact (called Bid Event Coordinators in Sourcing Intelligence terms) while the bid event is open. In this RFP, PowerAdvocate Messaging will not be used unless the Company instructs a Proposer to do so.

Getting More Information

- Click **Help** on the navigation bar to display online help.



- Supplier documentation can be downloaded from the online help system.
- Call Wood Mackenzie Supply Chain's Support at 857-453-5800 (Mon-Fri, 8 a.m. to 8 p.m. Eastern Time) or e-mail support@poweradvocate.com.

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Appendix E – Mutual Confidentiality and Non-Disclosure Agreement

Hawaiian Electric

MUTUAL CONFIDENTIALITY AND NON-DISCLOSURE AGREEMENT
Independent Power Producers – ("IPPs")

This Mutual Confidentiality and Non-Disclosure Agreement (this "Agreement") is effective as of _____ (the "Effective Date") between _____, a _____ ("IPP") and Hawaiian Electric Company, Inc. and Hawai'i Electric Light Company, Inc., each a Hawai'i corporation (collectively, the "Companies"). In consideration of the mutual promises contained in this Agreement, including the provision of Confidential Information (as defined below) by either party to the other hereunder, and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties agree as follows:

1. Background

The Companies have or intend to issue a Request for Proposals ("RFP") for renewable energy generation and/or storage projects. The IPP has or intends to submit one or more proposals in response to this RFP ("Proposal").

In connection with the IPP's proposed project, the Companies may conduct an interconnection requirements study ("IRS") to establish the requirements for interconnection of the IPP's proposed project to the Companies' electric grid. The RFP process may also result in the award of a potential power purchase agreement, the terms of which must be agreed upon by the parties ("PPA Negotiations"). For purposes of this Agreement, the term "Project" refers to the RFP, Proposal, potential IRS and PPA Negotiations.

In order to evaluate the Project, either party may from time to time provide to the other party certain Confidential Information. The parties are willing to provide such Confidential Information to each other upon the terms and conditions of this Agreement.

2. Confidential Information

Except as set forth in Section 3 (Exclusions from Confidential Information) below, "Confidential Information" means all non-public, confidential or proprietary information disclosed by either party (the "Provider") to the other party (a "Recipient") its affiliates and its and their directors, officers, employees, agents, advisors, consultants, contractors, financing parties and investors (including, without limitation, financial advisors, counsel and accountants) and controlling entities or individuals (collectively, "Representatives") whether disclosed orally or disclosed or accessed in written, electronic or other form of media, and whether or not marked or otherwise identified as "confidential," including, without limitation:

(a) all information concerning the Provider and its affiliates', and their customers', contractors', suppliers', financing parties', investors' and other third parties' past, present and future business affairs including, without limitation, finances, customer information, supplier information, pricing and cost information, products, services, designs, processes, organizational

structure and internal practices, forecasts, sales and other financial results, records and budgets, business, marketing, development, sales, other commercial information and strategies, and negotiating positions and drafts made or exchanged between IPP and the Companies during negotiations or other discussions prior to such negotiated documents or agreements becoming public;

(b) all "Personally Identifiable Information," which shall include all information belonging to an individual that may be used to track, locate, or identify such individual, or which is otherwise protected by privacy laws, including but not limited to IP address, residential address, personal telephone number, social security number, date of birth, government-issued identification number, financial account number, personal email address, and username or password, all of which shall always be considered and deemed to be Confidential Information whether marked as "confidential" or not;

(c) all "Critical Infrastructure Confidential Information" concerning the Companies' generation, transmission, and distribution systems or its information technology or security systems, including but not limited to all designs, specifications, components, source code, object code, images, icons, audiovisual components and objects, schematics, drawings, protocols, processes, and other visual depictions, in whole or in part, of any of the foregoing, all of which shall always be considered and deemed to be Confidential Information whether marked as "confidential" or not;

(d) the Provider's unpatented inventions (whether or not they are patentable), ideas, methods and discoveries, techniques, formulations, development plans, trade secrets, know-how, unpublished patent applications and other confidential intellectual property;

(e) all previously disclosed information designated as or deemed to be "Confidential Information" under previous nondisclosure and confidentiality agreements executed between the parties, whether expired or still in effect, it being the understanding of the parties that any/all such agreement(s) be deemed superseded by this Agreement and that all Confidential Information exchanged between the parties to date shall be henceforth governed by this Agreement;

(f) any third-party confidential information included with, or incorporated in, any information provided by the Provider to the Recipient or its Representatives, including source code of any of Provider's vendors or suppliers; and

(g) all notes, analyses, compilations, reports, forecasts, studies, samples, data, statistics, summaries, interpretations and other materials ("Notes") prepared by or for the Recipient or its Representatives that contain, are based on, or otherwise reflect or are derived from, in whole or in part, any of the foregoing.

IPP and the Companies understand that in the course of obtaining approval of the Project, any documents filed with the State of Hawai'i Public Utilities Commission ("Commission") may be considered government records subject to the Uniform Information Practices Act ("UIPA"), Hawai'i Revised Statutes ("HRS") Chapter 92F.

All written Confidential Information provided to the Companies by IPP and marked as "confidential" in response to a request by the Companies for purposes of filing such information with the Commission shall be accompanied in writing by (1) a clear statement of the basis for its confidential status, including the applicability of any UIPA exceptions under HRS § 92-13, (2) a description, with particularity, of the cognizable harm to IPP if such information were to be disclosed publicly, and (3) if applicable, any additional justification or harm to IPP were the Confidential Information to be disclosed to other parties or participants in the subject Commission proceeding (collectively, the "Justification"). IPP expressly allows the Companies to disclose or otherwise use the Justification in order to justify withholding the Confidential Information from public disclosure in accordance with this Agreement, including without limitation, filing of the information in a Commission proceeding pursuant to Section 4(e) below and, to the extent necessary, any required disclosure pursuant to Section 5 (Required Disclosure and Notice) below. The IPP will provide the Companies with such Justification within three (3) business days of the Companies' written request for such Justification, provided that if the Companies are given less than five (5) business days by the Commission to produce the Justification, then the IPP will provide the Companies with the Justification not less than 24 hours before the Companies' due date for such Justification, provided that (1) the Companies provides the IPP with the request as soon as reasonably practicable and (2) to the extent possible, IPP shall be given at least one full business day to provide the Justification.

A Provider shall be permitted to designate as "confidential" information previously provided to Recipient at which point such information shall become and be deemed to be Confidential Information under this Agreement, provided that such information is not specifically excluded under Section 3 (Exclusions from Confidential Information) below. Notwithstanding anything to the contrary stated herein, any "Confidential Information" previously provided by IPP under any previously executed nondisclosure and confidentiality agreement shall not require a Justification unless such is requested by the Companies in connection with a required or anticipated disclosure described herein.

3. Exclusions from Confidential Information

Except as required by applicable federal, state, or local law or regulation, the term "Confidential Information" as used in this Agreement shall not include information that:

(a) at the time of disclosure is, or thereafter becomes, generally available to and known by the public other than as a result of, directly or indirectly, any violation of this Agreement by the Recipient or any of its Representatives; provided, however, that Confidential Information shall not be disqualified as Confidential Information (i) merely because it is embraced by more general or generic information which is in the public domain or available from a third party, or (ii) if it can only be reconstructed from information taken from multiple sources, none of which individually shows the whole combination (with matching degrees of specificity);

(b) at the time of disclosure is, or thereafter becomes, available to the Recipient on a non-confidential basis from a third-party source, provided that such third party is not and was not prohibited from disclosing such Confidential Information to the Recipient by a contractual or other obligation to the Provider;

(c) was known by or in the possession of the Recipient or its Representatives, as established by documentary evidence, prior to being disclosed by or on behalf of the Provider pursuant to this Agreement;

(d) was or is independently developed by the Recipient, as established by documentary evidence, without reference to or use of, in whole or in part, any of the Provider's Confidential Information; or

(e) was or is learned or established entirely from public sources, as established by documentary evidence, without reference to or use of, in whole or in part, any of the Provider's Confidential Information.

PROVIDED, however, that under no circumstance shall Critical Infrastructure Confidential Information ever be deemed to be excluded from being considered or deemed Confidential Information.

The parties acknowledge and understand that the confidentiality obligations of this Agreement apply only to the Confidential Information shared in connection with the Project. The parties may share other information with each other under other agreements, provisions or understandings which are not related to the Project. Such information sharing shall be subject to the provisions of the agreements and confidentiality provisions associated thereto and this Agreement shall not be construed to infringe upon or apply to such agreements or provisions.

4. Non-Disclosure of Confidential Information

Unless otherwise agreed to in writing by the Provider, the Recipient agrees as follows:

(a) except as required by law, not to disclose or reveal any Confidential Information to any person or entity other than its Representatives who are actively and directly participating in or advising on the evaluation, consummation, approval, development, investment, financing, construction or operation of the Project, and where the Companies are the Recipient, Companies' operation as an electric utility (the "Acceptable Purposes"), or those Representatives who otherwise need to know the Confidential Information for such Acceptable Purposes.

(b) not to use Confidential Information for any purpose other than in connection with the Acceptable Purposes.

(c) except as required by law, not to disclose to any person or entity (other than those of its Representatives who are actively and directly participating in the Acceptable Purposes or those Representatives who otherwise need to know such Confidential Information for such Acceptable Purposes) any information about the Project, or the terms or conditions or any other facts relating thereto, including, without limitation, the fact that discussions are taking place with respect thereto or the status thereof, or the fact that Critical Infrastructure Confidential Information has been made available to the Recipient or its Representatives.

(d) to use diligent efforts to safeguard and protect the confidentiality of the Confidential Information, including, at minimum, implementing the same commercial measures that the Recipient uses to protect its own confidential information. Before disclosing the Confidential Information to any Representative, the Recipient will inform such Representative of the confidential nature of such information, their duty to treat the Confidential Information in accordance with this Agreement and shall ensure that such Representative is legally bound by the terms and conditions of this Agreement or subject to confidentiality duties or obligations to the Recipient that are no less restrictive than the terms and conditions of this Agreement.

(e) Any provision herein to the contrary notwithstanding, the Companies and IPP may disclose Confidential Information to (i) the Commission's independent observer, provided that such disclosure is made pursuant to a non-disclosure agreement with the independent observer; and (ii) the Commission and/or the State of Hawai'i Division of Consumer Advocacy (including their respective staffs) provided that such disclosure is made under a protective order entered in the docket or proceeding with respect to which the disclosure will be made or any general protective order entered by the Commission. If IPP is a party or participant in the docket or proceeding under which disclosure of IPP's Confidential Information is being sought, IPP shall be solely responsible for providing the Justification associated with such Confidential Information.

5. Required Disclosure and Notice

If the parties or any of their Representatives become legally compelled (by deposition, interrogatory, request for documents, information request, subpoena, civil investigative demand, court order, or similar process) to disclose any of the Confidential Information (other than a situation covered by Section 4(e) above), the compelled party shall undertake reasonable efforts to provide the other party with notice within three (3) business days of such requirement or advice prior to disclosure so that the other party may (a) seek a protective order or other appropriate remedy, (b) consult with the other party with respect to the compelled party taking steps to resist or narrow the scope of such requirement or advice, and/or (c) waive compliance, in whole or in part, with the terms of this Agreement. If such protective order or other remedy is not obtained, or the other party waives compliance with the provisions hereof, the compelled party agrees to furnish only that portion of the Confidential Information which it is legally required to so furnish and, at the request of the other party, to use reasonable efforts to obtain assurance that confidential treatment will be accorded such Confidential Information, it being understood that such reasonable efforts shall be at the cost and expense of the party whose Confidential Information has been sought. In any event, neither the IPP nor any of its Representatives will oppose action by the Companies to obtain an appropriate protective order or other reliable assurance that confidential treatment will be accorded the Confidential Information.

6. Return or Destruction of Confidential Information

At any time during or after the term of this Agreement, at the Provider's written request, and in any event, upon the termination of the Agreement, the Recipient shall certify within ten (10) business days that it has destroyed all Confidential Information by using industry standard data elimination methods used to prevent unauthorized disclosure of information, and for Personally Identifiable Information, such methods shall be consistent with HRS Chapter 487-R; provided,

however, that with respect to Confidential information in tangible form, the Recipient may return such Confidential Information to the Provider within ten (10) business days in lieu of destruction. The Recipient's sole obligation with respect to the disposition of any Notes shall be to redact or otherwise expunge all such Confidential Information from such Notes and certify to the Provider that it has so redacted or expunged the Confidential Information. Notwithstanding the foregoing, with respect to any Confidential Information stored in Recipient's disaster recovery backups or other electronic archives, Recipient is not required to destroy such Confidential Information if it would impose a material cost or burden; provided, however, such Confidential Information shall be destroyed when such archives are destroyed in accordance with Recipient's records retention policies.

7. Authority

Each party represents and warrants that it has full power and authority to enter into and perform this Agreement, and the person signing this Agreement on behalf of each has been properly authorized and empowered to enter into this Agreement, understands it and agrees to be bound by it.

8. No Representations or Warranties

Neither the Provider nor any of its Representatives make any express or implied representation or warranty as to the accuracy or completeness of any Confidential Information disclosed to the Recipient hereunder, and the Recipient agrees that it is not entitled to rely on the accuracy or completeness of any Confidential Information. Neither the Provider nor any of its Representatives shall be liable to the Recipient or any of its Representatives relating to or arising from the use of any Confidential Information or for any errors therein or omissions therefrom. Notwithstanding the foregoing, the Recipient shall be entitled to rely solely on such representations and warranties regarding Confidential Information as may be made to it in any final agreement relating to the Project, subject to the terms and conditions of such agreement.

9. No Other Obligations

Neither this Agreement nor the disclosure of the Confidential Information shall result in any obligation on the part of either party to enter into any further agreement with the other with respect to the subject matter hereof or otherwise, to purchase any products or services from the other, or to require either party to disclose any further information to the other. Nothing in this Agreement shall be deemed to constitute either party hereto as partner, agent or representative of the other party or to create any fiduciary relationship between the parties. Either party may offer products or services which are competitive with products or services now offered or which may be offered by the other. Subject to the express terms and conditions of this Agreement, neither this Agreement nor discussions and/or communications between the parties will impair the right of either party to develop, make, use, procure, and/or market any products or services, alone or with others, now or in the future, including those which may be competitive with those offered by the other. Whether or not the Project is consummated, neither party shall issue a press release or release any information to the general public concerning such transaction or the absence thereof without the express prior written consent of the other, and the parties agree that neither party will

use the other's name whether by including reference to the other in any press release, list of customers advertising that its services are used by Companies or otherwise, without written authorization by the respective party's authorized representative.

10. Property Rights in Confidential Information

All Confidential Information shall remain the sole and exclusive property of the Provider and nothing in this Agreement, or any course of conduct between the parties shall be deemed to grant to the Recipient any license or rights in or to the Confidential Information of the Provider, or any part thereof. Unless otherwise expressly agreed in a separate license agreement, the disclosure of Confidential Information to the Recipient will not be deemed to constitute a grant, by implication or otherwise, of a right or license to the Confidential Information or to any patents or patent applications of the Provider.

11. Publicly Traded Company

The IPP acknowledges that the Companies' holding company is a publicly traded company, and that Confidential Information of the Companies may constitute material, non-public information with respect to the Companies. The IPP understands, and will advise its Representatives to whom Confidential Information of the Companies is disclosed, of the restrictions imposed by the United States securities laws on (a) the purchase or sale of securities by any person in possession of material, non-public information with respect to such securities, and (b) the communication of material, non-public information with respect to securities to a person who may purchase or sell such securities in reliance upon such information.

12. Remedies

(a) Each party acknowledges and agrees that any breach or threatened breach of this Agreement may give rise to an irreparable injury to the Provider or its Representatives, for which compensation in damages is likely to be an inadequate remedy. Accordingly, in the event of any breach or threatened breach of this Agreement by the Recipient or its Representatives, the Provider shall be entitled to seek equitable relief, including in the form of injunctions and orders for specific performance, in addition to all other remedies available at law or in equity.

(b) In the event that the Recipient learns of dissemination, disclosure, or use of the Confidential Information which is not permitted by this Agreement, the Recipient shall notify the Provider immediately in writing and shall use reasonable efforts to assist the Provider in minimizing damages from such disclosure. Such remedy shall be in addition to and not in lieu of any other rights or remedies available to the Provider at law or in equity.

(c) Recipient shall indemnify, defend and hold harmless Provider and Provider's officers, directors and employees (and each of their heirs, successors and assigns) (the "Indemnified Parties") from and against all losses, damages, claims and actions, including, without limitation, reasonable attorneys' fees and costs, and all expenses incidental to such losses, damages, claims or actions ("Losses"), based upon or arising out of, or to the extent caused or contributed to by the breach of Recipient's confidentiality obligations with respect to Critical

Infrastructure Confidential Information or Personally Identifiable Information; such rights to indemnification shall apply regardless of whether any act, omission, misconduct, negligence or default on the part of the Indemnified Parties contributed to the Losses, unless such act, omission, misconduct, negligence or default by an Indemnified Party was the sole or primary cause of the Losses.

13. Cumulative Remedies

No rights or remedy herein conferred upon or reserved to either party hereunder is intended to be exclusive of any other right or remedy, and each and every right and remedy shall be cumulative and in addition to any other right or remedy under this Agreement**,** or under applicable law, whether now or hereafter existing.

14. Notice

(a) By delivering written notice, either party may notify the other that it no longer wishes to receive or provide Confidential Information. Any further information received or provided by the party who received such notice following receipt of such notice, shall not be subject to the protection of this Agreement.

(b) All notices, consents and waivers under this Agreement shall be in writing and will be deemed to have been duly given when (i) delivered by hand, (ii) sent by electronic mail ("E-mail") (provided receipt thereof is confirmed via E-mail or in writing by recipient), (iii) sent by certified mail, return receipt requested, or (iv) when received by the addressee, if sent by a nationally recognized overnight delivery service (receipt requested), in each case to the appropriate addresses and E-mail Addresses set forth below (or to such other addresses and E-mail addresses as a party may designate by notice to the other party):

(1) Companies:

By Mail:

Hawaiian Electric Company, Inc.
P.O. Box 2750
Honolulu, Hawaii 96840
Attn: Manager of Procurement, Renewable Acquisition Division

Delivered By Hand or Overnight Delivery:

Hawaiian Electric Company, Inc.
Ward Receiving
Mail Code AL12-IU
799 S. King Street
Honolulu, Hawaii 96813
Attn: Manager of Procurement, Renewable Acquisition Division

By E-mail:

Hawaiian Electric Company, Inc.
Attn: Manager of Procurement, Renewable Acquisition Division
Email: renewableacquisition@hawaiianelectric.com

With a copy to:

By Mail:

Hawaiian Electric Company, Inc.
Legal Department
P.O. Box 2750
Honolulu, Hawaii 96840

Delivered By Hand or Overnight Delivery:

Hawaiian Electric Company, Inc.
Ward Receiving
Mail Code AL20-NC
799 S. King Street
Honolulu, Hawaii 96813
Attn: Legal Department

By E-mail:

Hawaiian Electric Company, Inc.
Legal Department
Email: legalnotices@hawaiianelectric.com

(2) IPP

By Mail:

[4]

Delivered By Hand or Overnight Delivery:

_____

By E-mail:

_____

With a copy to:

By Mail:

_____

Delivered By Hand or Overnight Delivery:

_____

By E-mail:

_____

15. No Waiver

Except as otherwise provided in this Agreement, no delay or forbearance of a party in the exercise of any remedy or right will constitute a waiver thereof, and the exercise or partial exercise of a remedy or right shall not preclude further exercise of the same or any other remedy or right.

16. Governing Law

This Agreement is made under, governed by, construed and enforced in accordance with, the laws of the State of Hawai‘i. Any action brought with respect to the matters contained in this Agreement shall be brought in the federal or state courts located in the State of Hawai‘i. Each party agrees and irrevocably consents to the exercise of personal jurisdiction over each of the parties by such courts and waives any right to plead, claim or allege that the State of Hawai‘i is an inconvenient forum or improper venue.

17. Attorneys' Fees and Costs

If there is a dispute between the parties and either party institutes a lawsuit, arbitration, mediation or other proceeding to enforce, declare, or interpret the terms of this Agreement, then the prevailing party in such proceeding shall be awarded its reasonable attorneys' fees and costs.

18. Assignment Prohibited

This Agreement shall be binding upon and inure to the benefit of the parties hereto and their respective successors, legal representatives, and permitted assigns. Neither party shall have the right to assign any of its rights, duties or obligations under this Agreement, by operation of law or otherwise, without the prior written consent of the other party. Any purported assignment in violation of this section shall be null and void.

19. No Third Party Beneficiaries

Nothing expressed or referred to in this Agreement will be construed to give any person or entity other than the parties any legal or equitable right, remedy, or claim under or with respect to this Agreement or any provision of this Agreement. This Agreement and all of its provisions and conditions are for the sole and exclusive benefit of the parties and their successors and permitted assigns.

20. Entire Agreement

This Agreement constitutes the entire agreement between the parties relating to the subject matter hereof, superseding all prior and contemporaneous agreements, understandings or undertakings, oral or written with respect to the subject matter. Any amendment or modification of this Agreement or any part hereof shall not be valid unless in writing and signed by the Parties. Any waiver hereunder shall not be valid unless in writing and signed via by the party against whom waiver is asserted.

21. Term and Survival

This Agreement shall remain in full force and effect for a period of five (5) years from the Effective Date. All confidentiality obligations of this Agreement with respect to Confidential Information provided to Recipient during the term of this Agreement shall survive following

expiration or termination of this Agreement until such Confidential Information is returned to Provider or destroyed in accordance with Section 6 hereinabove.

22. Severability

If any term or provision of this Agreement, or the application thereof to any person, entity or circumstances is to any extent invalid or unenforceable, the remainder of this Agreement, or the application of such term or provision to persons, entities or circumstances other than those as to which it is invalid or unenforceable, shall not be affected thereby, and each term and provision of this Agreement shall be valid and enforceable to the fullest extent permitted by law, and the parties will take all commercially reasonable steps, including modification of the Agreement, to preserve the economic "benefit of the bargain" to both parties notwithstanding any such aforesaid invalidity or unenforceability.

23. Negotiated Terms

The parties agree that the terms and conditions of this Agreement are the result of negotiations between the parties and that this Agreement shall not be construed in favor of or against any party by reason of the extent to which any party or its professional advisors participated in the preparation of this Agreement.

24. Counterparts and Electronic Signatures

This Agreement may be executed in counterparts, each of which shall be deemed an original, and all of which shall together constitute one and the same instrument binding all parties notwithstanding that all of the parties are not signatories to the same counterparts. For all purposes, duplicate unexecuted and unacknowledged pages of the counterparts may be discarded and the remaining pages assembled as one document. The parties agree that this Agreement and any subsequent writings, including amendments, may be executed and delivered by exchange of executed copies via E-mail or other acceptable electronic means, and in electronic formats such as Adobe PDF or other formats mutually agreeable the parties which preserve the final terms of this Agreement or such writing. A party's signature transmitted by E-mail or other acceptable electronic means shall be considered an "original" signature which is binding and effective for all purposes of this Agreement.

[Signature Page Follows]

IN WITNESS WHEREOF, each party has caused this Agreement to be executed on its behalf by a duly authorized representative, all as of the Effective Date.

HAWAIIAN ELECTRIC COMPANY, INC.

By: _____
Print Name: _____
Its: _____

HAWAII ELECTRIC LIGHT COMPANY, INC,

By: _____
Print Name: _____
Its: _____

"Companies"

_____

By: _____
Print Name: _____
Its: _____

"IPP"

APPENDIX E ATTACHMENT 1

CONFIDENTIALITY, WAIVER, AND HOLD HARMLESS AGREEMENT
(Hawaiian Electric Engineering Standards)

1. This Confidentiality, Waiver, and Hold Harmless Agreement (the "Agreement"), effective upon execution, is executed by **[insert Developer – insert parent developer – not single purpose LLCs]** ("Recipient"), in consideration of **HAWAIIAN ELECTRIC COMPANY, INC.** and **HAWAIʻI ELECTRIC LIGHT COMPANY, INC.** (each individually and collectively, "Hawaiian Electric") providing engineering standards, drawings and/or specifications for equipment owned or to be owned by Hawaiian Electric, in hard copy and/or electronic format (collectively the "Information"), as further identified in Section 8 below, at the request and for the convenience of and use by or on behalf of Recipient for potential bids into the IGP Requests for Proposals for Hawaiʻi Island and Oʻahu (collectively, the "IGP RFP").

2. The Information was prepared for the benefit of Hawaiian Electric only. The Information is being shared with Recipient solely for convenience and is provided "AS-IS", "WHERE IS" and "WITH ALL FAULTS". Hawaiian Electric GIVES NO REPRESENTATION EXPRESS OR IMPLIED INCLUDING ANY IMPLIED WARRANTIES OF QUALITY, MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR OTHERWISE REGARDING THE INFORMATION. Recipient understands, acknowledges and agrees that any reliance upon and use or reuse of such Information for any purpose is at Recipient's sole risk and without liability or legal exposure to Hawaiian Electric and is subject to Recipient's independent professional judgment and experience. Recipient is responsible for performing its own due diligence and making final decisions in all matters relevant to its project. Recipient further acknowledges and agrees that the Information may be updated or revised by Hawaiian Electric at any time or from time to time without further notice or obligation from Hawaiian Electric to Recipient regarding any such update or revision.

3. Recipient, for itself and on behalf of all of its affiliates and its and their directors, officers, employees, agents, advisors, consultants, contractors, financing parties and investors (including, without limitation, financial advisors, counsel and accountants) and controlling entities or individuals (collectively, "Representatives"), agrees to keep the Information confidential and not disclose or reveal any Information to any person or entity other than its Representatives who are actively and directly participating in or advising on the Recipient's potential bids into the IGP RFP (the "Acceptable Purposes"). Recipient and its Representatives may use the Information only for the Acceptable Purposes and not for any other purpose whatsoever.

4. If the Recipient or any of its Representatives becomes legally compelled (by deposition, interrogatory, request for documents, subpoena, civil investigative demand or similar process) or shall be advised by counsel to disclose any of the Information, Recipient shall provide Hawaiian Electric with prompt notice of such requirement or advice prior to disclosure so that Hawaiian Electric may seek a protective order or other appropriate remedy or waive compliance with the terms of this Agreement. If such protective order or other remedy is not obtained, or Hawaiian Electric waives compliance with the provisions hereof, Recipient agrees, and shall cause the compelled party to agree, to furnish only that portion of the Information which it is legally required to so furnish and, at the request of Hawaiian Electric, to use reasonable efforts to obtain assurance that confidential treatment will be accorded such Information, it being understood that such reasonable efforts shall be at the cost and expense of Recipient. Except to its Representatives, Recipient shall not make copies, share or distribute the Information to any other person or entity without first receiving the prior express written consent of Hawaiian Electric, which consent may be granted or withheld in Hawaiian Electric's sole discretion; provided that, should Recipient receive Hawaiian Electric's consent, Recipient shall not make copies, share or distribute the Information to such other recipient without having first obtained from the intended recipient of the Information a duly signed Waiver and Hold Harmless Agreement of the form herein, and having delivered same to Hawaiian Electric. Under no circumstances shall any Recipient be permitted to make copies, share or distribute the Information to any other person or entity.

5. Recipient, through its authorized undersigned representative, acknowledges receipt of such Information and hereby waives any and all rights that it might now or in the future have to claim or bring an action against Hawaiian Electric, its officers, directors, employees, agents and successors, on account of personal injury or death, or damage to or loss of property, arising out of, incident to, or resulting directly or indirectly from such use of Information, whether such injury, death, damage or loss is contributed to by the negligence of Hawaiian

Electric, its officers, directors, employees, agents or servants, and whether due to any imperfections, errors, or omissions in such Information provided to Recipient.

6. Furthermore, Recipient does hereby agree to defend, indemnify, and hold harmless Hawaiian Electric, its officers, directors, employees, agents and successors against any and all actions, causes of action, suits, liabilities, claims, demands, damages, losses, costs or expenses, including but not limited to reasonable attorneys' fees and costs, arising out of, incident to, or resulting directly or indirectly from breach of this Agreement and/or the use of Information by or on behalf of Recipient, including any use of the Information by Recipient's Representatives. It is intended that the obligations agreed to herein shall be binding on the successors and assigns of Recipient.

7. This Agreement is made under and shall be governed by and construed in accordance with the laws of the State of Hawai'i. Recipient agrees and consents that any dispute arising out of this Agreement, however defined, shall be brought in the State of Hawai'i in a court of competent jurisdiction.

8. IDENTIFIED INFORMATION:

Engineer, Procure, Construct Specifications for Hawaiian Electric Substations and Power Lines
Revision: March 2024

9. This Agreement shall remain in full force and effect for a period of five (5) years from the date of execution. All confidentiality obligations of this Agreement with respect to the Information provided to Recipient shall survive following expiration or termination of this Agreement until such Information is returned to Hawaiian Electric. Notwithstanding the above, at any time upon request from Hawaiian Electric, Recipient shall return all copies of the Information to Hawaiian Electric.

ACKNOWLEDGED, AGREED AND ACCEPTED BY:

[Insert Developer]

By_____
Name:
Its:
Date: _____

By_____
Name:
Its:
Date: _____

Certification of Counsel for Proposer
Hawaiian Electric Company, Ltd.

Pursuant to Section 3.6.4 of Hawaiian Electric Company, Ltd.'s ("Company") Request For Proposals for Renewable Dispatchable Generation and Energy Storage ("RFP"), the Company may require legal counsel who represent multiple unaffiliated proposers to sign a certification that such counsel has not shared confidential information obtained through the representation of one proposer with any other unaffiliated proposer.

Accordingly, by signing below, I hereby acknowledge, agree and certify that:

(1) in connection with the RFP, I represent the following entity that submitted a proposal(s) in response to the RFP: _____ ("Proposer");

(2) irrespective of any proposer's direction, waiver or request to the contrary, I will not share a Proposer's confidential information or the Company's confidential information associated with such Proposer, including, but not limited to, a Proposer's or Company's negotiating positions, with third parties unaffiliated with Proposer (by contract or organizational structure), including other proposers responding to the RFP;

(3) the Company may rely on this certification for purposes of the RFP; and

(4) at the conclusion of power purchase agreement negotiations, if any, the Company may require me to sign a certificate certifying that I have not shared a Proposer's confidential information or the Company's confidential information associated with such Proposer, including, but not limited to, a Proposer's or Company's negotiating positions, with third parties unaffiliated with Proposer (by contract or organizational structure), including other proposers responding to the RFP.

_____
Name (print)

_____
Law Firm (if applicable)

_____ _____
Signature Date

Section 3.6.4 of the RFP provides in relevant part that:

In submitting a Proposal in response to this RFP, each Proposer certifies that the Proposal has been submitted in good faith and without fraud or collusion with any other unaffiliated person or entity. The Proposer shall acknowledge this in the Response Package submitted with its Proposal. Furthermore, in executing the NDA provided as Appendix E, the Proposer agrees on behalf of its Representatives (as defined in the NDA) that the Company's negotiating positions will not be shared with other Proposers or their respective Representatives.

In addition, in submitting a Proposal, a Proposer must provide the Company with its counsel's written certification in the form attached as Attachment 2 to Appendix E certifying in relevant part, that irrespective of any Proposer's direction, waiver, or request to the contrary, the attorney will not share a Proposer's confidential information associated with such Proposer with others, including, but not limited to, such information such as a Proposer's or the Company's negotiating positions. If counsel represents multiple unaffiliated Proposers whose Proposals are selected for the Final Award Group, such counsel will also be required to submit a similar certification at the conclusion of contract negotiations that he or she has not shared a Proposer's confidential information or the Company's confidential information associated with such Proposer with others, including but not limited to, such information as a Proposer's or the Company's negotiating positions.

DRAFT

REQUEST FOR PROPOSALS

FOR

RENEWABLE DISPATCHABLE GENERATION

AND

ENERGY STORAGE

APRIL 3, 2025

Appendix F – [Reserved]

Hawaiian Electric

DRAFT

REQUEST FOR PROPOSALS

FOR

RENEWABLE DISPATCHABLE GENERATION

AND

ENERGY STORAGE

APRIL 3, 2025

Appendix G – Hawaiian Electric Development Team Certification Form

Hawaiian Electric

Hawaiian Electric Proposal

Overview

To the extent that there are Hawaiian Electric Proposals submitted in response to this RFP, the Company will endeavor to evaluate these Hawaiian Electric Proposals on a fair basis compared to third party Proposals. As described in Section 3.8.1 of the RFP, "[t]he Revised Competitive Bidding Framework allows the Company the option to offer a Self-Build Proposal in response to this RFP ("Hawaiian Electric Proposal"). Accordingly, the Company must follow certain requirements and procedures designed to safeguard against and address concerns associated with: (1) preferential treatment of the Hawaiian Electric Proposal or members, agents or consultants of the Company formulating the Hawaiian Electric Development Team; and (2) preferential access to proprietary information to the Hawaiian Electric Development Team." A Hawaiian Electric Proposal will be required to comply with the provisions in the Revised Framework for Competitive Bidding ("Revised Framework" or "Revised Competitive Bidding Framework") as well as this RFP.

In addition to its Proposal, the Hawaiian Electric Development Team will be required to submit Attachment 1 to this Appendix G, Hawaiian Electric Development Team Certification Form, acknowledging it has followed the rules and requirements of the RFP to the best of its ability and has not engaged in any collusive actions or received any preferential treatment or information providing an impermissible competitive advantage to the Hawaiian Electric Development Team over other proposers responding to this RFP, as well as adherence to PPA terms and milestones required of all proposers and the Hawaiian Electric Proposal's proposed cost protection measures.

Pursuant to the Revised Framework and as set forth in the RFP Schedule, the Company will require that the Hawaiian Electric Proposal be submitted electronically through the Electronic Procurement Platform a minimum of one (1) day before other Proposals are due.

Except where specifically noted, a Hawaiian Electric Proposal must adhere to the same price and non-price Proposal requirements as required of all Proposers.

As described in Section 3.8.3 of the RFP, if selected, a Hawaiian Electric Proposer will not be required to enter into an IGP Contract with the Company. However, the Hawaiian Electric Proposer will be held to the proposed modifications to the IGP Contract, if any, it submits as part of the Hawaiian Electric Proposal in accordance with Section 3.8.3 of the RFP. Moreover, the Hawaiian Electric Proposal will be held to the same performance metrics and milestones set forth in the IGP Contract to the same extent as all Proposers, as attested to in the Hawaiian Electric Development Team Certification submittal. If liquidated damages are assessed, they will be paid from shareholder funds and returned to customers through the Purchased Power Adjustment Clause or other appropriate rate adjustment mechanisms.

In lieu of price components, the Hawaiian Electric Proposal will need to provide their total project capital costs, any associated annual O&M costs, as well as annual revenue requirements by year

(see Appendix B, Section 2.0). The Hawaiian Electric Proposal shall submit revenue requirement worksheets with their Proposal that support their annual revenue requirements estimates. (See RFP Section 3.12.4 and Appendix B, Section 2.1.) A starter revenue requirements template example can be requested by the Hawaiian Electric Development Team via email to the RFP Email Address once the RFP event opens. The revenue requirements worksheets submitted will be customized by the Hawaiian Electric Development Team to reflect the details of the Project's Proposal. All assumptions used will be reflected in an assumptions input tab.

Hawaiian Electric Proposal Total Project Capital Cost

The high-level breakdown of estimated development and capital costs followed by a narrative explanation required for a potential Hawaiian Electric Proposal is outlined in Section 2.3.2.2 of Appendix B and set forth below. The total project capital cost (and annual O&M costs) will be used to calculate the Revenue Requirement, which will then be used to calculate a levelized energy price for Proposal comparison purposes.

- Facility (including any generation and storage components) - This line item, to the extent applicable, should include costs such as:

  Engineering, Procurement, and Construction ("EPC") Contract
  The total cost estimate of the facility is the projected EPC contract cost including the design of the facility up to the high-voltage terminals of the step-up transformers, procurement of all the equipment, and services necessary to build the facility and construction and commissioning of the facility.

  Allowance for Change Orders
  This allocation accounts for items such as additional requirements resulting from unforeseen conditions, unexpected permitting requirements, force majeure events, unanticipated interferences, different interpretations of design requirements, material unavailability, and longer than normal delivery times.

  Equipment
  This cost includes the generator and the facility equipment that support the operation of the generator and the distribution of electrical power around the station, as applicable. Engineering and testing services required to ensure that the equipment is properly functioning at the site, training and documentation necessary to operate and maintain the equipment, and performance guarantees may also be included here.

  Owner's Cost
  Owner's costs for the facility are all the costs necessary for the design, permitting, procurement, construction, and commissioning of the facility and for the preparation of the Proposal that are not included in the major contracts (i.e. EPC). The Companies' Labor includes Project Management, Station Operator training and commissioning, Environmental, Safety, Legal, Corporate Communications, Community and Government Relations, Engineering, and Regulatory Affairs. Company Labor for the preparation of the Proposal is also included here. For

purposes of recovery, only the incremental costs of Labor will be subject to separate recovery.

- Outside Services - This line item, to the extent applicable, should include costs such as:
    - Construction Management to oversee the EPC contractor
    - Legal for the preparation of the Environmental Impact Statement and PUC process
    - Engineering for development and evaluation of the project technical specifications, Interconnection Requirements Study (IRS) and emissions testing
    - Environmental to conduct the Environmental Impact Statement (EIS) and Air Permit consulting
    - General Services such as surveys, land appraisals, Environmental Condition Reports, public relations, office trailer rental, archeological services, landscaping, miscellaneous permits, builder's risk insurance, switchgear testing, hazard analysis, painting, monitoring services, and moving costs.
    - Material costs including spare parts, furnishings, IT equipment, appliances, generator system initial fills (fuels, oils, water), and telecommunications equipment for the station.
    - Travel costs required to inspect other similar facilities, observe final acceptance testing of critical equipment, and station operators' factory training

- Interconnection – This line item covers all interconnection costs that a similarly situated IPP would be responsible for as described in RFP Section 2.4, and to the extent applicable, should include costs such as:

    Transmission Line
    The cost estimate includes the design, procurement, and construction of any new transmission infrastructure needed to interconnect with the designated substation.

    Switchyard
    Work at the switchyard will include design, procurement, and construction of the switchyard and the interfaces between the high voltage terminals of the generator step-up transformers and the transmission line to which it will be connected. Site preparation of the switchyard and the design, procurement, and installation of the step-up transformers located in the switchyard, are typically included in the EPC contract.

    Substation
    Work at the designated substation that will include the design, procurement, and construction of the interfaces between the new transmission line and the substation buswork to which it will be connected.

Telecom
Accounts for direct labor, materials, and outside services to install telecommunication requirements for the project.

Project Management
Cost estimate of the project management design, procurement, contracting, and scheduling efforts for the interconnection only. Project management costs for the facility are included in the Owner's Cost estimate above.

Interconnection costs should be categorized as relating to either Seller-Owned Interconnection Facilities or Company-Owned Interconnection Facilities. See Appendix B, Section 2.3.2.2.

- Overhead Costs

Overhead costs for the proposed facility will be estimated by the Company's budgeting software (UI Planner) and represent an allocation for those Company costs that are not attributable to any particular project or operation, but are essential nonetheless. Overheads are comprised of non-productive wages (such as holiday, sick, and vacation pay), employee benefits, payroll taxes, corporate administrative costs, and clearing costs.

- Allowance for Funds Used During Construction ("AFUDC")

The AFUDC will be calculated using the Company's budgeting software (UI Planner) and represents the cost of capital funding for the Project. The Company strives to minimize the cost of the AFUDC by ensuring that Project elements that are used or useful are placed in service as soon as possible, as well as minimizing the amount of time that AFUDC can accumulate, by minimizing the amount of time between expenditures on Project elements and their placement in service.

The Hawaiian Electric Proposal will include a Revenue Requirement for each year, which is calculated from the total project capital cost to determine the revenues needed to recover the cost of the project. The value of the Revenue Requirement Calculation for the Total Hawaiian Electric Proposal Project Capital Cost will be included in the Levelized Price calculation described below.

- Allowance for Funds Used During Construction ("AFUDC")

The cost for ongoing O&M (fixed and variable) will be a component of the Revenue Requirement. All O&M should be included in this category, unless captured elsewhere in the Revenue Requirement Calculation, including but not limited to annual O&M expense to maintain facility; property taxes (if applicable), and insurance. As described in RFP Appendix G, a Hawaiian Electric Proposal will be required to cap its O&M costs at the amount included in the Proposal. Only actual costs will be recovered if such actual costs are lower than the maximum amounts in the Proposal.

Annual Revenue Requirement

The Hawaiian Electric Proposal will include a Revenue Requirement for each year, which is calculated from the total project capital cost to determine the revenues needed to recover the cost of the project. The value of the Revenue Requirement Calculation for the Total Hawaiian Electric Project Capital Cost will be included in the Levelized Price calculation.

The following is a narrative description of the proposed revenue requirement calculation and significant assumptions that the Hawaiian Electric Proposal should account for. The objective of a revenue requirement analysis is to illustrate the annual revenue requirements (ARR) for a utility Hawaiian Electric Proposal.

Revenue Requirement is defined as a calculated value which represents the estimated revenues needed from ratepayers which would allow the Company to recover its capital investment and expenses, honor its debt obligations, pay its revenue and income tax liabilities and pay its preferred shareholders while providing a fair return to its common shareholders for their investment. Specific factors or assumptions related to that particular project will be included in the analysis.

The purpose of a revenue requirement calculation is to determine the annual and total revenue requirements of a capital investment and annual O&M expense needed from customers. The ratemaking formula for revenue requirements is shown below.

$$RR = O + T + D + r(RB)$$

Where:
RR = Revenue Requirements
O = Operating and Maintenance Expense
T = Tax Expense (Income and Revenue)
D = Depreciation Expense
r = Rate of Return on Rate Base
RB = Rate Base

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

APPENDIX G ATTACHMENT 1 – HAWAIIAN ELECTRIC PROPOSAL TEAM CERTIFICATION

Name of Hawaiian Electric Development Team Contact: _____

Unique Name of Facility: _____

This Hawaiian Electric Development Team Certification for Hawaiian Electric Company, Inc.'s, ("Company") Proposal in response to the Company's Request for Proposals for Renewable Dispatchable Generation and Energy Storage ("RFP") is made as of the date stated below.

A. COMPLIANCE WITH THE RFP AND CODE OF CONDUCT

The Hawaiian Electric Development Team certifies and acknowledges that it will/has:

1. Adhered to the terms of the RFP applicable to the Hawaiian Electric Development Team, including but not limited to: Section 3.6 (proposal submission requirements), Section 3.6.4 (certification of non-collusion), Section 3.8 (Procedures for any Hawaiian Electric Proposal or Affiliate Proposals), and Section 3.4.4 (authorized signatory);

2. Adhered to the technical requirements of the RFP, excluding however those requirements inapplicable to the Hawaiian Electric Development Team such as execution of the IGP Contract, pricing formula requirements for independent power producer proposals, submission of a Proposal Fee, dispute resolution, credit requirements, selection of a priority list, and submission of a best and final offer;

3. Complied with the Company's Code of Conduct Procedures Manual, attached as Appendix C to this RFP, with particular attention to the Communications Protocols described in Section C therein with respect to communication with the Company RFP Team.

B. INDEPENDENT INVESTIGATION

The Hawaiian Electric Development Team further certifies and acknowledges that it will/has:

1. Submitted the Hawaiian Electric Proposal based on its own investigations, examinations and determinations, including assessments of any risks that could have an effect on its obligations under the Hawaiian Electric Proposal.

2. Carefully examined the RFP documents and its appendices and has a clear and comprehensive knowledge of what is required of a Proposer under the RFP, and correspondingly, what is required of the Hawaiian Electric Development Team.

3. Examined and understands the technical requirements, schedule and evaluation process as it is laid out in the RFP.

C. COST PROPOSAL ACKNOWLEDGEMENTS

The Hawaiian Electric Development Team acknowledges and agrees that:

1. Recovery for Project capital costs and O&M costs will be capped at the amount included in the Hawaiian Electric Development Team's Proposal.

2. Only actual capital costs and O&M costs will be recovered even if such actual costs are lower than the Hawaiian Electric Development Team's proposed maximum amounts.

3. Costs of developing the proposal must be included in the Hawaiian Electric Proposal for evaluation purposes only. Only the incremental costs of developing the Hawaiian Electric Development Team's proposal will be charged to the project and passed through to customers. Incremental costs for Hawaiian Electric Proposals not serving as the Parallel Plan and which are not selected to the Final Award Group will not be recoverable from the Companies' customers.

D. ADHERENCE TO PPA REQUIREMENTS AND MILESTONES

The Hawaiian Electric Development Team acknowledges and agrees that:

1. The Hawaiian Electric Proposal will be consistent with the scope of work and responsibilities of the "Seller" under the terms of the applicable model IGP Contract excluding inapplicable terms related to commercial and legal interactions between the Seller and the Company.

2. The Hawaiian Electric Proposal Facility will be designed and constructed to:

    a. Achieve the Performance Standards identified in Attachment B, Section 3 of the applicable model IGP Contract, as modified by the IRS (subject to reasonable adjustment agreeable to the Company consistent with the Company's negotiation of such performance standards that would be completed with an independent power producer under similar circumstances);

    b. Meet the performance metrics as specified in the applicable model IGP RFP Contract.

        b.1. For facilities with a photovoltaic generation component, (i) PV System Equivalent Availability Factor, and (ii) Measured Performance Ratio;
        b.2. For facilities with a wind generation component, (i) Modified Pooled OMC Equipment Availability Factor, (ii) Performance Index, and (iii) Balance of Plant Efficiency Ratio;
        b.3. For Storage facilities (paired storage or standalone storage), (i) BESS Annual Equipment Availability Factor, (ii) BESS Annual Equivalent Forced Outage Factor, and (iii) BESS Capacity Ratio;

    c. Pass the Acceptance Test specified in the applicable Acceptance Test General Criteria section of the applicable model IGP RFP Contract;

d. Pass the Control System Performance Test specified in the applicable Control System Acceptance Test Criteria section of the applicable model IGP RFP Contract;

e. If applicable, pass the On-line Performance Test specified in the applicable BESS Capacity Test section of the applicable model IGP RFP Contract;

f. If applicable, achieve a Demonstrated Capacity equal to or greater than that indicated in the Hawaiian Electric Proposal as measured pursuant to the applicable BESS Capacity Test section of the applicable model IGP RFP Contract;

g. Meet the project milestones identified in the Hawaiian Electric Proposal no later than the dates specified therein, which shall be consistent with the guaranteed project milestones required in the Guaranteed Project Milestones section of the applicable model IGP RFP Contract (subject to reasonable adjustment agreeable to the Company consistent with the Company's negotiation of such milestones that would be completed with an independent power producer under similar circumstances). Notice of completion of milestones and any delay will be provided to PUC and Consumer Advocate.

h. Achieve the reporting milestones identified in the Hawaiian Electric Proposal no later than the dates specified therein, which shall be consistent with the reporting milestones required in the Reporting Milestones of the applicable model IGP RFP Contract (subject to reasonable adjustment agreeable to the Company consistent with the Company's negotiation of such milestones that would be completed with an independent power producer under similar circumstances). Notice of completion of milestones and any delay will be provided to PUC and Consumer Advocate.

i. Will be subject to the applicable liquidated damages for the IGP RFP Contract provisions above. These liquidated damages would be paid from shareholder funds and would be passed through to customers through the Companies' Power Purchase Adjustment Clause or other appropriate rate adjustment mechanisms. Notice of any liquidated damages assessed and amounts of such liquidated damages will be provided to PUC and Consumer Advocate.

j. Will reconfirm requirements in GO7 application and any resulting approval order for such application.

k. Will provide annual report to PUC and Consumer Advocate on performance metrics.

E. DECLARATION AND SIGNATURE

1. The individual(s) that has (have) signed this Hawaiian Electric Development Team Certification is (are) duly authorized by the Hawaiian Electric Development Team to execute such on behalf of the Hawaiian Electric Development Team; and

2. All statements, specifications, data, confirmations and other information set out in this Hawaiian Electric Development Team Certification are complete and accurate in all material respects.

IN WITNESS WHEREOF, the HAWAIIAN ELECTRIC DEVELOPMENT TEAM hereby makes the certifications, acknowledgements and agreements stated herein as of the date stated under the signature of its authorized representative:

Dated at _____, _____ this _____ day of _____ 20_____.

_____
Signature of Hawaiian Electric Development Team Representative

_____
Name of Hawaiian Electric Development Team Representative (please print)

_____
Title of Hawaiian Electric Development Team Representative (please print)

DRAFT

REQUEST FOR PROPOSALS

FOR

RENEWABLE DISPATCHABLE GENERATION

AND

ENERGY STORAGE

ISLANDS OF O‘AHU AND HAWAI‘I

APRIL 3, 2025

Appendix H – Interconnection Facilities Cost and Schedule Information

Hawaiian Electric

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To assist Proposers in estimating costs of potential projects, the information provided in this document can be used to approximate the cost for Company-Owned Interconnection Facilities ("COIF"), including substation, telecommunications, security, transmission and distribution lines, and project management. The Company notes that the information provided here is not a guarantee of what the costs included in the Facility Study will be. The information is based on typical assumptions but may not exactly match the COIF costs required for a particular Proposal depending on the location and facility design.

Tariff Rule No. 19, approved by the PUC, establishes provisions for Interconnection and Transmission Upgrades (https://www.hawaiianelectric.com/billing-and-payment/rates-and-regulations/). The tariff provisions are intended to simplify the rules regarding who pays for, installs, owns, and operates interconnection facilities in the context of competitive bidding. Tariff Rule No. 19 and applicable RFP requirements will be utilized as the basis for addressing interconnection and transmission upgrades for any projects developed. Proposers will comply with the terms and conditions as specified therein.

SECTION 1 – COMPANY AND PROPOSER RESPONSIBILITIES

The purpose of Section 1 is to clearly define the responsibilities to plan, design, procure, and construct COIF and system upgrades in compliance with Tariff Rule No. 19 and this RFP. The Company may determine in the Facility Study that responsibilities listed in this section need to be changed based on project specifics. If there is a conflict, the requirements in the Facility Study shall take precedence.

Please note that ownership of Proposer-built COIF cannot be transferred to the Company prior to all work being completed and all permits associated with the COIF being closed. If COIF is covered under the same permit as SOIF and Project facilities, ownership of the COIF cannot be transferred until the entire facility is completed and the permit is closed. If Proposer plans to transfer ownership as construction is completed for COIF, then the COIF needs to be permitted separately from any other facilities so that the permits can be closed when COIF construction is complete. The Company will not perform construction on equipment/assets that is not owned by the Company.

The Proposer will be responsible for all costs related to COIF and system upgrades, subject to any limitations, as described in Section 1.

1.1 – DEFINITIONS

1. Betterment – Any upgrading to a facility made solely for the benefit of and at the election of the Company and is not required by applicable laws, codes, Company Standards, and the interconnection requirements in accordance with Tariff Rule No. 19.
2. Company – Hawaiian Electric, Maui Electric, or Hawai‘i Electric Light.
3. Company-Owned Interconnection Facilities – The equipment and devices owned by Company between the Point of Interconnection and the Grid Connection Point that are required to permit a generating facility to operate in parallel with and deliver

electric energy to Company's system and provide reliable and safe operation of, and power quality on, Company's system.

4. Grid Connection Point – The point that the new interconnection facilities associated with the Proposer's project interconnects to the Company's existing electrical grid.
5. Interconnection Agreement – The executed contract between the Company and Proposer (e.g., Power Purchase Agreement, Standard Interconnection Agreement, etc.).
6. Point of Interconnection – The point of delivery of energy supplied by Proposer to Company, where the Facility owned by the Proposer interconnects with the facilities owned or to be owned by the Company.
7. Proposer – The developer proposing a renewable project in response to a Company RFP.

1.2 – ABBREVIATIONS

1. ADSS – All Dielectric Self-Supporting
2. COIF – Company-Owned Interconnection Facilities
3. CT – Current Transformer
4. DFR – Digital Fault Recorder
5. DTT – Direct Transfer Trip
6. FS – Facility Study
7. GCP – Grid Connection Point
8. HVAC – Heating, Ventilation, and Air Conditioning
9. IRS – Interconnection Requirements Study (includes both SIS and FS)
10. NDA – Non-Disclosure Agreement
11. OPGW- Optical Ground Wire
12. POI – Point of Interconnection
13. PT – Potential Transformer
14. RTU – Remote Terminal Unit
15. SCADA – Supervisory Control and Data Acquisition
16. SIS – System Impact Study
17. UFLS – Under-Frequency Load Shed

1.3 – FACILITIES IN A PROPOSER-OWNED SUBSTATION/SITE

1. Proposer will perform the following:
    a. Obtain all permitting and land rights.
    b. Design, procurement, and construction of all facilities at the Proposer's site, except as listed in Item 2 below. All COIF shall comply with applicable Company standards and utilize Company design templates, where applicable. This may include, but is not limited to:
        i. Site development and civil infrastructure work (e.g., grading, trenching, manholes/handholes, conduits, cable trench, concrete pads/foundations, fencing, roadways/driveways, ground grid, lighting, etc.).

ii. Substation structures, design, and configuration (i.e., breaker and a half, ring bus, etc.).
iii. Control equipment enclosure/cabinet.
iv. Equipment (circuit breakers, transformers, relays, switches, arresters, batteries, HVAC, RTU, DFR, DTT, meters, PTs, CTs, etc.).
v. Telecommunication equipment (See Telecommunication Facilities section below).
vi. Electrical work (bussing, wiring, lightning protection, fiber optic cable, etc.).
vii. Security systems/equipment (See Section 2.6A).

c. Support the Company in performance of its scope of work. This may include but is not limited to:
i. Providing as-built drawings prior to acceptance testing.

2. Company will perform the following:
a. Review and approval of Proposer drawings and material selection.
b. Inspection of Proposer COIF construction.
c. Programming and functional testing of digital devices (e.g., DFR, RTU, etc.).
d. Acceptance testing.
e. Procurement, installation, and testing of revenue meters.
f. Support of Proposer's Control System Acceptance Test (CSAT).
3. Company shall be responsible for Betterment costs.

1.4 – EXISTING COMPANY SUBSTATIONS

1. Company will perform all engineering, procurement, and construction for work at existing Company-owned substations except as described below.
a. For an OH termination into an existing substation, Proposer is responsible for design, procurement, and construction of the OH T&D facilities from the project site up to and including the last pole/foundation before the substation termination structure. Proposer shall coil enough OH conductor and shieldwire on the last pole for Company to string and terminate the last span of conductor to the termination structure in the substation.
b. For a 138kV UG termination into an existing substation, Proposer is responsible for design, procurement, and construction of the UG T&D lines and associated civil infrastructure up to the termination on the riser structure.
2. Company will be responsible for the following costs:
a. Betterment.
b. Changes to the Under-Frequency Load Shed (UFLS) scheme.

1.5 – NEW COMPANY-OWNED SWITCHING STATION

1. Proposer will perform the following:
a. Obtain all permitting and land rights.
b. Provide vehicular access to the new switching station.
c. Design, procurement, and construction of all facilities at the switching station, except as listed in Item 2 below. All COIF shall comply with applicable

Company standards and utilize Company design templates. This may include, but is not limited to:

i. Site development and civil infrastructure work (e.g., grading, trenching, manholes/handholes, conduits, cable trench, concrete pads/foundations, fencing, roadways/driveways, ground grid, lighting, etc.).
ii. Substation structures, design, and configuration (i.e., breaker and a half, ring bus, etc.).
iii. Control equipment enclosure/cabinet.
iv. Equipment (circuit breakers, transformers, relays, switches, arresters, batteries, HVAC, RTU, DFR, DTT, meters, PTs, CTs, etc.).
v. Telecommunication equipment (See Section 1.10).
vi. Electrical work (bussing, wiring, lightning protection, fiber optic cable, etc.).
vii. Security systems/equipment (See Section 2.6B).

d. Support the Company in performance of its scope of work. This may include, but is not limited to:
   i. Pulling wiring between RTU and IPP interface cabinet and coiling up on both ends for Company to terminate.
   ii. Providing as-built drawings prior to acceptance testing.

2. Company will perform the following:
   a. Review and approval of Proposer drawings and material selection.
   b. Inspection of Proposer construction.
   c. Programming and functional testing of digital devices (i.e., DFR, RTU, etc.).
   d. Termination of wiring between RTU and IPP interface cabinet.
   e. Acceptance testing.
   f. Procurement, installation, and testing of revenue meters.
3. Company shall be responsible for Betterment costs.

1.6 – PROPOSER FACILITY SERVICE POWER AND COMPANY SWITCHING STATION POWER

1. Facility service power is NOT a part of COIF, but Proposers should account for it in the total costs to build the project. Please note the following:
   a. Auxiliary loads for a grid-charged BESS shall not receive service power from the grid charging power.
   b. The Company will not perform construction on equipment/assets (poles, conduit, pads, etc.) that is not owned by the Company, except when connecting to a Proposer-owned primary metered pole. The Company will terminate at the pole, not beyond.
   c. Ownership of Proposer-built equipment/assets must be transferred before the Company is able to schedule the installation of Company-owned equipment on those facilities.
   d. If temporary power is required before the completion and turnover of facilities, a separate temporary line extension is required.

2. Station power is required if a new Company switching station or substation is built to allow the interconnection of the Proposer's project.
    a. Options for primary station power sources for the Company's various switching station voltages are:
        i. Tap off the bus through a step-down transformer for 23kV through 69kV.
        ii. 12kV line extension and service transformer for 23kV through 138kV.
        iii. Gensets are not an allowable substitute for the above options.
3. For all new service requests, Proposer is responsible for submitting an Electrical Service Request Form via www.hawaiianelectric.com. Please refer to the Large Customer New Service Request brochure for milestones and estimated timeline.
4. New service requests are not included in the Interconnection Agreement and will be covered under a separate agreement that will identify responsibilities for work.
5. Typically, requesters for service would perform the following:
    a. Obtain all permitting and land rights.
    b. Provide infrastructure plans showing the proposed OH and/or UG route, including locations of all Company facilities (poles, MHs, HHs, vaults, conduits, equipment, etc.)
    c. Civil infrastructure work (survey, design, grading, trenching, conduits, manholes/handholes, concrete pads, etc.)
    d. Support the Company in performance of its scope of work. This may include, but is not limited to:
        i. Survey/stakeout of poles and anchors in accordance with the Company-approved design drawings and in advance of Company construction.
        ii. Vegetation trimming/removal.
        iii. Providing vehicular access.
6. Typically, the Company would be responsible for performing the following:
    a. Review and approval of Proposer Drawings.
    b. Inspection of Proposer construction.
    c. Design, procurement, and construction of electrical facilities.

1.7 – NEW COMPANY-OWNED T&D LINES

1. Proposer will perform the following:
    a. Obtain all permitting and land rights.
    b. Design, procurement, and construction of all T&D facilities required to interconnect the project facility, except as listed in Item 2 below. All COIF shall comply with applicable Company standards and specifications. This may include, but is not limited to:
        i. The OH and/or UG route, including locations of all Company facilities (poles, MHs, HHs, vaults, conduits, equipment, etc.).
        ii. Civil infrastructure.
        iii. Electrical facilities up to and including the last pole or manhole/vault prior to the interconnection to existing Company facilities.

a. **For OH tap to existing OH lines:** Coil enough OH conductor on the last pole for Company to string and terminate the last span of conductor to the GCP.
b. **For UG tap to existing OH lines:** Stub-up the riser conduit above ground level at the bottom of the riser pole. Pull cable to the last MH/HH/vault prior to the riser. Provide enough cable for Company to make the last pull up the riser and terminate the cables.
c. **For UG tap to existing UG lines:** Install conduit to up to the interception point of the Company's existing facilities (coordinate with Company to break into facilities at interception point). Pull cable to the last MH/HH/vault prior to intercepting Company's existing facilities. Provide enough cable for Company to make the last pull to the interception point.

c. Support the Company in performance of its scope of work. This may include, but is not limited to:
    i. Survey/stakeout of poles and anchors in accordance with the Company-approved design drawings and in advance of Company construction.
    ii. Vegetation trimming/removal.
    iii. Providing vehicular access.

2. The Company will perform the following:
    a. Review and approval of Proposer Drawings.
    b. Inspection of Proposer construction.
    c. Design, procurement, and construction of electrical facilities for the final tap at the GCP.
    d. Design, procurement, and construction of electrical facilities within Company's existing energized corridor.
    e. Procurement does not include the conductors or cable required for the last span as discussed in Item 1 above.
    f. Break into Company's existing UG facilities for interception point (e.g., at an existing MH/HH/vault).
3. The Company will be responsible for Betterment costs.

1.8 – UPGRADES TO EXISTING T&D LINES

1. Company will perform all engineering, procurement, and construction for upgrades of existing Company lines to accommodate the Proposer's project (e.g., reconductoring or recircuiting of existing lines that do not have the required ampacity, re-fusing or re-programming of protective devices on the system, etc.).

1.9 – COMPANY-OWNED FIBER

1. Proposer will perform the following:
    a. Obtain all permitting and land rights.

   b. Design, procurement, and construction of the fiber line extension between the nearest existing splice point and the POI, except as listed in Item 2 below.
      i. Proposer to coil 200ft of each cable at splice points and at both ends of the extension for Company to splice and terminate.
      ii. Fiber strands shall be tested end to end after install and prior to Company splicing/termination.
2. The Company will perform the following:
   a. Splicing, terminating, and testing of fiber strands
3. Company will provide the location(s) of the nearest fiber splice point(s) after the Proposer has signed a Non-Disclosure Agreement (NDA).
4. Company will be responsible for Betterment costs.

1.10 – TELECOMMUNICATION FACILITIES

1. Proposer will perform the following:
   a. Design, procurement, and construction of:
      i. Telecommunications cabinets and/or racks at the Proposer site and/or new Company Switching Station to support the telecommunications equipment, as well as supporting equipment including air conditioning, alarming equipment, ground bars and fuse panels.
      ii. Equipment at the Proposer site and/or new Company Switching Station to support telecommunications power requirements, including, but not limited to, batteries, battery racks, rectifiers, and distribution panels.
      iii. Fiber cable, as needed, to support communications requirements, including SCADA connection from the Developer's RTU to the Company's RTU.
   b. Prepare drawings related to the installation of telecommunication equipment to be turned over for Company ownership and/or Company management, including telecommunications cabinets and/or racks and telecommunications power.
   c. Order and install leased services, as needed, to support communications requirements. This may include, but not be limited to, initial costs to establish the leased line(s) required for the project, monthly recurring leased cost of the service(s), and on-going maintenance of the service(s).
2. Company will perform the following:
   a. Review and approval of Proposer drawings.
   b. Inspection of Proposer construction.
   c. Design, procurement, construction, and testing (as necessary) of:
      i. Network equipment such as routers, multiplexers and associated hardware required at Proposer Site, Company Switching Station and/or Remote Substation Facilities to provision circuits required for the project.
      ii. Fiber termination equipment within Company owned or managed facilities at Proposer Site, Company Switching Station and/or Remote

Substation Facilities, as needed, to support the communication requirements.

iii. Microwave radio or wireless radio within Company owned or managed facilities at Proposer Site, Company Switching Station and/or Remote Substation Facilities, as needed, to support the communication requirements.

3. Company will be responsible for Betterment costs.

1.11 – PROPOSER PAYMENTS

1. The Company requires upfront payment prior to the commencement of any phase of work based on an estimate of Company costs for that phase. A true-up at the end of the project shall be completed and a refund or bill shall be processed in accordance with the Interconnection Agreement when necessary.
2. Proposer is also responsible for payments to the Company related to service contracts for service power.

SECTION 2 – INTERCONNECTION REQUIREMENTS AND COSTS

The information in Section 2 is based on typical interconnections as shown in the Attachments referenced. Conceptual design is not intended to cover all interconnection requirements. Final interconnection design will be subject to the results of a technical review. The per-unit cost figures below should not be used to create a detailed project estimate. A detailed project estimate typically requires a certain level of engineering to assess project site conditions and to factor in other parameters specific to the project.

The Proposer should identify the components assumed for their project and the quantity assumed for each. Each table below provides notes on the assumptions for each of the unit cost estimates. If a Proposer's project requirements are different than what is assumed in the notes, the Proposer should identify each difference and provide an estimated additional cost or savings resulting from those differences. Proposer should account for escalation to the appropriate construction year. Assumed construction year for the costs in Section 2 are indicated in each sub-section. Please see Attachment 2 for examples of how to apply the per-unit costs provided. All costs provided are Company costs only and do not include costs related to Proposer responsibilities including, but not limited to, permitting, land rights, community outreach, biological and/or cultural (archeological) surveys. Proposers should do their own due diligence for these costs.

For the purposes of Section 2, voltages are classified as follows:

- Subtransmission – 46kV for Oʻahu
- Transmission – 138kV for Oʻahu and 69kV for Hawaiʻi Island.

2.1 – SUBSTATION & METER BASELINE COSTS

A. [NOT USED]

B. Typical Subtransmission Interconnection

The costs in Section 2.1B are reflective of typical standard interconnections at subtransmission voltages. Costs for interconnection to specific Company sites are shown in Section 2.2. Costs are for Proposer-Build projects.

Item	Description	Cost
Oʻahu		
16	Attachment S1 – 46kV Interconnection	$1,357,000
Remote Sub Work/System Upgrades		
21	Components at Company's 46kV remote substation, including DTT and relaying requirements	$435,000 / site

Notes:

a) Costs will be updated for final draft.
b) Costs provided are in 2025 dollars.
c) Includes Company costs for engineering, materials, construction, and testing of Substation & Meter components shown in the referenced attachment.
d) Includes Company costs for engineering, materials, construction, and testing for Company-responsible items (See Section 3) related to Substation & Meter components as shown in the referenced attachment.
e) Does NOT include T&D, Project Management, Telecommunications, or Security costs.
f) Civil infrastructure and space for COIF provided by Proposer.
g) Substation relay protection requirements have not been identified so costs are based upon typical line protection relaying requirements.
h) Does not include costs for permitting, land rights, or a Relay Coordination Study.
i) For T&D costs (including service power costs) – See Section 2.3.
j) For Project Management costs – See Section 2.4.
k) For Telecommunications costs – See Section 2.5.
l) For Security requirements – See Section 2.6.

C. Typical Transmission Interconnection

The costs in Section 2.1C are reflective of typical standard interconnections at transmission voltages. Costs for interconnection to specific Company sites are shown in Section 2.2. Costs are for Proposer-Build projects.

Item	Description	Cost
Hawaiʻi Island		
30	Attachment T1 – 69kV Interconnection	$1,242,000
Remote Sub Work – Hawaiʻi		
34a	69kV line relay upgrades	$210,000 each

Item	Description	Cost
34b	Circuit switcher and differential protection per transformer/switchgear	$270,000 each
34c	69kV circuit breaker replacement	$340,000 each
34d	3ph line PTs required for Synch Check	$110,000 each

Notes:

a) Costs will be updated for final draft.
b) Costs provided are in 2025 dollars.
c) Includes Company costs for engineering, materials, construction, and testing of Substation & Meter components shown in the referenced attachment.
d) Includes Company costs for engineering, materials, construction, and testing for Company-responsible items (See Section 1) related to Substation & Meter components as shown in the referenced attachment.
e) Item 30 is required for all interconnections to existing 69kV lines. Please contact Company for more information on if Items 34a-d are required for a proposed GCP.
f) Does NOT include T&D, Project Management, Telecommunications, or Security costs.
g) Civil infrastructure and space for COIF provided by Proposer.
h) Substation relay protection requirements have not been identified so costs are based upon typical line protection relaying requirements.
i) Does not include costs for permitting, land rights, or a Relay Coordination Study.
j) For T&D costs (including service power costs) – See Section 2.3.
k) For Project Management costs – See Section 2.4.
l) For Telecommunications costs – See Section 2.5.
m) For Security requirements – See Section 2.6.

Item	Description	Cost
O‘ahu		
32	Attachment T2 – 138kV Interconnection to Two (2) Existing Circuits (4-Bay BAAH Configuration)	$2,550,000
Remote Sub Work – O‘ahu		
36	Components at Company’s 138kV remote substation, including DTT and relaying requirements	
36a	138kV line relay upgrades	$452,000 each
36b	138kV circuit breaker replacement	$569,000 each
36c	3ph line PTs required for Synch Check	$122,000 each

Item	Description	Cost
Notes: a) Costs will be updated for final draft. b) Costs provided are in 2025 dollars. c) Includes Company costs for engineering, materials, construction, and testing of Substation & Meter components shown in the referenced attachment. d) Includes Company costs for engineering, materials, construction, and testing for Company-responsible items (See Section 1) related to Substation & Meter components as shown in the referenced attachment. e) Item 32 is required for all interconnections to existing 138kV lines. Please contact Company for more information on if Items 36a-c are required for a proposed GCP. f) Does NOT include T&D, Project Management, Telecommunications, or Security costs. g) Civil infrastructure and space for COIF provided by Proposer. h) Substation relay protection requirements have not been identified so costs are based upon typical line protection relaying requirements. i) Does not include costs for permitting, land rights, or a Relay Coordination Study. j) For T&D costs (including service power costs) – See Section 2.3. k) For Project Management costs – See Section 2.4. l) For Telecommunications costs – See Section 2.5. m) For Security requirements – See Section 2.6.		

2.2 – INTERCONNECTION TO SPECIFIC COMPANY SITES

Section 2.2 includes baseline costs for interconnection at specific Company sites identified in the RFP or existing projects that will reuse existing interconnection facilities. If a site is not specifically identified in the RFP, please use the typical costs in Section 2.1 for the applicable voltage and project size. Costs are for Proposer-Build projects.

A. Hawai‘i Island

Kanoelehua Switching Station (Attachment H1)

Please refer to Attachment H1 for a single line diagram depicting the required interconnection to the Company‘s system at Kanoelehua Switching Station.

Item	Description	Cost
43a	Company work for components at the Project Site on the Company side of the demarcation as shown in Attachment H1	$564,000
43b	Company work for components at Kanoelehua Switching Station as shown in Attachment H1	$1,186,000
Notes: a) Costs will be updated for final draft. b) Costs provided are in 2025 dollars. c) Includes Company costs for engineering, materials, construction, and testing for Company-responsible items (See Section 1) related to Substation & Meter components as shown in Attachment H1.		

Item	Description	Cost
	d) Does NOT include T&D, Telecommunications, or Security costs. e) Civil infrastructure and space for COIF provided by Proposer. f) Substation relay protection requirements have not been identified so costs are based upon typical line protection relaying requirements. g) Does not include costs for permitting, land rights, or a Relay Coordination Study. h) For T&D costs – See Section 2.3. i) For Project Management costs – See Section 2.4. j) For Telecommunications costs – See Section 2.5. k) For Security requirements – See Section 2.6.	

Poopoomino Switching Station (Attachment H2)

Please refer to Attachment H2 for a single line diagram depicting the required interconnection to the Company's system at Poopoomino Switching Station.

Item	Description	Cost
46a	Company work for components at the Project Site on the Company side of the demarcation as shown in Attachment H2	$564,000
46b	Company work for components at Poopoomino Switching Station as shown in Attachment H2	$1,711,000
	Notes: a) Costs will be updated for final draft. b) Costs provided are in 2025 dollars. c) Includes Company costs for engineering, materials, construction, and testing for Company-responsible items (See Section 1) related to Substation & Meter components as shown in Attachment H2. d) Does NOT include T&D, Telecommunications, or Security costs. e) Civil infrastructure and space for COIF provided by Proposer. f) Substation relay protection requirements have not been identified so costs are based upon typical line protection relaying requirements. g) Does not include costs for permitting, land rights, or a Relay Coordination Study. h) For T&D costs – See Section 2.3. i) For Project Management costs – See Section 2.4. j) For Telecommunications costs – See Section 2.5. k) For Security requirements – See Section 2.6.	

Kamaoa Substation (Attachment H3)

Please refer to Attachment H3 for a single line diagram depicting the required interconnection to the Company's system at Kamaoa Substation. This option is only available to the existing IPP currently interconnecting through Kamaoa Substation. New projects shall assume a typical interconnection to a line (See Section 2.1C).

Item	Description	Cost
47	Company work to upgrade existing interconnection at Kamaoa substation as shown in Attachment H3	See Item 55

Notes:
a) Costs will be updated for final draft.
b) Costs provided are in 2025 dollars.
c) Includes Company costs for engineering, materials, construction, and testing for Company-responsible items (See Section 1) related to Substation & Meter components as shown in Attachment H3.
d) Does NOT include T&D, Telecommunications, or Security costs.
e) Civil infrastructure and space for COIF provided by Proposer.
f) Substation relay protection requirements have not been identified so costs are based upon typical line protection relaying requirements.
g) Does not include costs for permitting, land rights, or a Relay Coordination Study.
h) For T&D costs – See Section 2.3.
i) For Project Management costs – See Section 2.4.
j) For Telecommunications costs – See Section 2.5.
k) For Security requirements – See Section 2.6.

Existing IPP Proposing to Re-Use Existing Terminations

The following information can be used for an existing IPP wishing to propose conversion of their facilities and reusing their existing terminations to the Company's system. Costs shown assume the upgrades will be built by the Company.

Item	Description	Cost
55	Reuse 69kV termination for existing IPP connections • Includes relay upgrades, DFR, harmonic monitoring, and CVTs	$400,000

Notes:
a) Costs will be updated for final draft.
b) Costs provided are in 2025 dollars.
c) Includes Company costs for engineering, materials, construction, and testing for Company-responsible items (See Section 3) related to Substation & Meter components.
d) Assumes high voltage equipment and structures do not need to be replaced
e) Assumes no T&D, Telecommunications, or Security costs are required.
f) A Relay Coordination Study needs to be done to confirm requirements, so costs are based upon typical line protection relaying requirements.
g) Does not include costs for permitting.
h) For Project Management costs – See Section 2.4.

B. O'ahu

Ewa Nui Substation (Attachment O1)

Please refer to Attachment O1 for a single line diagram depicting the required interconnection to the Company's system at the Ewa Nui Substation.

Item	Description	Cost
61a	Company work for components at the Project Site on the Company side of the demarcation as shown in Attachment O1	$564,000
61b	Company work for components at Ewa Nui Substation as shown in Attachment O1 • Space for two (2) terminations available. Routing new 138kV lines into substation may be difficult due to future planned buildout around the existing substation. • Includes one (1) new BAAH bay with one (1) new termination.	$2,975,000 per termination

Notes:
a) Costs will be updated for final draft.
b) Costs provided are in 2025 dollars.
c) Includes Company costs for engineering, materials, construction, and testing for Company-responsible items (See Section 1) related to Substation & Meter components as shown in Attachment O1.
d) Does NOT include T&D, Telecommunications, or Security costs.
e) Civil infrastructure and space for COIF provided by Proposer.
f) Substation relay protection requirements have not been identified so costs are based upon typical line protection relaying requirements.
g) Does not include costs for permitting, land rights, or a Relay Coordination Study.
h) For T&D costs – See Section 2.3.
i) For Project Management costs – See Section 2.4.
j) For Telecommunications costs – See Section 2.5.
k) For Security requirements – See Section 2.6.

Kahe 5-8 Substation (Attachment O2)

Please refer to Attachment O2 for a single line diagram depicting the required interconnection to the Company's system at Kahe 5-8 Substation.

Item	Description	Cost
62a	Company work for components at the Project Site on the Company side of the demarcation as shown in Attachment O2	$564,000
62b	Company work for components at Kahe 5-8 Substation as shown in Attachment O2 • Space for three (3) terminations available. • Includes one (1) new BAAH bay with one (1) new termination.	$2,975,000 per termination

Notes:
a) Costs will be updated for final draft.
b) Costs provided are in 2025 dollars.
c) Includes Company costs for engineering, materials, construction, and testing for Company-responsible items (See Section 1) related to Substation & Meter components as shown in Attachment O2.

Item	Description	Cost
	d) Does NOT include T&D, Telecommunications, or Security costs. e) Civil infrastructure and space for COIF provided by Proposer. f) Substation relay protection requirements have not been identified so costs are based upon typical line protection relaying requirements. g) Does not include costs for permitting, land rights, or a Relay Coordination Study. h) For T&D costs – See Section 2.3. i) For Project Management costs – See Section 2.4. j) For Telecommunications costs – See Section 2.5. k) For Security requirements – See Section 2.6.	

Hoohana Substation (Attachment O3)

Please refer to Attachment O3 for a single line diagram depicting the required interconnection to the Company's system at Hoohana Substation (assuming it is completed).

Item	Description	Cost
63a	Company work for components at the Project Site on the Company side of the demarcation as shown in Attachment O3	$564,000
63b	1st Termination – Company work for components at Hoohana Substation as shown in Attachment O3 • Add termination to existing bay.	$1,151,000
	Notes: a) Costs will be updated for final draft. b) Costs provided are in 2025 dollars. c) Includes Company costs for engineering, materials, construction, and testing for Company-responsible items (See Section 1) related to Substation & Meter components as shown in Attachment O3. d) Does NOT include T&D, Telecommunications, or Security costs. e) Civil infrastructure and space for COIF provided by Proposer. f) Substation relay protection requirements have not been identified so costs are based upon typical line protection relaying requirements. g) Does not include costs for permitting, land rights, or a Relay Coordination Study. h) For T&D costs – See Section 2.3. i) For Project Management costs – See Section 2.4. j) For Telecommunications costs – See Section 2.5. k) For Security requirements – See Section 2.6.	

CEIP Substation (Attachment O4)

Please refer to Attachment O4 for a single line diagram depicting the required interconnection to the Company's system at CEIP Substation.

Item	Description	Cost

Item	Description	Cost
64a	Company work for components at the Project Site on the Company side of the demarcation as shown in Attachment O4	$564,000
64b	Company work for components at CEIP Substation as shown in Attachment O4 • One (1) termination available. Routing new 138kV lines into substation may be difficult due to future planned buildout around the existing substation. • Includes one (1) new BAAH bay with one (1) new termination.	$2,975,000

Notes:
a) Costs will be updated for final draft.
b) Costs provided are in 2025 dollars.
c) Includes Company costs for engineering, materials, construction, and testing for Company-responsible items (See Section 1) related to Substation & Meter components as shown in Attachment O4.
d) Does NOT include T&D, Telecommunications, or Security costs.
e) Civil infrastructure and space for COIF provided by Proposer.
f) Substation relay protection requirements have not been identified so costs are based upon typical line protection relaying requirements.
g) Does not include costs for permitting, land rights, or a Relay Coordination Study.
h) For T&D costs – See Section 2.3.
i) For Project Management costs – See Section 2.4.
j) For Telecommunications costs – See Section 2.5.
k) For Security requirements – See Section 2.6.

Koolau Substation (Attachment O5)

Please refer to Attachment O5 for a single line diagram depicting the required interconnection to the Company's system at Koolau Substation.

Item	Description	Cost
65a	Company work for components at the Project Site on the Company side of the demarcation as shown in Attachment O5	$564,000
65b	Company work for components at Koolau Substation as shown in Attachment O5 • One (1) termination available. Routing new 138kV lines into substation may be difficult due to permitting issues. • Includes adding two (2) new breakers to an existing BAAH bay.	$2,302,000

Notes:
a) Costs will be updated for final draft.
b) Costs provided are in 2025 dollars.
c) Includes Company costs for engineering, materials, construction, and testing for Company-responsible items (See Section 1) related to Substation & Meter components as shown in Attachment O5.
d) Does NOT include T&D, Telecommunications, or Security costs.
e) Civil infrastructure and space for COIF provided by Proposer.

Item	Description	Cost
	f) Substation relay protection requirements have not been identified so costs are based upon typical line protection relaying requirements. g) Does not include costs for permitting, land rights, or a Relay Coordination Study. h) For T&D costs – See Section 2.3. i) For Project Management costs – See Section 2.4. j) For Telecommunications costs – See Section 2.5. k) For Security requirements – See Section 2.6.	

AES Substation (Attachment O6)

Please refer to Attachment O6 for a single line diagram depicting the required interconnection to the Company's system at AES Substation.

Item	Description	Cost
66a	Company work for components at the Project Site on the Company side of the demarcation as shown in Attachment O6	$564,000
66b	Company work for components at AES Substation as shown in Attachment O6 • One (1) termination available to replace existing termination. • Assumes line relays need to be upgraded but high voltage equipment and structures do not need to be replaced	$452,000
Notes: a) Costs will be updated for final draft. b) Costs provided are in 2025 dollars. c) Includes Company costs for engineering, materials, construction, and testing for Company-responsible items (See Section 1) related to Substation & Meter components as shown in Attachment O6. d) Does NOT include T&D, Telecommunications, or Security costs. e) Civil infrastructure and space for COIF provided by Proposer. f) Substation relay protection requirements have not been identified so costs are based upon typical line protection relaying requirements. g) Does not include costs for permitting, land rights, or a Relay Coordination Study. h) For T&D costs – See Section 2.3. i) For Project Management costs – See Section 2.4. j) For Telecommunications costs – See Section 2.5. k) For Security requirements – See Section 2.6.		

Existing IPP Proposing to Re-Use Existing Terminations

The following information can be used for an existing IPP wishing to propose conversion of their facilities and reusing their existing terminations to the Company's system. Costs shown assume the upgrades will be built by the Company.

Item	Description	Cost

Item	Description	Cost
69	Reuse 138kV termination for existing IPP connections • Includes relay upgrades, DFR, harmonic monitoring, and CVTs	$400,000

Notes:
a) Costs will be updated for final draft.
b) Costs provided are in 2025 dollars.
c) Includes Company costs for engineering, materials, construction, and testing for Company-responsible items (See Section 3) related to Substation & Meter components.
d) Assumes high voltage equipment and structures do not need to be replaced
e) Assumes no T&D, Telecommunications, or Security costs are required.
f) A Relay Coordination Study needs to be done to confirm requirements, so costs are based upon typical line protection relaying requirements.
g) Does not include costs for permitting.
h) For Project Management costs – See Section 2.4.

2.3 – T&D BASELINE AND LINE EXTENSION COSTS

A. [NOT USED]

B. Typical Subtransmission Interconnection Baseline

The costs in Section 2.3B are the baseline T&D costs for interconnections at subtransmission voltages. It includes 100ft of OH or UG line extension. For any extensions > 100ft, please add costs per Section 2.3D. Costs are for Proposer-Build projects.

Item	Description	Cost
120	OH to OH Final Tap by Company (Attachment S1) • Includes 1 wood pole, 1 span (100ft) OH line extension toward Proposer facility and assumes Proposer designs, procures, and installs the required gang-operated switch	$90,000 (1st tap) $55,000 (2nd tap)
121	OH to UG Final Tap by Company (Attachments S1) • Includes 1 wood pole, 1 gang-operated switch, 100ft UG line extension and splice in Proposer-installed manhole	$238,000 (1st tap) $185,000 (2nd tap)
122	UG to UG Final Tap by Company (Attachment S1) • Includes cut and splicing in existing Company manhole, a 100ft UG line extension and terminations at a Proposer-installed riser pole for one set of cables, and 100ft UG line extension and splices in a Proposer-installed manhole	$267,000 (1st tap) $214,000 (2nd tap)

Notes:
a) Costs will be updated for final draft.
b) Costs provided are in 2025 dollars.
c) Applicable to both Company-Build and Proposer-Build COIF scenarios. Includes Company costs for engineering, materials, construction, and testing of Company-responsible items. See Section 1 for Proposer responsibilities.
d) Interconnection will typically require one of these items depending on the existing facilities in the area and/or the type of construction for any line extension.

Item	Description	Cost
	e) Includes a 100ft OH or UG line extension. f) OH or UG line extensions (if > 100ft) – Add applicable costs per Section 2.3D. g) OH/UG route and civil infrastructure drawings provided by Proposer. h) Civil infrastructure (pads, MH/HHs, conduits, etc.) is designed, procured, and installed by Proposer. i) Includes review of Proposer civil infrastructure designs and materials and inspection of Proposer civil infrastructure construction. j) Does not include vegetation clearing, grading, dewatering, permitting or land rights.	

C. Typical Transmission Interconnection Baseline

The costs in Section 2.3C are the baseline T&D costs for interconnections at transmission voltages. It includes 100ft of OH or UG line extension. For any extensions > 100ft, please add costs per Section 2.3D. Costs are for Proposer-Build projects.

Item	Description	Cost
69kV – Hawai‘i Island		
130	69kV OH to OH Final Tap by Company (Attachment T1) • Includes 2 wood poles, 1 span (100ft) OH line extension from each new pole toward Proposer facility and the removal of existing conductors between the new poles	$156,000
131	69kV OH Termination to Existing Substation by Company	$62,000
138kV – O‘ahu		
133	138kV OH to OH Final Tap by Company (Attachment T2) • Includes 2 steel poles, 1 span (100ft) OH line extension from each new pole toward Proposer facility and the removal of existing conductors between the new poles	$973,000 per circuit
135	138kV OH Termination to Existing Substation by Company • Includes 1 span (100ft) of 138kV conductors and 2 spans (100ft) of shield wire from steel pole to substation termination structure	$101,000 each
136	138kV UG Termination to an Existing Substation by Proposer • Includes Company costs for Company-responsible items – See Section 1.	$34,000 each
	Notes: a) Costs will be updated for final draft. b) Costs provided are in 2025 dollars. c) Applicable to both Company-Build and Proposer-Build COIF scenarios. Includes Company costs for engineering, materials, construction, and testing of Company-responsible items. See Section 1 for Proposer responsibilities. d) Interconnection will typically require one of these items depending on the existing facilities in the area and/or the type of construction for any line extension. e) OH or UG line extensions (if > 100ft) – Add applicable costs per Section 2.3D. f) OH/UG route and civil infrastructure drawings provided by Proposer. g) Civil infrastructure (pads, MH/HHs, conduits, etc.) is designed, procured, and installed by Proposer. h) Includes review of Proposer civil infrastructure designs and materials and inspection of	

Item	Description	Cost
	Proposer civil infrastructure construction. i) Does not include vegetation clearing, grading, dewatering, permitting or land rights.	

D. Line Extensions and Upgrades

The costs in Section 2.3D are typical per unit costs for T&D line extensions using typical assumptions based on the Company's current standards and practices. Costs are for Proposer-Build projects.

46kV (O'ahu) and 69kV (Maui/Hawai'i)

Item	Description	Cost
Proposer-Build		
160	Additional 100ft OH Line Extension	$3,400 each
161	Additional 100ft UG Line Extension	$5,000 each
Company-Build		
165	Overbuild on existing accessible 12kV (200ft spans, 556.5 AAC)	$1,399,000 / mile
166	Overbuild on existing inaccessible 12kV (250ft spans, 556.5 AAC)	$2,315,000 / mile
170	Upgrade existing OH lines (250ft spans, accessible)	$1,024,000 / mile

Notes:

a) Costs will be updated for final draft.
b) Costs provided are in 2025 dollars.
c) OH/UG route and civil infrastructure drawings provided by Proposer.
d) Civil infrastructure (pads, MH/HHs, conduits, etc.) designed, procured, and installed by Proposer.
e) Does not include vegetation clearing, grading, dewatering, permitting or land rights.
f) Includes Company costs for engineering and inspection of Company-responsible items – See Section 1.
g) Items 160 and 161 should be added to the T&D baseline costs for each additional 100ft of Proposer-Build OH or UG line that does not involve Company's existing energized facilities. Includes review and inspection of Proposer design/construction.
h) Items 165 and 166 includes Company costs to design/construct an OH line extension above Company's existing energized facilities and assumes all poles need to be replaced.
i) Item 170 includes Company costs to reconductor an existing Company line using 556.5 KCM AAC conductor and assumes 30% of poles (no underbuild) need to be replaced.

138kV (O'ahu)

Item	Description	Cost
Proposer-Build		
175	Additional 100ft OH Line Extension	$5,000 each
176	Additional 100ft UG Line Extension	$7,000 each
Company-Build		

Item	Description	Cost
180	Overbuild on existing accessible 46kV (400ft spans, 2-556.5 AAC)	$6,352,000 / mile
183	Upgrade existing OH lines (400ft spans, accessible)	$1,771,000 / mile

Notes:

a) Costs will be updated for final draft.
b) Costs provided are in 2025 dollars.
c) OH/UG route and civil infrastructure drawings provided by Proposer.
d) Civil infrastructure (pads, MH/HHs, conduits, etc.) designed, procured, and installed by Proposer.
e) Does not include vegetation clearing, grading, dewatering, permitting or land rights.
f) Includes Company costs for engineering and inspection of Company-responsible items – See Section 1.
g) Items 175 and 176 should be added to the T&D baseline costs for each additional 100ft of Proposer-Build OH or UG line that does not involve Company's existing energized facilities. Includes review and inspection of Proposer design/construction.
h) Item 180 includes Company costs to design/construct an OH line extension above Company's existing energized facilities and assumes all poles need to be replaced.
i) Item 183 includes Company costs to reconductor an existing Company line to a larger size as determined by the SIS and assumes no poles need to be replaced.

E. Service Power

Section 2.3E provides typical requirements and costs for distribution-level service power to the Proposer's facility and/or the proposed Company switching station. Execution of a proposal letter provided by Company in response to Proposer's electrical service request, and separate from the Interconnection Agreement, will be required for service power.

Service power to the Proposer's facility shall emanate from an existing distribution line via new Company overhead and/or underground facilities to the Proposer's service connection point.

For 138kV interconnections, primary station service power requires a line extension and a separate padmount transformer at the proposed Company switching station. Proposer is responsible for providing a backup station power source. For 69kV interconnections, the cost for primary and backup station power is included in the Substation baseline costs in Section 2.1C and assumes distribution-level service is not needed or preferred for station power.

Item	Description	Cost
188	Facility or Station Service Power • Includes 100ft UG 12kV line extension of two (2) feeders and one (1) padmount transformer and assumes no switchgear is required	$91,000 each
189	Distribution OH accessible (200ft spans, #1/0 AAC)	$749,000 / mile
190	Distribution OH underbuild accessible (200ft spans, #1/0 AAC)	$471,000 / mile
191	Distribution OH inaccessible (250ft spans, #1/0 AAC)	$1,502,000 / mile
192	Distribution UG double feeder (200ft spans, #2 AL XLPE)	$1,148,000 / mile

Item	Description	Cost
193	Distribution 3ph double riser w/ fuses (including pole/anchor)	$43,000 each

Notes:
a) Costs will be updated for final draft.
b) Costs provided are in 2025 dollars.
c) OH/UG route and civil infrastructure drawings provided by Proposer.
d) Civil infrastructure (pads, MH/HHs, conduits, etc.) is designed, procured, and installed by Proposer.
e) Does not include vegetation clearing, grading, dewatering, permitting or land rights.
f) Includes engineering, materials, construction labor for electrical work, and inspection for UG civil infrastructure.
g) OH line extension – Add applicable costs per Items 189-191.
h) UG line extension (if > 100ft) – Add costs per Item 192.
i) Additional OH/UG transitions – Add costs per Item 193.
j) OH assumes wood poles and 3ph overhead conductor with neutral underbuild.
k) Item 190 assumes no poles need to be replaced.
l) Accessible assumes vehicles can be used during construction.
m) Inaccessible assumes helicopters are needed during construction.

2.4 – PROJECT MANAGEMENT BASELINE COSTS

Section 2.4 provides typical Project Management costs for interconnection projects which require a dedicated project manager. The total costs will be dependent on the Proposer's schedule and durations for engineering, construction, and testing/closeout.

A. [NOT USED]

B. Subtransmission 46kV Projects (O'ahu)

Item	Description	Cost
196	Engineering Phase • Includes facilitation, coordination, and support for Engineering Design and Procurement periods	$18,400 / month
	Construction Phase • Includes facilitation, coordination, and support from the start of construction through back feed (energization)	$23,300 / month
	Testing/Closeout Phase • Includes facilitation, coordination and support for Developer system testing and CSAT	$12,000 / month

Notes:
a) Costs will be updated for final draft.
b) Applicable to O'ahu, Maui, and Hawai'i Island.
c) Costs derived using 2025 rates.
d) Total costs are tied to schedule and duration of the entire project.
e) The Closeout Phase shall extend 4 months past GCOD.

C. Transmission Projects (O‘ahu Hawai‘i Island)

Item	Description	Cost
197	Engineering Phase • Includes facilitation, coordination, and support for Engineering Design and Procurement periods	$18,400 / month
	Construction Phase • Includes facilitation, coordination, and support from the start of construction through back feed (energization)	$23,300 / month
	Testing/Closeout Phase • Includes facilitation, coordination and support for Developer system testing and CSAT	$12,000 / month
Notes: a) Costs will be updated for final draft. b) Costs derived using 2025 rates. c) Total costs are tied to schedule and duration of the entire project. d) The Closeout Phase shall extend 4 months past GCOD.		

2.5 – TYPICAL TELECOMMUNICATIONS REQUIREMENTS AND COSTS

Section 2.5 provides typical telecommunications requirements and costs for interconnection projects. Some options include cellular, lease line, licensed radio, fiber, or microwave. The number of communications circuits (primary/backup) and type of communication circuits required will vary depending on the type/size of the project. Requirements are subject to change based on project specific evaluations, technical reviews, or the IRS.

A. [NOT USED]

B. Renewable Distributed Generation Projects ≥ 1 MW and < 10 MW (Non-Transmission Connected, As-Available)

1. Primary communications links can consist of LTE, lease line, or Company-owned fiber or microwave.
    a. O‘ahu – Licensed wireless is allowed for projects ≤ 3 MW.
    b. Maui/Hawai‘i Island – Licensed or unlicensed wireless is allowed for projects ≤ 3 MW. Licensed wireless is preferred; however, unlicensed wireless can be considered if other options are not feasible. Radio interference on an unlicensed radio link affecting operations will require changing to a licensed radio.
    c. LTE is not acceptable if protective relaying (e.g., DTT) or anti-islanding relaying is required.
2. Back-up communications links are optional (can consist of options listed for primary communications links).

3. Additional analog leased telephone lines, LTE meters, or AMI meters are required to support revenue meters (Proposer shall do their own due diligence for costs on this).

C. Renewable Distributed Generation Projects ≥ 10 MW or Renewable Dispatchable Generation (Distributed with Standalone Storage) Projects < 10 MW (Non-Transmission Connected)

1. Primary communications links can consist of lease line or Company-owned fiber or microwave.
2. Back-up communications links are required (can consist of lease line or Company-owned fiber or microwave).
3. Additional analog leased telephone lines are required to support revenue meters (Proposer shall do their own due diligence for costs on this).

D. Renewable Dispatchable Generation (Distributed with Standalone Storage) Projects ≥ 10 MW (Non-Transmission Connected)

1. Primary communications links can consist of lease line or Company-owned fiber or microwave.
2. Back-up communications links are required (can consist of lease line or Company-owned fiber or microwave).
3. Back-up communications links must be transport diverse until the "last mile".
4. Additional analog leased telephone lines are required to support revenue meters (Proposer shall do their own due diligence for costs on this).

E. [NOT USED]

F. Firm Generation Interconnection Projects or Transmission Connected Renewable Distributed or Dispatchable Generation Projects

1. Primary communications links must be Company-owned fiber or microwave.
2. Back-up communications links are required (can consist of lease line or Company-owned fiber or microwave).
3. For interconnection to a new Company switching station, primary and back-up communications links to the new Company switching station must be transport diverse with a minimum separation of 6 feet.
4. For interconnection to an existing Company switching station, primary and back-up communications links from the existing Company switching station to the Proposer's substation must be transport diverse with a minimum separation of 6 feet.
5. Additional analog leased telephone lines are required to support revenue meters (Proposer shall do their own due diligence for costs on this).

G. Projects Interconnecting to a Company Switching Station

1. If Proposer's substation is not adjacent to the proposed Company switching station, then Proposer is responsible for providing a communications link between the two (2) sites.

a. If Proposer chooses to run fiber between the sites, Proposer will own the fiber from their site up to a splice box immediately outside of the Company switching station ("meet point"). Company will own fiber from the meet point to the termination into the Company switching station – See Item 220.
b. All UG infrastructure will be designed, procured, and constructed by Proposer.
c. If interconnection is to a new Company switching station, a communications cabinet will be required at both sites – See Item 202.
d. If interconnection is to an existing Company switching station, a new communications cabinet will be required at the Proposer's substation and may be required at the existing Company switching station – See Item 202.

2. If Proposer's substation is adjacent to the proposed Company switching station, no additional Company costs are anticipated to be required for the Proposer's substation.

H. Telecommunications Baseline Costs

The costs below are high level per unit costs for communications requirements in support of the Project. Sections 2.5A through 2.5G above provide typical scenarios of when these options may be utilized.

Communications Cabinet or Enclosure

Item	Description	Cost
201	Communications Cabinet with circuits to support SCADA (Projects ≥ 1 MW and ≤ 3 MW) • Projects with SCADA and DTT but no diverse communication circuits	$122,000 / site
202	Communications Cabinet with circuits to support SCADA and Relay Protection (Projects > 3 MW or Subtransmission) • Projects with SCADA, DTT, and diverse communication circuits	$274,000 / site

Notes:
a) Costs will be updated for final draft.
b) Costs provided are in 2025 dollars.
c) All projects that require communications will require facilities to store the communications equipment. The examples above are provided but other alternatives may be available upon request.
d) Cabinet is used to support Company equipment and capable of providing communications circuit for SCADA.
e) Communications cabinet cost does not include fiber, microwave, radio equipment or lease circuits.
f) Proposer will provide all conduits, foundations, HHs, AC power, grounding as required per Company standards.

LTE (Cellular) or Lease Line Options

Item	Description	Cost
205	LTE (Cellular) or Lease Line one-time and recurring costs	Will vary based

Item	Description	Cost
		on 3rd party provider

Notes:
a) Add cost of Communications Cabinet – See Items 201-202.
b) Check with Company to understand the current cellular or lease line requirements.
c) Communication circuit requirements will be based on applications needed for the project.
d) Company can provide communication circuit interconnection requirements and assist with review of circuit order from the 3rd party provider as needed.
e) Proposer to work directly with 3rd party provider if a cellular or lease line circuit is needed.
f) Cost will be the responsibility of the Proposer and is to be negotiated with the 3rd party provider.

Licensed 900 MHz Radio Option

Item	Description	Cost
207	Licensed 900 MHz Radio Equipment • Incudes 2 each antenna equipment to create a radio link	$150,000 / link

Notes:
a) Costs will be updated for final draft.
b) Costs provided are in 2025 dollars.
c) Add cost of Communications Cabinet – See Items 201-202. The radio equipment will be installed within the Communication Cabinet.
d) Assumes there is radio line-of-sight clearance between the communication endpoints.
e) Assumes FCC licensed 900MHz Frequencies are available.
f) Assumes there is an existing structure/building with space available on the Company side to mount the antenna equipment and house the radio equipment.
g) Assumes Telecommunications grounding standards are up to date at both sites.
h) Assumes 48 V DC power with 12-hour battery backup is available.
i) Does not include special site-specific permit/approval activities that may be required including, but not limited to, Neighborhood Board(s), Conservation District Use Application, Environmental Assessment, Shoreline Management Area approval, biological (endangered species or habitat) surveys, and/or cultural (archeological) surveys or the cost of any migration required for approvals to be granted. Proposers should conduct their own due diligence for these costs.
j) Proposer is responsible to install a structure to mount the antenna equipment on the Proposer side and provide any conduit required between the Communications Cabinet and the antenna mount structure.

Fiber-Optic Cable Option

Item	Description	Cost
212	200ft of new fiber-optic cable	$1,000 each
213	Fiber termination or splice	$22,000 each

Notes:
a) Costs will be updated for final draft.
b) Costs provided are in 2025 dollars.
c) Add cost of Communications Cabinet – See Items 201-202.

Item	Description	Cost
	d) Includes Company costs for engineering and inspection of Company-responsible items – See Section 1. e) Item 212 should be added for each additional 200ft of Proposer-Build OH or UG fiber-optic line.	

Microwave Option

Item	Description	Cost
215	Point-to-Point Microwave Link (Backbone) • Includes 2 each antenna equipment to create a radio link	$772,000 / link
216	Microwave Link (Last Mile)	$326,000 / link
217	50ft Microwave Tower	$791,000 each
218	100ft Microwave Tower	$1,058,000 each

Notes:

a) Costs will be updated for final draft.
b) Costs provided are in 2025 dollars.
c) Add cost of Communications Cabinet – See Items 201-202.
d) Item 216 can be used in the situations below. Otherwise, Item 215 should be used.
   i. For interconnection to an existing circuit (all voltages), the remote substation must be closer than 6-8 miles to the new interconnection facilities (e.g., new Company-owned switching station, IPP substation, etc.).
   ii. For interconnection to an existing substation (transmission), the Proposer's substation must be closer than 6-8 miles to the existing substation.
   iii. Final determination of which microwave link to use will be determined by Company.
e) Assumes there is radio line-of-site clearance between the communication endpoints.
f) Assumes FCC licensed microwave frequencies are available.
g) Assumes there are existing structures/buildings with space available on both ends to house the radio equipment.
h) Assumes Telecommunications grounding standards are up to date at both sites.
i) Assumes 48 V DC power with 12-hour battery backup is available.
j) Does not include special site-specific permit/approval activities that may be required including, but not limited to, Neighborhood Board(s), Conservation District Use Application, Environmental Assessment, Shoreline Management Area approval, biological (endangered species or habitat) surveys, and/or cultural (archeological) surveys or the cost of any migration required for approvals to be granted. Proposers should conduct their own due diligence for these costs.
k) Assumes space is available at both ends to construct antenna towers or structures that are rated to survive a Saffir-Simpson category 4 hurricane.
l) Other options for Microwave Towers of varying heights may be available.

Projects Interconnecting to a Company Switching Station Only

Item	Description	Cost
220	Fiber from "meet point" to termination in Company switching station • Assumes 24-strand fiber cable • Includes splicing, termination, and testing work	$41,000

Item	Description	Cost
	• Civil infrastructure (HHs, conduits, etc.) is designed, procured, and installed by Proposer	

Notes:
a) Costs will be updated for final draft.
b) Costs provided are in 2025 dollars.
c) Required if the Proposer's substation is not adjacent to the Company switching station per Section 2.5G.
d) Assumes the "meet point" is within 500ft of the termination in the Company switching station.

2.6 – TYPICAL SECURITY REQUIREMENTS AND COSTS

Section 2.6 provides typical security requirements and costs for new facilities installed as a part of the interconnection. Security requirements and costs can vary based on many factors including, but not limited to, location, crime rate, environment, aspects of the surrounding area, terrain, accessibility, layout of the facility, etc. The specific requirements for each facility will be subject to final review during the design and engineering phase. Additional information, including the Company's Physical Security Strategy, is available upon request after execution of an NDA with the Company.

A. Proposer Responsibilities at Proposer Facility

The Proposer shall be responsible to incorporate security components and systems for **their facilities** that consider the Security Guidelines for the Electricity Sector (CIP-014-2): Physical Security, as published by the North American Electric Reliability Corporation (NERC) and that at a minimum, meet the requirements below.

For Company-owned facilities within the Proposer's Facility, Company requires:

1. Standard 8ft high security fence with 3-strand barbed wire V-top.
2. Interior mounted 4' high cattle fencing.
3. All gates will be secured using a proprietary padlock system.
4. Proposer-owned cabinets/enclosures housing Company equipment shall be secured with a lock provided by Company.
5. Company requires 24/7 access to Company facilities within the Proposer facility.

B. Proposer Responsibilities for New Company-Owned Substations

Substations (46kV and above) that interconnect generation typically require high levels of security due to the critical role they play in the Company's system including, but not limited to:

1. Camera Monitoring – Proposer to procure and install all camera mounts and cameras. Specific models required for cameras, mounts, caps, and other associated hardware will be provided to Proposer after an NDA is executed with the Company. Company's Security Integrator will terminate cables, adjust, and optimize as needed.

2. Electronic Card Access System – For control & microwave houses, Proposer procures/mounts card access devices and installs any cables necessary. Company Security Integrator will terminate cables and program and test devices and peripherals.
3. Infrastructure – Conduits and associated electrical and junction boxes shall be installed by the Proposer as a part of the substation site development. Conduits shall be rigid PVC, dedicated for Security systems purposes only, and sealed properly from the origin to the termination point.
4. Cabling – Cabling shall be installed by the Proposer as a part of the substation site development and shall be of the type specified below for the applicable voltage. Company's Security Integrator will terminate both ends.
    a. 69kV Substations – CAT 5E
    b. 138kV Substations – CAT 6
5. Integrator – Company's Security Integrator will procure the server and necessary switches, terminate all ends, program the server, and set all fields of view for all camera shots.
6. Fencing – Schedule 40 galvanized fence post and fence fabric is required for fencing. The fencing shall be 8 feet high with heavy gauge support wire along the length of the bottom. 3-strand barbed wire shall be mounted atop the fence at a 45-degree angle on the inside and outside for the entire length of fence and gates.
7. Locks – All gates shall be secured using a proprietary padlock system. Company will provide physical padlocks for gates and electrical equipment.
8. Lighting – Motion and static lighting are necessary for additional safety and security deterrent measures and to enhance camera viewing at night. Proposer shall procure and install all lighting as a part of the substation site development. Motion LED lighting arrays shall be placed on all corners and entrances. Static LED lighting arrays shall be placed on the control house and throughout the yard to meet required lighting levels. Lighting shall be Dark Sky compliant.
9. Perimeter Intrusion Detection (O'ahu only) - Proposer shall procure and install devices and cables using a contractor that is trained and qualified to install the specified system. Company's Security Integrator will terminate cables, program, and test system. The specific models for the system will be provided to Proposer after execution of an NDA with the Company.

The costs below are for the Company to perform the Company-responsible items above.

Item	Description	Cost
250	Hawai'i Substation Security	$66,000 / site
251	O'ahu Substation Security	$104,000 / site

Notes:
a) Costs will be updated for final draft.
b) Costs provided are in 2025 dollars.
c) Includes Company costs for internal labor, materials, and contractors to support design, installation, programming, and testing of all security systems.
d) Proposer needs to estimate their own costs.
e) New 2-bay breaker and a half substation with a control house, 280ft x 235ft footprint, flat terrain, and accessible.

Item	Description	Cost
	f) Location is rural with a moderate to low crime rate and little to no homeless population. g) Fire break is not needed.	

SECTION 3 – TYPICAL COMPANY DURATIONS FOR INTERCONNECTION PROJECTS

The tables below in Section 3 are to be used as a reference when developing an overall project schedule to assist Proposers in setting realistic durations and deadlines for critical milestones. These tables represent typical durations for the Company to complete the listed critical milestones that assist in moving the interconnection project through the IRS, Engineering, Procurement, and Construction phases. The durations below do not include time for Proposer to complete items they are responsible for. These high-level typical durations are for planning purposes only and is not intended to cover all project specific requirements. Specific project details can increase or decrease these durations. The detailed project schedule will be determined after the IRS is completed.

3.1 – [NOT USED]

3.2 – SUBTRANSMISSION PROJECTS

Milestone	Duration Proposer-Build	Notes
IRS Phase		
Model Validation	1 month	May increase depending on # of iterations
System Impact Study (SIS)	150 calendar days	Following Model Acceptance
Facility Study (FS)	40 business days	Following completion of SIS, SLD Acceptance, and Receipt of Developer Drawings and MS Project Schedules
Engineering Phase		
Basis of Design Review	20 business days	Approximately 4 weeks after IRS completion and following submittal of Basis of Design
30% Design Review	20 business days	Following Basis of Design acceptance and submittal of 30% design
60% Design Review	20 business days	Following 30% Design acceptance and submittal of 60% design
90% Design Review	20 business days	Following 60% Design acceptance and submittal of 90% design
Issued for Construction (IFC) Design Review	20 business days	Following 90% Design acceptance and submittal of IFC design
Procurement Phase		
Procurement	N/A	Procurement of materials typically happens at 60% design completion and after PPA/PUC approval. Material lead times have been increasing (dependent on manufacturer availability) and should be incorporated into the schedule.

Milestone	Duration Proposer-Build	Notes
Construction Phase		
Construction	N/A	Based on scope/complexity of work and to begin after procurement is complete.
Testing	30 business days	To occur after construction is complete
Acceptance Testing	25 business days	To occur after Testing
CSAT	30 business days	To occur after commissioning of Proposer's Facility. Duration depends on Proposer's ability to meet the Performance Standards.
Notes		
a) For Proposer-Build projects, the Engineering Phase includes design reviews of Proposer designs for COIF and review of SOIF supporting/impacting COIF. b) N/A indicates that the task is the responsibility of the Proposer in a Proposer-Build project. c) Proposer should include adequate time for PPA and PUC activities with appropriate durations. Typical PUC approval durations can range from 6 to 12 months depending on project d) For 138KV projects, an EMF study is required. For 46kV and 69kV project, an EMF study might be required.		

3.3 – TRANSMISSION PROJECTS

Milestone	Duration Proposer-Build	Notes
IRS Phase		
Model Validation	1 month	May increase depending on # of iterations
System Impact Study (SIS)	150 calendar days	Following Model Acceptance
Facility Study (FS)	40 business days	Following completion of SIS, SLD Acceptance, and Receipt of Developer Drawings and MS Project Schedules
Engineering Phase		
Basis of Design Review	20 business days	Approximately 4 weeks after IRS completion and following submittal of Basis of Design
30% Design Review	20 business days	Following Basis of Design acceptance and submittal of 30% design
60% Design Review	20 business days	Following 30% Design acceptance and submittal of 60% design
90% Design Review	20 business days	Following 60% Design acceptance and submittal of 90% design
Issued for Construction (IFC) Design Review	20 business days	Following 90% Design acceptance and submittal of IFC design
Procurement Phase		
Procurement	N/A	Procurement of materials typically happens at 60% design completion and after PPA/PUC approval. Material lead times have been increasing (dependent on manufacturer availability) and should be incorporated into the schedule.
Construction Phase		

Milestone	Duration Proposer-Build	Notes
Construction	N/A	Based on scope/complexity of work and to begin after procurement is complete.
Testing	30 business days	To occur after construction is complete
Acceptance Testing	25 business days	To occur after Testing
CSAT	30 business days	To occur after commissioning of Proposer's Facility. Duration depends on Proposer's ability to meet the Performance Standards.

Notes

a) For Proposer-Build projects, the Engineering Phase includes design reviews of Proposer designs for COIF and review of SOIF supporting/impacting COIF.
b) N/A indicates that the task is the responsibility of the Proposer in a Proposer-Build project.
c) Proposer should include adequate time for PPA and PUC activities with appropriate durations. Typical PUC approval durations can range from 6 to 12 months depending on project
d) For 138KV projects, an EMF study is required. For 46kV and 69kV project, an EMF study might be required.

3.4 – ADDITIONAL DURATIONS TO INTERCONNECT AT AN EXISTING SUBSTATION

Engineering Phase		
30% Design & Review	40 business days	
60% Design & Review	50 business days	Following 30% Design acceptance.
90% Design & Review	50 business days	Following 60% Design acceptance
Issued for Construction (IFC) Design & Review	30 business days	Following 90% Design acceptance.
Procurement Phase		
Procurement	Up to 24 months	Procurement of materials typically happens at 60% design completion and after PUC approval. Material lead times dependent on manufacturer availability.
Construction Phase		
Construction	Up to 12 months	Duration increases up to 12 months for larger sized projects. Construction to begin after procurement completion.

Notes

a) The durations listed are in addition to the durations listed in Section 3.2 and 3.3.
b) The Engineering Phase includes Company design and review of Company-Owned Interconnection Facilities (COIF) and reviews of Proposer-Owned Interconnection Facilities (SOIF) supporting/impacting COIF.

Estimate Breakdown (O'ahu)

[ENTER COIF SCOPE AND ASSUMPTIONS]
Example:
1. New 3-bay, 9-breaker BAAH switchyard.
2. OH to OH interconnections to Waiau-Ewa Nui 1 and Waiau-Ewa Nui 2 138kV circuits. Waiau-Ewa Nui 1 line extension includes 0.25mi of new OH line, and 0.2mi of overbuild on existing 46kV. Waiau-Ewa Nui 2 line extension includes 0.45mi of new OH line. Line extensions are accessible by truck.
3. Primary communication: Fiber to nearest splice point 0.5mi away. Fiber line will be underbuilt on existing lines. Backup communication: Leased line with Hawaiian Telcom.
4. System upgrades: None.

Appx H Item / Description	Qty	Unit	Unit Price	Total Cost
Company COIF/System Upgrade Costs				
Section 2.1 - Substation & Meter Baseline				
Subtransmission				
[16] 46kV Interconnection		EA	$1,357,000	$0
[21] Remote sub work for 46kV circuits		SITE	$435,000	$0
Transmission				
[32] 138kV interconnection (2 circuits)		EA	$2,550,000	$0
[36a] Remote sub - 138kV line relay upgrades		EA	$452,000	$0
[36b] Remote sub - 138kV CB replacement		EA	$569,000	$0
[36c] Remote sub - 138kV DTT for anti-islanding		EA	$122,000	$0
Section 2.2 - Interconnection to Specific Company Sites				
[61a] Ewa Nui - work at Project site		EA	$564,000	$0
[61b] Ewa Nui - work at existing sub		EA	$2,975,000	$0
[62a] Kahe 5-8 - work at Project site		EA	$564,000	$0
[62b] Kahe 5-8 - work at existing sub		EA	$2,975,000	$0
[63a] Hoohana - work at Project site		EA	$564,000	$0
[63b] Hoohana 1st Termination		EA	$1,151,000	$0
[64a] CEIP - work at Project site		EA	$564,000	$0
[64b] CEIP - work at existing sub		EA	$2,975,000	$0
[65a] Koolau - work at Project site		EA	$564,000	$0
[65b] Koolau - work at existing sub		EA	$2,302,000	$0
[66a] AES - work at Project site		EA	$564,000	$0
[66b] AES - work at existing sub		EA	$452,000	$0
[69] Reuse 138kV termination for existing IPP connections		EA	$400,000	$0
Section 2.3 - T&D Baseline and Line Extension Costs				
Subtransmission				
[120-1] 46kV OH to OH final tap (1st tap)		EA	$90,000	$0
[120-2] 46kV OH to OH final tap (2nd tap)		EA	$55,000	$0
[121-1] 46kV OH to UG final tap (1st tap)		EA	$238,000	$0
[121-2] 46kV OH to UG final tap (2nd tap)		EA	$185,000	$0
[122-1] 46kV UG to UG final tap (1st tap)		EA	$267,000	$0
[122-2] 46kV UG to UG final tap (2nd tap)		EA	$214,000	$0

Transmission				
[133] 138kV OH to OH final tap		CKT	$973,000	$0
[135] 138kV OH final span for termination to existing substation		EA	$101,000	$0
[136] 138kV UG termination to existing substation		EA	$34,000	$0
Line Extensions and Upgrades				
[160] 46kV Add'l 100ft OH line extension (Proposer-build)		EA	$3,400	$0
[161] 46kV Add'l 100ft UG line extension (Proposer-build)		EA	$5,000	$0
[165] 46kV overbuild on existing accessible 12kV		MI	$1,399,000	$0
[166] 46kV overbuild on existing inaccessible 12V		MI	$2,315,000	$0
[170] Upgrade existing 46kV OH lines		MI	$1,024,000	$0
[175] 138kV Add'l 100ft OH line extension (Proposer-build)		EA	$5,000	$0
[176] 138kV Add'l 100ft UG line extension (Proposer-build)		EA	$7,000	$0
[180] 138kV overbuild on existing accessible 46kV		MI	$6,352,000	$0
[183] Upgrade existing 138kV OH lines		MI	$1,771,000	$0

Section 2.4 - Project Management Baseline Costs				
Subtransmission				
[196E] PM - Engineering Phase		MO	$18,400	$0
[196C] PM - Construction Phase		MO	$23,300	$0
[196T] PM - Testing/Closeout		MO	$12,000	$0
Transmission				
[197E] PM - Engineering Phase		MO	$18,400	$0
[197C] PM - Construction Phase		MO	$23,300	$0
[197T] PM - Testing/Closeout		MO	$12,000	$0

Section 2.5 - Telecommunication Baseline Costs				
[201] Comm cabinet (≥ 1MW and ≤ 3MW		SITE	$122,000	$0
[202] Comm cabinet (> 3MW)		SITE	$274,000	$0
[205] LTE Cellular or Lease Line		EA	$0	$0
[207] Licensed 900MHz Radio		LINK	$150,000	$0
[212] 200ft of new fiber-optic cable (Proposer-built)		EA	$1,000	$0
[213] Fiber termination or splice		EA	$22,000	$0
[215] Point to point Microwave link (backbone)		LINK	$772,000	$0
[216] Microwave link (last mile)		LINK	$326,000	$0
[217] 50ft Microwave tower		EA	$791,000	$0
[218] 100ft Microwave tower		EA	$1,058,000	$0
[220] Fiber from "meet point" to termination in Company switching station		EA	$41,000	$0

Section 2.6 - Security Costs				
[251] Oahu substation security		SITE	$104,000	$0

ESTIMATED TOTAL COMPANY COIF COSTS =	**$0**
ESTIMATED TOTAL COMPANY COIF COSTS (ADJUSTED FOR ESCALATION) =	

Description	**Total Cost**

Proposer-Built COIF/System Upgrade Costs	
Substation	
T&D	
Telecom	
Security ($0 if these costs are included in Substation costs)	

ESTIMATED TOTAL PROPOSER-BUILT COIF COSTS =	**$0**
ESTIMATED TOTAL PROPOSER-BUILT COIF COSTS (ADJUSTED FOR ESCALATION) =	

ESTIMATED TOTAL COIF COSTS =	**$0**
ESTIMATED TOTAL COIF COSTS (ADJUSTED FOR ESCALATION) =	**$0**

Estimate Breakdown (Hawai‘i Island)

[ENTER COIF SCOPE AND ASSUMPTIONS]
Example:
1. New 2-bay, 4-breaker BAAH switchyard.
2. OH to OH interconnection to L7100. Line extension includes 0.25mi of new OH line. Line extensions is accessible by truck.
3. Primary communication: Fiber to nearest splice point 0.5mi away. Fiber line will be underbuilt on existing lines. Backup communication: Leased line with Hawaiian Telcom.
4. System upgrades: 2 miles of 69kV reconductoring.

Appx H Item / Description	Qty	Unit	Unit Price	Total Cost
Company COIF Costs				
Section 2.1 - Substation & Meter Baseline				
[30] 69kV Interconnection		EA	$1,242,000	$0
[34a] Remote sub - 69kV line relay upgrades		EA	$210,000	$0
[34b] Remote sub - Circuit switcher & differential protection per tsf/swgr		EA	$270,000	$0
[34c] Remote sub - 69kV circuit breaker replacement		EA	$340,000	$0
[34d] Remote sub - 3ph line PTs required for Synch Check		EA	$110,000	$0
Section 2.2 - Interconnection to Specific Company Sites				
[43a] Kanoelehua - work at Project site		EA	$564,000	$0
[43b] Kanoelehua - work at existing sub		EA	$1,186,000	$0
[46a] Poopoomino - work at Project site		EA	$564,000	$0
[46b] Poopomino - work at existing sub		EA	$1,711,000	$0
[47] Kamaoa - upgrade existing interconnection		EA	$400,000	$0
[55] Reuse 69KV termination for existing IPP connections		EA	$400,000	$0
Section 2.3 - T&D Baseline and Line Extension Costs				
[130] 69kV OH to OH final tap		EA	$156,000	$0
[131] 69kV OH final span for termination to existing substation		EA	$62,000	$0
Line Extensions and Upgrades				
[160] 69kV Add'l 100ft OH line extension (Proposer-build)		EA	$3,400	$0
[161] 69kV Add'l 100ft UG line extension (Proposer-build)		EA	$5,000	$0
[165] 69kV overbuild on existing accessible 12kV		MI	$1,399,000	$0
[166] 69kV overbuild on existing inaccessible 12V		MI	$2,315,000	$0
[170] Upgrade existing OH lines		MI	$1,024,000	$0
Section 2.4 - Project Management Baseline Costs				
[197E] PM - Engineering Phase		MO	$18,400	$0
[197C] PM - Construction Phase		MO	$23,300	$0
[197T] PM - Testing/Closeout		MO	$12,000	$0
Section 2.5 - Telecommunication Baseline Costs				
[201] Comm cabinet (≥ 1MW and ≤ 3MW)		SITE	$122,000	$0
[202] Comm cabinet (> 3MW)		SITE	$274,000	$0

[205] Lease Line		EA	$0	$0
[207] Licensed 900MHz Radio		LINK	$150,000	$0
[212] 200ft of new fiber-optic cable (Proposer-built)		EA	$1,000	$0
[213] Fiber termination or splice		EA	$22,000	$0
[215] Point to point Microwave link (backbone)		LINK	$772,000	$0
[216] Microwave link (last mile)		LINK	$326,000	$0
[217] 50ft Microwave tower		EA	$791,000	$0
[218] 100ft Microwave tower		EA	$1,058,000	$0
[220] Fiber from "meet point" to termination in Company switching station		EA	$41,000	$0

Section 2.6 - Security Costs				
[250] Hawaii substation security		SITE	$66,000	$0

ESTIMATED TOTAL COMPANY COIF COSTS =	**$0**
ESTIMATED TOTAL COMPANY COIF COSTS (ADJUSTED FOR ESCALATION) =	

Description	**Total Cost**
Proposer-Built COIF and System Upgrade Costs	
Substation	
T&D	
Telecom	
Security ($0 if these costs are included in Substation costs)	

ESTIMATED TOTAL PROPOSER-BUILT COIF COSTS =	**$0**
ESTIMATED TOTAL PROPOSER-BUILT COIF COSTS (ADJUSTED FOR ESCALATION) =	

ESTIMATED TOTAL COIF COSTS =	**$0**
ESTIMATED TOTAL COIF COSTS (ADJUSTED FOR ESCALATION) =	**$0**

PROJECT EXAMPLES (O'AHU) - APPENDIX H UNIT COST TABLE

Examples provided for illustrative purposes only and is not binding for actual facility costs.
Estimated costs represent Company costs charged to the Proposer.

Projects interconnecting to a 46kV circuit

Example 1

15MW project interconnecting to two (2) 46kV circuits. Proposer will construct a new 46kV COmpany-owned substation per Attachment S1 of this Appendix H. Proposer will construct separate line extensions to two (2) separate 46kV circuits. The first line extension is 900ft OH and the second is 800ft OH and 100ft UG (not including the 100ft span at the GCPs). The second line tap is at a riser (OH to UG type). Company will complete the final taps. Relay upgrades required on one of the circuits. Proposer to install 1000ft of ADSS fiber from the nearest splice point to the new substation for primary communications. Company to install Company-owned equipment in Proposer-provided communications cabinet. Proposer to provide leased line for backup telecommunications. Assumed durations: Engineering = 18 months, Construction = 10 months, Testing/closeout = 6 months.

Appx H Item / Desription	Quantity	Unit	Unit Price ($)	Total Cost ($)
[16] 46kV Interconnection	1	EA	$1,357,000	$1,357,000
[21] Remote sub work	1	SITE	$435,000	$435,000
[120-1] 46kV OH to OH Final Tap (1st tap)	1	EA	$90,000	$90,000
[121-2] 46kV OH to UG Final Tap (2nd tap)	1	EA	$185,000	$185,000
[160] Additional 100ft OH Line Extension	17	EA	$3,400	$57,800
[161] Additional 100ft UG Line Extension	1	EA	$5,000	$5,000
[196E] PM - Engineering Phase	18	MO	$18,400	$331,200
[196C] PM - Construction Phase	10	MO	$23,300	$233,000
[196T] PM - Testing/Closeout	6	MO	$12,000	$72,000
[202] Comm Cabinet (> 3MW)	1	LS	$274,000	$274,000
[205] Lease Line	1	LS	$0	$0
[212] 200ft of new fiber-optic cable	5	EA	$1,000	$5,000
[213] Fiber termination or splice	2	EA	$22,000	$44,000
[251] Oahu substation security	1	LS	$104,000	$104,000
Proposer-Built COIF Costs				
Substation (ring bus)				$10,315,000
T&D (OH/UG lines)				$575,000
Telecom (ADSS fiber, leased line)				$70,000
Security (system for substation)				$275,000
		ESTIMATED TOTAL =		**$14,428,000**

Projects interconnecting to transmission

Example 2

100MW project interconnecting to existing 138kV OH circuits. Proposer to build a new Company-owned 4-bay BAAH switching station per Attachment T2 of this Appendix H. Line extension includes interception of existing circuits and a 1500ft extension of four (4) new 138kV OH lines to new Company switching station (not including the 100ft spans at the tap). All lines are accessible. Proposer to construct the new OH lines between the termination structures at the substation and the last poles/structures before intercepting the existing lines. Company will construct the final tap from the last poles/structures to the GCP. Line relay upgrades and 3ph line PTs are required on both circuits and a breaker replacement is required on one circuit. Proposer to install 1300 ft of ADSS fiber to the new Company switching station. Company to install Company-owned equipment in Proposer-provided communications cabinet. Proposer to provide leased line for backup telecommunications. Proposer's substation is adjacent to Company's switching station. Assumed durations: Engineering = 18 months, Construction = 10 months, Testing/closeout = 6 months.

Appx H Item / Desription	Quantity	Unit	Unit Price ($)	Total Cost ($)
[32] Company work at new substation	1	EA	$2,550,000	$2,550,000
[36a] Remote sub - 138kV line relay upgrades	2	EA	$452,000	$904,000
[36b] Remote sub - 138kV CB replacement	1	EA	$569,000	$569,000
138kV OH to OH Final Tap	2	EA	$973,000	$1,946,000
Additional 100ft OH Line Extension	60	EA	$5,000	$300,000
[197E] PM - Engineering Phase	18	MO	$18,400	$331,200
[197C] PM - Construction Phase	10	MO	$23,300	$233,000
[197T] PM - Testing/Closeout	6	MO	$12,000	$72,000
[205] Lease Line	1	LS	$0	$0
[202] Comm Cabinet (> 3MW)	1	LS	$274,000	$274,000
[212] 200ft of new fiber-optic cable	5	EA	$1,000	$5,000
[213] Fiber termination or splice	2	EA	$22,000	$44,000
[251] Oahu substation security	1	LS	$104,000	$104,000
Proposer-Built COIF Costs				
Substation (3-bay, 9-bkr BAAH)				$24,000,000
T&D (OH lines)				$8,700,000
Telecom (ADSS fiber, leased line)				$77,000
Security (system for substation)				$500,000
		ESTIMATED TOTAL =		**$40,609,200**

Example 3

100MW project interconnecting at Kahe 5-8 substation. Proposer to run an OH gen-tie line (1,000ft each, not including 100ft span into sub) from Proposer's site to Kahe 5-8. Termination into Kahe 5-8 will be overhead, and Company to string final OH span from last pole to termination structure at Kahe 5-8. Proposer to run fiber between Proposer's substation and meet point near Kahe 5-8 since substation is not adjacent to existing sub. A comm cabinet is required at the Proposer's substation. Company to install Company-owned equipment in Proposer-provided communications cabinet. Assumed durations: Engineering = 18 months, Construction = 10 months, Testing/closeout = 6 months.

Appx H Item / Desription	Quantity	Unit	Unit Price ($)	Total Cost ($)
[62a] Kahe 5-8 - work at Project site	1	EA	$564,000	$564,000
[62b] Kahe 5-8 - work at existing sub	1	EA	$2,975,000	$2,975,000
[135] 138kV OH termination to existing sub	1	EA	$101,000	$101,000
[197E] PM - Engineering Phase	18	MO	$18,400	$331,200
[197C] PM - Construction Phase	10	MO	$23,300	$233,000
[197T] PM - Testing/Closeout	6	MO	$12,000	$72,000
[202] Comm Cabinet (> 3MW)	1	LS	$274,000	$274,000
[220] Fiber meet point	1	EA	$41,000	$41,000
Proposer-Built COIF Costs				
Substation (existing substation so nothing needed)				$0
T&D (Gen-tie is Proposer-owned)				$0
Telecom (fiber between Proposer sub and meet point is Proposer-owned)				$0
Security (existing substation so nothing needed)				$0
		ESTIMATED TOTAL =		**$4,591,200**

Electrical service to Proposer Facility

Example 4

Proposer requests service from existing 12kV line 0.5 miles away from the facility (new OH line for 0.4 miles and 0.1 miles underbuilt on the Company-owned interconnection lines). The OH line risers down and 2 feeders will serve a padmount transformer 100ft away from the riser pole. Proposer to install civil infrastructure (ductlines, MH/HH/vaults, equipment pads, etc.).

Appx H Item / Desription	Quantity	Unit	Unit Price ($)	Total Cost ($)
[188] Facility or Station Power	1	EA	$91,000	$91,000
[189] 12kV OH accessible	0.4	MI	$749,000	$299,600
[190] 12kV underbuild	0.1	MI	$471,000	$47,100
[193] 12kV 3ph riser	1	EA	$43,000	$43,000
Proposer-built civil infrastructure	1	LS	$0	$0
		ESTIMATED TOTAL =		**$480,700**

Electrical service to Proposer Facility and Primary station service for Company-owned switching station

Example 5

Proposer requests service from existing 12kV line 0.2 miles away from the facility. Line extension is a new OH accessible line. The OH line riser down and 2 feeders will serve a padmount transformer 100ft away from the riser pole. Primary station service for the Company-owned switching station will be tapped off of the facility service line extension, riser underground, with 2 feeders going to a padmount station service transformer in the switching station located 300ft away from the tap point. Proposer to install civil infrastructure (ductlines, MH/HH/vaults, equipment pads, etc.).

Appx H Item / Desription	Quantity	Unit	Unit Price ($)	Total Cost ($)
[188] Facility or Station Power	2	EA	$91,000	$182,000
[189] 12kV OH accessible	0.2	MI	$749,000	$149,800
[193] 12kV 3ph riser	1	EA	$43,000	$43,000
[193] 12kV 3ph riser (station svc)	1	EA	$43,000	$43,000
[192] 12kV UG dbl feeder (station svc)	0.04	MI	$1,148,000	$43,485
Proposer-built civil infrastructure	1	LS	$0	$0
		ESTIMATED TOTAL =		**$461,285**

PROJECT EXAMPLES (HAWAIʻI) - APPENDIX H UNIT COST TABLE

Examples provided for illustrative purposes only and is not binding for actual facility costs.
Estimated costs represent Company costs charged to the Proposer.

Projects interconnecting to a 69kV circuit

Example 1

20MW PV system on Hawaiʻi interconnecting to an existing 69kV OH circuit. Proposer to build a new Company-owned 2-bay (4 breaker) BAAH switching station per Attachment T1 of this Appendix H. Proposer's substation is adjacent to new Company switching station. Line extension includes interception of existing line and 1000ft extension of two (2) new 69kV OH lines to new Company switching station. All lines are accessible. Proposer to construct the new OH lines between the termination structure at the substation and the last pole/structure before intercepting the existing lines. Company will construct the final tap from the last pole/structure to the GCP and remove existing 69kV OH lines. Existing lines connect to two (2) remote subs. One (1) circuit switcher and differential protection required for one transformer/switchgear at one remote sub. Line relay upgrades, replacement of one (1) 69kV circuit breaker, and 3ph line PTs for synch check required at the other remote sub. Proposer to install 1000ft of new ADSS fiber to the new Company switching station. Company installs Company-owned equipment in Proposer-provided communications cabinet and terminates fiber at both ends. Proposer to provide leased line for backup telecommunications. Assumed durations: Engineering = 18 months, Construction = 10 months, Testing/closeout = 6 months.

Appx H Item / Desription	Quantity	Unit	Unit Price ($)	Total Cost ($)
[30] 69kV Interconnection	1	EA	$1,242,000	$1,242,000
[34a] Remote sub - 69kV line relay upgrades	1	EA	$210,000	$210,000
[34b] Remote sub - Circuit switcher & differential protection per tsf/swgr	1	EA	$270,000	$270,000
[34c] Remote sub - 69kV circuit breaker replacement	1	EA	$340,000	$340,000
[34d] Remote sub - 3ph line PTs required for Synch Check	1	EA	$110,000	$110,000
[130] 69kV OH to OH final tap	1	EA	$156,000	$156,000
[160] 69kV Add'l 100ft OH line extension (Proposer-build)	18	EA	$3,400	$61,200
[197E] PM - Engineering Phase	18	MO	$18,400	$331,200
[197C] PM - Construction Phase	10	MO	$23,300	$233,000
[197T] PM - Testing/Closeout	6	MO	$12,000	$72,000
[202] Comm cabinet (> 3MW)	1	EA	$274,000	$274,000
[205] Lease Line	1	LS	$0	$0
[212] 200ft of new fiber-optic cable	5	EA	$1,000	$5,000
[213] Fiber termination or splice	2	EA	$22,000	$44,000
[250] Hawaii substation security	1	LS	$66,000	$66,000
			ESTIMATED TOTAL =	**$3,414,400**

Electrical service to Proposer Facility

Example 2

Proposer requests service from existing 12kV line 0.5 miles away from the facility (new OH line for 0.4 miles and 0.1 miles underbuilt on the Company-owned interconnection lines). The OH line risers down and 2 feeders will serve a padmount transformer 100ft away from the riser pole. Proposer to install civil infrastructure (ductlines, MH/HH/vaults, equipment pads, etc.).

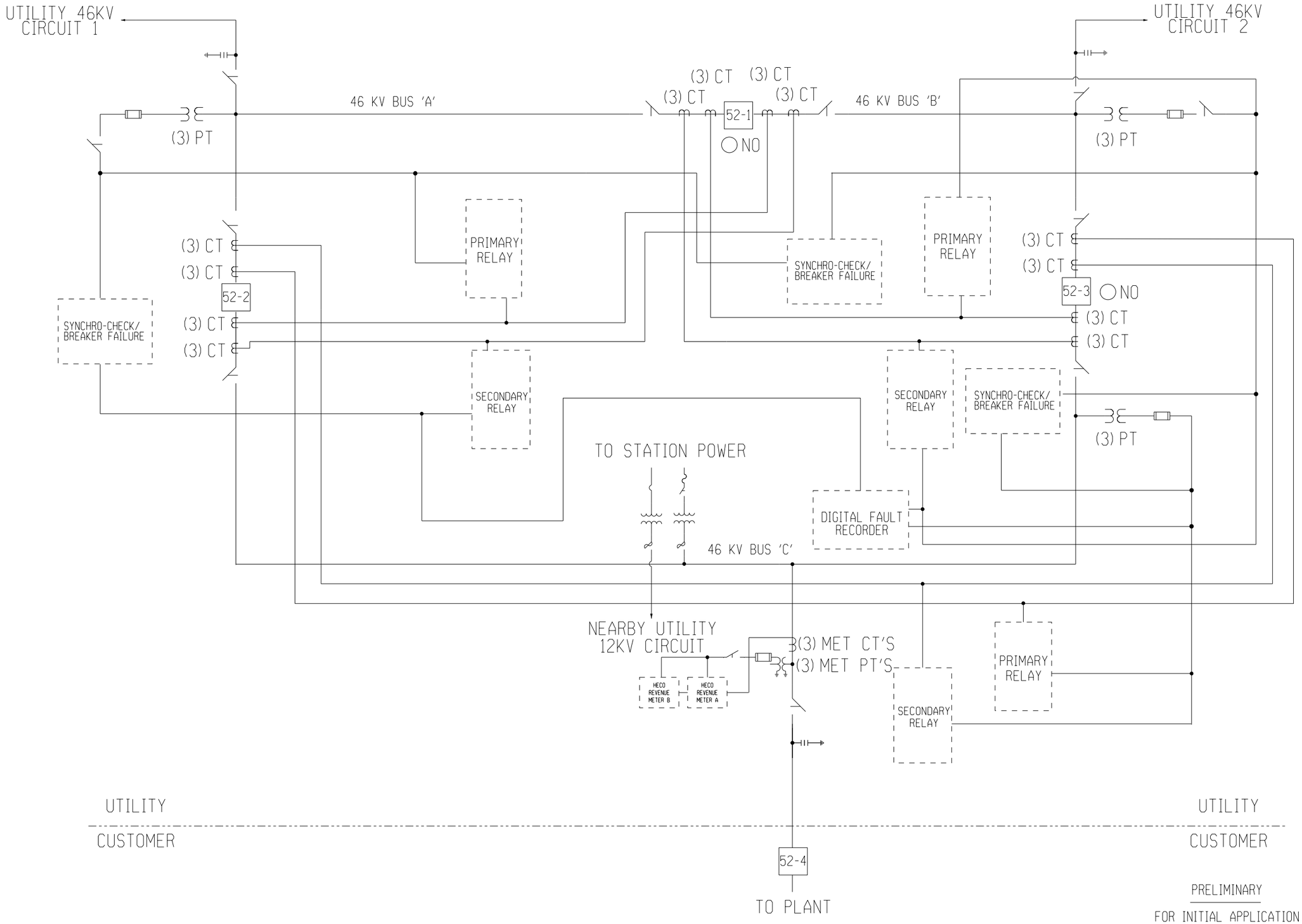
Appx H Item / Desription	Quantity	Unit	Unit Price ($)	Total Cost ($)
[188] Facility or Station Power	1	EA	$91,000	$91,000
[189] 12kV OH accessible	0.4	MI	$749,000	$299,600
[190] 12kV underbuild	0.1	MI	$471,000	$47,100
[193] 12kV 3ph riser	1	EA	$43,000	$43,000
Proposer-built civil infrastructure	1	LS	$0	$0
		ESTIMATED TOTAL =		**$480,700**

Electrical service to Proposer Facility and Primary station service for Company-owned switching station

Example 3

Proposer requests service from existing 12kV line 0.2 miles away from the facility. Line extension is a new OH accessible line. The OH line riser down and 2 feeders will serve a padmount transformer 100ft away from the riser pole. Primary station service for the Company-owned switching station will be tapped off of the facility service line extension, riser underground, with 2 feeders going to a padmount station service transformer in the switching station located 300ft away from the tap point. Proposer to install civil infrastructure (ductlines, MH/HH/vaults, equipment pads, etc.).

Appx H Item / Desription	Quantity	Unit	Unit Price ($)	Total Cost ($)
[188] Facility or Station Power	2	EA	$91,000	$182,000
[189] 12kV OH accessible	0.2	MI	$749,000	$149,800
[193] 12kV 3ph riser	1	EA	$43,000	$43,000
[193] 12kV 3ph riser (station svc)	1	EA	$43,000	$43,000
[192] 12kV UG dbl feeder (station svc)	0.04	MI	$1,148,000	$43,485
Proposer-built civil infrastructure	1	LS	$0	$0
		ESTIMATED TOTAL =		**$461,285**



NOTES:

1. 24 HOUR ACCESS:
   ALL UTILITY EQUIPMENT MUST BE READILY ACCESSIBLE AT ALL TIMES (24 HOURS/7 DAYS) BY UTILITY PERSONNEL FOR EMERGENCIES, METER READING, INSPECTION, TESTING, AND MAINTENANCE.

2. ANTI-ISLANDING NOTE:
   AN INDEPENDENT ANTI-ISLANDING PREVENTION METHOD MUST BE INSTALLED SUCH THAT UPON OCCURRENCE OF AN ISLAND, THE DISTRIBUTED GENERATION RESOURCE SHALL AUTOMATICALLY DISCONNECT FROM UTILITY.

3. ENERGIZATION OF THE MAIN SITE TRANSFORMER AND/OR FACILITY CIRCUITS SHOULD NOT VIOLATE IEEE 1453.

4. INSTALL RELAYS TO ENABLE UFLS AT 12KV BREAKERS IF 46KV CIRCUIT IS ON THE UFLS SCHEME.

5. PROJECT TO PROVIDE A RELIABLE DC SOURCE FOR 12 HOUR BACKUP PERIOD; SPECIFIC VOLTAGE TO BE DETERMINED BY HECO AT A LATER DATE.

6. MAIN UTILITY SUBTRANSMISSION CIRCUIT BREAKER TO BE SYNCHRONIZED ACROSS THE 46KV BUS POTENTIAL AND THE LINE POTENTIAL. SUPY AND MANUAL CLOSING SHALL BE ALLOWED FOR VOLTAGE EQUAL IN MAGNITUDE AND PHASE.

7. ALL UTILITY SUBTRANSMISSION CIRCUIT BREAKERS TO BE SCADA ENABLED.

PRELIMINARY

FOR INITIAL APPLICATION
NOT TO BE USED
FOR CONSTRUCTION

ALSO REFER TO SLD
DESIGN NOTES

TYPLICAL 46KV RING BUS INTERCONNECT SINGLE LINE DIAGRAM		
	DATE 04-09-2024	SCALE NONE
		REV. Ø

Template notes to be added to the 46kV Variable Generation Project Single Line Diagram

Additional requirements may be added based on project design.

PROPOSED PROJECT NAME:	
PROPOSED PROJECT SIZE:	
CUSTOMER SLD REVISION NUMBER AND DATE:	
UTILITY SLD REVISION NUMBER AND DATE:	
UTILITY SUBSTATION 1:	
UTILITY 46KV CIRCUIT 1:	
UTILITY 46KV CIRCUIT BREAKER 1 #:	
UTILITY SUBSTATION 2:	
UTILITY 46KV CIRCUIT 2:	
UTILITY 46KV CIRCUIT BREAKER 2 #:	

Section A: Planning Notes

1. By operation procedure(s), the Project shall be paralleled with the utility system only when the ___(46kV circuit name) 46 kV circuit 1 is in normal operating configuration served via breaker ___(utility breaker #) at ___(utility substation name) Substation or when the ___(46kV circuit name) 46 kV circuit 2 is in normal operating configuration served via breaker ___(utility breaker #) at ___(utility substation name) Substation.

2. When the Project is paralleled with the utility system via ___(46kV circuit name) 46 kV circuit 1, upon receipt of direct transfer trip signal from ___(utility substation name) Substation opening of breaker ___(utility breaker #), trip and block close Customer's 46 kV breaker 52-4 (utility# XXXX).

3. When the Project is paralleled with the utility system via ___(46kV circuit name) 46 kV circuit 2, upon receipt of direct transfer trip signal from ___(utility substation name) Substation opening of breaker ___(utility breaker #), trip and block close Customer's 46 kV breaker 52-4 (utility# XXXX).

4. Upon receipt of direct transfer trip signal from ___(utility substation name) Substation for the following conditions, trip and block close Customer's 46 kV breaker 52-4 (utility# XXXX).
    a. When the Project is paralleled with the utility system via ___(46kV circuit name) 46 kV circuit 1 opening of breaker 52-2___(utility breaker #)
    b. When the Project is paralleled with the utility system via ___(46kV circuit name) 46 kV circuit 2 opening of breaker 52-3___(utility breaker #)

5. All DTT loss of comm greater than or equal to 6 seconds:
    a. Utility to provide signal to Customer to initiate Customer performed ramp down and tripping of Customer's 46 kV breaker 52-4 (utility# XXXX).
    b. Utility to initiate trip and block close of Customer's 46 kV breaker 52-4 (utility# XXXX) after ___(Project size MW/2 MW per minute ramp down) minutes, assuming maximum Customer output of ___(Project size) MW and a 2.0 MW/min ramp down rate.

6. Customer to ensure manual closing of Customer's 46 kV breaker 52-4 (utility# XXXX) shall be allowed only for hot line (___(utility 46kV line) 46 kV line-side) and dead bus (Customer-side). There shall be no auto reclosing on Customer's 46 kV breaker 52-4 (utility# XXXX).

7. Utility breaker 52-1___(utility Breaker #), shall be syncro-checked across bus 'A' potential and bus 'B' potential. Closing shall be allowed for the following conditions:
    a. No auto reclosing
    b. Manual closing
        i. Dead bus 'A' and dead bus 'B'
        ii. Hot bus 'A' and dead bus 'B'
        iii. Hot bus 'B and dead bus 'A'
        iv. Voltages equal in magnitude and phase

8. Utility breaker 52-2___(utility Breaker #), shall be syncro-checked across bus 'A' potential and bus 'C' potential. Closing shall be allowed after load dispatch confirms that Customer's 46 kV breaker 52-4 (utility# XXXX) is open and for the following conditions:
    a. No auto reclosing
    b. Manual closing
        i. Dead bus 'A' and dead bus 'C'
        ii. Hot bus 'A' and dead bus 'C'
        iii. Voltages equal in magnitude and phase

9. Utility breaker 52-3___(utility Breaker #), shall be syncro-checked across bus 'B' potential and bus 'C' potential. Closing shall be allowed after load dispatch confirms that Customer's 46 kV breaker 52-4 (utility# XXXX) is open and for the following conditions:
    a. No auto reclosing
    b. Manual closing
        i. Dead bus 'B' and dead bus 'C'
        ii. Hot bus 'B' and dead bus 'C'
        iii. Voltages equal in magnitude and phase

10. Synch-check/breaker failure relays (SEL-700GT+) require 3-phase PTs on both sides of the breaker.

11. (If applicable) Disable Under Frequency Load Shed (UFLS) at ___(46kV circuit 1 name) 46kV CB ___(utility Breaker #). Install relays to enable UFLS at ___(12kV circuit name(s)) 12kV CB ___(utility Breaker #(s)).

12. (If applicable) Disable Under Frequency Load Shed (UFLS) at ___(46kV circuit 2 name) 46kV CB ___(utility Breaker #). Install relays to enable UFLS at ___(12kV circuit name(s)) 12kV CB ___(utility Breaker #(s)).

13. Utility shall own a harmonics monitor and associated equipment at the point of interconnection. The monitor will be in continuous service and on a rolling window basis, monitor sub-cycle voltage and currents, and be capable of remote interrogation. The harmonics monitor shall comply with IEEE STD 1159-2019 and IEEE STD 519-2014. PTs and CTs need to meet relaying and harmonic monitoring applications capable of measuring up to the 50th harmonic. Developer to submit specifications of PTs/CTs to Utility to confirm application. The following inputs shall be provided:
    a. 46kV line current (3 phase) at point of interconnection; and
    b. 46kV line-to-neutral voltage (3 phase) at point of interconnection

Section B: System Operation Notes

1. Customer to provide raw count (DNP 3.0) for analog and status points to the Utility or other formats as specified in the following notes. Customer to provide hardwired dry contact pairs for certain status points to the Utility and accept hardwired and DNP 3.0 control points from the Utility as categorized in the following notes.

2. Utility load dispatcher shall be enabled to issue the following Control signals to the Customer:
    a. Digital Controls - Hardwire Dry Contact Pair controls
        i. Trip control over Customer's 46kV breaker 52-4 (Utility# XXXX);
        ii. Block circuit 1 and/or 2 DTT Control Function to Customer's 46kV breaker 52-4;
            1. Required to Block DTT from the current backup circuit, to prevent tripping of the plant for when the backup Circuit feeder opens.
        iii. Reset control of Utility remotely-resettable lockouts
        iv. All Inverter On/Off control signal
        v. [As Applicable] Isochronous Mode Enable/Disable control signal – Disabling of Isochronous mode should revert to droop frequency response mode
        vi. Primary Frequency Response Droop – Enable/Disable
        vii. [As Applicable] FFR – Enable/Disable
    b. Analog Controls - DNP 3.0 – Customer is not allowed to override Utility's control
        i. Maximum Power Import Limit
        ii. Maximum Power Export Limit

iii. Power Reference Setpoint (analog MW dispatch setpoint; can be negative value for grid-charging capable batteries);
iv. Line to Line Voltage Setpoint Target (analog kV);
v. MVAR Setpoint Target (analog MVAR +/-);
vi. Power factor setpoint target (analog pf +/-);
vii. [As Applicable] Normal Operating Day Limit
viii. [As Applicable] Normal Operating Night Limit.
ix. [As Applicable] Isoch Target Frequency Setpoint (Hz)
x. Frequency Droop Settings (% and deadband)
xi. [As Applicable] FFR Settings (% and deadband)
xii. Dispatchable Ramp Rate (MW/min)
xiii. Heartbeat Counter (increments up, to allow PPC to understand when there is no more communications from Utility)
xiv. AVR/PF/VAR/Disable
xv. Energy to reserve for blackstart

3. All control values must be retained in non-volatile memory such that they will be restored immediately upon return from a control systems restart, power outage, loss of communication, etc.

4. The following signals shall be telemetered to Utility SCADA/EMS:
    a. Analog Points – Hardwired Directly to Utility RTU
        i. 46kV line amps (B phase), 46kV voltage (A-B phase), NET MW, and NET MVAR at point of interconnection through use of Utility approved non-programmable analog transducers or other Utility approved means of providing unaltered data set of voltages and currents. Data to be provided in analog format (+/- 1mA) directly from the analog transducers;
    b. Analog Points – DNP 3.0
        i. 46kV line amps (A phase, B phase, and C phase), 46kV voltage (A phase L-N, B phase L-N, and C phase L-N), frequency, NET MW, NET MVAR, and NET power factor at point of interconnection. Power factor to be a calculated value;
        ii. Latest received Maximum Power Import Limit and Maximum Power Export Limit Setpoints Feedback;
        iii. Power Reference Setpoint Feedback. Power Reference Setpoint Feedback can be negative for grid-charging capable batteries;
        iv. Latest received Voltage Setpoint Feedback;
        v. Latest received MVAR Setpoint Feedback;
        vi. Latest received Power Factor Setpoint Feedback;
        vii. PV Gross MW [As Applicable to AC/DC coupled Facilities: and MVAR] output;
        viii. BESS Gross MW [As Applicable to AC/DC coupled Facilities: and MVAR] output/charge;
        ix. [Solar Projects] PV Inverters Available;

x. [As Applicable] BESS Inverters Available;
xi. [Wind Projects] Number of WTGs Available;
xii. Ramp Rate (MW/min);
xiii. Ramp Rate Limit Up (MW/min);
xiv. Ramp Rate Limit Down (MW/min);
xv. Total Facility Power Possible (MW);
xvi. PV Power Possible (MW);
xvii. BESS Power Possible (MW);
xviii. BESS Charge Possible (MW);
xix. Primary Frequency Droop percent and deadband settings;
xx. [As Applicable] FFR percent and deadband settings;
xxi. BESS State of Charge (%), Minimum Usable MWh Capacity, and Maximum Usable MWh Capacity, and BESS Usable Energy Remaining (MWh), must account for derates, outages, and battery degradation;
xxii. Time Remaining at Current MW Output (hours or minutes at Utility discretion);
xxiii. Time remaining at BESS Power Possible (hours or minutes at Utility discretion);
xxiv. Year to Date BESS Usage Counter (cycles and/or MWh)
xxv. Year to Date Daily Average BESS Usage Counter (MWh)
xxvi. Wind Speed (MPH) and Wind Direction (degrees from true north);
xxvii. [Wind Projects] Barometric Pressure at MMT (mbar);
xxviii. Ambient Air Temperature (Celsius);
xxix. [Solar Projects] Plane of Array Irradiance on same axis as array (Watts/m^2);
xxx. [As Applicable] Normal Operating Day Limit Control Feedback;
xxxi. [As Applicable] Normal Operating Night Limit Control Feedback;
xxxii. [As Applicable] Normal Operating Limit In Effect (MW);
xxxiii. Total Facility Auxiliary Load (Power Demand) (MW & MVAR);
xxxiv. [As Applicable] Isoch Target Frequency (Hz).
xxxv. Heartbeat Counter Feedback (echoback the Heartbeat Counter so Utility understands when there is no more communications from PPC).
xxxvi. Black Start Capability (MW)
xxxvii. Black Start Plant State (Specific Modes to be discussed with Customer)
    1. 0 – Shutdown
    2. 1 – Grid-Tied
    3. 2 – Islanded
    4. 3 – Shutting down
    5. 4 – Stopped in Grid tied
    6. 5 – Running Blackstart
    7. 6 – Synchronizing
xxxviii. Energy to reserve for blackstart

c. Accumulator Points

i. Total KWh From Utility
ii. Total KWh To Utility
iii. Total KVARh From Utility
iv. Total KVARh To Utility

d. Indication Points – Hardwired Dry Contact Pairs
   i. Status of Customer's 46kV breaker 52-4 (Utility# XXXX);
   ii. [As Applicable] Status of Customer's 46kV MOS switches;
   iii. [As Applicable] Status of Customer's medium-voltage feeder breakers;
   iv. Status of Utility remotely-resettable lockouts;
   v. Protection/DTT communication failure (Loss of Pilot Alarm);
   vi. 48VDC and/or 125VDC Charger Trouble. Specific alarms to be determined by Utility at a later date [can be DNP for HI/Maui];
   vii. Trouble alarm for loss of VDC source(s)

e. Indication Points – DNP 3.0
   i. Status of Customer's medium voltage feeder breakers;
   ii. Violation of Maximum Ramp Rate Upward (Performance Standard);
   iii. Violation of Maximum Ramp Rate Downward (Performance Standard);
   iv. Status Indicating when Maximum Power Import Limit is in effect - Normal or Alarm;
   v. Status Indicating when Maximum Power Export Limit is in effect – Normal or Alarm;
   vi. Active Power Control Interface Control Status indicating who has control over dispatch and voltage (Local/Customer vs Remote/Utility);
   vii. Frequency Response Status – Normal or Alarm (On or Off);
   viii. Status for each inverter (On or Off);
   ix. Grid Following/Grid Forming Status;
   x. Inverter Enable / Disable Feedback Status;
   xi. [As Applicable] Isochronous Mode Enable / Disable Status;
   xii. Heartbeat Counter Status – Normal or Alarm; and
   xiii. Heartbeat Counter Feedback Status – Normal or Alarm.
   xiv. [As Applicable] Ready to Close Breaker Utility Black Start

5. Utility requires 24-hour access to Utility-owned SCADA/RTU, communication, and Utility-owned relaying and monitoring equipment.

6. Utility shall own a high-speed power quality device (e.g., Tesla Model No. 4000) near the point of interconnection, which shall be in continuous service and on a rolling window basis, monitoring sub-cycle voltages and currents, as well as disturbance events, and capable of remote interrogation following an event. Utility requires 24-hour access to this equipment. The digital fault recorder must be provided with a GPS time synchronized clock signal set to local time. Customer to provide the following hard-wired inputs to Utility's power quality device:
   a. Status of Customer's 46kV breaker 52-4 (Utility# XXXX) from 52a contact only;

b. Status of Customer's medium or low voltage breakers that will be used to sequence plant connection to prevent voltage issues upon energization/connection to the grid (as needed per IRS);
c. Status of all remotely-resettable lockouts;
d. 46kV line amps (3 phase and neutral);
e. 46kV voltage (A phase L-N, B phase L-N, and C phase L-N)

7. [For RDG Contracts] Each of the following quantities need to be logged locally for Utility review upon request:
   a. Status of each inverter/WTG
   b. MW output of each inverter/WTG
   c. MW setpoint of each inverter/WTG
   d. MVAR output of each inverter/WTG
   e. MVAR setpoint of each inverter/WTG
   f. [Solar Projects] Global Horizontal Irradiance (Watts/m2)
   g. [Solar Projects] Back of panel temperature (Celsius)

Section C: Telecommunication Notes

1. Customer to provide a reliable DC Source for 12 hour backup period; specific voltage to be determined by utility at a later date.

2. Customer to provide a source of station service power for its facility that will remain available when Customer's 46 kV breaker 52-1 (utility# XXXX) is opened and the facility is separated from utility's system.

3. For DTT communication channel failure:
   a. Signal to Customer to initiate Customer performed ramp down and tripping of Customer's 46 kV breaker 52-4 (utility# XXXX) shall be utility-owned SEL-2411. Utility SEL-2411 signal is to be a continuous signal while communication channel is failed.
   b. Trip and block close of Customer's 46 kV breaker 52-4 (utility# XXXX) shall be utility-owned SEL-2411 via utility-owned SCADA resettable lockout relay ("86/LOSS COMM").

4. Secure and reliable communication is required for the following:
   a. Direct transfer trip from ___(utility 46kV circuit) 46kV CB ___(utility Breaker #);
   b. SCADA to/ from Customer's facility;
   c. Back-up SCADA to/from Customer's facility;
   d. Revenue metering for power export and consumption readings;
   e. Power quality and fault recording and retrieval; and
   f. Phone circuits as required.

5. All DTT loss of comm greater than or equal to 6 seconds shall cause the site to ramp down and trip (applies to both primary and backup).

Section D: Metering Notes

1. Customer to design revenue metering facilities in accordance with the requirements in Chapter 6 of the Hawaiian Electric Company's Electric Service Installation Manual.

Section E: Design Notes

1. PTs and CTs for Tesla and RTU transducers should be the same quality as the PTs and CTs for the 46kV protective relaying.

2. Customer to provide raw count (DNP 3.0) for analog points to utility (as identified in Section B). Customer to provide hardwired dry contact pairs for status points to utility and accept hardwired control points from utility (as identified in Section B).

3. Relay operation shall trip and block close breakers 52-2, 52-3, and utility owned DTT lockout relay. Customer breaker 52-4 tripped and block closed via separate dedicated lockout relay owned by the Customer.

Template notes to be added to the 46kV Firm Project Single Line Diagram

Additional requirements may be added based on project design.

PROPOSED PROJECT NAME:	
PROPOSED PROJECT SIZE:	
CUSTOMER SLD REVISION NUMBER AND DATE:	
UTILITY SLD REVISION NUMBER AND DATE:	
UTILITY SUBSTATION 1:	
UTILITY 46KV CIRCUIT 1:	
UTILITY 46KV CIRCUIT BREAKER 1 #:	
UTILITY SUBSTATION 2:	
UTILITY 46KV CIRCUIT 2:	
UTILITY 46KV CIRCUIT BREAKER 2 #:	

Section A: Planning Notes

1. By operation procedure(s), the Project shall be paralleled with the utility system only when the ___(46kV circuit name) 46 kV circuit 1 is in normal operating configuration served via breaker ___(utility breaker #) at ___(utility substation name) Substation or when the ___(46kV circuit name) 46 kV circuit 2 is in normal operating configuration served via breaker ___(utility breaker #) at ___(utility substation name) Substation.

2. When the Project is paralleled with the utility system via ___(46kV circuit name) 46 kV circuit 1, upon receipt of direct transfer trip signal from ___(utility substation name) Substation opening of breaker ___(utility breaker #), trip and block close Customer's 46 kV breaker 52-4 (utility# XXXX).

3. When the Project is paralleled with the utility system via ___(46kV circuit name) 46 kV circuit 2, upon receipt of direct transfer trip signal from ___(utility substation name) Substation opening of breaker ___(utility breaker #), trip and block close Customer's 46 kV breaker 52-4 (utility# XXXX).

4. Upon receipt of direct transfer trip signal from ___(utility Substation for the following conditions, trip and block close Customer's 46 kV breaker 52-4 (utility# XXXX).
    a. When the Project is paralleled with the utility system via ___(46kV circuit name) 46 kV circuit 1 opening of breaker 52-2___(utility breaker #)
    b. When the Project is paralleled with the utility system via ___(46kV circuit name) 46 kV circuit 2 opening of breaker 52-3___(utility breaker #)

5. All DTT loss of comm greater than or equal to 6 seconds:
    a. Utility to provide signal to Customer to initiate Customer performed ramp down and tripping of Customer's 46 kV breaker 52-4 (utility# XXXX).

b. Utility to initiate trip and block close of Customer's 46 kV breaker 52-4 (utility# XXXX) after ___(Project size MW/2 MW per minute ramp down) minutes, assuming maximum Customer output of ___(Project size) MW and a 2.0 MW/min ramp down rate.

6. Customer to ensure manual closing of Customer's 46 kV breaker 52-4 (utility# XXXX) shall be allowed only for hot line (___(utility 46kV line) 46 kV line-side) and dead bus (Customer-side). There shall be no auto reclosing on Customer's 46 kV breaker 52-4 (utility# XXXX).

7. Utility breaker 52-1___(utility Breaker #), shall be syncro-checked across bus 'A' potential and bus 'B' potential. Closing shall be allowed for the following conditions:
    a. No auto reclosing
    b. Manual closing
        i. Dead bus 'A' and dead bus 'B'
        ii. Hot bus 'A' and dead bus 'B'
        iii. Hot bus 'B and dead bus 'A'
        iv. Voltages equal in magnitude and phase

8. Utility breaker 52-2___(utility Breaker #), shall be syncro-checked across bus 'A' potential and bus 'C' potential. Closing shall be allowed after load dispatch confirms that Customer's 46 kV breaker 52-4 (utility# XXXX) is open and for the following conditions:
    a. No auto reclosing
    b. Manual closing
        i. Dead bus 'A' and dead bus 'C'
        ii. Hot bus 'A' and dead bus 'C'
        iii. Voltages equal in magnitude and phase

9. Utility breaker 52-3___(utility Breaker #), shall be syncro-checked across bus 'B' potential and bus 'C' potential. Closing shall be allowed after load dispatch confirms that Customer's 46 kV breaker 52-4 (utility# XXXX) is open and for the following conditions:
    a. No auto reclosing
    b. Manual closing
        i. Dead bus 'B' and dead bus 'C'
        ii. Hot bus 'B' and dead bus 'C'
        iii. Voltages equal in magnitude and phase

10. Synch-check/breaker failure relays (SEL-700GT+) require 3-phase PTs on both sides of the breaker.

11. (If applicable) Disable Under Frequency Load Shed (UFLS) at ___(46kV circuit 1 name) 46kV CB ___(utility Breaker #). Install relays to enable UFLS at ___(12kV circuit name(s)) 12kV CB ___(utility Breaker #(s)).

12. (If applicable) Disable Under Frequency Load Shed (UFLS) at ___(46kV circuit 2 name) 46kV CB ___(utility Breaker #). Install relays to enable UFLS at ___(12kV circuit name(s)) 12kV CB ___(utility Breaker #(s)).

Section B: System Operation Notes

1. Customer to provide raw count (DNP 3.0) for analog and status points to Utility or other formats as specified in the following notes. Customer to provide hardwired dry contact pairs for status points to Utility, and accept hardwired and DNP 3.0 control points from Utility as categorized in the following notes.

2. Utility load dispatcher shall be enabled to issue the following Control signals to the Customer:
    a. Digital Controls - Hardwire Dry Contact Pair controls
        i. Trip control over Customer's 46kV breaker 52-4 (Utility# XXXX);
        ii. Block circuit 1 and/or 2 DTT Control Function to Customer's 46kV breaker 52-4;
            1. Required to Block DTT from the current backup circuit, to prevent tripping of the plant for when the back-up Circuit feeder opens.
        iii. Reset control of Utility-owned remotely-resettable lockouts.
        iv. [As Applicable] Isochronous Mode Enable/Disable control signal – Disabling of Isochronous mode should revert to droop frequency response mode
    b. Analog Controls - DNP 3.0 – Customer is not allowed to override Utility's control
        i. For each generator:
            1. EMS MW Target (MW Setpoint Control);
            2. Frequency Droop Settings (% and deadband)
            3. Dispatchable Ramp Rate (MW/min)
        ii. Line to Line Voltage Setpoint Target (analog kV);
        iii. MVAR Setpoint Target (analog MVAR +/-);
        iv. Power factor setpoint target (analog pf +/-);
        v. AVR/PF/VAR/Disable (Analog value to signal which voltage control mode project is currently in)
        vi. [As Applicable] Isoch Target Frequency Setpoint (Hz)

3. All control values must be retained in non-volatile memory such that they will be restored immediately upon return from a systems restart, power outage, loss of communication, etc.

4. The following signals provided by the Customer shall be telemetered to Utility load dispatch office:
    a. Analog Points – Hardwired Directly to Utility RTU
        i. 46kV line amps (B phase), 46kV voltage (A-B phase), NET MW, and NET MVAR at point of interconnection through use of Utility approved non-programmable analog transducers or other Utility approved means of

providing unaltered data set of voltages and currents. Data to be provided in analog format (+/- 1mA) directly from the analog transducers;

b. Analog Points – DNP 3.0
    i. 46kV line amps (A phase, B phase, and C phase), 46kV voltage (A phase L-N, B phase L-N, and C phase L-N), frequency, NET MW, NET MVAR, and NET power factor at point of interconnection. Power factor to be a calculated value;
    ii. For each generator, as needed based on plant design:
        1. EMS MW Target (MW Setpoint Control) Feedback;
        2. Load Frequency Control (LFC) High and Low MW Setpoint Limits Feedback;
        3. MW, MVAR, 46kV voltage (A phase L-N, B phase L-N, and C phase L-N), frequency,
        4. Normal Ramp Rate Up/Down;
        5. Emergency Ramp Rate Up/Down;
        6. Frequency Droop percent and deadband settings;
        7. Fuel type
        8. Turbine RPM
        9. Aux load MW
        10. Aux load MVAR
        11. Start up MW
        12. Start up MVAR
        13. Start up MWH
    iii. Plant Power Possible (MW);
    iv. Latest received Voltage Setpoint Feedback;
    v. Latest received MVAR Setpoint Feedback;
    vi. Latest received Power Factor Setpoint Feedback;
    vii. [As Applicable] Isoch Target Frequency (Hz).
c. Accumulator Points
    i. Total KWh From Utility
    ii. Total KWh To Utility
    iii. Total KVARh From Utility
    iv. Total KVARh To Utility
d. Indication Points – Hardwired Dry Contact Pairs
    i. Status of Seller's 46kV breaker 52-4 (Utility# XXXX);
    ii. [As Applicable] Status of Customer's 46kV MOS switches;
    iii. [As Applicable] Status of Customer's medium-voltage feeder breakers;
    iv. DTT and PPC Loss of Communication;
    v. Customer-owned 48VDC and/or 125VDC Charger Trouble. Specific alarms to be determined by Utility at a later date;
    vi. Trouble alarm for loss of Customer-owned VDC source(s); and
    vii. Status of Utility-owned resettable lockouts;
e. Indication Points – DNP 3.0
    i. Status of Customer's medium voltage feeder breakers;

ii. Violation of Maximum Ramp Rate Upward (Performance Standard); and
iii. Violation of Maximum Ramp Rate Downward (Performance Standard).
iv. EMS Control Status indicating who has control over dispatch (Local vs HECO);
v. Health check DCS/TCS – Alarm/Normal
vi. Raise block - Alarm/Normal
vii. Lower block – Alarm/Normal
viii. Frequency Response Status – Normal or Alarm (Will be in Alarm state when the plant is responding to frequency outside of deadband);
ix. [As Applicable] Isochronous Mode Disable / Enable Status;

5. Utility requires 24-hour access to Utility-owned SCADA/RTU, communication, and Utility-owned relaying and monitoring equipment.

6. Utility shall own a high-speed power quality device (i.e., Tesla Model No. 4000) near the point of interconnection, which shall be in continuous service and on a rolling window basis, monitoring sub-cycle voltages and currents, as well as disturbance events, and capable of remote interrogation following an event. Utility requires 24-hour access to this equipment. Customer to provide the following direct hard-wired inputs to Utility's power quality device:
    a. Status of Customer's 46kV breaker 52-4 (Utility# XXXX) from 52a contact only;
    b. Status of Customer's medium or low voltage breakers that will be used to sequence plant connection to prevent voltage issues upon energization/connection to the grid from 52a contact only;
    c. Status of all remotely-resettable lockouts;
    d. 46kV line amps (3 phase and neutral);
    e. 46kV voltage (A phase L-N, B phase L-N, and C phase L-N)

Section C: Telecommunication Notes

1. Customer to provide a reliable DC Source for 12-hour backup period; specific voltage to be determined by utility at a later date.

2. Customer to provide a source of station service power for its facility that will remain available when Customer's 46 kV breaker 52-4 (utility# XXXX) is opened and the facility is separated from utility's system.

3. For DTT communication channel failure:
    a. Signal to Customer to initiate Customer performed ramp down and tripping of Customer's 46 kV breaker 52-4 (utility# XXXX) shall be utility-owned SEL-2411. Utility SEL-2411 signal is to be a continuous signal while communication channel is failed.
    b. Trip and block close of Customer's 46 kV breaker 52-4 (utility# XXXX) shall be utility-owned SEL-2411 via utility-owned SCADA resettable lockout relay ("86/LOSS COMM").

4. Secure and reliable communication is required for the following:
    a. Direct transfer trip from ___(utility 46kV circuit) 46kV CB ___(utility Breaker #);
    b. SCADA to/ from Customer's facility;
    c. Back-up SCADA to/from Customer's facility;
    d. Revenue metering for power export and consumption readings;
    e. Power quality and fault recording and retrieval; and
    f. Phone circuits as required.

5. All DTT loss of comm greater than or equal to 6 seconds shall cause the site to ramp down and trip (applies to both primary and backup).

Section D: Metering Notes

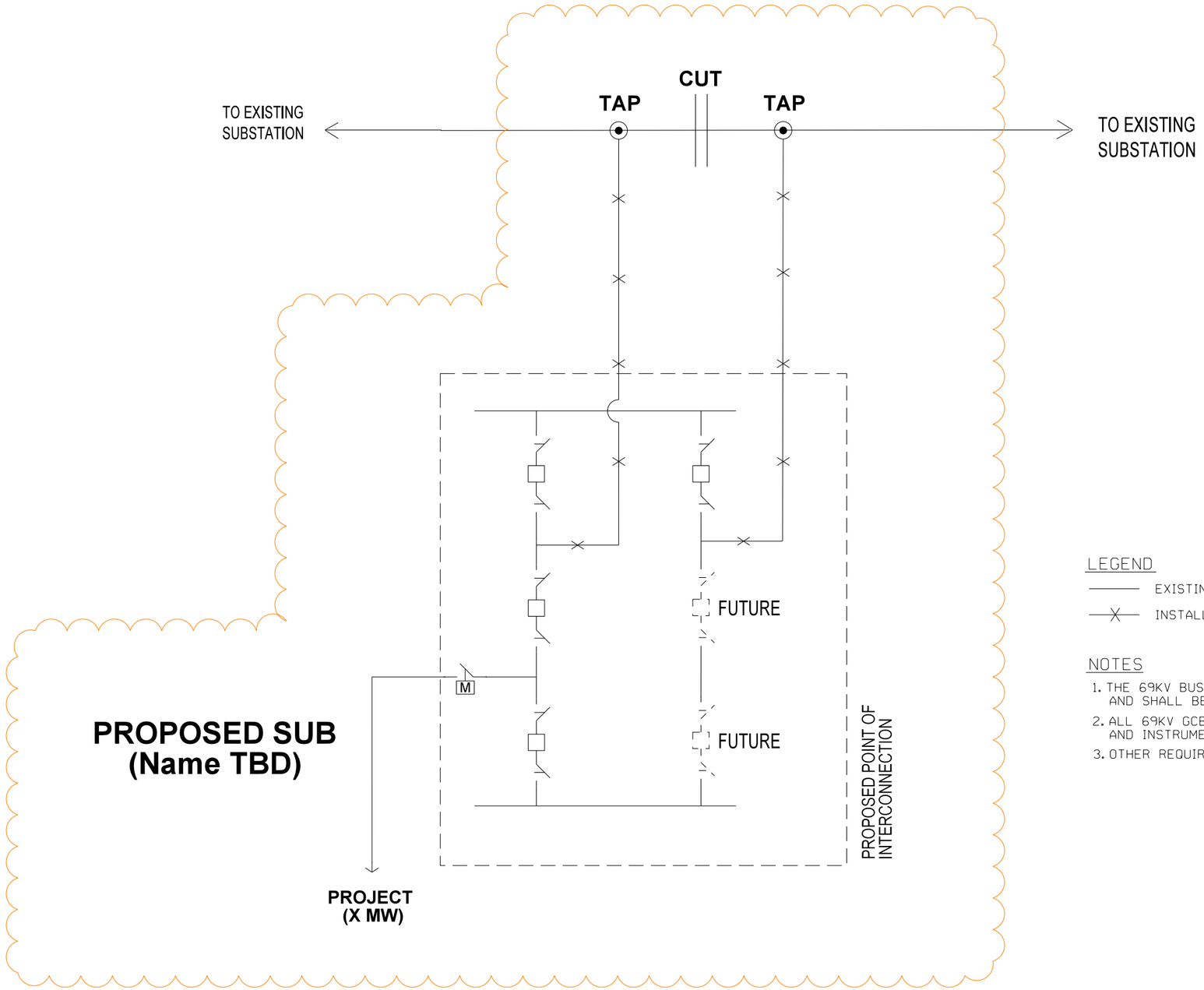
1. Customer to design revenue metering facilities in accordance with the requirements in Chapter 6 of the Hawaiian Electric Company's Electric Service Installation Manual.

Section E: Design Notes

1. PTs and CTs for Tesla and RTU transducers should be the same quality as the PTs and CTs for the 46kV protective relaying.

2. Customer to provide raw count (DNP 3.0) for analog points to utility (as identified in Section B). Customer to provide hardwired dry contact pairs for status points to utility, andutility and accept hardwired control points from utility (as identified in Section B).

3. Relay operation shall trip and block close breakers 52-2, 52-3, and utility owned DTT lockout relay. Customer breaker 52-4 tripped and blocked closed via separate dedicated lockout relay owned by the Customer.



LEGEND

——— EXISTING 69KV LINE

—X— INSTALL 3-PHASE 69KV, 715A MIN (NORMAL) OVERHEAD CONDUCTOR

NOTES

1. THE 69KV BUS EQUIPMENT, MAIN AND TIE BREAKERS SHALL BE RATED 1200A CONTINUOUS, AND SHALL BE DESIGNED TO WITHSTAND A SHORT CIRCUIT CURRENT OF 40 KAIC AT 72.5KV.
2. ALL 69KV GCB's, DISCONNECT SWITCHES, STATION POST INSULATORS, AND INSTRUMENT TRANSFORMERS ARE TO BE DESIGNED FOR 350KV BIL.
3. OTHER REQUIREMENTS ARE IN DEVELOPMENT AND WILL BE PROVIDED

DRAFT

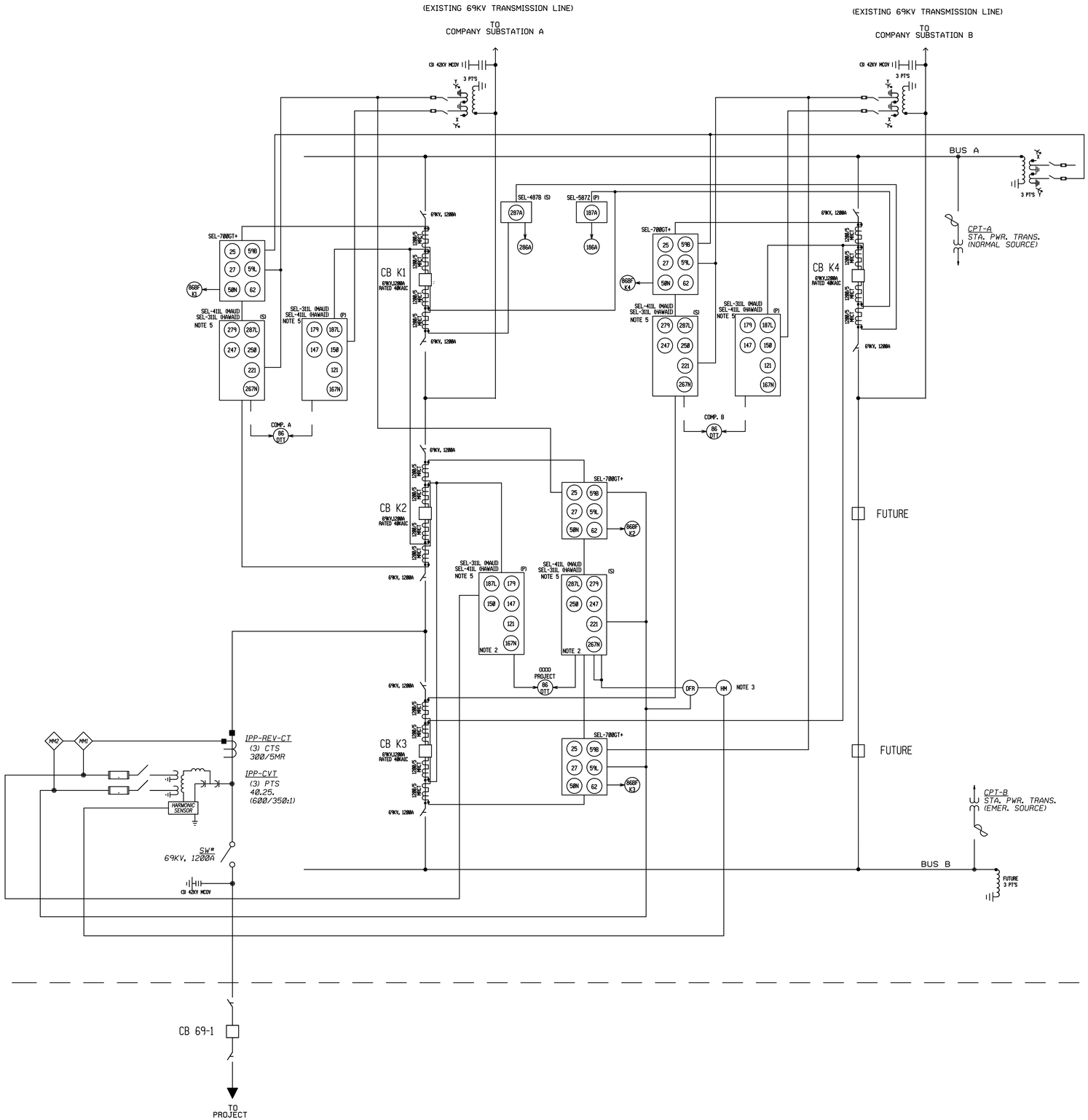
FOR ESTIMATING PURPOSES ONLY

NO.	DATE	REVISIONS	BY	CHK'D	APP'D
A	XX/XX/2022	DISTRIBUTED FOR COMMENTS & REVISIONS	-		

PROJECT 69kV INTERCONNECTION
T&D PLANNING SINGLE LINE

DESIGNED	DRAWN	DATE XX/XX/2022	SCALE NONE
CHECKED ELEC. MECH. STRUC.		TRANSMISSION & DISTRIBUTION PLANNING DEPARTMENT HAWAIIAN ELECTRIC HONOLULU, HAWAII	
APPROVAL		DRAWING NUMBER PRELIMINARY	REV A

$SYTIME $USERNAME $DGNSPEC



NOTES

1. OTHER REQUIREMENTS ARE IN DEVELOPMENT AND WILL BE PROVIDED.
2. PROTECTION RELAYS ARE DEPENDENT ON APPROXIMATE LOCATION OF SWITCHING STATION RELATIVE TO DEVELOPER SUBSTATION
3. INSTALL HARMONICS MONITOR AND ASSOCIATED EQUIPMENT AT COMPANY-OWNED SUBSTATION MONITORING THE PROJECT POINT OF INTERCONNECTION. HARMONICS MONITORING SHALL COMPLY WITH IEEE STD 1159-2019 OR LATEST VERSION AND IEEE STD 519-2014 OR LATEST VERSION. HARMONICS MONITOR SHALL BE CONNECTED TO COMPANY PT TO ALLOW FOR BASELINE MEASUREMENTS. PTS AND CTS CONNECTED TO THE HARMONICS MONITOR SHALL BE CAPABLE OF MEASURING UP TO AT LEAST 50TH ORDER HARMONICS.
4. DIGITAL FAULT RECORDER AND MULTIMETERS TO BE INSTALLED CLOSEST TO PROJECT POINT OF INTERCONNECTION. FINAL PT AND CT CONNECTIONS TBD.
5. CT AND PT WIRING AS SHOWN IS TYPICAL FOR MAUI WHO HAS STANDARDIZED ON 311L AS PRIMARY LINE DIFFERENTIAL RELAY AND 411L AS SECONDARY LINE DIFFERENTIAL RELAY. THE CT AND PT WIRING WILL DIFFER FOR HAWAII ISLAND WHO HAS STANDARDIZED ON THE 411L AS PRIMARY, 311L AS SECONDARY.

DRAFT

FOR COST ESTIMATE ONLY
FOR REVIEW & COMMENT ONLY

NO.	DATE	REVISIONS	BY	CHK'D	APP'D
-	-	-	-		

[NAME TBD] INTERCONNECTION
PLANNING SINGLE LINE

DESIGNED	DRAWN	DATE XX/XX/XXX	SCALE NONE
CHECKED ELEC. MECH. STRUC.		TRANSMISSION & DISTRIBUTION PLANNING DEPARTMENT	
APPROVAL		HAWAIIAN ELECTRIC HONOLULU,HAWAII	
		DRAWING NUMBER	REV
		PRELIMINARY	A

Notes to be added to the 69kV Company Substation Single Line Diagram

COMPANY SUBSTATION:	
COMPANY SLD REVISION NUMBER AND DATE:	
NOTES DATE:	

1. 69kV bus equipment and breakers shall be rated 1200A continuous and shall be designed to withstand a short circuit current of 40 KAIC @ 72.5kV.

2. All 69kV Gas Circuit Breakers (GCB), disconnect switches, station post insulators, and instrument transformers are to be designed for 350kV BIL.

3. Voltage checks shall be across three phases unless otherwise specified.

4. 69kV breaker K1 and K4 to be synchro-checked across its 69kV Bus A and line potentials and allowed to close only under the following conditions:
   A. Automatic Reclosing
      i. [TBD by IRS]
   B. Manual and Supy Closing:
      i. Voltage magnitude, frequency, and phase angle difference within acceptable limits
      ii. Dead-line and dead-bus
      iii. Dead-line and hot-bus
      iv. Hot-line and dead-bus

5. 69kV breaker K2 to be synchro-checked across its line potentials on both sides of the 69kV breaker and allowed to close only under the following conditions:
   A. Automatic Reclosing
      i. Voltage magnitude, frequency, and phase angle difference within acceptable limits
   B. Manual and Supy Closing:
      i. Voltage magnitude, frequency, and phase angle difference within acceptable limits
      ii. dead-line and dead-line
      iii. dead-line and hot-line
      iv. hot-line and dead-line

6. 69kV breaker K3 to be synchro-checked across its line potentials on both sides of the 69kV breaker and allowed to close only under the following conditions:
   A. No Automatic Reclosing
   B. Manual and Supy Closing:
      i. Voltage magnitude, frequency, and phase angle difference within acceptable limits
      ii. dead-line and dead-line
      iii. dead-line and hot-line
      iv. hot-line and dead-line

7. All trips from developer to Company shall trip and block close breakers K2 and K3 depending on the trip.

8. Install a harmonics recorder and associated equipment at each project point of interconnection, which will be in continuous service and on a rolling window basis monitor sub-cycle voltage and currents and capable of remote interrogation. Harmonics monitoring shall comply with IEEE Std 1159-2019 or latest version and IEEE Std 519-2014 or latest version. Harmonics monitor shall be connected to company-side PT to allow for baseline measurements. PTs and CTs connected to the harmonics monitor shall be capable of measuring up to at least 50th order harmonics. The following inputs shall be provided:

    a. 69kV voltage (3-ph) at or near the point of interconnection for Project
    b. 69kV current (3-ph) at or near the point of interconnection measuring total current from Project

9. Substation to be built as functional ring bus in formation of breaker-and-half as shown on Planning SLD. Space should be left for two additional breakers to be installed to complete the second breaker-and-half bay.

10. Bus A differential relays operation shall trip and block close breakers K1 and K4 via manual lockout relays.

11. Developer line current differential relay operation shall trip and block close breakers K2, K3, and Company DTT lockout relay. Developer breaker 69-1 trip and block close via separate dedicated lockout relay owned by the Developer.

12. The local breaker failure scheme shall trip and block close all adjacent breakers via manual lockout relays.

13. Breaker failure of 69kV breakers K2 or K3 shall trip Company DTT lockout relay which will trip and block close Developer's 69kV breaker 69-1 via separate dedicated lockout relays owned by the Developer.

14. Breaker failure of Developer's 69kV breaker 69-1 shall trip developer-owned dedicated lockout relay which will trip dedicated lockout relay in Company substation. Dedicated lockout relay in Company substation will trip and block close breakers K2 and K3.

15. The following local 69kV breaker failure conditions shall initiate a direct transfer trip (DTT) to trip and block close the respective 69kV breakers at the remote substation via a dedicated remotely resettable lockout relay at the remote substation:

Local Breaker Failure Condition	**Breaker Failure DTT to Remote Substation**
[Name TBD] Sub Bkr XXXX Fail	Trip [Name TBD] Sub Bkrs K1 & K2
[Name TBD] Sub Bkr XXXX Fail	Trip [Name TBD] Sub Bkrs K1 & K2
[Name TBD] Sub Bkr XXXX Fail	Trip [Name TBD] Sub Bkrs K3 & K4
[Name TBD] Sub Bkr XXXX Fail	Trip [Name TBD] Sub Bkrs K3 & K4
[Name TBD] Sub Bkr K1 Fail	Trip [Name TBD] Sub Bkrs XXXX & XXXX
[Name TBD] Sub Bkr K2 Fail	Trip [Name TBD] Sub Bkrs XXXX & XXXX

[Name TBD] Sub Bkr K3 Fail	Trip [Name TBD] Sub Bkrs XXXX & XXXX
[Name TBD] Sub Bkr K4 Fail	Trip [Name TBD] Sub Bkrs XXXX & XXXX

16. All 69kV CT's are to be MRCT's with relaying accuracy class C800 unless noted otherwise. MRCT's are to have full distributed windings on all taps and a minimum thermal rating factor of 2.0.

17. All 69kV circuit breakers are to be dead tank design with a rated interrupting time of 3 cycles, and have dual trip coils with independent tripping circuits.
    (Provide the Protection Department with CT saturation, ratio correction factor curves, and continuous thermal rating factors.)

18. All 69kV breakers are controlled and supervised by Company System Operator via supervisory equipment and also have control switches in the control house.

19. Install a digital fault recorder near point of interconnection, which will be in continuous service and on a rolling window basis monitor sub-cycle voltage, currents and harmonics, as well as disturbance events and capable of remote interrogation following an event. The following inputs shall be provided and direct hard wired to the recorder:
    a. Status of all 69kV [Name TBD] substation breakers
    b. Status of all lockouts for 69kV [Name TBD] substation breakers
    c. 69kV voltage (3-ph) at or near the point of interconnection
    d. 69kV current (3-ph) at or near the point of interconnection measuring individual phase currents from the Project
    e. Digital Inputs from Protection Relays emulating the trip output of the Relay

20. Each of the following control and status points shall be remotely controlled and supervised by Company System Operator:
    a. Trip/Close and status of all 69kV breakers and Motor Operated Switches
    b. Status of each lockout

21. Each of the following analog points shall be telemetered to Company System Operator:
    a. All 69kV line amps (3 phase), watts (MW), and vars (MVAR)
    b. All 69kV bus and line voltages (3 phase) (kV)
    c. kWh values via Revenue Meter "A" (Pulse Accumulator Point in lieu of Analog Point acceptable)
    d. Fault Distance for all 69kV lines

    (Note, meters, relays, and transducers for a-d shall be Company owned, maintained, and operated.)

22. Each of the following initiates an alarm to Company System Operator:
    a. Protection communication failure (Loss of Pilot Alarm)
    b. RTU communication failure

c. 125V DC battery low voltage
d. 125V DC charger trouble
e. Loss of Trip circuit (individual alarm for each trip circuit)
f. 48V DC battery low voltage
g. 48V DC charger trouble
h. Line Relay Loss of 69kV line and/or synchronism-check (bus) potential (for each line relay)
i. 69kV GCB low SF6 gas pressure (individual alarm for each GCB)
j. Block operation SF6 gas (which indicates SF6 low-low gas pressure) for each GCB
k. 69kV GCB spring discharge alarm (individual alarm for each GCB)
l. Loss of normal AC station power source
m. Loss of emergency AC station power source
n. Operation of AC station power auto-transfer switch to emergency source
o. Each lockout relay (86) operation
p. Each digital protective relay (primary and secondary) trouble alarm

23. SEL 700GT+ relays shall be connected to 3-phase line PTs and 3-phase bus PTs.

Notes to be added to the 69kV Project Single Line Diagram

PROPOSED PROJECT NAME:	
PROPOSED PROJECT SIZE:	
DEVELOPER SLD REVISION NUMBER AND DATE:	
MECO SLD REVISION NUMBER AND DATE:	
COMPANY SUBSTATION:	

1. Project shall install point-on-wave breakers, specifically independent pole operated (IPO) breakers with residual flux calculation capability, when more than five energizations are expected or observed in any 12-month period after commercial operations. Energizations is only to occur in coordination with the Company system operator. The voltage deviation at the point of interconnection (POI) must be limited to +/- 6% when energizing the Project. [TBD by IRS]

2. Opening of 69kV breakers K2 and K3 shall trip Developer's 69kV breaker CB 69-1 via Company-owned lockout relay.

3. Developer to ensure manual closing of breaker CB 69-1 shall be allowed for the following conditions under coordination with the Company system operator:

    a. Hot line (company-side) and dead bus (project-side).

    b. Hot line (company-side) and hot bus (project-side) with supervised synchro-check for self-energization using grid forming capabilities.

        i. Voltage magnitude, frequency, and phase angle difference within acceptable limit

    c. Dead line (company-side) and hot bus (project-side), for black start provided by grid forming capabilities.

4. There shall be no auto-reclosing on Project 69kV breaker CB 69-1.

5. Breaker failure of 69kV breaker K2 or K3 at Company Substation shall trip a Company lockout relay which will trip and block close Project 69kV breaker 69-1 via separate dedicated lockout relay.

6. Breaker failure of Project 69kV breaker 69-1 shall trip developer-owned dedicated lockout relay which will trip dedicated lockout relay in Company substation. Dedicated breaker failure lockout relay in Company substation will trip and block close Company 69kV breakers K2 and K3.

7. All trips going to developer sub shall go through dedicated Company lockout relays. Company lockout relays will be owned by Company, SCADA resettable, and shall trip a dedicated lockout relay in developer substation. All trips from developer to Company shall go through a dedicated developer owned lockout relay and trip a dedicated lockout relay in Company substation.

8. The Project/Developer will submit design drawings to Company for review and comment.

9. All 69kV CT's are to be 1200/5 MRCT's with relaying accuracy class C800 unless noted otherwise. MRCT's are to have full distributed windings on all taps and a minimum thermal rating factor of 2.0

10. The following Developer's inputs shall be provided and direct hard wired to HELCO's digital fault recorder:
    a. Status of all Developer's 69kV breakers
    b. Status of all Developer's 35kV breakers
    c. Status of all lockouts for Developer's breakers
    d. Digital Inputs from Protection Relays emulating the trip output of the Relay
11. Trip Control for Project Breaker 69-1 (HELCO SCADA close control can also be provided at the Developers request, and with proper synch check relaying)
12. HELCO System Operator shall be enabled to issue the following to the Developer via mutually agreed communication protocol interface (typically DNP 3.0):
    a. Active Power reference set point* control signal. HELCO's Active Power Control Interface will take precedence over customer's local active power control; and
    b. Voltage or MVAR (analog kV or MVAR) set point control signal, or discrete contact pulse for incremental Voltage or MVAR set point raise/lower control. Specific control type to be established during control system design review.
    c. [As Applicable] Frequency Response Mode (Droop,Isoch,FFR,Disabled)
    d. [As Applicable] Frequency Droop Setting (%)
    e. [As Applicable] Isoch Target Frequncy (Hz)

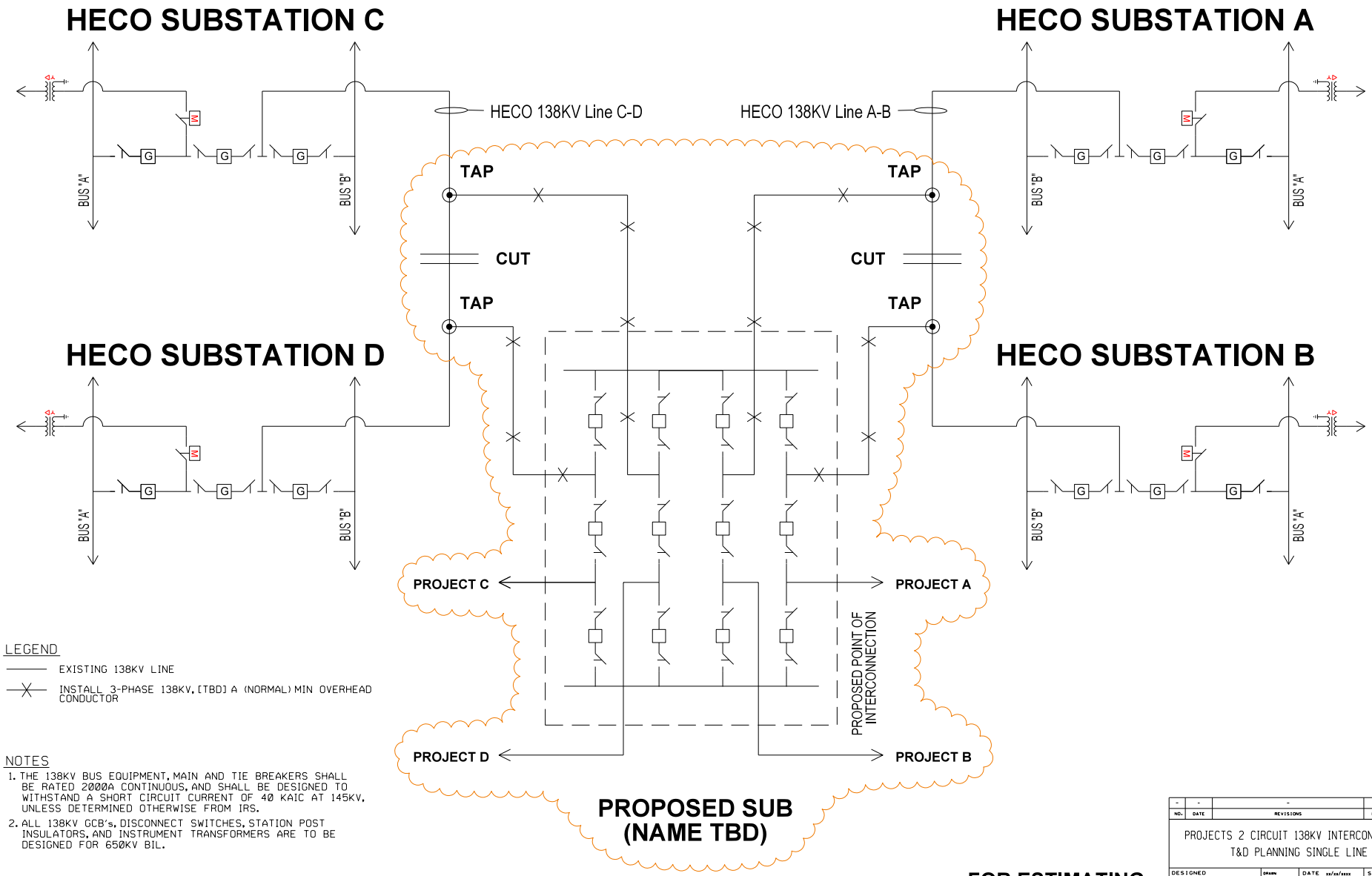
    (*A Pulse Width Modulated (PWM) Raise-Lower Control could be agreed to in lieu of set point control, during the plant controller design review, the active power control interface should be submitted for HELCO review and agreement prior to finalizing.)

13. All control values must be retained in non-volatile memory such that will be restored immediately upon return from Plant Controller restart, power outage, loss of communication, etc.
14. The Project will provide the following signals for telemetering to the HELCO System Operator:
    a. 69kV line amps (3 phase), watts (MW), vars (MVAR), and voltage (kV) (3 phase)
    b. Status of the Project 69kV breakers 69-1
    c. Status of the Project feeder breakers
    d. Status of all lockouts
    e. Latest received power reference set point (Echo)
    f. Latest received voltage setpoint (Echo)
    g. Ramp Rate (Maximum Dispatchable Up & Down)
    h. [Solar Projects] Plane of Array Irradiance (Watts/m2)
    i. [Solar or Wind Projects] Ambient air temperature at the MMS/MMT (Celsius)

j. [Solar or Wind Projects] Wind speed at the MMS/MMT (mph)
k. [Wind Projects] Wind direction at the MMT (degrees from true north)
l. [Wind Projects] Ambient Air Pressure at the MMT (mbar)
m. [Solar or Wind Projects] Number of Inverters or WTGs Available
n. [Variable Resource Projects] Total Facility Power Possible (MW)
o. [Variable Resource Projects] Resource Potential (MW)
p. [Solar Projects] Gross MW Production of PV System (MW)
q. [Wind Projects] Gross MW Production of WTGs (MW)
r. [Projects with BESS] Gross MW Production/Consumption of BESS System (MW)
s. Net AC MW production at Point of interconnection (MW)
t. Net AC MVAR production at the Point of interconnection (MVAR)
u. Total Facility Auxiliary Load (Power Demand) (MW & MVAR)
v. [Projects with BESS] BESS State of Charge (%)
w. [Projects with BESS] Facility Duration at Current Output (hrs)
x. [Projects with BESS] YTD BESS Effective Full Cycles
y. Minimum Sustained Power Limit (MW) (ecomin, typically 0 for inverter-based technology)
z. Minimum transient Power Limit (MW) (lfcmin, typically 0 for inverter-based technology, can be less than 0 for energy storage allowed to charge from grid)
aa. [Firm Projects] Available Capacity (MW)
bb. [As Applicable] Frequency Response Mode (Droop,Isoch,FFR,Disabled)
cc. [As Applicable] Frequency Droop Setting (%)
dd. [As Applicable] Isoch Target Frequncy (Hz)

15. Each of the following initiates a separate alarm to HELCO System Operator:
    a. Protection communication failure (Loss of Pilot Alarm);
    b. RTU communication failure
    c. Violation of Maximum Ramp Rate Upward or Downward (Performance Standard);
    d. Active Power Control Interface Status (Local/Remote)
    e. Automatic Voltage Regulation (AVR) Status – (Enabled/Disabled)
    f. Frequency Response Status (Enabled/Disabled)
16. [For RDG Contracts] Each of the following quantities need to be logged locally for Company review upon request:
    a. Status of each inverter/WTG

b. MW output of each inverter/WTG
c. MW setpoint of each inverter/WTG
d. MVAR output of each inverter/WTG
e. MVAR setpoint of each inverter/WTG
f. [Solar Projects] Global Horizontal Irradiance (Watts/m2)
g. [Solar Projects] Back of panel temperature (Celsius)



LEGEND

EXISTING 138KV LINE

INSTALL 3-PHASE 138KV, [TBD] A (NORMAL) MIN OVERHEAD CONDUCTOR

NOTES

1. THE 138KV BUS EQUIPMENT, MAIN AND TIE BREAKERS SHALL BE RATED 2000A CONTINUOUS, AND SHALL BE DESIGNED TO WITHSTAND A SHORT CIRCUIT CURRENT OF 40 KAIC AT 145KV, UNLESS DETERMINED OTHERWISE FROM IRS.
2. ALL 138KV GCB's, DISCONNECT SWITCHES, STATION POST INSULATORS, AND INSTRUMENT TRANSFORMERS ARE TO BE DESIGNED FOR 650KV BIL.

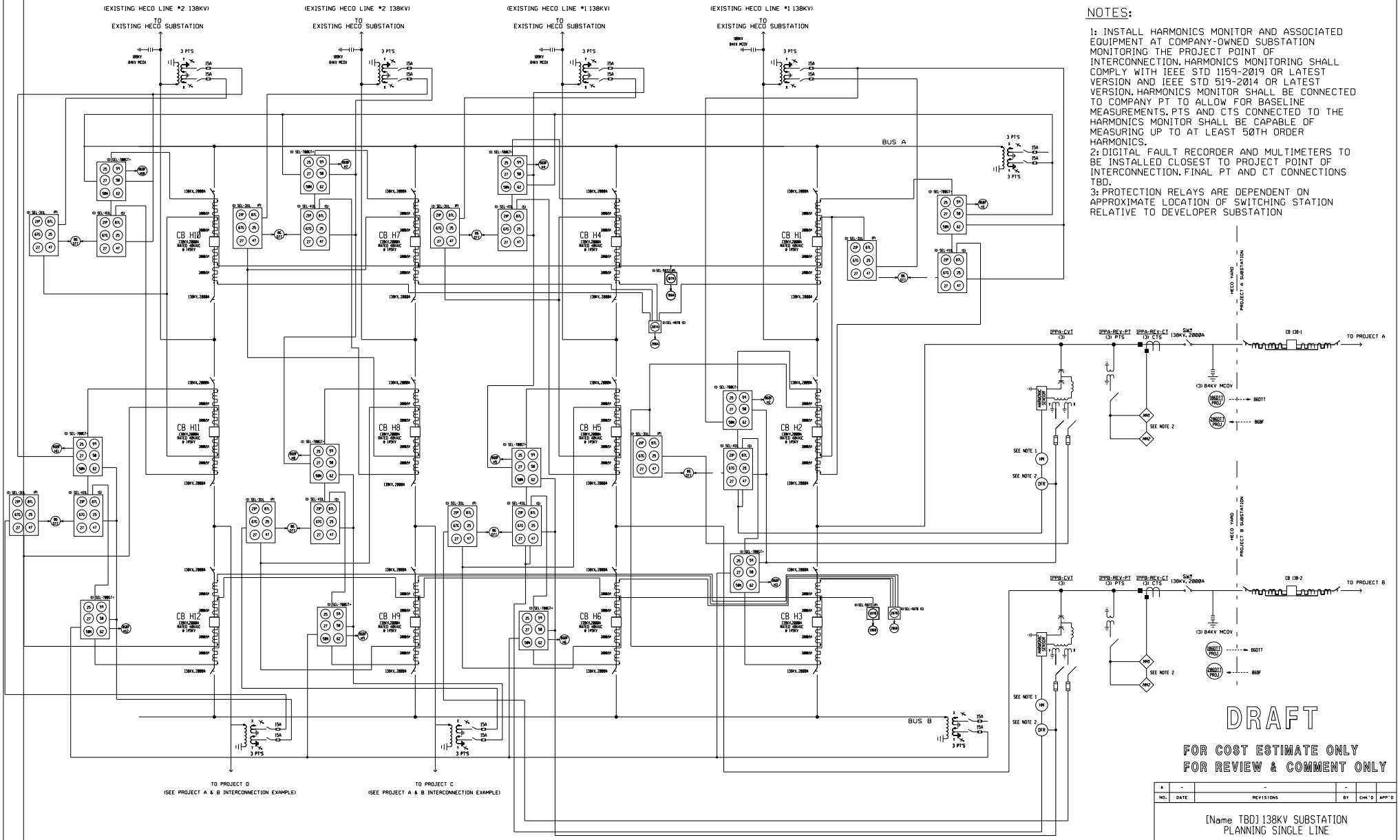
FOR ESTIMATING PURPOSES ONLY

NO.	DATE	REVISIONS	BY	CHK'D	APP'D
-	-	-	-		

PROJECTS 2 CIRCUIT 138KV INTERCONNECTION
T&D PLANNING SINGLE LINE

DESIGNED	DRAWN	DATE xx/xx/xxxx	SCALE NONE
CHECKED	ELEC. MECH. STRUC.	TRANSMISSION & DISTRIBUTION PLANNING DEPARTMENT	
APPROVAL		HAWAIIAN ELECTRIC HONOLULU, HAWAII	
		DRAWING NUMBER	REV
		PRELIMINARY	A

$SYTIME $USERNAME $DGNSPEC



NOTES:

1: INSTALL HARMONICS MONITOR AND ASSOCIATED EQUIPMENT AT COMPANY-OWNED SUBSTATION MONITORING THE PROJECT POINT OF INTERCONNECTION. HARMONICS MONITORING SHALL COMPLY WITH IEEE STD 1159-2019 OR LATEST VERSION AND IEEE STD 519-2014 OR LATEST VERSION. HARMONICS MONITOR SHALL BE CONNECTED TO COMPANY PT TO ALLOW FOR BASELINE MEASUREMENTS. PTS AND CTS CONNECTED TO THE HARMONICS MONITOR SHALL BE CAPABLE OF MEASURING UP TO AT LEAST 50TH ORDER HARMONICS.

2: DIGITAL FAULT RECORDER AND MULTIMETERS TO BE INSTALLED CLOSEST TO PROJECT POINT OF INTERCONNECTION. FINAL PT AND CT CONNECTIONS TBD.

3: PROTECTION RELAYS ARE DEPENDENT ON APPROXIMATE LOCATION OF SWITCHING STATION RELATIVE TO DEVELOPER SUBSTATION

DRAFT

FOR COST ESTIMATE ONLY
FOR REVIEW & COMMENT ONLY

NO.	DATE	REVISIONS	BY	CHK'D	APP'D
A	-	-	-		

[Name TBD] 138KV SUBSTATION
PLANNING SINGLE LINE

DESIGNED	DRAWN	DATE 03/27/2025	SCALE NONE
CHECKED	ELEC. MECH. STRUC.	TRANSMISSION & DISTRIBUTION PLANNING DEPARTMENT	
APPROVAL		HAWAIIAN ELECTRIC HONOLULU, HAWAII	
		DRAWING NUMBER	REV
		PRELIMINARY	A

$SYTIME $USERNAME $DGNSPEC

Notes for Typical Project 138kV Substation Electrical Single Line (2 Existing Circuit Interconnection)

1. 138kV bus equipment and breakers shall be rated 2000A continuous and shall be designed to withstand a short circuit current of 40 KAIC @ 145kV.
2. All 138kV Gas Circuit Breakers (GCB), disconnect switches, station post insulators, and instrument transformers are to be designed for 650kV BIL.
3. Voltage checks shall be across three phases unless otherwise specified.
4. 138kV breaker H1 to be synchro-checked across its 138kV Bus A and line potentials and allowed to close only under the following conditions:
    A. Automatic Reclosing:
        1. [TBD by IRS]
    B. Manual and Supy Closing:
        1. Voltage magnitude, frequency, and phase difference within acceptable limit
        2. Dead-line and dead-bus
        3. Dead-line and hot-bus
        4. Hot-line and dead-bus
5. 138kV breaker H2 to be synchro-checked across its line potentials on both sides of the 138kV breaker and allowed to close only under the following conditions:
    A. No Automatic Reclosing
    B. Manual and Supy Closing:
        1. Voltage magnitude, frequency, and phase difference within acceptable limit
        2. Dead-line and dead-line
        3. Dead-line and hot-line
        4. Hot-line and dead-line
5. 138kV breaker H3 to be synchro-checked across its 138kV Bus B and line potentials and allowed to close only under the following conditions:
    A. No Automatic Reclosing
    B. Manual and Supy Closing:
        1. Voltage magnitude, frequency, and phase difference within acceptable limit
        2. Dead-line and dead-bus
        3. Dead-line and hot-bus
        4. Hot-line and dead-bus
6. 138kV breaker H4 to be synchro-checked across its 138kV Bus A and line potentials and allowed to close only under the following conditions:
    A. Automatic Reclosing:
        1. [TBD by IRS]
    B. Manual and Supy Closing:
        1. Voltage magnitude, frequency, and phase difference within acceptable limit
        2. Dead-line and dead-bus
        3. Dead-line and hot-bus
        4. Hot-line and dead-bus

7. 138kV breaker H5 to be synchro-checked across its line potentials on both sides of the 138kV breaker and allowed to close only under the following conditions:
    A. No Automatic Reclosing
    B. Manual and Supy Closing:
        1. Voltage magnitude, frequency, and phase difference within acceptable limit
        2. Dead-line and dead-line
        3. Dead-line and hot-line
        4. Hot-line and dead-line
8. 138kV breaker H6 to be synchro-checked across its 138kV Bus B and line potentials and allowed to close only under the following conditions:
    A. No Automatic Reclosing
    B. Manual and Supy Closing:
        1. Voltage magnitude, frequency, and phase difference within acceptable limit
        2. Dead-line and dead-bus
        3. Dead-line and hot-bus
        4. Hot-line and dead-bus
9. 138kV breaker H7 to be synchro-checked across its 138kV Bus A and line potentials and allowed to close only under the following conditions:
    A. Automatic Reclosing:
        1. [TBD by IRS]
    B. Manual and Supy Closing:
        1. Voltage magnitude, frequency, and phase difference within acceptable limit
        2. Dead-line and dead-bus
        3. Dead-line and hot-bus
        4. Hot-line and dead-bus
10. 138kV breaker H8 to be synchro-checked across its line potentials on both sides of the 138kV breaker and allowed to close only under the following conditions:
    A. No Automatic Reclosing
    B. Manual and Supy Closing:
        1. Voltage magnitude, frequency, and phase difference within acceptable limit
        2. Dead-line and dead-line
        3. Dead-line and hot-line
        4. Hot-line and dead-line
11. 138kV breaker H9 to be synchro-checked across its 138kV Bus B and line potentials and allowed to close only under the following conditions:
    A. No Automatic Reclosing
    B. Manual and Supy Closing:
        1. Voltage magnitude, frequency, and phase difference within acceptable limit
        2. Dead-line and dead-bus
        3. Dead-line and hot-bus
        4. Hot-line and dead-bus

12. 138kV breaker H10 to be synchro-checked across its 138kV Bus A and line potentials and allowed to close only under the following conditions:
    A. Automatic Reclosing:
        1. [TBD by IRS]
    B. Manual and Supy Closing:
        1. Voltage magnitude, frequency, and phase difference within acceptable limit
        2. Dead-line and dead-bus
        3. Dead-line and hot-bus
        4. Hot-line and dead-bus
13. 138kV breaker H11 to be synchro-checked across its line potentials on both sides of the 138kV breaker and allowed to close only under the following conditions:
    A. No Automatic Reclosing
    B. Manual and Supy Closing:
        1. Voltage magnitude, frequency, and phase difference within acceptable limit
        2. Dead-line and dead-line
        3. Dead-line and hot-line
        4. Hot-line and dead-line
14. 138kV breaker H12 to be synchro-checked across its 138kV Bus B and line potentials and allowed to close only under the following conditions:
    A. No Automatic Reclosing
    B. Manual and Supy Closing:
        1. Voltage magnitude, frequency, and phase difference within acceptable limit
        2. Dead-line and dead-bus
        3. Dead-line and hot-bus
        4. Hot-line and dead-bus
15. All trips from Project #1 to HECO shall trip and block close breakers H2 and H3.
16. All trips from Project #2 to HECO shall trip and block close breakers H5 and H6.
17. All trips from Project #3 to HECO shall trip and block close breakers H8 and H9.
18. All trips from Project #4 to HECO shall trip and block close breakers H11 and H12.
19. Install a harmonics recorder and associated equipment at each project point of interconnection, which will be in continuous service and on a rolling window basis monitor sub-cycle voltage and -currents and capable of remote interrogation. Harmonics monitoring shall comply with IEEE Std 1159-2019 or latest version and IEEE Std 519-2014 or latest version. Harmonics monitor shall be connected to company-side PT to allow for baseline measurements. PTs and CTs connected to the harmonics monitor shall be capable of measuring up to at least 50th order harmonics. The following inputs shall be provided:
    A. 138kV voltage (3-ph) at or near the point of interconnection for Project
    B. 138kV current (3-ph) at or near the point of interconnection measuring total current from Project
20. Opening of 138kV breakers H2 and H3 shall trip HECO lockout relay which will trip and block close Project #1 138kV breaker 138-1 via separate dedicated lockout relay owned by the Developer.

21. Opening of 138kV breakers H5 and H6 shall trip HECO lockout relay which will trip and block close Project #2 138kV breaker 138-2 via separate dedicated lockout relay owned by the Developer.
22. Opening of 138kV breakers H8 and H9 shall trip HECO lockout relay which will trip and block close Project #3 138kV breaker 138-3 via separate dedicated lockout relay owned by the Developer.
23. Opening of 138kV breakers H11 and H12 shall trip HECO lockout relay which will trip and block close Project #4 138kV breaker 138-4 via separate dedicated lockout relay owned by the Developer.

Design Notes:

24. SEL 700GT+ relays shall be connected to 3-phase line PTs and 3-phase bus PTs.
25. New CT's are to be MRCT's with relaying accuracy class C800 unless noted otherwise. MRCT's are to have full distributed windings on all taps and a minimum thermal rating factor of 2.0. (Provide the Protection Department with CT saturation, ratio correction factor curves, and continuous thermal rating factors.)

Protection Notes:

The following is only for Project A. The Projects B, C, & D documents would have similar notes with the following changes in breaker number/letter.

Project	Project Breaker #	Switching Station Breakers
A	138-1	H2 & H3
B	138-2	H5 & H6
C	138-3	H8 & H9
D	138-4	H11 & H12

26. Bus A differential relay operation shall trip and block close breakers H1, H4, H7, and H10 via manual lockout relay.
27. Bus B differential relay operation shall trip and block close breakers H3, H6, H9, and H12 via manual lockout relay
28. Line current differential relay operation shall trip and block close breakers H2 and H3, via HECO lockout relay. Developer breaker 138-1 tripped and blocked closed via separate dedicated lockout relay owned by the Developer.
29. Line differential relays subject to telecom requirements as specified in the RFP for renewable dispatchable generation and energy storage, Appendix H, Section 2.5
30. The local breaker failure scheme shall trip and block close all adjacent breakers via non-electrically resettable lockout relays.
31. Breaker failure of 138kV breaker H2 or H3 to initiate direct transfer trip signal via the BFTT relay which will trip and block close Developer's 138kV breaker 138-1 via separate dedicated lockout relay owned by the Developer.

32. Breaker failure of 138kV breaker 138-1 to initiate direct transfer trip signal via the BFTT relay which will trip and block close breaker H2 and H3 at the HECO sub via dedicated remotely resettable lockout relay.
33. 138kV breaker H2 or H3 breaker failure function provided by SEL-700GT+.
34. All trips going to Developer sub shall go through dedicated Company lockout relays. Company lockout relays will be owned by Company, SCADA resettable, and shall trip a dedicated lockout relay in Developer substation. All trips from Developer to Company shall go through a dedicated Developer owned lockout relay and trip a dedicated lockout relay in Company substation.

<u>System Operations Notes</u>

The following is only for Project A. The Projects B, C, & D documents would have similar notes with the following changes in breaker number/letter.

Project	Project Breaker #	Switching Station Breakers
A	138-1	H2 & H3
B	138-2	H5 & H6
C	138-3	H8 & H9
D	138-4	H11 & H12

35. All 138kV breakers are controlled and supervised by load dispatch via supervisory equipment and have control switches in the control equipment enclosure.
36. Install a digital fault recorder near point of interconnection, which will be in continuous service and on a rolling window basis monitor sub-cycle voltage, currents, as well as disturbance events and capable of remote interrogation following an event. The digital fault recorder must be provided a GPS time synchronized clock signal set to local time. The following inputs shall be provided and direct hard wired to the recorder:
    a. Status of all Developer's 138kV breaker
    b. Status of all Developer's medium voltage breakers
    c. Status of all Developer's lockouts
    d. Status of all 138kV Substation Breakers (if Company Substation is located adjacent to project)
    e. Status of all lockouts for 138kV Substation Breakers (if Company Substation is located adjacent to project)
    f. 138kV voltage (3-ph) at point of interconnection
    g. 138kV current (3-ph) at point of interconnection measuring total current from [*Project*] project
    h. 138kV line fault distance (miles)

37. Each of the following control and status points shall be remotely controlled and supervised by HECO load dispatcher:
    a. Trip/Close and status of all 138kV breakers
    b. All 138kV breakers automatic reclosing status (Auto / Block)
    c. Open/Close and status of all 138kV disconnect switches
    d. Status and control of each remotely resettable lockout
    e. Status of each manual-reset lockout
38. Each of the following analog points shall be telemetered to HECO load dispatcher:
    a. All 138kV line amps (A phase, B phase, and C phase), voltages (3 phase), watts, and vars
    b. All 138kV bus voltages (3 phase)
    c. Fault Distance for all 138kV
    d. kWh and kVARh values via Revenue Meter "A"

39. Each of the following initiates an alarm to HECO load dispatcher:
    a. DTT for CB H2 and H3 (*breakers to Project*)
    b. 125V DC battery low voltage (both primary and backup battery)
    c. 125V DC charger trouble (both primary and backup battery)
    d. Loss of 125V DC circuit (individual alarm for each 125V DC circuit)
    e. 48V DC battery low voltage
    f. 48V DC charger trouble
    g. Loss of normal AC station power source
    h. Loss of emergency AC station power source
    i. Operation of AC station power auto-transfer switch to emergency source
    j. Loss of 138kV line and synchro-check potential
    k. Low SF6 gas pressure for all GCB (individual alarm for each GCB)
    l. Block operation due to SF6 low gas pressure for all GCB (individual alarm for each GCB)
    m. Spring discharge alarm for all GCB (individual alarm for each GCB)
    n. Trip Coil Loss of DC for all GCB (individual alarm for each GCB)
    o. Each 138kV lockout relay (86) operation
    p. Each 138kV digital protective relay trouble alarm
    q. Loss of 138kV line relay primary & backup potential
    r. Loss of DC for each lockout relay (86)
    s. Comm Trouble and Loss of Comm alarms
    t. RTU communication failure

The following Project Notes document is only for Project A. The Projects B, C, & D documents would have similar notes with the following changes in breaker number/letter.

Project	Project Breaker #	Switching Station Breakers
A	138-1	H2 & H3
B	138-2	H5 & H6
C	138-3	H8 & H9
D	138-4	H11 & H12

Notes to be added to the 138kV Project Single Line Diagram

PROPOSED PROJECT NAME:	-
PROPOSED PROJECT SIZE:	-
DEVELOPER SLD REVISION NUMBER AND DATE:	-
HECO SLD REVISION NUMBER AND DATE:	-
HECO SUBSTATION:	-

1. The Project shall install point-on-wave breakers [TBD—For Projects without self-energization], specifically independent pole operated (IPO) breakers with residual flux calculation capability. Energizations is only to occur in coordination with the Company system operator. The voltage deviation at the point of interconnection (POI) must be limited to +/- 6% when energizing the Project. [TBD by IRS]
2. Opening of 138kV breakers H2 and H3 shall trip Developer's 138kV breaker 138-1 via Company-owned lockout relay.
3. Project breaker 138-1 shall be allowed to close only under the following conditions:
    a. No Automatic Reclosing
    b. Manual Closing shall be allowed for the following conditions under the coordination of the Company system operator:
        i. Hot line (company-side) and dead bus (project-side).
        ii. Hot line (company-side) and hot bus (project-side) [TBD—For Projects with self--energization]
            1. Active synchronization control (i.e., an active synchronizer) on the generation facility shall be used to limit the disturbance, caused by closing, to a minimum. If synchronization parameters, such as voltage magnitude, angle and frequency difference are used during this process, these parameters shall be reviewed and approved by Company.
        iii. Dead line (company-side) and hot bus (project-side), for black start provided by grid forming capabilities.

Protection Notes

4. Line current differential relay operation shall trip and block close Company 138 kV breakers H2 and H3 at Company Substation via Company lockout relay. Developer breaker 138-1 tripped and blocked closed via separate dedicated lockout relay owned by the Developer.

5. Line differential relays subject to telecom requirements as specified in the RFP for renewable dispatchable generation and energy storage, Appendix H, Section 2.5 Breaker failure of Company 138kV breakers K2 or K3 at Kahe Substation shall trip separate Company lockout relays which will trip and block close Developer's 138kV breaker 138-1 via separate dedicated lockout relays owned by the Developer.
6. Breaker failure of Company 138kV breaker H2 or H3 shall trip a Company lockout relay which will trip and block close Project 138kV breaker 138-1 via separate dedicated lockout relay.
7. Breaker failure of Project 138kV breaker 138-1 shall trip developer-owned dedicated lockout relay which will trip dedicated lockout relay in Company substation. Dedicated lockout relay in Company substation will trip and block close Company 138kV breakers H2 and H3.
8. All trips going to developer sub shall go through dedicated Company lockout relays. Company lockout relays will be owned by Company, SCADA resettable, and shall trip a separate, dedicated lockout relay in Developer substation. All trips from Developer to Company shall go through a dedicated Developer-owned lockout relay and trip a separate, dedicated Company-owned lockout relay.

System Operations Notes

9. HECO shall have SCADA trip control over Seller's 138 kV breaker CB 138-1 (HECO# XXXX).

10. Seller to provide raw count (DNP 3.0) for analog and status points to HECO or other formats as specified in the following notes. Seller to provide hardwired dry contact pairs for certain status points to HECO, and accept hardwired and DNP 3.0 control points from HECO as categorized in the following notes.

11. HECO SCADA/EMS shall be enabled to issue the following Control signals:
    a. Digital Controls - Hardwire Dry Contact Pair controls
        i. Trip control over Seller's 138kV breaker
        ii. Reset control of HECO remotely-resettable lockouts
        iii. All Inverter On/Off control signal
        iv. [As Applicable] Isochronous Mode Enable/Disable control signal – Disabling of Isochronous mode should revert to droop frequency response mode
        v. Primary Frequency Response Droop – Enable/Disable
        vi. [As Applicable] FFR – Enable/Disable

    b. Analog Controls - DNP 3.0 – Seller is not allowed to override HECO's control
        i. Maximum Power Import Limit
        ii. Maximum Power Export Limit
        iii. Power Reference Setpoint (analog MW dispatch setpoint; can be negative value for grid-charging capable batteries);
        iv. Line to Line Voltage Setpoint Target (analog kV);
        v. MVAR Setpoint Target (analog MVAR +/-);
        vi. Power factor setpoint target (analog pf +/-);
        vii. [As Applicable] Normal Operating Day Limit

viii. [As Applicable] Normal Operating Night Limit.
ix. [As Applicable] Isoch Target Frequency Setpoint (Hz)
x. Frequency Droop Settings (% and deadband)
xi. [As Applicable] FFR Settings (% and deadband)
xii. Dispatchable Ramp Rate (MW/min)
xiii. Heartbeat Counter (increments up, to allow PPC to understand when there is no more communications from HECO)
xiv. AVR/PF/VAR/Disable

12. All control values must be retained in non-volatile memory such that they will be restored immediately upon return from a control systems restart, power outage, loss of communication, etc.

13. The following signals shall be telemetered to HECO SCADA/EMS:
    a. Analog Points – Hardwired Directly to HECO RTU
        i. 138kV line amps (B phase), 138kV voltage (A-B phase), NET MW, and NET MVAR at point of interconnection through use of HECO approved non-programmable analog transducers or other HECO approved means of providing unaltered data set of voltages and currents. Data to be provided in analog format (+/- 1mA) directly from the analog transducers;

    b. Analog Points – DNP 3.0
        i. 138kV line amps (A phase, B phase, and C phase), 138kV line voltages (A phase, B phase and C phase), frequency, NET MW, NET MVAR, NET MVA and NET power factor at point of interconnection. Power factor and MVA can be a calculated values;
        ii. Latest received Maximum Power Import Limit and Maximum Power Export Limit Setpoints Feedback;
        iii. Power Reference Setpoint Feedback. Power Reference Setpoint Feedback can be negative for grid-charging capable batteries;
        iv. Latest received Voltage Setpoint Feedback;
        v. Latest received MVAR Setpoint Feedback;
        vi. Latest received Power Factor Setpoint Feedback;
        vii. PV Gross MW [As Applicable to AC/DC coupled Facilities: and MVAR] output;
        viii. BESS Gross MW [As Applicable to AC/DC coupled Facilities: and MVAR] output/charge;
        ix. [Solar Projects] PV Inverters Available;
        x. [As Applicable] BESS Inverters Available;
        xi. [Wind Projects] Number of WTGs Available;
        xii. Ramp Rate (MW/min);
        xiii. Ramp Rate Limit Up (MW/min);
        xiv. Ramp Rate Limit Down (MW/min);
        xv. Total Facility Power Possible (MW);
        xvi. PV Power Possible (MW);
        xvii. BESS Power Possible (MW);
        xviii. BESS Charge Possible (MW);
        xix. Primary Frequency Droop percent and deadband settings;
        xx. [As Applicable] FFR percent and deadband settings;

xxi. BESS State of Charge (%), Minimum Usable MWh Capacity, and Maximum Usable MWh Capacity, and BESS Usable Energy Remaining (MWh), must account for derates, outages, and battery degradation;
xxii. Time Remaining at Current MW Output (hours or minutes at HECO discretion);
xxiii. Time remaining at BESS Power Possible (hours or minutes at HECO discretion);
xxiv. Year to Date BESS Usage Counter (cycles and/or MWh)
xxv. Year to Date Daily Average BESS Usage Counter (MWh)
xxvi. Wind Speed (MPH) and Wind Direction (degrees from true north);
xxvii. [Wind Projects] Barometric Pressure at MMT (mbar);
xxviii. Ambient Air Temperature (Celsius);
xxix. [Solar Projects] Plane of Array Irradiance on same axis as array (Watts/m^2);
xxx. [As Applicable] Normal Operating Day Limit Control Feedback;
xxxi. [As Applicable] Normal Operating Night Limit Control Feedback;
xxxii. [As Applicable] Normal Operating Limit In Effect (MW);
xxxiii. Total Facility Auxiliary Load (Power Demand) (MW & MVAR);
xxxiv. [As Applicable] Isoch Target Frequency (Hz).
xxxv. Heartbeat Counter Feedback (echoback the Heartbeat Counter so HECO understands when there is no more communications from PPC).
xxxvi. Black Start Capability (MW)
xxxvii. Black Start Plant State (Specific Modes to be discussed with Seller)
- 0 – Shutdown
- 1 – Grid-Tied
- 2 – Islanded
- 3 – Shutting down
- 4 – Stopped in Grid tied
- 5 – Running Blackstart
- 6 – Synchronizing

c. Accumulator Points
i. Total KWh From HECO
ii. Total KWh To HECO
iii. Total KVARh From HECO
iv. Total KVARh To HECO

d. Indication Points – Hardwired Dry Contact Pairs
i. Status of Seller's 138kV breaker CB 138-1 (HECO# XXXX);
ii. Status of HECO remotely-resettable lockouts;
iii. Protection/DTT communication failure (Loss of Pilot Alarm);
iv. 48VDC and/or 125VDC Charger Trouble. Specific alarms to be determined by HECO at a later date;
v. Trouble alarm for loss of VDC source(s)

e. Indication Points – DNP 3.0
i. Status of Seller's medium voltage feeder breakers;
ii. Violation of Maximum Ramp Rate Upward (Performance Standard);

iii. Violation of Maximum Ramp Rate Downward (Performance Standard);
iv. Status Indicating when Maximum Power Import Limit is in effect - Normal or Alarm;
v. Status Indicating when Maximum Power Export Limit is in effect – Normal or Alarm;
vi. Active Power Control Interface Control Status indicating who has control over dispatch and voltage (Local/Seller vs Remote/HECO);
vii. Frequency Response Status – Normal or Alarm (On or Off);
viii. Status for each inverter (On or Off);
ix. Grid Following/Grid Forming Status;
x. Inverter Enable / Disable Feedback Status;
xi. [As Applicable] Isochronous Mode Enable / Disable Status;
xii. Heartbeat Counter Status – Normal or Alarm; and
xiii. Heartbeat Counter Feedback Status – Normal or Alarm.
xiv. [As Applicable] Ready to Close Breaker Utility Black Start

14. HECO requires 24 hour access to HECO-owned SCADA/RTU, communication, and HECO-owned relaying and monitoring equipment.

15. HECO shall own a high-speed power quality device (e.g., Tesla Model No. 4000) near the point of interconnection, which shall be in continuous service and on a rolling window basis, monitoring sub-cycle voltages and currents, as well as disturbance events, and capable of remote interrogation following an event. HECO requires 24 hour access to this equipment. The digital fault recorder must be provided with a GPS time synchronized clock signal set to local time. Seller to provide the following hard wired inputs to HECO's power quality device:
    a. Status of Seller's 138kV breaker CB 138-1 (HECO# XXXX) – 52a contacts only;
    b. Status of Seller's medium or low voltage breakers that will be used to sequence plant connection to prevent voltage issues upon energization/connection to the grid (as needed per IRS);
    c. Status of all remotely-resettable lockouts;
    d. 138kV line amps (3 phase);
    e. 138kV voltage (3 phase).

16. [For RDG Contracts] Each of the following quantities need to be logged locally for Company review upon request:
    a. Status of each inverter/WTG
    b. MW output of each inverter/WTG
    c. MW setpoint of each inverter/WTG
    d. MVAR output of each inverter/WTG
    e. MVAR setpoint of each inverter/WTG
    f. [Solar Projects] Global Horizontal Irradiance (Watts/m2)
    g. [Solar Projects] Back of panel temperature (Celsius)

Design Notes

17. All 138kV CT's are to be MRCT's with relaying accuracy class C800 unless noted otherwise. MRCT's are to have full distributed windings on all taps and a minimum thermal rating factor of 2.0.

(Provide the Protection Department with CT saturation, ratio correction factor curves, and continuous thermal rating factors.)

18. All microprocessor relays, instruments, CT's, and PT's are to have test switches.

DRAFT

REQUEST FOR PROPOSALS

FOR

RENEWABLE DISPATCHABLE GENERATION

AND

ENERGY STORAGE

April 3, 2025

Appendix I – [Reserved]

Hawaiian Electric

DRAFT

REQUEST FOR PROPOSALS

FOR

RENEWABLE DISPATCHABLE GENERATION

AND

ENERGY STORAGE

APRIL 3, 2025

Appendix J – Draft Model Power Purchase Agreement for Renewable Dispatchable Generation

(Wind or PV + BESS)

All Islands

[NOTE: Please see Exhibit 2 of this April 3, 2025 Transmittal Letter]



Hawaiian Electric

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REQUEST FOR PROPOSALS

FOR

RENEWABLE DISPATCHABLE GENERATION

AND

ENERGY STORAGE

April 3, 2025

Appendix K – [Reserved]

Hawaiian Electric

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REQUEST FOR PROPOSALS

FOR

RENEWABLE DISPATCHABLE GENERATION

AND

ENERGY STORAGE

APRIL 3, 2025

Appendix L – Draft Model Firm PPA

All Islands

[NOTE: Please see Exhibit 3 of this April 3, 2025 Transmittal Letter]

Hawaiian Electric

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REQUEST FOR PROPOSALS

FOR

RENEWABLE DISPATCHABLE GENERATION

AND

ENERGY STORAGE

APRIL 3, 2025

Appendix M – Draft Model Energy Storage Purchase Agreement

All Islands

[NOTE: Please see Exhibit 4 of this April 3, 2025 Transmittal Letter]



Hawaiian Electric

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REQUEST FOR PROPOSALS

FOR

RENEWABLE DISPATCHABLE GENERATION

AND

ENERGY STORAGE

APRIL 3, 2025

Appendix N – Community Engagement

Hawaiian Electric

COMMUNITY ENAGAGEMENT

Gaining community support is an important part of a Project's viability and success. An effective Community Engagement Plan will call for early meaningful communications with stakeholders and will reflect a deep understanding and respect for the community's desire for information. The public meeting and comment solicitation process described herein is intended to support that premise and the Hawai'i Public Utilities Commission's ("PUC") desire to increase bid transparency within the RFP process. When developers neglect to demonstrate transparency and a willingness to engage in early and frequent communication with Hawaii's communities, costly and timely challenges to their projects have resulted. In some instances, projects have failed. Incorporating transparency during the procurement process may seem unconventional, but it has become an essential community expectation. Developers must share information and work with communities to address concerns through careful listening, thoughtful responsiveness, and a commitment to respect the environmental and cultural values of Hawai'i. Comprehensive and proactive community engagement is imperative in order to compose a Community Benefits Program that is relevant and meaningful to the Project's host community.

Proposers are also encouraged to review resources such as the Hawai'i State Energy Office's community engagement strategy, called Energize Kākou[1], which includes a guide for best practices for community engagement and the participatory budgeting framework set forth by the Ulupono Initiative[2]. Further, the Company invited members of the community to provide feedback on areas of the island that the community is or is not amenable to use for renewable energy projects and to provide other feedback that would be helpful in siting renewable energy projects. Such community feedback may be instructive for Proposers in this RFP. Proposers are encouraged to carefully review such information when selecting sites and developing their Community Engagement Plans. This information is available at www.hawaiipowered.com/rez.

SECTION 1: PROPOSAL REQUIREMENTS

The information provided in response to the requirements set forth below will be used in the evaluation of the Community Engagement Threshold Requirement as specified in Section 4.3 of this RFP and the Community Engagement and Community Benefits Program non-price criteria specified in Section 4.4.2.1 of the RFP. Proposers are reminded that Section 3.4.2 includes a requirement that Proposals provide all referenced material if it is to be considered during the Proposal evaluation.

1. **Community Engagement Plan**: Provide a detailed Community Engagement Plan to work with and inform neighboring communities and stakeholders and to provide them timely information during all phases of development of the Project. All proposals must submit a

[1] Energize Kākou website is available at https://energy.hawaii.gov/get-engaged/energize-kakou/. The Playbook of community engagement best practices is available at https://energy.hawaii.gov/wp-content/uploads/2022/10/Energize-Kakou-Playbook_FINAL.pdf.
[2] Ulupono Initiative's Participatory Budget Project report, "Let Communities Decide: Using Participatory Budgeting for Renewable Energy Community Benefits Packages", is available at https://www.ulupono.com/media/4c1phrv0/pb-for-community-benefits-packages-jan-2023.pdf.

Community Engagement Plan as a standalone document. The Community Engagement Plan should be developed for public consumption and will be required to be made public via the Project's website for all Proposals selected to the Final Award Group. The Community Engagement Plan shall address at a minimum, but not be limited to, the following items:

a. **Project description.** A thorough description including a map of the location of the Project. This information will help the community understand the impact that the Project may have on the community.
b. **Community scoping.** Identify stakeholders (individuals, community leaders, organizations) that may be affected by the proposed project, community issues and concerns, and community sentiment.
    i. How will they be affected?
    ii. What mitigation strategies will the Proposer implement?
c. **Project benefits.** An explanation of the need for the Project. This will help the community to understand how the Project might benefit their community.
d. **Government approvals.** Required government permits and approvals, public hearings, and other opportunities for public comment. This information will help the community to understand the level of public scrutiny and participation that might occur for the Project and the opportunities to provide public comments.
e. **Development process and project schedule.** A Project schedule that identifies key Project milestones will facilitate the community's understanding of the development process. This schedule should be consistent with the Gantt chart required in Sections 4.3 and 4.4.2, for the Project Development and Schedule Threshold Requirement and non-price criterion.
f. **Communications Plan.** A communications plan, including a detailed community engagement schedule that will keep the affected communities, stakeholders, and the general public informed about the Project's engagement efforts during early Project development period through construction and operations, including monthly Project status updates. Proposers are required to, at minimum:
    i. Describe frequency of communication with identified stakeholders
    ii. Provide a timeline of events
    iii. Provide source of information
    iv. Identify communication outlets
    v. Describe opportunities, if any, for affected communities and general public to provide the developer with feedback and comments on the proposed Project
    vi. Describe how community feedback and comments, as well as responses to community questions and concerns, will be documented and shared with the community.
    vii. Provide the Project schedule
    viii. Provide the name of the individual responsible for the Project's Community Engagement Plan
g. **Construction-related updates.** Plan for reporting construction schedules and activities which include resulting impacts (e.g., traffic, noise, and dust) and proper mitigation plans beginning at least one month prior to the start of scheduled work
h. **Local labor and prevailing wage commitment (if any)**
    i. Preference will be given to a Proposer's commitment that eighty percent (80%) of non-supervisory construction and operations workers' hours

associated with project construction or repowering of a project will be paid at prevailing wage equivalent indicated under HRS Chapter 104 during all periods of construction; and the preference to hire qualified construction and operations/maintenance workers from the County the project is located in and the State of Hawai‘i, in that order, before hiring non-resident laborers.

i. **Engagement experience**
    i. Preference will be given to Proposers who have already identified established contacts to work with the local community and started documented community engagement, have used community input to incorporate changes to the final design of the Project and mitigate community concerns, or have community consultants as part of the Project team doing business in Hawai‘i that have successfully worked with communities in Hawai‘i on the development of two or more energy projects or projects with similar community issues. These criteria are aligned with the Company's community engagement expectation whereby all developers will be required to engage in community engagement with a 1) pre-selection meeting and 2) prior to signing a IGP Contract with the Company. This process is outlined in Section 1.1.k and Section 5 of this Appendix.

j. **Community support or opposition:** Provide any documentation of local community support or opposition including any letters from local organizations, newspaper articles, or communications from local officials.

k. **Community engagement efforts:** Provide a description of community engagement efforts already taken or currently underway, including the names of organizations and stakeholders contacted about the proposed Project and indicate if engagement was successful. This includes, but is not limited to, a required post-proposal community meeting and submission of feedback to the Company.
    i. **Pre-selection meeting**: Within thirty (30) days after the Proposal Due Date, each Proposer shall hold a public meeting in the community where the proposed Project is to be located, to obtain community feedback on the proposed Project. Media advisories, as specified in Section 4 below, must be issued a minimum of fourteen (14) days prior to this public meeting. The public meeting shall provide to the community it is situated in, other stakeholders, and the general public with:

        1. A reasonable opportunity to learn about the proposed Project;
        2. An opportunity to engage in a dialogue about concerns, mitigation measures, and potential community benefits of the proposed Project;
        3. Information regarding the Proposer's cultural impact plan, including any findings made and mitigations identified to-date as part of the Archaeological Literature Review and Field Inspection Report; and
        4. Information concerning the process and/or intent for the public's input and engagement, including advising attendees that they will have fourteen (14) days from the date of said public meeting to submit written comments to the Company and/or the Proposer for inclusion for evaluation of the Proposer's Proposal and for inclusion in the Company's submission to the PUC of its application for a satisfactory PUC Approval Order, if the Project is selected to the Final Award

Group. Each Proposer shall collect and compile the community feedback and then provide the Company copies of all comments received in their original, unedited form in accordance with Section 3.15 of the RFP along with copies of all comments with personal information redacted and ready for filing, within 21 days after the public meeting. This Pre-selection Community Feedback will be considered part of the Proposal.

l. **Community co-creation**: As discussed in Section 4.4.3.2 of the RFP, the Company is piloting a community co-creation criterion. Preference will be given to Proposers that choose to commit to piloting the concept of community co-creation, with additional points awarded to a Proposal's total price/non-price score. As part of this pilot, and through the scoping process, Proposers would identify influential leaders and organizations in host communities willing to help shape proposed projects and a community benefits program. This would help developers better understand the challenges, opportunities, assets, and demographics of the host community. Community members will have an opportunity to have a seat at the table earlier in the planning process. This information from the community can be used by Proposers to improve operations, inform strategy, and match community challenges and opportunities with local and organizational assets and advocacy efforts.

Proposals that commit to community co-creation shall address at a minimum, but not be limited to, the following items in the Community Engagement Plan to describe the co-creation plan:

i. Identify influential community leaders and organizations (non-profits and community organizations) in the host community.
    1. Provide explanation of scoping and engagement efforts undertaken to reach such leaders and organizations and to notify the community of these efforts.

ii. Provide explanation and documentation of co-creation parties willingness and efforts undertaken to help co-create and shape the:

    1. Proposed project
        a. Engagement and feedback gathered to date
            i. Plans for future efforts
        b. Plan to incorporate feedback (how the Proposer plans to improve the overall project, operations, inform strategy, and match community challenges and opportunities with local and organizational assets and advocacy efforts)
    2. Community Benefits Program
        a. Public engagement and feedback gathered to date
            i. Plans for future efforts
        b. Plan to incorporate feedback (how the Proposer plans to improve the overall project, operations, inform strategy, and

match community challenges and opportunities with local and organizational assets and advocacy efforts)

iii. Provide explanation of proven community engagement frameworks or strategies implemented in the development of the co-creation plan, if any.

2. **Community Benefits Program and documentation:** Proposers must develop a documented community benefits program highlighting the distribution of funds for the Company's review. Proposals should include a standalone plan providing details on the amount of funds that the Proposer will commit on an annual basis for community benefits, along with other non-monetary community benefits.
    a. Describe any anticipated or negotiated investment in the community and other community benefits that the Proposer proposes to provide in connection with the Project, along with an estimated value of the community benefits in dollars (including the cost to Proposers providing the benefits and supporting details on how those costs and benefits were derived).
    b. The Community Benefits Program will be made public on each Proposer's website and must demonstrate how funds will directly address needs in the host community to benefit community members.
    c. The Community Benefits Program must include documentation of each Proposer's community consultation and input collection process to define host community needs, along with actions and programs aimed at addressing those needs.
    d. Preference will be given to Proposers that commit to setting aside a larger monetary amount or commit to providing other benefits including, but not limited to, creating local jobs, payment of prevailing wages, or improving community infrastructure.
    e. At a minimum, Proposers should commit to setting aside at least $3,000 per MW per year of the IGP Contract term for community benefits.
    f. These funds shall be donated to address specific needs identified by the host community, or to a 501(c)(3) not-for-profit community-based organization(s) to directly address host community-identified needs.
        i. Provide details regarding the intended beneficiaries of the funds, including recipients, and the area(s) in which the funds will be directed.
        ii. The Proposer may choose to identify and select an eligible non-profit organization to serve as the administrator responsible for ensuring the project's community benefit is appropriately disbursed for the duration of the IGP Contract term. Should a Proposer need an example of the use of a community benefit funding host, the Company will provide such example(s) upon request.
        iii. If Proposers opt to work with a 501(c)(3) non-profit organization(s) to host and distribute community benefit funding, the names of the organization(s) must be provided with the following documentation ninety (90) calendar days after execution of the applicable IGP Contract.
            1. Letter from non-profit organization, signed by organization's executive and board chair agreeing to serve as community benefit fund administrator for the duration of the IGP Contract term;

2. Relevant experience of non-profit organization; and
3. Years of existence of non-profit organization.

g. The Community Benefits Program should include any other community benefits, in addition to community funding, that will provide direct benefit to the Project's host community.

SECTION 2: SELECTION OF PRIORITY LIST

1. Within thirty (30) days of notifying Proposers of their selection to the Priority List (which is after the Initial Evaluation where Proposals are scored), the Company will provide feedback to such Proposers on the following portions of their Proposal(s):
   a. Community Engagement Plan;
   b. Community Benefits Program Plan; and
   c. Cultural Resource Impacts.
2. Proposers shall respond to any Company requests for clarification and resolve potential issues identified by the Company related to the above. Proposers are not permitted to update their Proposals before selection to the Final Award Group based on any feedback provided by the Company on the Proposal's Community Engagement Plan, Community Benefits Program, and/or Cultural Resource Impacts. Pricing components, as explained in Section 3.12.4 of the RFP, will not be allowed to change, except as allowed at the Best and Final Offer stage noted in Section 4.6.
3. The methods or means of addressing/resolving the potential issues identified by the Company shall be reflected in updated plan(s) submitted to the Company within three (3) business days of notification of selection to the Final Award Group. Unless the Company otherwise determines, such methods or means of addressing or resolving the potential issues identified by the Company shall be incorporated as additional obligations of the Seller in the negotiated IGP Contract for the Project.

SECTION 3: WEBSITE AND POST-AWARD COMMUNITY MEETINGS

1. All Proposers selected to the Final Award Group must display the below table of information on the Project website to provide communities with Project information that is of interest to them in a standard format. All information in this table must be included in all community presentations in addition to the Proposer's project website.

PROJECT SUMMARY

*	Proposer Name (Company name)	
*	Parent Company/Owner/Sponsor/Business Affiliation/etc.	
*	Project Name	
*	Project Capacity (MW) (must match Proposal information)	

*	Proposed Facility Location, Street Address if available, or what City/Area on the island it is near	
*	TMK(s) of Facility Location (must match Proposal information)	
*	Point of Interconnection's Circuit (must match Proposal information)	
*	Project Description (in 200 words or less)	*(A description that includes information about the project that will enable the community to understand the impact that the Project might have on the community.)*
*	Project site map	*(provide a map similar to what was provided in Section 2.5.2 of Appendix B)*
*	Site layout plan	*(provide a layout similar to what was provided in Section 2.5.3 of Appendix B)*
*	Interconnection route	*(provide a map of the route similar to what was provided in Section 2.5.4 of Appendix B)*
Environmental Compliance and Permitting Plan		
*	Overall land use and environmental permits and approvals strategy	*(provide information in level of detail as provided in Section 2.6.1 of Appendix B)*
*	Gantt format schedule which identifies the sequencing of permit applications and approval activities and critical path. Schedule must be in MM/DD/YY format)	*(provide information in level of detail as provided in Section 2.6.1 of Appendix B)*
*	City Zoning and Land Use Classification	*(provide information in level of detail as provided in Section 2.6.1 of Appendix B)*
*	Discretionary and non-discretionary Land use, environmental and construction permits and approvals	(*provide information in level of detail as provided in* Section 2.6.1 *of Appendix B*)
*	Listing of Permits and approvals	(*provide information in level of detail as provided in* Section 2.6.1 *of Appendix B*)
*	Preliminary environmental assessment of the Site (including any pre-existing environmental conditions)	(*provide information in level of detail as provided in* Section 2.6.2 *of Appendix B*)
Cultural Resource Impacts		
*	Proposer's updated Community Engagement Plan must include a	(*provide information in level of detail as provided in* Section 2.7 *of Appendix B*)

	plan that (1) identifies any cultural, historic or natural resources that will be impacted by the Project (2) describes the potential impacts on these resources and (3) identifies measures to mitigate such impacts.	
Community Engagement		
*	Detailed Community Engagement Plan	*(provide key information from Community Engagement Plan as specified in Section 1 of Appendix N or provide a link to updated comprehensive Community Engagement Plan)*
*	Local community support or opposition	*(provide latest comprehensive information)*
*	Community engagement efforts	*(provide latest comprehensive information)*
*	Community Benefits Program	*(provide latest comprehensive information)*

2. The Community Engagement Plan and Community Benefits Program information should be as current and explanatory as possible.
    a. The Community Engagement Plan and Community Benefits Program information must be made available on Proposer's website.
    b. The Company will require monthly project status updates from Proposers to verify the implementation of the plans and will ensure Proposers provide accessible opportunities for community members and stakeholders to provide public comment as required by the RFP.
3. Proposers selected to the Final Award Group must develop a public Project website, which shall include all the information on the Project Summary table for their Project.
4. Proposers must develop Project presentations that include all the information on the Community Engagement Plan table (sample template provided).
5. To offer multiple ways and opportunities for the public and community to participate in meetings, all Proposers are required to plan for both in-person and virtual community meetings. As the scheduled community meeting date(s) approach, in the interest of public health and safety, the conditions at the time will determine if in-person meetings or virtual meetings will be required.
    a. Virtual community meetings can either be community televised, or online, but must incorporate technology that allows for live engagement and interaction between the Proposer and community participants. The meetings should also be recorded and posted to the Proposer's website in a timely manner after each meeting so the public may view the meeting(s).
6. Proposers must communicate important information about the Project with stakeholders in advance of community meetings.
7. Proposers must perform media outreach (earned media) and advertising (paid media) to raise community awareness of any public meeting. Media advisories (sample attached) must be issued to the following media and organizations a minimum of thirty (30) days prior to a public meeting, with the exception of the pre-selection meeting, discussed in Section 1.1.k

above, which requires a minimum of fourteen- (14) days notice. Media advisories do not need to be reviewed and approved by Hawaiian Electric, but must be shared with Hawaiian Electric for awareness.

- For Oahu Projects
  - Star Advertiser
  - Civil Beat
  - Hawai‘i News Now
  - KHON2 News
  - KITV4 News
  - Neighborhood Boards
- For Maui Projects
  - Maui News
  - Maui Now
  - Civil Beat
  - Hawai‘i News Now
  - KHON2 News
  - KITV4 News
- For Hawai‘i Island Projects
  - Hawai‘i Tribune Herald
  - West Hawai‘i Today
  - Civil Beat
  - Hawai‘i News Now
  - KHON2 News
  - KITV4 News

8. Advertisements must be placed in area community publications.
   a. Guidance from the Company can be provided upon request.
   b. Information in the ads must be consistent with the media advisory.
9. Public comments in support and in opposition to the proposed Project must be compiled and filed verbatim with the PUC.
10. Proposers must work with and inform neighboring communities and stakeholders to provide community members timely information during ALL phases of Project development, which must include, but not be limited to the negotiation of the applicable IGP Contract, the permitting process periods, and throughout construction of the Project.
11. Should any unforeseen events (e.g. natural disasters, public health emergencies, etc.) interfere with a Proposer's ability to perform the listed actions, the Proposer should inform the Company immediately of such effects for the Company's consideration and guidance, and possible proposal of alternate actions.

SECTION 4: MEDIA ADIVSORY TEMPLATE

CONTACT: NAME, 808.XXX.XXXX **FOR IMMEDIATE RELEASE**
Email address Date

Hawaiian Electric Company
Community Engagement

Media Advisory: Title

Project description to be drafted by developer. Description must include the location of proposed project and supporting background information.

Date: TBD

Time: TBD

Location: TBD

Purpose: To share information about a TYPE (e. g. CBRE solar, etc.) renewable energy project proposed to be developed in COMMUNITY near AREA REFERENCE and to solicit public comments to be filed with the Public Utilities Commission.

Contact: For more information, call 808.XXX.XXXX or visit (website/social media)

# # #

SECTION 5: POST-AWARD REQUIREMENTS

The public meeting and comment solicitation process described in this Appendix N, Sections 3.15 and 5.3 of the RFP, and Section 29.21 of the IGP Contracts do not represent the only community outreach and engagement activities that can or should be conducted by a Proposer. A Proposer shall be responsible for community outreach and engagement for the Project in accordance with the requirements ultimately agreed to in the IGP Contract. The Company will also require monthly Project status updates from Proposers to verify the implementation of the Community Engagement Plan and will ensure Proposers provide accessible opportunities for community members and stakeholders to provide public comment as required by the RFP.

1. **Public announcement.** The Company will publicly announce the Final Award Group no more than six (6) business days after the notification is given to Proposers selected to the Final Award Group. Selected Proposers shall not disclose their selection to the public before the Company publicly announces the Final Award Group.
2. **Project website launch.** Each Proposer will launch a Project website that will go-live by that sixth (6th) business day after notification of Final Award Group selection and which the Company will then post on the Company's website. Information on what should be included on the Project website is identified in Sections 1, 2, and 3 of this Appendix N. A selected Proposer shall provide its staged website, including the Community Engagement Plan and Community Benefits Program plan, for Company review and feedback within three (3) business days of notification of selection to the Final Award Group. Proposers must also provide the Company with the URL of the final Project website within three (3) business days of notification of selection to the Final Award Group.
3. **Updated plans.** Within three (3) business days of notification of selection to the Final Award Group, Proposers must provide the Company with an updated comprehensive Community Engagement Plan and Community Benefit Program according to the expectations of Section 1 of this Appendix N, to work with and inform neighboring communities and stakeholders

and to provide timely information during all phases of Project development. The updated plans shall also incorporate the recommendations of the Company to address potential issues identified in the Company's reviews outlined in Section 4.5.2 of the RFP.

4. **Community Meetings.** Prior to the execution of the IGP Contract, Proposers shall also host a public meeting in the community where the proposed Project is to be located. The public meeting shall provide to the community it is situated in, other stakeholders and the general public with:
    a. a reasonable opportunity to learn about the proposed Project;
    b. an opportunity to engage in a dialogue about concerns, mitigation measures, and potential community benefits of the proposed Project;
    c. an update regarding the Proposer's cultural impact plan, including any findings made and mitigations identified to-date as part of the Archaeological Literature Review and Field Inspection Report; and
    d. information concerning the process and/or intent for the public's input and engagement, including advising attendees that they will have thirty (30) days from the date of said public meeting to submit written comments to Company and/or Proposer for inclusion in the Company's IGP Contract Application and for inclusion on the Proposer's website. The Proposer shall collect all public comments, and then provide the Company copies of all comments received in their original, unedited form. If an IGP Contract is executed by the Proposer and the Company, the Company may submit any and all public comments (presented in its original, unedited form) as part of its IGP Contract Application for this Project. Proposers shall notify the public at least 30 days in advance of the meeting. The Company shall be informed of the meeting. The Company has provided Proposers with detailed instructions regarding the community meeting requirement after the selection of the Final Award Group (Section 3 of Appendix N). (For example, notice will be published in county and regional newspapers/media, as well as media with statewide distribution. The Proposer will be directed to notify certain individuals and organizations. The Proposer will be provided templates to use for the public meeting notices, agenda, and presentation.) Proposers must also comply with any other requirement set forth in the IGP Contract relating to Community Engagement.
5. **Second Comment Period.** Following the submission of the IGP Contract Application, and prior to the date when the Parties' statements of position are to be filed in the docketed PUC proceeding for the Project, the Proposer shall provide another opportunity for the public to comment on the proposed Project. The Proposer's statement of position filed in the docket associated with the Project shall contain an attachment including those comments.

Project Name

Proposer Name

Project Benefits

- Details

Community Benefits

- Details

Proposed Facility Location in/near what City/Area

- Map
- Dimensions of proposed project
- Include all project components

Project Description

- Details

Site Layout Plan

- Project Layout
- Project Visual Simulations
  - Multiple public vantage points

Interconnection Route

- Map

Required Government Permits and Approvals

- Preliminary Schedule
- Opportunities for public comment

Environmental Impacts

- Preliminary environmental assessment of the site (including any pre-existing environmental conditions)

Cultural Impacts

- Identify any cultural, historic or natural resources that will be impacted by the project
- Describe the potential impacts on these resources
- Identify measures to mitigate such impacts.

Construction Related Updates

- Plan for reporting construction schedules and activities
  - Including resulting impacts (ex. traffic, noise, and dust) and mitigation plans
  - Begins at least one month prior to the start of scheduled work
    - To extend throughout the construction and development of the project

Local Labor and Prevailing Wage Commitment (if any)

- Detailing Proposer's commitment, if any, that 80% of non-supervisory construction and operations workers' hours associated with the construction or repowering of a Project will be paid at the prevailing wage equivalent under HRS Chapter 104 during all periods of construction.
- Describing commitment, if any, to hire qualified construction, operations, and maintenance works who reside in the county where the Project is being constructed, and the State of Hawaii, in that order, before hiring non-resident labor.

Community Co-Creation Plan (if any)

- Detail Proposer's commitment, if any, to community co-creation including engagement and feedback gathered to date regarding the proposed project and community benefits program and plans to incorporate feedback

Community Benefits Package

- Specify the amount of funds ($) that the Proposer will commit on an annual basis to provide as community benefits. As described in Section 4.4.2 of the RFP, at a minimum, Proposers should commit to setting aside $3,000 per MW.
- Detailing how community benefits funds will directly address needs in the host community to benefit community members.
- Explanation of community consultation and input collection process to define host community needs, along with community-supported actions and/or programs to address those needs.
  - If Proposers opt to work with a 501(c)(3) non-profit organization(s) to host and/or distribute community benefit funding, the names of the organization(s) must be provided with documentation 90 calendar days upon signing of the appropriate Stage 3 Contract.
- Any other community benefits (in addition to community funding) that will provide direct benefit to the Project's host community

Where to Find More Information

- Project website
- Proposer email and contact information

How to Provide Comments

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REQUEST FOR PROPOSALS

FOR

RENEWABLE DISPATCHABLE GENERATION

AND

ENERGY STORAGE

APRIL 3, 2025

Appendix O – PIR Request Form

Hawaiian Electric

DEVELOPER NAME:	
PROJECT NAME:	
DATE:	

*****ALL ITEMS ARE REQUIRED AND ALL RESPONSES MUST BE FILLED UNLESS NOT APPLICABLE.*****

Please submit completed PIR Request along with supplemental forms and PIR Fee as described in RFP Section 1.6. Upon timely receipt of the foregoing, Hawaiian Electric will contact the Developer to schedule a PIR Meeting. As stated in RFP Section 4.2, Developers are reminded that Proposals submitted in response to this RFP **must** propose only those Projects that were the subject of a PIR Meeting and PIR, consistent with the requirements in RFP section 1.6.11. Furthermore, the *italicized* characteristics of a proposed Project **must** match those described in its corresponding PIR Request, except as otherwise discussed in RFP Section 1.6.

		Response
1)	General Information:	
	a. Primary point of contact name and title	
	b. Mailing address	
	c. Phone number	
	d. Email address	
2)	Technology (Note: If Developer is considering more than one project variation (as this term is used in the RFP), please provide the information requested below for each variation. Developer may submit a maximum of 3 project variations.):	
	a. Project size (MW)	
	b. Interconnection voltage (kV)	
	c. Generation technology	
	d. Storage technology (if applicable)	
	e. Fuel type (if applicable)	
3)	Site Information:	
	a. Address	
	b. Tax map key (TMK) number	
	c. Please include a site map for the proposed project that clearly identifies:	
	i. Location of the parcel	
	ii. TMK	
	iii. Site boundaries	
	d. Grid Connection Point (GCP) (as defined in Tariff Rule No. 19)	
	e. Approximate location of the proposed Point of Interconnection (POI) (in decimal degrees format, to six (6) decimal places)	
4)	Interconnection Route (Note: If the Developer is considering more than one interconnection route for the project, please provide the information requested below for each route):	

	a. Describe or provide an illustration of the interconnection route.					
	b. Explain the rationale for the interconnection route.					
	c. Provide site sketches identifying how the facility will be interconnected to the Company's System (including identification of above-ground and/or underground facilities, GCP, and POI).					
5)	If submitting multiple projects: Identify the rank order of this project, which will establish the order in which the Developer's projects are discussed in the PIR Meeting.					
6)	The PIR Meeting will be scheduled for 1.5 hours between [dates], 9:00am to 5:00pm Hawaii time. Please indicate any preferences for particular dates or times. The Company will try to accommodate these preferences to the extent reasonably possible.					
7)	PIR Fee Calculation	Each		Quantity		Subtotal
	a. Prescreened Interconnection Location(s)	$2000.00	X		=	
	b. Non-Prescreened Interconnection Location(s)	$4000.00	X		=	
	Total Fee (a+b)					
Each Developer, in submitting a PIR Request, certifies that they have reviewed the RFP and are able to submit a Proposal that meets the Threshold Requirements specified therein.						

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REQUEST FOR PROPOSALS

FOR

RENEWABLE DISPATCHABLE GENERATION

AND

ENERGY STORAGE

APRIL 3, 2025

Appendix P – IGP RFP Contingency Plan

Hawaiian Electric

IGP RFP Contingency Plan

This Appendix is the initial Contingency Plan[1] for the first round of the Integrated Grid Plan ("IGP") Request for Proposals ("RFP"). As described further below, the Company intends to periodically update this plan as appropriate.

I. Background

A. Applicable Version of the Competitive Bidding Framework

On February 25, 2025, the State of Hawai'i Public Utilities Commission ("Commission") adopted its final modifications to the IGP Revised Competitive Bidding Framework ("Framework") through Order No. 41568, issued in Docket No. 2018-0165 ("Order 41568"). In Order 41568, the Commission ordered that the Framework "shall govern the IGP RFPs."[2]

B. Situations Requiring a Contingency Plan

The Framework defines a Contingency Plan as addressing "**a reliability or statutory need** (including, for example, the need to comply with reliability standards as discussed in Hawai'i Revised Statutes ("HRS") §§ 260-0141 through 260-0144 and with the State of Hawai'i's Renewable Portfolio Standards law, as codified in HRS §§ 269-91 through 269-95) as may result from a potential failure of an RFP process to produce a project selected in an RFP or a viable project proposal (including any project not completed or delayed)".[3]

The Proposed Framework requires "a Contingency Plan section in the [IGP] RFP that addresses a near-term reliability or statutory need in case an RFP does not adequately address that need."[4]

C. The Company's Approach to Contingency Plan Development

Consistent with the Framework, the Company hereby submits this Contingency Plan, which "explain[s] the different options the utility could pursue if the RFP does not meet the identified need."[5]

This Contingency Plan is a high-level plan that provides potential options for addressing a near-term system reliability need and does not include the details of a specific contingency project.[6] The Company will evaluate the appropriate options set forth in the Contingency Plan, through the RFP process. As more information is known about the proposals received and projects selected in response to the RFP, the Company will develop a more concrete Contingency Plan as necessary. The Company anticipates taking an iterative approach wherein the

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[1] Capitalized terms not defined herein shall have the meaning given to them in the IGP RFP and Appendix A thereto.
[2] Order 41568 at 8.
[3] Framework at Part II.D.2 (emphasis added).
[4] Id.; see also Section 2.1.25 of the IGP RFP.
[5] Id.
[6] System reliability needs can include, for example, energy, capacity, system stability, and grid-forming capability.

Contingency Plan evolves in response to the Company's needs and the projects that are expected to result from the RFP.

II. Process Overview

At present, the Company respectfully submits that there is insufficient information to develop a definitive plan for addressing the risk that a procurement may fail, or that selected projects may be delayed or not completed. Proposals have not yet been received and so the Company does not know how much of its needs, as described in Chapter 2 of the IGP RFP, will be met. Accordingly, the purpose of this initial Contingency Plan is to provide a general overview of the Company's contingency planning process and explain to the Commission the various back-up options that the Company is considering. After proposals are received, and at various subsequent checkpoints described below, the Company will compare its needs against the anticipated projects and add further definition to this Contingency Plan.

A. During the Procurement Process

Proposals received in response to the IGP RFP will be compared against the needs sought by the Company, stated in Chapter 2 of the IGP RFP. If a shortfall is anticipated, then the Company will determine the appropriate option(s) for fulfilling its needs. This assessment will be coordinated by the Company RFP Team, as that term is used in the Code of Conduct Procedures Manual included as Appendix C to the draft IGP RFP filed on August 26, 2024 ("Code of Conduct").

This process will be repeated during the procurement process as circumstances change. For example, the Company may reassess its needs again at the Best and Final Offer ("BAFO") stage and after selection of the Final Award Group. Each time, as the anticipated projects become more certain and the Company's potential needs become clearer, the Contingency Plan will be refined and resubmitted as appropriate. After the selection of the Final Award Group, the Company anticipates that the Contingency Plan can include a specific preferred plan with tentative cost and schedule estimates.

B. After Proposal Selection and Beyond

After the Final Award Group is selected, the Company will continue to compare the awarded capacity against the required capacity to determine if there is an anticipated shortfall if an awarded project drops out or is delayed. If so, the Company will develop one or more contingency options to address the anticipated shortfall.

III. Contingency Options

General options that the Company would consider for fulfilling its generation needs in the event of a contingency include the following:

- Develop the self-build project: The Framework provides that, "[t]he utility's Contingency Plan may but is not required to include the utility's bid or bids."[7] If the Company submits a project proposal in response to this RFP and it is not selected, the Company may opt to pursue development of that project as part of the Contingency Plan.

- Develop a different Company project: In accordance with the Framework, the Commission "may waive this Framework or any part thereof upon a showing that the waiver will likely result in the acquisition of a System Resource that … increases the reliability or resilience of a utility's system."[8] Additionally, the Company may request a waiver from competitive bidding when "competitive bidding will unduly hinder the ability to add needed System Resources in a timely fashion" so that it can develop Company-owned projects that may differ from the project(s) advanced by the utility in the RFP process.[9] If appropriate, the Company may also seek a waiver from the competitive bidding process under the other provisions of Part II.B. of the Framework to pursue these project(s).

- Select a project that was proposed but not selected for the Final Award Group: If a proposal is removed from the Final Award Group, the Company may review the Priority List to determine if another proposal should be added to the Final Award Group.[10]

- Increase targets in the next RFP: This RFP is the first in a series of rolling procurements ("Round 1"). Procurement targets for the next round, for projects to be in service by 2033, can also be increased to cover any remaining Round 1 needs depending on the need by date of such remaining needs.

- Issue more rolling RFPs: Subsequent iterations of this RFP may be issued to cover any remaining Round 1 needs. The Company intends to issue subsequent iterations of this RFP approximately fourteen (14) months after the issuance of the prior RFP.

- Increase distributed energy resources ("DER") / smart renewable energy programs: The Company may explore methods for incentivizing customer participation in these programs. As referenced in the Commission's 2024 Inclinations on the Future of Energy in Hawai'i,[11] the Company plans to explore ways to increase access to DER by revamping the Community Based Renewable Energy program. In addition, as part of the Commission's intragovernmental wheeling investigatory docket,[12] the Company plans to evaluate options to increase DER through an intragovernmental wheeling program approved by the Commission. The Company has also been evaluating the implementation of a utility-owned asset program to increase DERs on the Company's grids.

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[7] Framework at Part I.
[8] Framework at Part II.B.2.d.
[9] Framework at Part II.A.2.b.
[10] IGP RFP at Section 4.8.
[11] See Commission's 2024 Inclinations on the Future of Energy in Hawai'i, dated December 31, 2024 at 11-12.
[12] See generally, Docket No. 2024-0200*, Instituting a Proceeding to Investigate Establishment of Electricity Wheeling*.

- Provide grid services: The Company may consider obtaining grid services to mitigate shortfalls, similar to previous grid services procurements. To incentivize customers to provide grid services, the Company recently filed its proposal for an updated Bring Your Own Device program focused on emergency scenarios.[13] In addition, the Company is also evaluating the implementation of a utility-owned asset grid services program.

- Install temporary generation: To fulfill short-term needs, the Company may opt to procure temporary generation, such as via generator rental.

- Optimize maintenance schedules: Generator maintenance schedules may be optimized as appropriate to meet short-term shortfalls.

- Extend the life of existing generating units: If the Company's resource demands are driven by the retirement of existing generation units, the Company may consider extending planned retirement dates, and making capital improvements as needed, until additional resources can be procured.

[13] See Exhibit 1 to Letter from K. Katsura to Commissioners re: Hawaiian Electric Companies' Responses to Commission's Questions, filed in Docket No. 2019-0323 on January 27, 2025 at 9-10.