

Hawaiian Electric

REQUEST FOR PROPOSALS

FOR

**GRID SERVICES FROM CUSTOMER-SITED DISTRIBUTED ENERGY
RESOURCES**

ISLAND OF MAUI

2/1/2023

RFP No. 020123-04

Docket No. 2017-0352

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

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Chapter 1: Introduction and General Information

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

Table 1-1 Hawaiian Electric’s Grid Services Needs for Maui (MW)

Year	Capacity (Load Build & Load Reduction)
2026	20.0
2027	20.0
2028	20.0
2029	20.0
2030	20.0
2031	20.0
2032	20.0
2033	20.0
2034	20.0
2035	20.0

Proposers must include the delivery of Capacity Reduction in their proposal. A Proposer may also include Capacity Build in its proposal. However, Capacity Build bid must not exceed a Proposer’s Capacity Reduction bid.

The Company seeks aggregated Grid Services from customer-sited distributed energy resources in this RFP. The Company intends to contract for Grid Services through this RFP using its Model Grid Services Purchase Agreement (“GSPA”). The Model GSPA is attached as Appendix L to this RFP. The term of any GSPA executed with selected Proposer(s) will be ten (10) years.

This RFP seeks acquisition of Grid Services to address the recently advanced end of life forecast for the four 12.5MW Mitsubishi-MAN generating units on Maui.¹ Proposers can expect shorter durations for certain RFP process steps, as set forth in Section 3.1, as well as a demanding contract negotiation schedule requiring short and prompt turnaround times. Each successful Proposer will provide the specified, aggregated Grid Services from customer-sited assets to the Company pursuant to the terms of GSPA to be negotiated between the Company and Proposer, which will also be subject to PUC review and approval. The Company or its affiliate may submit a Proposal in response to this RFP.

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

¹ See Generation Update for Maui Electric Company, Limited, filed with the PUC on March 21, 2022 in Docket No. 2021-0024.

depends on, among other things, the quality of bids received in response to this RFP; economic comparison to other RFP responses; updates to the Company’s forecasts; and changes to regulatory or legal requirements.

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

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

1.1 Authority and Purpose of the Request for Proposals

1.1.1 This RFP is subject to Decision and Order (“D&O”) No. 23121 in Docket No. 03-0372 (To Investigate Competitive Bidding for New Generating Capacity in Hawai‘i), which sets forth the PUC’s Framework for Competitive Bidding (“Framework” or “Competitive Bidding Framework”).

1.1.2 This RFP also follows the guidance from the Public Utilities Commission of the State of Hawaii in Decision and Order No. 35238 in Docket No. 2015-0412 which approved the Companies’ Revised Integrated Demand Response Program Portfolio submitted to the commission in the same docket.

1.1.3 The Company hereby invites qualified vendors (referred to herein as “Proposers”) to provide proposals to deliver Grid Services (as defined herein) utilizing customer-sited resources. It is acceptable for a Proposer to provide a proposal to a single operating system.

1.1.4 ***The purpose of this RFP is to procure Grid Services provided from customer-sited resources.*** The Company considers Grid Services to include capacity and ancillary services, specifically, fast frequency response. This RFP represents an opportunity for both the Proposer and the Company to continue to develop an innovative portfolio of customer-sited resources that meet a variety of grid requirements, while providing additional choices and benefits for the Company’s customers. This RFP is soliciting innovative proposals for the provision of fully functional resources to deliver Grid Services. Delivery of fully-functional Grid Services includes the implementation and ongoing maintenance of resources to provide the complete set of services specified in Section 1.3.1 of this RFP.

1.1.5 The resources that provide the Grid Services requested in this RFP must be electrically interconnected on the customer side of the revenue meter. Proposers may submit

proposals that employ controllable customer loads, energy storage devices, and/or non-fossil generation amongst other technologies. Proposed resources must also meet the other technical and business requirements set forth in this RFP and the Company's Grid Service Tariffs. Resources proposed in response to this RFP that are interconnected on the customer's side of the meter and that are intended to be operated in parallel with the Company's system (e.g., generation and energy storage systems) at any time, must meet the interconnection requirements included in the Maui Electric Company, Ltd's Tariff Rule No. 14H, this RFP, or otherwise appropriate interconnection tariff applicable to such resources.² Any proposals that rely on resources that are not able to meet the forgoing requirements in this paragraph will not be considered at this time.

1.2 **Aggregator Model**

1.2.1 This RFP seeks proposals based on the following Proposer, or aggregator, business model:

a. The Proposer is required to guarantee (with appropriate financial backing) the delivery of specified quantities of Grid Services obtained from demand-side resources. The Proposer shall have a direct contractual relationship with customers (identified as Participants under the GSPA) for the use of customer-sited resources. The contract between the Proposer and its customers must include the terms and conditions specified in Attachment J of the GSPA, which can be found in Appendix L of this RFP. The Proposer will be responsible for ensuring the contract with the customer is valid under Hawai'i and U.S. laws and meets all applicable consumer protection regulations. In turn, the Proposer will have a direct contractual relationship with the Company under the GSPA to deliver the Grid Services in the quantities and requirements specified in this chapter of the RFP. The Company will directly deliver Participant incentives to the Proposer's customers via their utility bills. Accordingly, the Proposer's marketing to its customers will refer to the Proposer as "a Hawaiian Electric authorized aggregator, or demand-side provider."

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

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

² See Maui Electric Company Rule 14H:
https://www.hawaiianelectric.com/documents/billing_and_payment/rates/maui_electric_rules/14.pdf

1.3 Scope of the RFP

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

Over time, the needs of the Company’s system will change, particularly as greater penetrations of variable renewable resources are reached in the system. This means that the incremental need for specific Grid Services may change over time or that different response rates or requirements may be necessary. The Company reserves the right to alter requirements as necessary to procure the Grid Services required for acceptable system reliability for future system configurations.

1.3.1 Grid Service Requirements

The Company has identified specific Grid Services requirements for this RFP. The table below summarizes the Grid Services. Detailed specifications and requirements are identified in Attachment A of the GSPA, which can be found in Appendix L of this RFP. The quantity, or Capability, of each grid service targeted for this RFP is presented in Table 1-1. Attachment A of the GSPA and Table 1-1 should be used as a guide for Proposers in preparing and submitting Proposals to deliver specific Grid Services.

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

Grid Service(s) Requested in this RFP	System Need
Capacity (Build and Reduction)	Capacity to meet system peak, including load shift from high demand peak periods.

1.3.1.1 Proposers must include Capacity Reduction in their proposal. A Proposer may also include Capacity Build with Capacity Reduction as bundled Grid Services in its proposal.

However, a Capacity Build bid must not exceed a Proposer's Capacity Reduction bid. Capacity Reduction in excess of a proposal for bundled Grid Services may be included in bid. See Appendix B for more information.

1.3.1.2 Proposals that commit to deliver significant capability in the locations identified in Appendix P will receive preferential scoring as described in Section 4.4.2.

1.3.1.3 Proposals that also include IEEE 2030.5-2018 as specified in Attachment A-2 and Attachment D of the GSPA will receive preferential scoring as described in Section 4.4.2; provided, however, that inclusion of such IEEE 2030.5-2018 in a proposal is not mandatory.

1.3.1.4 The Company does not have a predetermined preference for a particular technology for the delivery of Grid Services. (Customer-sited generators however are not allowed for this GSPA RFP.)

1.3.1.5 Proposals must commit to aggregate and make available for delivery greater than 500 kW of capability for each grid service that is bid.

1.3.2 System & Data Integration

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

1.3.3 Forecasting & Availability Delivery Requirements

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

1.3.4 Project Enablement

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

1.3.4.1 Proposals submitted in response to this RFP must be located on the Island of Maui. In light of the unanticipated end of life issues for the Mitsubishi-MAN generating units, Proposers are encouraged to submit reliable project schedules that set completion of enablement and a Commercial Operations Date ("COD") prior to June 30, 2026. Proposers that are unable to reliably set a completion of enablement and COD as prior to June 30, 2026 must submit a schedule that includes: (i) the amount of Capability the Proposer can deliver by June 30, 2026; and (ii) the date that the Proposer will achieve maximum Contract Capability.

1.3.4.2 If selected, Proposers will be solely responsible for and must bear all costs associated with their performance throughout the term of the GSPA, including but not limited to

Project development, completion of an Interconnection Requirements Study (“IRS”), permitting, financing, and operations and maintenance.

1.3.4.3 Proposers shall pursue all available applicable federal and state tax credits, and Proposal pricing must be set to incorporate the benefit of such tax credits or to pass the benefit of the tax credits to the Company’s customers.

1.3.4.4 In order to comply with the Company’s procurement requirements, Proposers that will perform customer-site installations must actively subscribe to ISNetwork (“ISN”) and maintain a passing (A or B) grade. Proposers that will not directly perform customer-site installations and their subcontractors are not required to subscribe to ISN nor maintain a passing grade. For more information visit, www.isnetwork.com.

1.4 **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.

1.5 **Role of the Independent Observer**

1.5.1 Part III.C.1 of the Framework sets forth the circumstances under which an Independent Observer is required in a competitive bidding process. The PUC may retain an Independent Observer both to advise and monitor the process for this RFP. All phases of the RFP process will be subject to the Independent Observer’s oversight, and the Independent Observer will coordinate with PUC staff throughout the RFP process to ensure that it is undertaken in a fair and unbiased manner. In particular, the Company will review and discuss with the Independent Observer all decisions regarding the evaluation, disqualification, non-selection, and selection of Proposals.

1.5.2 The role of the Independent Observer, as described in the Framework, will include but is not limited to:

- Monitor all steps in the competitive bidding process
- Monitor communications (and communications protocols) with Proposers
- Monitor adherence to the Company’s Code of Conduct
- Submit comments and recommendations, if any, to the PUC concerning the RFP
- Review the utility’s Proposal evaluation methodology, models, criteria, and assumptions
- Review the utility’s evaluation of Proposals
- Advise the utility on its decision-making
- Participate in dispute resolution as set forth in Section 1.10 of this RFP
- Monitor contract negotiations with Proposers
- Report to the PUC on monitoring results during each stage of the competitive bidding process
- Provide an overall assessment of whether the goals of the RFP were achieved

1.6 **Communications Between the Company and Proposers – Procedures Manual**

- 1.6.1 Communications and other procedures under this RFP are governed by the “Procedures Manual,” developed by the Company as required by the Framework, and attached as Appendix C to this RFP.
- 1.6.2 All pre-Proposal communication with prospective Proposers will be conducted via the Company’s website, Electronic Procurement Platform and/or electronic mail (“Email”) through the address specified in Section 1.7 of this RFP (the “RFP Email Address”). Frequently asked questions submitted by prospective Proposers and the answers to those questions may be posted on the Company website, or sent through either email or the Electronic Procurement Platform to registered individuals. The Company reserves the right to respond only to comments and questions it deems are appropriate and relevant to the RFP.
- 1.6.3 After Proposals have been submitted, the Company may contact individual Proposers for purposes of clarifying their Proposal(s).
- 1.6.4 Any confidential information deemed by the Company, in its sole discretion, to be appropriate to share, will only be transmitted to the requesting party after receipt of a fully executed Mutual Confidentiality and Non-Disclosure Agreement (“MNDA”). See Appendix E of this RFP.
- 1.6.5 Except as expressly permitted and in the manner prescribed in the Procedures Manual, any unsolicited contact by a Proposer or prospective Proposer with personnel of the Company pertaining to this RFP is prohibited.

1.7 **Company Contact for Proposals**

The primary contact for this RFP is:

Matthew Chang
Grid Services Contract Manager
Hawaiian Electric Company, Inc.
PO Box 2750 (AL18-SG)
Honolulu, Hawai‘i 96840

RFP Email Address: response@hawaiianelectric.com

1.8 **Proposal Submission Requirements**

- 1.8.1 All Proposals must be prepared and submitted in accordance with the procedures and format specified in the RFP. Proposers are required to respond to all questions and provide all information requested in the RFP, as applicable, and only via the communication methods specified in the RFP.
- 1.8.2 Detailed requirements regarding the form, submission, organization and information for the Proposal are set forth in Chapter 3 of this RFP and Appendix B to this RFP.

- 1.8.3 In submitting a Proposal in response to this RFP, each Proposer certifies that the Proposal has been submitted in good faith and without fraud or collusion with any other person or entity. The Proposer shall agree to a Certificate of Non-Collusion acknowledgement provided on the Electronic Procurement Platform for each Proposal.

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

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

1.9 **Procedures for the Self-Deliver or Affiliate Proposals**

The Competitive Bidding Framework allows the Company the option to offer a Proposal in response to this RFP ("Self-Deliver Option" or "SDO"). The Company may submit a Self-Deliver Option in response to this RFP. Accordingly, the Company must follow certain procedures designed to safeguard against and address concerns associated with: (1) preferential treatment of the SDO or to members, agents or consultants of the Company formulating the SDO (the "Self-Deliver Team"); or (2) preferential access to proprietary information to the Self-Deliver Team. These procedures are found in the Company's Code of Conduct and the Procedures Manual submitted to the PUC in Docket No. 2017-0352 on October 23, 2017. A copy of the Procedures Manual is attached as Appendix C to this RFP.

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

If retained, the Independent Observer will assist the PUC in ensuring that the established procedures of the Code of Conduct Procedures Manual and the terms of the Code of Conduct are followed and administered fairly such that no preferential treatment or preferential access to information will be provided to the Self-Deliver Team by the Evaluation Team. Pursuant to the Framework and as set forth in the RFP Schedule, the Company will provide the Proposal for the SDO(s) to the Independent Observer through the Electronic Procurement Platform a minimum of one (1) Day before other Proposals

are due. A SDO Proposal must adhere to the same Price and Non-Price Proposal Requirements as required of all Proposers. In addition to its Proposal, the Self-Deliver Team will be required to submit Appendix E, Self-Deliver Option Team Certification Form, acknowledging it has followed the rules and requirements of the RFP to the best of its ability and has not engaged in any collusive actions or received any treatment or information which could be deemed preferential or providing an impermissible competitive advantage to the Self-Develop Team over other proposers responding to this RFP, as well as adherence to GSPA terms and milestones required of all proposers and the SDO's proposed cost protection measures.

The cost recovery methods between a regulated utility SDO Proposal and Distributed Energy Resources Aggregator (“Aggregator”) proposals are fundamentally different due to the business environments they operate in and as a result, the Company has instituted a process, in consultation with the Independent Observer, in order to compare the two types of proposals for the initial evaluation of the price related criteria on a ‘like’ basis through comparative analysis.

At the core of an SDO Proposal is its total project capital cost. For evaluation purposes, these capital costs³ will be converted to annual revenue requirements which represent the revenue required to be collected from ratepayers that would allow the Company to recover the total cost of the Grid Services delivery. These revenue requirements will then be used in a Levelized Grid Services Pricing (“LGSP”) calculation for comparison to Aggregator Proposals.

The Company in conjunction with the Independent Observer will conduct a risk assessment of the SDO Proposal to ensure an appropriate level of customer cost protection measures are being proposed.

1.10 **Dispute Resolution Process**

- 1.10.1 If disputes arise under the RFP, the provisions of Section 1.10 of this RFP and the dispute resolution process established in the Framework will control. See Part V of the Framework.
- 1.10.2 Proposers who challenge or contest any aspect of the RFP process must first attempt to resolve their concerns with the Company and the Independent Observer (“Initial Meeting”). The Independent Observer will seek to work cooperatively with the parties to resolve any disputes or pending issues and may offer to mediate the Initial Meeting to resolve disputes prior to such issues coming before the PUC.
- 1.10.3 Any and all disputes arising out of or relating to the RFP which remain unresolved for a period of twenty (20) days after the Initial Meeting takes place may, upon the agreement of the Proposer and the Company, be submitted to confidential mediation in Honolulu, Hawai‘i, pursuant to and in accordance with the Mediation Rules, Procedures, and Protocols of Dispute Prevention Resolution, Inc. (“DPR”) (or its successor) or, in its absence, the American Arbitration Association then in effect (“Mediation”). The

³ Self-Deliver Proposals will be required to provide a table identifying project costs by year.

Mediation will be administered by DPR. If the parties agree to submit the dispute to Mediation, the Proposer and the Company shall each pay fifty percent (50%) of the cost of the Mediation (i.e., the fees and expenses charged by the mediator and DPR) and shall otherwise each bear their own Mediation costs and attorneys' fees.

- 1.10.4 If settlement of the dispute is not reached within sixty (60) Days after commencement of the Mediation, or if after the Initial Meeting, the parties do not agree to submit any unresolved disputes to Mediation, then as provided in the Framework, the Proposer may seek a determination of the issue by the PUC.
- 1.10.5 In accordance with the Framework, the PUC will serve as the arbiter of last resort for any disputes relating to this RFP involving Proposers. The PUC will use an informal expedited dispute resolution process to resolve the issue within thirty (30) Days, as described in Parts III.B.8 and V of the Framework.⁴ There will be no right to hearing or appeal from this informal expedited dispute resolution process.
- 1.10.6 If any Proposer initiates a dispute resolution process for any dispute or claim arising under or relating to this RFP, other than that permitted by the Framework and Section 1.10 of this RFP (e.g., arbitration or court proceeding), then such Proposer shall be responsible for any and all attorney's fees and costs that may be incurred by the Company or the PUC in order to resolve such claim.

1.11 No Protest or Appeal

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

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

1.12 Modification or Cancellation of the Solicitation Process

- 1.12.1 Unless otherwise expressly prohibited, the Company may, at any time up to the final award, in consultation with the Independent Observer, postpone, withdraw and/or cancel any requirement, term or condition of this RFP, including deferral of the award of any contract, and/or cancellation of the award all together, all of which will be without any liability to the Company.
- 1.12.2 The Company may modify this RFP subject to requirements of the Framework, whereby the modified RFP will be reviewed by the Independent Observer and submitted to the PUC thirty (30) Days prior to its issuance, unless the PUC directs otherwise. See

⁴ The informal expedited dispute resolution process does not apply to PUC review of contracts that result from the RFP. See Decision and Order No. 23121 at 34-35. Further, the informal expedited dispute resolution process does not apply to the Framework's process relating to issuance of a draft and final RFP, and/or to the PUC approval of the RFP because: (1) the Framework (and the RFP) set forth specific processes whereby interested parties may provide input through the submission of comments; and (2) the Framework's dispute resolution process applies to "Bidders" and there are no "Bidders" at this stage in the RFP process.

Framework Part IV.B.10. The Company will follow the same procedure with regard to any potential postponement, withdrawal or cancellation of the RFP or any portion thereof.

Chapter 2: Resource Needs and Requirements

2.1 Performance Standards

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

2.2 Interconnection to the Company System

2.2.1 All customer assets that are otherwise subject to interconnection standards as articulated in Rule 14H remain subject to those standards as a precondition for inclusion in a Grid Services offering.

2.2.2 If an interconnected system, in order to achieve anticipated and committed Grid Services, would be expected to export power in excess of pre-approved export limits, the resource will be subject to a Supplemental Review as described in Appendix N.

Chapter 3: Instructions to Proposers

3.1 Schedule for the Proposal Process

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

Table 3-1 RFP Schedule

Milestone	Schedule Dates
(1) RFP issued	February 1, 2023
(2) Questions due from Bidders	June 30, 2023
(3) Response to Questions issued	July 21, 2023
(4) Proposals Due	August 31, 2023 at 5:00 pm HST
(5) Selection of Short List	September 22, 2023
(6) Best and Final Offer Due	October 6, 2023 at 5:00 pm HST
(7) Selection of Final Award Group	October 20, 2023
(8) Contract Negotiations Start	October 23, 2023
(9) Contract Executed and Filed (estimated)	January 2024
(10) PUC Approval (estimated)	August 2024
(11) Commercial Operations Date	June 30, 2026

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

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

<https://www.hawaiianelectric.com/clean-energy-hawaii/selling-power-to-the-utility/competitive-bidding-for-system-resources>

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

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

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

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

3.3 **Proposer Questions**

Prospective Proposers may submit written questions regarding the RFP to the RFP Email Address set forth in Section 1.7 and in accordance with the RFP Schedule in Section 3.1. The Company will endeavor to address all questions that will be helpful to prospective Proposers via a Q&A section on the RFP website in accordance with the RFP Schedule in Section 3.1.

Hawaiian Electric’s responses will be based on the best information available at the time an answer is posted, which may not reflect the scope and requirements of the final RFP. Prospective Proposers should review the Q&A page periodically to check for updates, additions, clarifications and/or corrections to any of Company’s prior responses. It is the Proposer’s responsibility to ensure it understands all requirements of the RFP and to seek clarification if the RFP’s requirements or the Company’s requests or responses are not clear. Accordingly, a potential Proposer may not rely upon a prior response that may be clarified or corrected in a subsequent response. Efforts will be made by the Company to highlight subsequent clarifications and corrections to prior responses, but potential Proposers are ultimately responsible for monitoring the Q&A page and to inquire with the Company regarding any perceived inconsistencies or contradictory information. Finally, a Proposer’s submission of information to the Company will not be independently confirmed by the Company. All Proposers must separately request confirmation of receipt of submitted information if desired by any Proposer.

3.4 **Preparation of Proposals**

- 3.4.1 Each Proposer shall be solely responsible for reviewing the RFP (including all appendices and links) and for thoroughly investigating and informing itself with respect to all matters pertinent to this RFP, the Proposer's Proposal, and Proposer's anticipated performance under the GSPA. As noted above, it is the Proposer's responsibility to ensure it understands all requirements of the RFP, to seek clarification if the RFP's requirement or Company's request is not clear, and to ask for any confirmation of receipt of submission of information.
- 3.4.2 Proposers shall rely only on official information provided by the Company in this RFP when preparing their Proposal. The Company will rely only on the information included in the Proposals and additional information solicited by the Company to Proposers in the format requested, to evaluate the Proposals received. Evaluation will be based on the stated information in this RFP and on submitted information (e.g., Proposal submissions should not reference previous RFP submissions for support. Proposers also should not assume that any previous RFP decisions/preferences will also pertain to this RFP).
- 3.4.3 Each Proposer shall be solely responsible for and shall bear all of its costs incurred in the preparation of its Proposal and/or its participation in this RFP, including, but not limited to, all costs incurred with respect to the following: (1) review of the RFP documents; (2) meetings with the Company; (3) Site visits; (4) third-party consultant consultation; and (5) investigation and research relating to its Proposal and this RFP. Any such costs associated with the same will not be reimbursed by the Company to any Proposer, including the selected Proposer(s).
- 3.4.4 Each Proposal must contain the full name and business address of the Proposer and must be signed by an authorized officer or agent⁵ of the Proposer.

3.5 **Organization of the Proposal**

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

3.6 **Proposal Limitations**

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

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

⁵ Proposer's officer or agent must be authorized to sign the Proposal. Such authorization must be in writing and may be granted via Proposer's organizational documents (i.e., Articles of Incorporation, Articles of Organization, By-laws, etc.), resolution, or similar documentation.

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

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

3.7 **Proposal Compliance and Basis for Disqualification**

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

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

3.8 **Grid Services Purchase Agreement**

- 3.8.1 The Grid Services Purchase Agreement for proposals selected under this RFP will be in the form of the Company's GSPA, attached as Appendix L to this RFP.
- 3.8.2 If selected, any affiliate Proposers will be required to enter into the GSPA with the Company.
- 3.8.3 If selected, a Self-Deliver Proposer will not be required to enter into a GSPA with the Company. However, the SDO will be held to the same performance metrics set forth in the GSPA to the same extent as all Proposers, as attested to in the SDO's Appendix F submittal.
- 3.8.4 In general, under the GSPA, payment to the Supplier contains two parts: Enablement Fees to apply towards fixed costs associated with hardware and installation and Management Fees (\$/MW component) to cover operations and maintenance costs. In return, the Supplier shall guarantee minimum performance and availability metrics to ensure that the Services are available for the Company's dispatch.
- 3.8.5 Designated sections of the GSPA are non-negotiable. Terms and conditions in the sections of the GSPA referenced in Section 4.2 of this RFP must be accepted as stated. Proposers shall not propose modifications to sections of the GSPA that are designated non-negotiable. Proposers may propose modifications to other sections of the GSPA but are encouraged to accept the GSPA in order to expedite the overall RFP process and potential GSPA negotiations. As a component of their Proposals, Proposers who elect to propose modifications shall provide a MS Word red-line version of the GSPA identifying specific modifications to the GSPA language that the Proposer is agreeable to, as well as a detailed explanation and supporting rationale for each modification. General comments such as "parties to discuss" are unacceptable and will not be considered a proposed revision. Modifications will be evaluated as a non-price evaluation criteria as further described in Section 4.4.2 of this RFP. In order to facilitate this process, the Company will make available electronic versions of the GSPA. Any proposed modifications to the GSPA will be subject to negotiation between the Company and the Final Award Group. Certain provisions of the GSPA, such as the calculation of availability and payment terms, may be administratively burdensome to endeavor if they differ between selected Projects. Therefore, the Company will endeavor to negotiate similar provisions across the Final Award Group for such provisions.
- 3.8.6 Proposals that do not include specific proposed revisions to the attached GSPA will be deemed to have accepted its terms.
- 3.8.7 All Proposer's electing to propose modifications to the GSPA must comply with Section 3.8.5, including Proposers with a previously executed GSPA. If a Proposer omits the GSPA in its response, the GSPA, attached as Appendix L to this RFP, will be deemed to have been accepted in its entirety by the Proposer.

3.9 Pricing Requirements

- 3.9.1 Proposers must submit pricing for the proposed delivery of Grid Services.
- 3.9.2 Pricing cannot be specified as contingent upon other factors (e.g., changes to State or federal tax policy or receiving all investment tax credits assumed).
- 3.9.3 If a Proposer expects that its price is contingent upon the Company's acceptance of a modification(s) to the GSPA (e.g., shifting a financial obligation, liability, or risk) the Proposer must clearly disclose and explain that contingency in its GSPA modification(s).
- 3.9.4 All applicable taxes (e.g. Hawai'i General Excise Tax) must be included in pricing.
- 3.9.5 Escalations in pricing over the term of the GSPA may not be proposed.
- 3.9.6 Pricing information must only be identified within specified sections of the Proposal instructed by this RFP's Appendix B Proposer's Response Package (i.e., Proposal pricing information must be contained within defined Proposal sections of the Proposal submission).
- 3.9.7 The Proposer's Response Package must include the following pricing components for each Proposal:

For Aggregator or affiliate proposals:

- **Management Fee:** Represented as a \$/kW/service/month amount, this fee reflects the Proposer's effective bid for managing each kW of the services being offered. This fee should ramp as the collective enablement ramps and the Proposer is managing more kW per service.
- **Enablement Fee:** The Enablement Fee represents a \$/capability (kW) to accommodate – all or in part - the enablement of customer assets for delivering Grid Services. This fee allocation is set at a maximum of ten (10) times the monthly Management fee on a \$ per kW, per services basis. Bids containing a price for enablement that exceed the specified limit will be disqualified.
- **Incentive Adder:** As set forth on Attachment H of the GSPA, the Company has published minimum incentives on a \$ per kW, per service, per island basis for each of the services to be procured. The Proposer may opt to offer additional incentives to participating customers, which will in turn be paid by the Company via the customer bill. The Incentive Adder will be paid by the bidder (not the Company) and be subtracted from the Proposer's monthly settlement. The Incentive Adder will be subtracted from the Management Fee as part of the Total bid cost.
- **Competitive Program Incentives:** In a scenario where there is a competing program being offered by the Company during the projected enrollment period, Proposers may propose a Competitive Program Incentive pricing plan where additional incentives

(additional monthly incentives and/or upfront incentives) may be paid out to the participating customers from the Companies budget. The Competitive Program Incentives will be added to the Total bid cost. Proposers who are submitting competitive program incentives must complete an Appendix M for both bids with and without the Competitive Program Incentives. Any submitted competitive program incentive proposal must have its assumption clearly stated such that the total bid amount is very clear with and without these additional incentives. The Company reserves the right to decline the Competitive Program Incentive proposed.

- **Proposal to pay incentives directly to the participants:** The default requirement for GSPA is that the Company will pay the minimum incentives to the participating customers. Proposers may have different value propositions where it may be more beneficial for the proposer to directly pay the incentive or offer additional benefits to the customers. Proposers may submit a plan of offering such incentive plan for consideration. Monthly incentives currently paid by the Company may be paid out by the bidder in this scenario. And other additional incentives are at the sole expense of the Proposer and should not add to the total bid amount. These plans will not be evaluated in the Pricing Score but will be evaluated as part of the Non-Price Scoring category of Participant Acquisition, Timing, Location, and Strategy. The Company also reserves the right to decline the incentive proposed and keep the default approach of Company paying the customer the minimum incentive.

3.10 Project Description

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

- Executive Summary of proposed grid service delivery plan
- Implementation Plan
- Contract Capability/Enablement Schedule
- Summary/Exception Worksheets
- Participant Services Agreement

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

3.10.3 Proposers must complete the Technical and Cybersecurity Survey as presented in Appendix K.

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

3.11 Confidentiality

- 3.11.1 Each prospective Proposer must submit an executed MNDA in the form attached as Appendix E to this RFP by the Proposals Due date specified in the RFP Schedule in Section 3.1. The form of the MNDA 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 MNDA will be considered. Proposers must clearly identify all confidential information in their Proposals. However, Proposers should take care to designate as confidential only those portions of their Proposals that genuinely warrant confidential treatment. The Company discourages the practice of marking each and every page of a Proposal as confidential. The Company will make reasonable efforts to protect any such information that is clearly marked as confidential. The Company reserves the right to share any information, even if marked confidential, with its agents, contractors, the Independent Observer for the purpose of evaluating the Proposal, as set forth in the MNDA.
- 3.11.2 The Company will request that the PUC issue a Protective Order to protect confidential information provided by Proposers to the Company. A copy of the Protective Order, once issued by the PUC, will be provided to Proposers. Proposers should be aware that the Company may be required to share certain confidential information contained in Proposals with the PUC, the Division of Consumer Advocacy, State of Hawai‘i Department of Commerce and Consumer Affairs, and the parties to any docket instituted by the PUC, provided that recipients of confidential information have first agreed in writing to abide by the terms of the Protective Order. Notwithstanding the foregoing, no Proposer will be provided with Proposals from any other Proposer, nor will Proposers be provided with any other information contained in such Proposals or provided by or with respect to any other Proposer.

3.12 Credit Requirements Under the GSPA

- 3.12.1 Proposers with whom the Company concludes GSPA contract negotiations must post an irrevocable standby letter of credit as set forth in Article 21 of the GSPA.
- 3.12.2 The letter of credit amount described in the GSPA is a minimum requirement. Proposers shall not propose an amount lower than that set forth in the GSPA.
- 3.12.3 Proposers may be required to fund a monetary escrow account in lieu of the required Source Code Escrow required under Article 5 of the GSPA.

Chapter 4: Evaluation Process and Evaluation Criteria

4.1 Proposal Evaluation and Selection Process

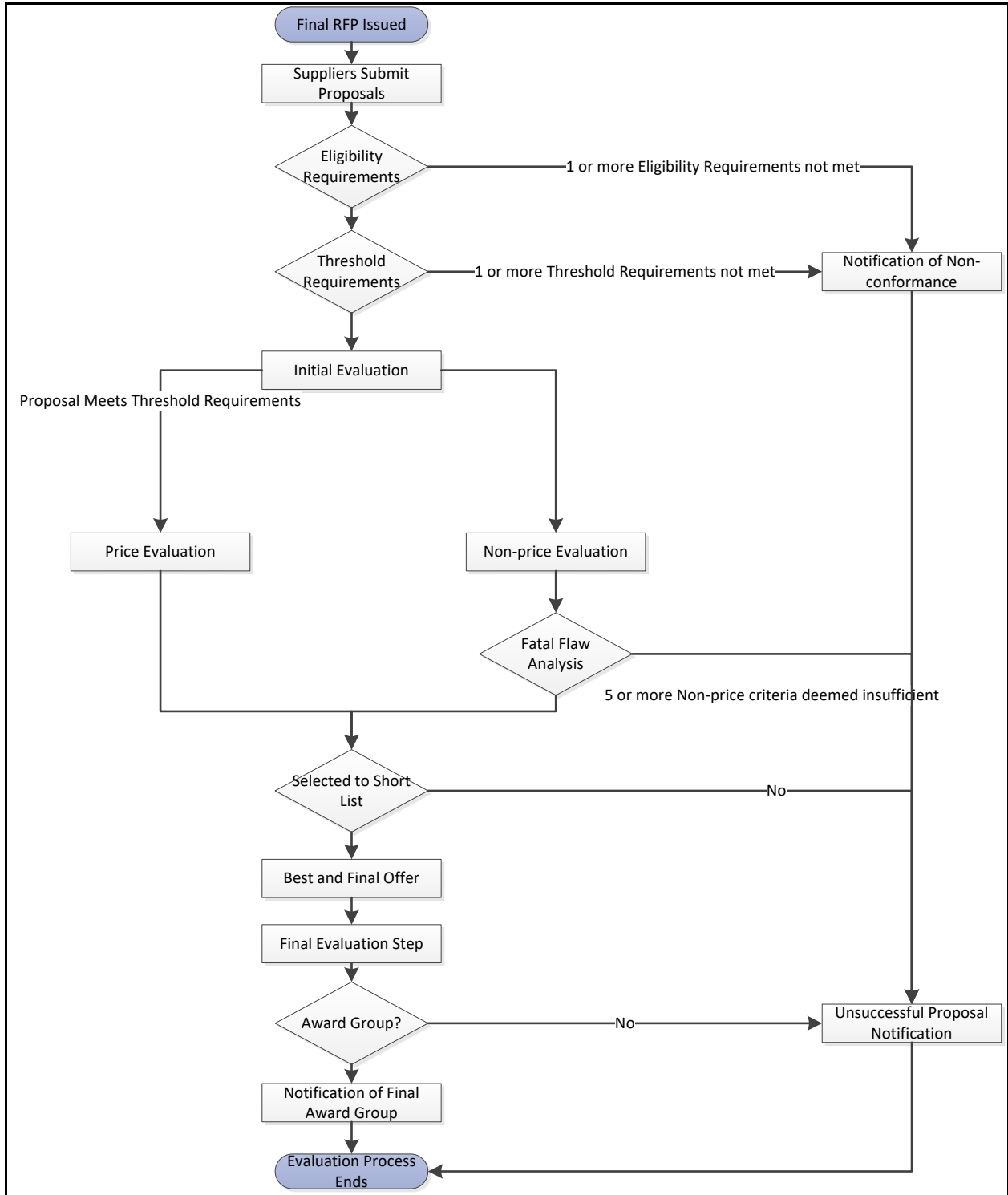
The Company will employ a multi-step evaluation process. Once the Proposals are received, the Proposals will be subject to a consistent and defined review, evaluation, and selection process (“Detailed Evaluation”). This Chapter provides a description of each

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

Upon receipt of the Proposals, the Company will ensure that the Proposals meet the Eligibility Requirements, and if so, will review the Proposals to ensure that the Threshold Requirements have been met. The Company in coordination with the Independent Observer will determine if a Proposer is allowed to cure any aspect of its Proposal or whether the Proposal would be eliminated based on failure to meet either Eligibility or Threshold Requirements.⁶ If a Proposer is provided the opportunity to cure any aspect of its Proposal, the Proposer shall be given three (3) Business Days to cure from the date of notification to cure. Proposals that have successfully met the Eligibility and Threshold Requirements will then enter a two-phase process for Proposal evaluation, which includes the Initial Evaluation development of a Short List, followed by the opportunity for Short List Proposals to provide Best and Final Offers, and then a final evaluation step to arrive at a Final Award Group.

⁶ As a general rule, if a Proposer does not include a requested document or inadvertently excludes minor information or provides inconsistencies in its information, it may be given a chance to cure the inadequacies. If a Proposer does not include significant sections of its Proposal and providing the Proposer with the opportunity to cure is deemed a benefit to that Proposer at the expense of other Proposers, the Proposal could be classified as non-conforming and eliminated for failure to meet the eligibility requirements.

Figure 1 – Detailed Evaluation Workflow



4.2 Eligibility Requirements Assessment

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

- The Proposal must be received on time via the PowerAdvocate Platform.
- The Proposal must not contain material omissions.
- The Proposal must be signed and certified by an officer or other authorized person of the Proposer.
- The Proposers must fully execute the agreements or other documents required pursuant to this RFP.
- The Proposer must provide Federal and State tax clearance certificates for the Proposer.
- The Proposal must not be contingent upon changes to existing county, state or federal laws or regulations.
- The proposed Grid Services delivery must be provided by customer assets located on the Island of Maui.
- The Proposal must include a schedule that reliably shows the amount of capability the Proposer will be able to deliver by June 30, 2026.
 - Proposers that are unable to reliably commit to delivery of all Contract Capability before June 30, 2026 must include in their schedule the date that delivery of maximum Contract Capability will be achieved.
- The Proposal affirms the non-negotiable status of the following GSPA sections:
 - Article 1 Definition of “System Integration Date Deadline”
 - Article 5: Source Code (and all related clauses)
 - 12.1 Governing Law, Jurisdiction, and Venue
 - 19.2 (a): Co-branding: Use of Company’s Trademarks
 - 19.2 (b): Participant Installation Protection and Control Equipment
 - 21.3 Letter of Credit
 - 26.1 (a): Safety and Security Procedures
 - 26.2 (b): Security Reporting
 - 20.3: Taxes
 - Attachment A – Grid Services
 - Attachment B – Advanced Metering
 - Attachment C – Operational Forecast

- Attachment D – Data, Integration, and Testing Requirements
- Attachment E – Contract Capability
- Attachment F – GSDS Service Level Agreement
- Attachment G - Reporting
- Attachment H – Settlement
- Attachment I – Customer Service Requirements
- Attachment J – Participant Service Agreement Requirements
- Attachment K – Form of Trademark License Agreement
- Attachment L – Form of Letter of Credit

4.3 Threshold Requirement Assessment

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

- **Performance Standards:** The proposed Grid Services offering must be able to meet the performance attributes identified in the GSPA. Proposals should include sufficient documentation to support the stated claim that the grid service offering will be able to meet the Performance Standards. The Proposal should include information required to make such a determination in an organized manner to ensure this evaluation can be completed within the evaluation review period.
- **Proven Technology:** This criterion is intended as a check to ensure that the technology proposed is viable and can reasonably be relied upon to meet the objectives of this RFP. The Company will only consider Proposals utilizing technologies that have successfully reached commercial operations in commercial applications. Proposals should include any supporting information for the Company to assess the commercial and financial maturity of the technology being proposed.
- **Experience of the Proposer:** The Proposer, its affiliated companies, partners, and/or contractors and consultants on the Proposer’s team must have experience in deliver of similar services in at least (1) project, including similar in size, scope, technology, and structure to the services being proposed by Proposer. The

Company will consider a Proposer to have reasonably met this Threshold Requirement if the Proposer can provide sufficient information to demonstrate that the member of the project team whose experience is being identified to meet this threshold criterion has a firm commitment to provide services to the Proposer.

- **Proposer’s Previous Performance with the Company:** The Company reserves the sole and absolute right to disqualify a Proposal if the Proposer has breached a material term of any agreement between the Company and the Proposer within the five (5) years preceding the date of issuance of this RFP. The Company, in consultation with and upon the concurrence of the Independent Observer, may disqualify a Proposal if the Proposer has failed to diligently perform any material obligation under any agreement between the Company and the Proposer with the five (5) years preceding the date of issuance of this RFP as evidenced by an early termination of such agreement or, at the request of the Proposer, a substantial reduction in the quality or scope of any deliverable that the Proposer was obligated to provide to the Company thereunder. Prior to any such disqualification, the Company will notify the Proposer of the Company’s intent to disqualify the Proposal. The Proposer will have five (5) business days from the date of its receipt of such to provide a written explanation as to the basis of the intended disqualification and any mitigating factors related thereto.
- **Credit/Collateral Requirements:** Proposers shall agree to post a Letter of Credit as described in Section 3.12 of this RFP.
- **Financial Viability of Proposer:** Proposers must provide a basic financial plan for the project with details on the sources of debt and equity, capital structure, etc. Evidence must be provided of general support for the project financing (i.e., credit-worthy entities are interested in financing the project).
- **Carbon Emissions Questionnaire :** Proposers must submit a completed Carbon Emissions Questionnaire (Appendix Q)

4.4 Initial Evaluation – Price and Non-Price Analysis

Proposals that meet both the Eligibility and Threshold Requirements will then be subject to a price and non-price assessment. Two teams have been established to undertake the bid evaluation process: a Price Evaluation Team and Non-Price Evaluation Team. The results of the price and non-price analysis will be a relative ranking and scoring of all eligible proposals. Price-related criteria will account for fifty percent (50%) of the total score and non-price-related criteria will account for fifty percent (50%) of the total score. The non-price criteria and methodology for applying the criteria are explained in Section 4.4.2 of this RFP.

The Company will employ a closed-bidding process for this solicitation in accordance with Part IV.H.3 of the Framework where some of the price and non-price evaluation

models to be used will not be provided to Proposers. However, the Company will provide the Independent Observer with all necessary information to allow the Independent Observer to understand the evaluation models and to enable the Independent Observer to observe the entire analysis to ensure a fair process. The evaluation models will be finalized prior to the receipt of Proposals.

4.4.1 Initial Evaluation of the Price Related Criteria

For the initial evaluation price analysis, an equivalent LGSP (Levelized \$/kW) will be calculated for each Proposal based on information provided in the Proposal including the Management fee (\$/kW) and Enablement fee (\$/kW). The equivalent LGSP represents the price of grid service that is produced by the Proposer that if applied over the term of the Proposal, is equal to the net present value of the anticipated payments to the Proposer when discounted back to the base year. As mentioned in Section 1.9, the LGSP for any SDO Proposal (calculated from its annual revenue requirements) will be compared against the LGSP of other Proposers. The LGSP will be compared against the maximum costs defined in Appendix M. The Proposal with the lowest price will receive 400 points (maximum score), and all other Proposals will receive points based on a proportionate reduction using the percentage by which the Proposer's LGSP exceeds the lowest proposed LGSP.

4.4.2 Initial Evaluation of the Non-Price Related Criteria

For the non-price analysis, each Proposal will be evaluated on each of the eight (8) non-price criteria categories set forth below to assess their merit in the general areas of project development feasibility and operational viability.

- Experience and Qualifications
- Financial Strength and Financing Plan
- Model GSPA Contract Exceptions
- Contract Capability bid
- Participant Acquisition Timing, Location, and Strategy
- Participant Service Agreement
- Conformance with Hawaiian Electric's Code of Conduct standards
- Conformance with Information Assurance Policies

All eight (8) non-price criteria will be scored on a scale of 1 (poor) to 5 (highly preferable). The minimum standard level for each non-price criterion is defined below. Due to the Company's near term desire for resources, desire for IEEE 2030.5-2018 and preference for specific geographical areas, the Experience and Qualifications, Model GSPA Contract Exceptions, and Participant Acquisition Timing, Location, and Strategy non-price criteria will be weighted more heavily than the other criteria reflecting the impact this criteria have on achievement of a successful and timely procurement. 20% of the Non-Price Criteria will be allocated to the Experience and Qualifications Criteria (with 3% thereof being allocated to the desired use of IEEE 2030.5-2018). 20% of the Non-Price Criteria will be

allocated to Participant Acquisition Timing, Location, and Strategy (with 3% thereof being allocated to inclusion of the desired geographical areas). 15% of the Non-Price Criteria will be allocated to the Model GSPA Contract Exceptions Criteria. The remainder will be equally distributed to the other criteria. These are Financial Strength and Financing Plan, Contract Capability bid, Participant Service Agreement, Conformance with Hawaiian Electric's Code of Conduct standards, and Conformance with Information Assurance Policies. As part of the evaluation of desired geographical area, the Proposer must submit a market analysis under its Participant Acquisition Strategy describing how the Proposer will approach enrolling customers from such area. The Company is in search of a reasonable and fair acquisition strategy targeting these desired areas based on the reliable, accurate, and reasonable market analysis by the Proposer., A vague or unsubstantiated representation by the Proposer committing to 100% acquisition within the desired geographical area is insufficient and will be rated accordingly by the Company. The total non-price score will be the sum of the scores for each of the individual non-price criteria. The Company will then award non-price evaluation points in accordance with the relative ranking of scores within each technology bucket. The Proposal in each technology bucket with the highest total non-price score will receive 400 points, and all other Proposals will receive points equal to the Proposal's score divided by the top score, multiplied by 400.

During the non-price criteria evaluation, a fatal flaws analysis will also be conducted such that any Proposal that is deemed not to meet the minimum standards level⁷ for five (5) or more non-price criteria will be disqualified given that the Proposal has failed to meet a majority of non-price factors that are indicative as to the general feasibility and operational viability of a proposed project.

- **Experience and Qualifications** – Suppliers with a demonstrated ability to construct and deliver Grid Services to support an electric grid can reasonably be expected to be able to successfully supply Grid Services to the Company with a higher level of confidence than those without any prior experience. Therefore, proposals will be evaluated based on the experience of the Supplier in recruiting, enrolling, enabling and aggregating customer assets (similar to those being proposed) and managing these assets so as to successfully deliver Grid Services. At a minimum, the proposer and its team should have experience with delivering (including aggregating, financing, interconnecting and managing) at least one project of a similar size and technology to the one being proposed. Additional preference will be given to proposers with experience in successfully delivering services to multiple utilities in a manner that is similar to the one being proposed and/or that have prior experience delivering such services in Hawai'i. Specifically, IEEE 2030.5-2018 provides the Company with flexibility into the future for control of aggregated resources, therefore, the Supplier's availability of and experience with IEEE 2030.5-2018 in accordance with Attachment A-2 of the GSPA will be evaluated.
- **Financial Strength and Financing Plan** – This criterion addresses the comprehensiveness and reasonableness of the financial plan for the Grid Services

⁷ A score of 3 is the "meets minimum standards" level that a Proposal must achieve in at least four (4) criteria.

delivery commitment. A complete financial plan addresses the following issues: project ownership, capital cost and capital structure, sources of debt and equity, and evidence that credit-worthy entities are interested in financing the project. The financial strength of proposers or their credit support providers will be considered, including their credit ratings. At a minimum, the Proposal should include a basic financial plan for the project covering the sources of debt and equity, capital structure, etc. and provide evidence of general support for the project financing. The financing participants are expected to be reasonably strong financially. Suppliers and their sources of capital that have investment grade credit ratings from a reputable credit rating agency (S&P, Moody's, Fitch) will also be given preference.

- **Model GSPA Contract Exceptions** – Proposers shall not propose modifications to sections of the Model GSPA designated non-negotiable. Proposers may propose modifications to other sections of the Model GSPA. However, in general, Proposers are encouraged to accept the contract terms identified in the Model GSPA where possible in order to expedite the overall RFP process and potential GSPA negotiations. **As stated in Section 3.8.5, Proposers who elect to propose modifications to the Model GSPA shall provide a MS Word red-line version of the Model GSPA identifying specific modifications as a component of their Proposal and shall also provide a detailed explanation and supporting rationale for each of the proposed modifications to the Model GSPA in order to enable the Company and Independent Observer to evaluate the impact that the proposed modifications will have on the overall risk assessment associated with the evaluation of each Proposal.** Any part of the Model GSPA not so modified will be deemed as accepted by the Proposer. Drafting notes and comments without making red-line changes directly to the Model GSPA, or otherwise reserving the right to make additional modifications to the Model GSPA at a later time are unacceptable, as this will make it difficult for the Company and Independent Observer to determine the impact any such unspecified modifications will have on the overall risk assessment associated with the evaluation of each Proposal. Likewise, general comments such as “parties to discuss” are unacceptable and will not be considered a proposed modification.
- **Contract Capability bid** – The Company has specific grid service targets in terms of quantity of services by year. The Company will carefully assess each proposal to ensure that no one proposal exceeds the annual grid service targets. Conversely, the Company, while publishing no minimum bid targets, will be cognizant of smaller bid amounts, recognizing that the level of effort for system integration and contract management remains fairly consistent on a per Supplier basis, regardless to bid quantities. Technology diversity will also be a consideration as part of the overall Contract Capability bid. The Company, given wide-ranging bids, may choose technology diversity as a means of minimizing technology-specific risk in the marketplace. This is not a factor that will necessarily be assessed on an individual Supplier basis, but rather on a portfolio basis.

- **Participant Acquisition Timing and Strategy** – In tandem with the bid size, the Company will be attentive to the enablement schedule, customer geographical location, and customer recruitment strategy. The Company desires Proposals with a reliable and credible maximum enablement and COD by the June 30, 2026 and, in addition to the assessment factors described in this RFP, will prioritize Proposals accordingly. In assessing credibility with respect to a proposed COD, the Company will evaluate each Proposer’s knowledge and experience with the Hawaii market. The Company sees customer or participant acquisition as one of the largest areas of uncertainty or risk in the grid service delivery process and will seek compelling and well-thought-out participant recruitment and enrollment strategies. A failed enablement will result in economic impacts to Suppliers and leave the system short on projected grid service resources.
- **Participant Service Agreement** –While the Supplier must develop a Participant agreement for engagements directly with customers, the Company will need to review the agreements for adherence to the requirements set forth in the GSPA.
- **Conformance with Hawaiian Electric's Code of Conduct** – The Company has specified that a Supplier must conform to, at a minimum, the Company Code of Conduct. This is of particular importance given that Suppliers will be interactive with customers, typically on customer premises and otherwise indirectly acting as a certified agent on behalf of the Company. As such, the Company will be interested in reviewing the Suppliers’ Code of Conduct standards to ensure adequate conformity to Company standards.
- **Conformance with Information Assurance Policies** – Customer data will be exchanged as part of the enrollment and enablement process. Furthermore, Supplier data and by inference, Company system data will also be shared across Supplier-Company systems. Accordingly, conformity to Company IA standards is a critical part of this engagement and will be an important part of the evaluation process, especially in areas such as secure data transfer, data protection and encryption.

4.5 Selection of the Short List

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

The Company will select a Short List from the highest-scoring Proposals. The Company’s objective for the Short List selection process is to identify and select Proposals that are low cost and viable service delivery plans, as defined by the price and non-price weights at this stage in the process.

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

4.6.1 The Company will solicit a Best and Final Offer from Proposers selected to the Short List. Proposers will have the opportunity to, but are not obligated to, update (downward only)⁸ only the pricing elements of their Proposal in order to improve the competitiveness of their Proposal prior to being further assessed in the Detailed Evaluation phase. At this time, updates may only be made to the following pricing elements:

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

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

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

4.6.3 If selected to the Short List, the SDO will not be eligible to provide a Best and Final Offer and the original pricing submitted in its Self-Deliver Proposal will be used in the Detailed Evaluation.

4.7 **Final Evaluation**

If the total Grid Services offered among the Best and Final Offers of the Short List Proposals, as well as the original Self-Deliver Proposal if it advanced to the Short Listed Proposals, exceed the Company target for any of the discrete services, then the Company will further analyze the bids by assessing the proposed relative costs of the Grid Services and examining the targeted customer segments and the underlying technology diversity and risk associated with the proposed Grid Services delivery to determine the final group of Proposals selected to the Final Award Group. If the collective bids do not exceed the Company targets, the Company will deem the outcome of the initial analysis as sufficient for advancement to the Final Award Group.

4.8 **Selection of the Final Award Group**

Based on the results of the Detailed Evaluation and review with the Independent Observer, the Company will select a Final Award Group from which to begin contract negotiations. All Proposers that have advanced to the Short List will be notified at this stage of the evaluation process whether their Proposal is included in the Final Award Group. However, Proposal evaluation results and rankings will not be disclosed to the Proposers.

⁸ Pricing elements will only be allowed to be lowered - no upward adjustment to the pricing elements. All other characteristics of the Proposal and capabilities must remain valid.

Chapter 5: Post Evaluation Process

5.1 Contract Negotiation Process

Within five (5) Business Days of being notified by the Company of its intent to enter into contract negotiations, Proposers selected for the Final Award Group will be required to indicate, in writing to the Company's primary contact for this RFP, whether they intend to proceed with their Proposals. Proposers who elect to remain in the Final Award Group will be required to keep their Proposal valid through the award period. Contract negotiations will take place in parallel with the IRS process, as applicable. The Company's goal is to complete contract negotiations and submit GSPA(s) for approval within three (3) months of notification of intent to enter contract negotiations.

5.2 PUC Approval of GSPA

Any signed GSPA resulting from this RFP is subject to PUC approval as described in the GSPA.

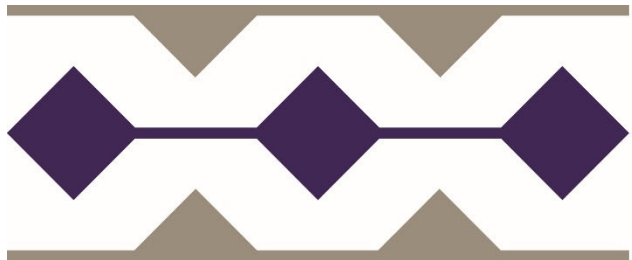
REQUEST FOR PROPOSALS
FOR
DELIVERY OF GRID SERVICES FROM CUSTOMER-SITED
DISTRIBUTED ENERGY RESOURCES
ISLAND OF MAUI

RFP No. 020123-04

2/1/2023

Docket No. 2017-0352

Appendix A – Definitions



**Hawaiian
Electric**

“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, except as otherwise provided by HRS section 269-19.5(h).

“Aggregator” means an entity that aggregates resources from participating customers to deliver grid services.

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

“Business Day” means any calendar day that is not a Saturday, a Sunday, or a federal or Hawaii state holiday.

“Code of Conduct” means the code of conduct submitted as Appendix F to this RFP with respect to the conduct of RFP team, Affiliate team, and Unassigned Company Resources.

“Code of Conduct Procedures Manual” or “Procedures Manual” means the manual submitted to this RFP, which was put in place to address and to safeguard against preferential treatment or preferential access to information in a Hawaiian Electric RFP process. The Procedures Manual is attached as Appendix C to this RFP.

“Company” means Hawaiian Electric Company, Inc., a Hawai‘i corporation.

“Competitive Bidding Framework” or “Framework” means the Framework for Competitive Bidding contained in Decision and Order No. 23121 issued by the Public Utilities Commission on December 8, 2006, and any subsequent orders providing for modifications from those set forth in Order No. 23121 issued December 8, 2006.

“Competitive Program Incentives” means additional participant incentives established by the Company to address programs in the market that are directly competitive with Grid Services that will be delivered under this offering as further described in Section 3.9.6.

“Consumer Advocate” means the Division of Consumer Advocacy of the Department of Commerce and Consumer Affairs of the State of Hawai‘i.

“Day” means a calendar day, unless the term “business day” is used, which means calendar day excluding weekends and federal and State of Hawai‘i holidays.

“Detailed Evaluation”- has the meaning set forth in Section 4.1 of this RFP “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.

“Enablement Fee” refers to the allocation, on a \$/kW basis, of fees associated with the initial enablement of a customer device to ready it for the delivery of Grid Services. This fee is capped at ten times the monthly Management Fee for the same service.

“Evaluation Team” means agents of the Company who evaluate Proposals.

“Final Award Group” means the group of Proposers selected by the Company from the Short List, with which the Company will begin contract negotiations, based on the results of the Company’s detailed evaluation.

“Grid Services” means the grid services specified in Section 1.3. of this RFP.

“Grid Services Delivery Plan” or “Plan” refers to the proposed delivery of Grid Services by the Proposer, including the timeline, cost, quantities, and other relevant details of said Proposal.

“GSPA” means the Grid Services Purchase Agreement attached as Appendix L to this RFP.

“Hawaiian Electric” means Hawaiian Electric Company, Inc., a Hawai‘i corporation.

“Hawaiian Electric Companies” or “Companies” means Hawaiian Electric Company, Inc. and its subsidiaries, Hawaii Electric Light Company, Inc. and Maui Electric Company, Limited.

“Hawaiian Electric System” or “System” means the electric system owned and operated by Hawaiian Electric on the island of O‘ahu (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.

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

“IEEE 2030.5-2018” is the Institute of Electrical and Electronics Engineers (“IEEE”) standard for Smart Energy Profile Application Protocol. See [IEEE SA - IEEE 2030.5-2018](#).

“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.

“Incentives” or “Incentive Payments” refers to bill credits that would be paid directly to the grid service participants (residential, small and medium business, and commercial and industrial customers).

“Independent Observer” has the meaning set forth in Section 1.5 of this RFP.

“Levelized Grid Services Pricing” refers to the annualized cost per service per island, inclusive of all associated customer incentives, as calculated in the worksheet provided in Appendix M of this RFP.

“Management Fee” refers to the price of Supplier for the monthly management of customer devices for the delivery of Grid Services. Management fees are set on a \$/kW/service/island basis.

“Mediation” means the confidential mediation conducted in Honolulu, Hawai‘i, pursuant to and in accordance with the Mediation Rules, Procedures, and Protocols of Dispute Prevention Resolution, Inc. (or its successor) or, in its absence, the American Arbitration Association then in effect.

“MW” means megawatt.

“MWh” means megawatt hour.

“MNDA” means the Mutual Confidentiality and Non-Disclosure Agreement attached to this RFP as Appendix F.

“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.

“OpenADR” means Open Automated Demand Response and is public domain standard to communicate electricity price and reliability signals. See specification at openadr.org).

“O&M” means operation and maintenance.

“Performance Standards” means the various performance standards for the delivery of Grid Services to the Company as set forth in Attachment A of the GSPA and as described in Chapter 2 of this RFP.

“Power Supply Improvement Plan” or “PSIP” means the Company’s Power Supply Improvement Plan.

“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.

“Priority List” means the group of Proposals selected by Hawaiian Electric as described in Section 4.5 of this RFP.

“Proposal” means a proposal submitted to Hawaiian Electric by a Proposer pursuant to this RFP.

“Proposal Due Date” means the due date stated in RFP Schedule.

“Proposer” means a person or entity that submits a Proposal to Hawaiian Electric 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.

“PSIP Update Report: December 2016” means the Company’s PSIP update filed on December 23, 2016 in Docket No. 2014-0183.

“PUC” means the State of Hawai‘i Public Utilities Commission.

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

“Renewable Portfolio Standards” or “RPS” means the Hawai‘i law that mandates that the Company and its subsidiaries generate or purchase certain amounts of their net electricity sales over time from qualified renewable resources. The RPS requirements in Hawai‘i are currently codified in HRS §§ 269-91 through 269-95.

“RFP Schedule” means the schedule set forth in Table 3-1, Section 3.1 of this RFP.

“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.

“Source Code Escrow” is defined as source code or an economic equivalent sufficient to afford the Company the opportunity to utilize a Supplier’s assets for the continued delivery of grid service should the Supplier no longer be able to do so.

“Standby Letter of Credit” refers to the security required within the GSPA to serve as collateral for any Liquidated Damages or default conditions.

“Supplemental Review” means the prescribed process by which a Supplier may receive approval for export allowances beyond the pre-approved limits, for the delivery of grid services. The Supplemental Review process is explained in Appendix N of this RFP.

“Supplier” means the entity that the Company is contracting with, as set forth in the GSPA, for the delivery of Grid Services.

“System Integration Test” means the date on which aSupplier’s system has been readied for integration with the Company’s head-end system and is tested to demonstrate successful integration.

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

Any capitalized term not otherwise defined in this RFP has the meaning set forth in the GSPA.

REQUEST FOR PROPOSALS
FOR
DELIVERY OF GRID SERVICES FROM CUSTOMER-SITED DISTRIBUTED
ENERGY RESOURCES
ISLAND OF MAUI

RFP No. 020123-04

2/1/2023

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Appendix B – Proposer’s Response Package



**Hawaiian
Electric**

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1. GENERAL INSTRUCTIONS TO PROPOSERS

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

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

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

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

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

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

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

1.1 ELECTRONIC PROCUREMENT PLATFORM

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

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

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

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

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

www.poweradvocate.com

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

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

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

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

Contact information for PowerAdvocate Support can also be found on the bottom border of the PowerAdvocate website: www.poweradvocate.com

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

1.2 PROPOSAL SUBMISSION PROCEDURES

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

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

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

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

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

1. Proposers must upload their Proposal files to submit a complete Proposal. These tasks may be completed in any order, but all must be completed before the Proposal Due Date.
2. Submit (upload) one consolidated PDF representing your Proposal via the “2. Upload Documents” tab. That Proposal PDF must abide by the format specified in this Appendix B. **Response information must be provided in the order, format and manner specified in this Appendix B and must clearly identify and reference the Appendix B section number that the information relates to.**
 - a. Proposers shall use a filename denoting: CompanyName_Proposal#.pdf.
3. Proposal information that cannot be easily consolidated into the PDF file as described in Step 2 (such as large-scale drawing files) or files that must remain in native file format (such as computer models and spreadsheets) shall be uploaded separately but must be referenced from within the main Proposal PDF file. Such additional files must follow the naming convention below:
 - a. File names must include, in order, Company Name, Proposal number (if more than one Proposal being submitted per Proposer), Variation (if any variations are being submitted), Appendix B section number, and a file descriptor, as shown in the example file name below:
 AceEnergyP1V2_2.5_ContractCapability.xlsx
 Proposers may use abbreviations if they are clear and easy to follow.
4. Upload files using the "**2. Upload Documents**" tab on the Electronic Procurement Platform.
 - a. For all documents identify the "Document Type" as “Technical Information.” (Do not identify any documents as “Commercial and Administrative” or “Pricing.”)
 - b. "Reference ID" may be left blank.
 - c. Select "Choose File..." Navigate to and choose the corresponding file from your computer. Select "Open" and then "Submit Document."

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

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

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

1.3 PROPOSAL COMPLETION AND CONFIRMATION PROCEDURES

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

Example “Status” tab view:

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

2.0 PROPOSAL PDF

2.1 REQUIRED FORMS ACCOMPANYING PROPOSAL PDF

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

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

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

2.2 PROPOSAL SUMMARY/CONTACT INFORMATION

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

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

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

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

discrepancies, pricing information submitted in the Pricing Sheet fields will take precedence over this summary section.

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

- Annual MW targets by service
- Number of projected customers (incremental by year by service)
- Customer segment(s) targeted

2.3 IMPLEMENTATION PLAN

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

2.3.1 DR Service (Phase and Roles)

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

1. Customer Acquisition

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

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

2. Technology Solution

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

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

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

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

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

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

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

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

3. Field Services

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

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

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

4. Operations and Maintenance

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

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

Settlement – Proposer shall perform tasks related to settlement of compensation for the provision of Grid Services. Proposer shall submit settlement results to the Companies for delivery of customer incentive. Proposers will be held to the Settlement processes and customer data exchange requirements as specified in Attachment D and Attachment H of the GSPA.

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

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

a. Continuity of Business Plan

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

b. Achieving Performance Requirements

The Proposer shall prepare information in the Implementation Plan to clearly depict the overall approach to portfolio design and management such that the Proposer can be reasonably expected to meet the bid and the contractual obligations as set forth in the GSPA. The Proposer may include information about the expected load shapes of the customers and load profiles of associated participating devices, the analysis employed to derive the quantity of services to be committed, the risk adjustments made and applied to the assumptions to minimize exposure to failure to meet obligations, and so forth.

2.4 PRICING

Pricing should be based on a ten (10) year contract starting in January 2026. The Proposers shall reflect pricing in the Pricing Sheet ([Appendix H](#)), which will - upon final award and negotiations - be inserted as Attachment H of the GSPA. Rather than a single \$/capability (kW) bid amount each month, the cost proposal format shall be broken down into three line items of "Enablement," "Management" and "Added Incentive." The Company will allow the \$/capability (kW) for enablement to be a maximum of ten (10) times the \$/capability (kW)*Month for the management fee. Bids containing a price for enablement of more than the specified limit will be disqualified. The proposal should include all costs (labor costs and/or equipment costs) that will be incurred by the Company and outside the Proposer's pricing.

Pricing proposals should be inclusive of all labor, materials, administrative and non-labor costs, including travel, rent, overheads, licenses, permits, taxes (*including Hawaii General Excise Taxes*), etc. deemed necessary to successfully deliver the proposed Grid Services, and to otherwise comply with the terms and conditions specified in this RFP.

Pricing should articulate clearly the assumptions the make up the bid such as if the Proposer expects the Companies to assist with the marketing how that impacts the bid, Proposer relying on specific tax provisions to continue during the GSPA contract duration, or any other assumptions that may impact the bid during negotiation. A single Pricing proposal shall be presented in Proposer's Bid, multiple Pricing Sheets will not be accepted.

Proposals must include pricing for Capacity Reduction as a standalone or unbundled Grid Service. Proposals may also include pricing for Capacity Build as bundled Grid Services in conjunction with the Capacity Reduction bid. However, Capacity Build bid must not exceed a Proposer's Capacity Reduction bid. Capacity Reduction in excess of a proposal for bundled Grid Services may be included in bid.

Proposals may include Competitive Program Incentive Pricing as detailed in the RFP. Assume that the start of Contract Year 1 will begin on January 1, 2026. Proposers that are submitting proposals with Competitive Program Incentives should submit 2 different Appendix M with and without the Competitive Program Incentive Pricing included.

2.5 FINANCIAL

Provide the information identified below for the Company to assess the following financial aspects of its Proposal:

- Financial Viability
- Financial Strength
- Financing Plan

2.5.1 Financial Viability & Financing Plan

2.5.1.1 The Proposer should offer the Company evidence of financial viability. This can be portrayed through a variety of mechanism, including equity partners, equity financing, or project finance.

2.5.1.1.1 Who are the equity participants in the Plan (or the equity investors)?

- Provide an organization structure for the Proposer including any general and limited partners and providers of capital that identifies:
 - Associated responsibilities from a financial and legal perspective
 - Percentage interest of each party

2.5.1.1.2 **How will the Project be financed?**

Address at a minimum:

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

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

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

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

2.5.1.1.6 Provide any **additional evidence to demonstrate that the Grid Services Delivery plan is financeable.**

2.5.1.1.7 Project Financing Experience of the Proposer

Describe **the project financing experience of the Proposer** in securing financing for projects of a similar size and technology as the one being proposed including the following information for any referenced projects:

- Project Name
- Project Technology

- Project Size
- Location
- Starting Date of Project
- Duration of Project/contract
- Counter party
- Financing Structure
- Major Pricing Terms

2.5.2 **Financial Strength**

2.5.2.1 Provide **copies of the Proposer’s audited financial statements** (balance sheet, income statement, and statement of cash flows) or equivalent:

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

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

- Standard & Poor’s
- Moody’s
- Fitch

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

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

2.5.2.5 Provide evidence that the Proposer can provide the required securities.

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

- Type of security
- Sources of security
- Description of its credit support provider

2.5.2.5.2 Disclosure of Litigation and Disputes

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

2.6 GSPA CONTRACT EXCEPTIONS AND FINANCIAL COMPLIANCE

2.6.1 If Proposers elect to propose modifications to the GSPA, **provide a red-lined MS Word version of the GSPA** indicating specific requested modifications. In general, Proposers are encouraged to accept the contract terms identified in the GSPA where possible in order to expedite the overall RFP process and potential GSPA negotiations. Proposers shall also provide a detailed explanation and supporting rationale for each of the proposed modifications to the GSPA in order to enable the Company to evaluate the impact that the proposed modifications will have on the overall risk assessment. Only redlines received through the response of the RFP will be considered during the negotiation. The Company thus will be better able to assess the bids (including the pricing) in complete picture knowing the full legal position that the Proposers have taken.

The Attachments of GSPA are deemed to be non-negotiable as they are akin to market participation rules. With multiple Proposer responses expected, the Company would prefer not to manage GSPAs with meaningfully different terms or key components. For example, the Company will not execute GSPA contracts with different Participation Service Agreement. **The Proposer must populate Attachment E Contract Capability and Attachment H Settlement of the Appendix L – Model GSPA with their proposed information.** Furthermore, while these Attachments are non-negotiable, redlines will be considered if it will add clarification to the requirements.

NOTE: In the event the Proposer does not upload redlines of the applicable form agreements, the Company will assume the terms in such form agreements are agreeable to the Proposer

2.7 INFORMATION ASSURANCE

Proposers must clearly state any exceptions to the specifications and requirements included in the RFP (Appendix K) and the attached GSPA (Article 26). Each exception shall be stated separately, identify the reason(s) for the Proposers' exception, and shall propose a clearly stated alternative. The Company will have the right in its sole judgment and discretion to reject any proposal or evaluate it unfavorably based on exceptions taken by a Proposer. The Company may in its sole discretion disqualify any Proposer, even if selected for the short list, if exceptions to the RFP are not explicitly identified in the Proposer's proposal and such unidentified exceptions are

discovered after the proposals are received by the Company and, such unidentified exceptions affect the Proposer's price or ability to deliver the Grid Services proposed.

2.8 EXPERIENCE AND QUALIFICATIONS

Proposers, its affiliated companies, partners and/or contractors and consultants are required to demonstrate experience and capability to successfully cultivate and deliver the proposed Grid Services Delivery Plan. The Company is interested in a team that has demonstrated success in the aggregation and delivery of Grid Services, including any technology proposed, through the commercial operations stage where such efforts were of a similar scope, technology and structure to the Grid Services Delivery Plan being proposed by the Proposer. The Company is also interested in any local partners or subcontractors the Proposer may or may not work within delivering the Grid Services.

2.8.1 Provide an **organizational chart** for the Plan that lists the project participants and identifies the management structure and responsibilities.

- For each of the plan participants (including the Proposer, partners, and proposed contractors), provide statements that list the specific experience of the firm in: recruiting, enrolling, enabling, aggregating, forecasting and delivering Grid Services of similar type, size and technology, and
- Any evidence that the plan participants have worked jointly on other plans.

2.8.2 Identify those **member(s) of the team** the Proposer is submitting to meet the experience Threshold Requirement and demonstrate the member(s) firm commitment to provide services to the Proposer.

2.8.3 Identify those **members of the team with experience and qualifications** including affiliates and their principal personnel who will be involved in the plan contracting deliver Grid Services. If the Proposer consists of multiple parties, such as joint ventures or partnerships, provide this information for each party, clearly indicating the proposed role of each party, and percentage interests in the partnership.

2.8.4 Provide a **management chart** that lists the key personnel dedicated to this Plan and provide **biographies/resumes** of the key personnel, including position, years of relevant experience, and similar project experience. Provide specifics as they relate to the various elements of the Plan.

2.8.5 Provide a **listing and associated description of all grid service, capacity demand response or DER integration projects** the Proposer has successfully developed or that are currently under development. Describe the Proposer's role and responsibilities associated with these efforts (lead, owner, investor, etc.). Provide the following information as part of the response:

- Name of the project
- Location
- Service type, size and technology
- Delivery dates
- Contracting entity

- References with contact information: name, address, phone number, and relationship with the Proposer and with the related project.

2.9 STANDARDS OF CONDUCT

The GSPA allows Suppliers to implement its own standard of conduct consistent with the Company’s principally concerning code of conduct. If a Supplier prefers to operate under its own Code of Conduct, it needs to be attached with the proposal submission. If a Supplier omits the submission of their code of conduct, it is assumed they will adhere to the Company’s code of conduct published here:

https://www.hawaiianelectric.com/Prebuilt/contractors/code_of_conduct.pdf.

2.10 PARTICIPANT SERVICE AGREEMENT

This RFP requires the submission of the Suppliers’ Participant Service Agreement (“PSA”) that the Proposers intends to use as a contract with its Participants. If the Proposer intends to use PSAs with different terms and conditions (e.g. different PSAs for different end devices), it must include all PSAs. The PSAs must comply with Attachment J of the GSPA in Appendix L.

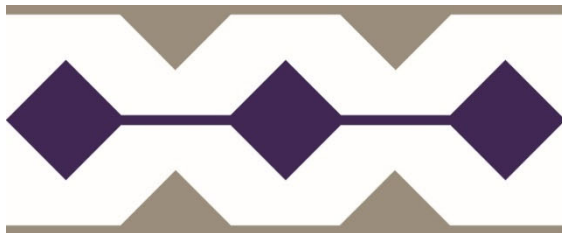
REQUEST FOR PROPOSALS
FOR
DELIVERY OF GRID SERVICES FROM CUSTOMER-SITED
DISTRIBUTED ENERGY RESOURCES
ISLAND OF MAUI

RFP No. 020123-04

2/1/2023

Docket No. 2017-0352

*Appendix C – Code of Conduct Procedures
Manual*



**Hawaiian
Electric**

**HAWAIIAN ELECTRIC COMPANY, INC.
MAUI ELECTRIC COMPANY, LIMITED
HAWAII ELECTRIC LIGHT COMPANY, INC.**

Code of Conduct Procedures Manual

I. INTRODUCTION

By Order No. 36187 issued on February 27, 2019 in Docket No. 2017-0352, the Public Utilities Commission (“Commission”) directed the Company to file its draft expedited grid services request for proposals in Docket No. 2017-0352 for Commission review. Accordingly, unless otherwise directed by the Commission, the Company intends to apply the Framework for Competitive Bidding (“Framework”) adopted on December 8, 2006, by the Commission pursuant to Decision and Order No. 23121 (Docket No. 03-0372, Instituting a Proceeding to Investigate Competitive Bidding for New Generating Capacity in Hawaii) to its grid services aggregation request for proposals (“RFP”). For context, the Framework requires that the utility develop and follow a Code of Conduct whenever a utility or its affiliate seeks to advance an energy generation resource proposal in response to a request for proposals issued by the Company. Section III.A.4 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. On June 7, 2007, by letter to the Commission, the Company submitted its form of Code of Conduct for Commission review and approval. By Decision and Order No. 23614 (Docket No. 03-0372), issued August 28, 2007, the Commission approved the Code of Conduct. Amendments to the Code of Conduct were approved by the Commission for Stage 1 of the Companies’ 2018 Variable Request for Proposals by Order No. 35286, issued on February 20, 2018, in Docket No. 2017-0352. The Code of Conduct was revised to adapt it to the needs of the Company with respect to grid services aggregation procurement and submitted to the Commission under Docket No. 2017-0352 on April 1, 2019.

This Code of Conduct Procedures Manual (“Manual”) has been developed to outline the procedures to be followed and the policies that have been developed surrounding the implementation of the Companies’ competitive bidding process for new grid services aggregation. The Companies’ initial Code of Conduct Procedures Manual for Stage 1 of the Companies’ 2018 Variable Request for Proposals was approved by the Commission by Order No. 35286, issued February 20, 2018, in

Docket No. 2017-0352. This Code of Conduct Procedures Manual has been developed for the Companies' Grid Services from Customer-sited Assets Request for Proposals ("RFP" or "Grid Services RFP")¹ 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, 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 Chapter 4 (Evaluation Process and Evaluation Criteria) of the Grid Services 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

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 Code of Conduct Procedures Manual is intended to be followed by Company personnel in connection with implementing the Companies' 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 – An "affiliated interest" of the Company as defined in Hawaii Revised Statutes Section 269-19.5(a), specifically: (1) any person/entity holding 10% of

¹ The Variable Renewable Dispatchable Generation and Energy Storage Stage 2 Code of Conduct Procedures Manual has herein been modified to support a comparable Competitive Bidding Framework for the Company's solicitation of Grid Services aggregated from customer-sited assets.

more of the shares of the Company, (2) any person/entity holding 10% or more of the ownership interests of an entity holding 10% or more of the shares of the Company; (3) any corporation, 10% of which is owned by a person/entity holding 10% or more the shares of the Company; (4) any person who is an officer or director of the Company; (5) any corporation operating the Company, or providing engineering, accounting, legal, or similar service to the Company, which has 3 or more officers or 3 or more directors in common with the Company; and (6) any corporation which has directors in common with the Company where the number of common directors is more than one-third of the total number of the Company's directors. For the purposes of any RFP where an Affiliate of the Company is presenting a proposal in response to the RFP, such Affiliate and its proposal will be considered and evaluated in the same manner as any other independent Proposer.

- Affiliate Team – Affiliate personnel and outside consultants for the Affiliate responsible for the development of the Affiliate's response to the RFP.
- ATRs – The Affiliate Transaction Requirements issued by the Commission applicable to the Companies and Affiliates, attached as Exhibit 1 to Order No. 36112 issued on January 24, 2018 in Docket No. 2018-0065.
- Code of Conduct – A written code developed by Hawaiian Electric Company, Inc., Maui Electric Company, Limited and Hawaii 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 resource proposal in response to an RFP. The Code of Conduct follows the requirements described in Section IV.H.9.c of the Framework and was submitted to the Commission in in Docket No. 2017-0352 pursuant to Order No. 36187 issued on February 27, 2019 in said docket.
- Company Executive in Charge – A Company's 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. For any RFP of the Companies for the procurement of grid services aggregated from customer-sited assets, the Company Executive in Charge shall be the Senior Vice President of Business Development and Strategic Planning. The

- Company's Corporate Compliance Officer shall remain responsible for the Companies' 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 RFPs conducted under the Framework and the evaluation of bids submitted in response to these RFPs.
 - Competitive Bidding Code of Conduct Acknowledgement of Receipt (Acknowledgement) – A document that must be signed that shows acknowledgement of receipt of the Code of Conduct and a person's responsibility to comply with the Code.
 - 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 Companies' public filings with the Commission.
 - Director of Renewable Acquisition Division – The supervisor of the Renewable Acquisition Division that will oversee the Company's competitive bidding process for the procurement of grid services aggregated from customer-sited assets.
 - 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.
 - Grid Services Contract Manager – The staff position(s) within the Company's Demand Response Division responsible for managing the RFP.
 - Framework – The Framework for Competitive Bidding contained in Decision & Order No. 23121 issued by Commission on December 8, 2006, to establish rules for competitive bidding in response to a request for proposals when a utility seeks to acquire new generation resources.

- Independent Observer (“IO”) – The neutral person or entity retained 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 DR Programs - The supervisor of the area within the Demand Response Division responsible for directing the resources responsible for the implementation of the competitive bidding process pursuant to the Framework. The Manager of DR Programs will report to the Director of Demand Response on the status of the competitive bidding process and shall be a member of the Company RFP Team.
- Proposer – Entity who submits or plans to submit a proposal in response to a Company-issued RFP. An Affiliate of the Company submitting a proposal shall be considered a Proposer.
- RFP or Grid Services RFP – A written request for proposals issued by one of the Companies to publicly solicit bids for the aggregation of grid services from customer-sited assets for the Company’s use pursuant to the competitive bidding process established in the Framework.
- Roster – A consolidated list of members that comprise the Company RFP Team, located in the RFP Communication Tool Kit SharePoint Site. Company employee names and titles and consultants in their designated role will be identified.

III. STATEMENT OF OBJECTIVES

From time to time, each of the Companies will be proposing to seek proposals for the delivery of various aggregated grid services that best meet the needs of the respective Company’s system. The timing for issuance of RFPs for each of the systems will be dependent upon the Commission’s approval of the associated resource plan and the necessary competitive bidding procedures identified in the Framework and upon the timing of the need for such grid services for each island. Each of the Companies will undertake a detailed multi-stage review and evaluation process whereby eligible proposals will be selected based upon their ability to most cost-effectively and reliably satisfy the requesting Company’s requirements. While cost minimization is a major criterion, the Companies’ objective is to select those aggregators which, in their opinion, represent the best value to the Companies and their customers regarding economic and technical

attributes, limited risk, and flexibility for meeting their projected requirements. The individual RFPs seeking resources, including those seeking the delivery of grid services, are part of the Companies' overall renewable resource procurement plan, which is based on the Companies' ongoing long range planning, but also may be revised on short notice in order to address unforeseen events such as premature equipment failures or natural events. With each successive RFP, the Companies are not only seeking to support the procurement of additional renewable energy that is required to meet the RPS goals, but also continually building off results of previous RFPs to continue to meet the above objective.

The needs for each island system vary, and therefore the timing and schedule of the RFPs cannot be consistently coordinated. Multiple RFPs will likely be active at the same time. Furthermore, because the Companies must work expeditiously, successive RFPs will consider previous procurements and build on appropriate aspects of prior successful RFP execution plans. Therefore, in order to consistently ensure the competitive benefits of the procurement process while continuing to provide equitable and fair consideration for all proposals, the Companies will designate and maintain a fixed Roster. Subject to the transfer rules specified herein, the Roster will be maintained for durations of the procurement plans until the RPS goals are reached for each island and will not be terminated at the conclusion of each individual RFP. The Companies also intend that the evaluation process will be well-documented so that the results of the evaluation can be fully reviewed by an IO to confirm that all proposals were treated in a fair and consistent manner.

The Code of Conduct and this Manual address communication requirements and procedures associated with the relationship between the Company RFP Team and Proposers, with the express affirmation that a bid from an Affiliate and any communication with an Affiliate will be treated in the same manner as any other bid or communication from an independent third-party bidder.

IV. ORGANIZATION AND COMMUNICATION RESPONSIBILITIES

A. 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 consist primarily of Director/Manager-level and other experienced employees together with possible outside consultants, with backgrounds in a number of disciplines necessary to conduct a thorough evaluation of each proposal. The members of the team 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, information technology and operational technology systems, transmission planning, fuel procurement, legal, financial planning, system operations, integrated resource planning, generation planning, production cost analysis, and others as needed.

Price and non-price sub-teams 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 short-list.

The Manager of DR Programs will be responsible for directing the evaluation efforts of the Company RFP Team when the proposals are received. The Manager of DR Programs will be responsible for maintaining the documentation underlying the evaluation of each proposal as well as all communications with proposers.

B. Communications Protocols

1. Overview and General Requirements.

The Company has developed policies and procedures governing communication between the Company RFP Team, the Proposers, the IO, 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 Companies 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 Affiliate proposals do not have any unfair competitive advantage over third-party bids, the Companies 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, shall read, acknowledge and sign a Competitive Bidding Code of Conduct Acknowledgement of Receipt.

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.

2. Communications Between the Company RFP Team and Proposers.

During the RFP process, the Manager of DR Programs 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 to an established website link provided by the Company (the "Company RFP website"). The IO will monitor all

communications through the Company RFP website. To ensure fair and equal access to information, any Affiliate Team shall be considered a Proposer for communication purposes and any request for information from the Affiliate Team to the Company RFP Team shall be through the Company RFP website.

Subject to confidentiality obligations, it is the objective of the Code of Conduct that all Proposers, 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, Proposers must submit all questions to the Company RFP website or the designated RFP email address (if the Company RFP website has not been opened yet for 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 for monitoring purposes. The IO 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 Company RFP website 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 Company RFP website 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:

iv. 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; (2) Confidential Information in documents may be transmitted to approved recipients through the Company's secure email system.

v. 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 Company RFP website to make arrangements with Company staff to view the Confidential Information.

vi. 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 Company RFP website.

- e. Prior to and during the RFP, and outside of the Company RFP website protocol, 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 Company Contact for Proposals listed in RFP Section 1.7.

- 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 Company RFP website. All contacts and information exchanged will be under the oversight of the IO.

3. Communications Between the Companies and the Commission.

The Company's Regulatory Affairs staff will be responsible for initiating communication with the Commission regarding the RFP or the Companies' 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.

Communications between the RFP Team and the IO will be required for many aspects of the evaluation process. The IO is also required to maintain confidentiality of any Company or Proposer Confidential Information. The IO will coordinate all activities through the Manager of DR Programs. The IO will be invited to participate in any meetings or discussions between the 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 any non-Company RFP Team Company personnel or consultants

There may be times where a Company RFP Team may need ancillary or other ministerial or administrative assistance that requires communication and/or assistance from Company personnel who are not on the Company RFP team or consultants. 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 Affiliate 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 form.
- 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 Manager of DR Programs 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, that pertain to the RFP shall be maintained on the Communications Log. A SharePoint-based interface will be set up and managed by the Manager of DR Programs to provide an easy to use and understand mechanism to log and memorialize these conversations.

V. WHEN THE CODE OF CONDUCT BECOMES EFFECTIVE

A. No later than 30 days after the Commission opens the docket to issue an RFP covered by the Framework, the Code of Conduct for that RFP will be activated.

B. Upon the activation of the Code of Conduct, members of the Company RFP Team must then conduct activities on the RFP 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 except through the formal communication processes outlined above.

C. Immediately upon assignment to the Company RFP team, each such employee or consultant must review this Manual, and sign the Code of Conduct acknowledgement form. Annually, each member of the RFP team shall reaffirm their obligations to comply with the Code of Conduct and this Procedures Manual by executing an annual update to the Code of Conduct acknowledgement form.

E. Each employee and consultant working on the RFP shall review the Code of Conduct and sign an acknowledgement attesting to his/her compliance with the Code of Conduct for each subsequent year until the Code of Conduct is terminated, or until the employee is no longer working in the position he/she was in while working on the RFP.

F. The Manager of DR Programs will be responsible for maintaining the Code of Conduct roster and the signed "Acknowledgement of Code of Conduct" letters. 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. No later than 30 days after the opening of the docket commencing an RFP, a roster listing employee (with their title) and consultants in their Company RFP Team designated role; Company RFP Team. When the IO is appointed, this roster shall be provided to him/her. The roster shall be placed in an accessible database (such as the Company's SharePoint database) so that any Company personnel can access the database to determine the identity of the RFP team.

B. Upon the finalization of the roster for the RFP, the Manager of DR Programs 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, have acknowledged receipt of the Code of Conduct and his or her responsibility to comply with the Code of Conduct by submitting an "Acknowledgement of Code of Conduct" (with electronic acknowledgment being acceptable) form. If an employee or consultant is added to a team, the Manager of DR Programs shall also verify that such employee or consultant has submitted an "Acknowledgment of Code of Conduct".

C. No later than 30 days after the opening of the docket commencing an RFP, establishment of the Company email address to accept requests for information from Proposers, or any Affiliate Team.

D. No later than 30 days after the opening of the docket commencing an RFP, establishment of the Company secured site that houses the accessible database (such as SharePoint).

VII. WHEN THE CODE OF CONDUCT TERMINATES

The Code of Conduct for a specific RFP will terminate when:

A. The final contract(s) for RFPs conducted under the Framework with the successful proposer(s) is/are executed, or when written notice of termination of the RFPs to be conducted under the Framework is provided by the Director of Demand Response or his/her designee to the IO and the Commission; and

B. A certification of Code of Conduct compliance by all employees participating in the specific 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 Form
- Roster

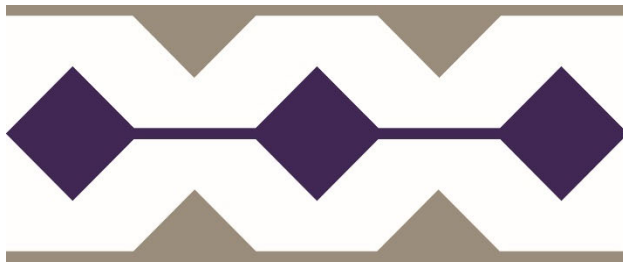
REQUEST FOR PROPOSALS
FOR
DELIVERY OF GRID SERVICES FROM CUSTOMER-SITED
DISTRIBUTED ENERGY RESOURCES
ISLAND OF MAUI

RFP No. 020123-04

2/1/2023

Docket No. 2017-0352

Appendix D – PowerAdvocate User Information



**Hawaiian
Electric**

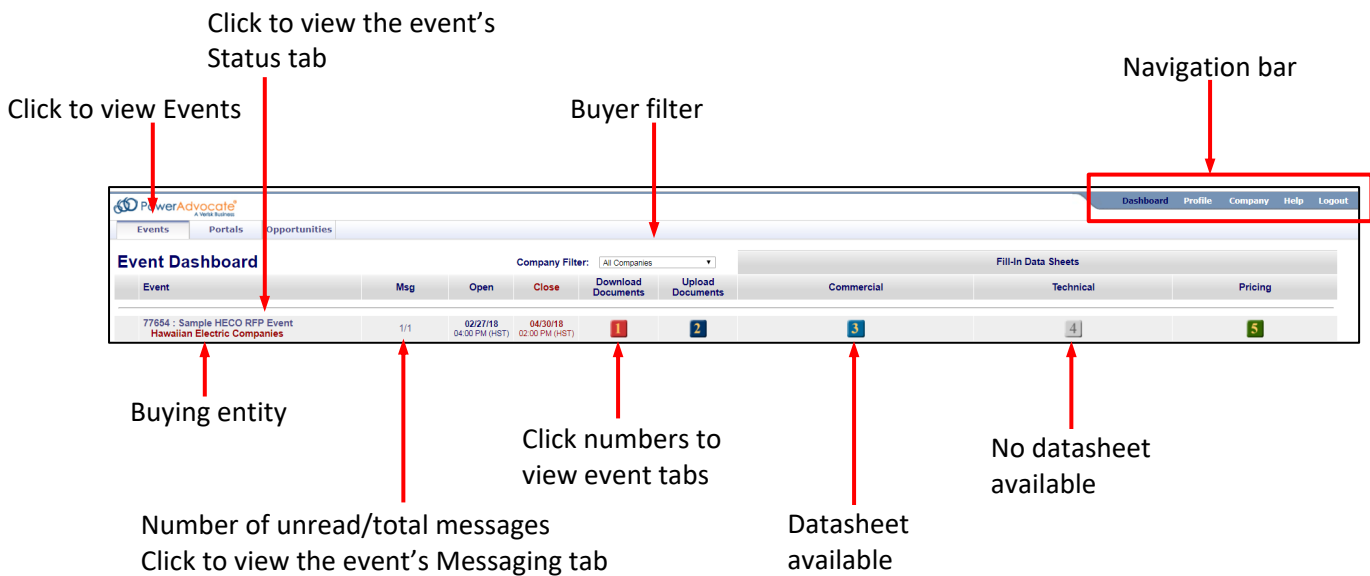
Sourcing Intelligence Quick Start for Suppliers

Logging In

1. Launch a web browser and go to www.poweradvocate.com
2. Click the orange **Login** button.
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.

Dashboard

Your Dashboard lists the events you have been invited to. A line divides currently accessible events from others.



Click to view Events

Click to view the event's Status tab

Buyer filter

Navigation bar

Buying entity

Number of unread/total messages

Click to view the event's Messaging tab

Click numbers to view event tabs

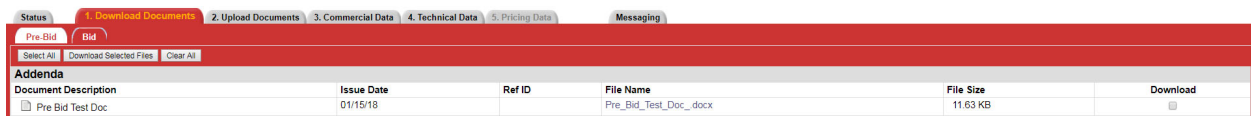
Datasheet available

No datasheet available

- Click an event name to view its Status tab, which displays a summary of your 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 Packages

All of the Buyer’s bid package documents (if any) are centrally stored on the PowerAdvocate Platform. To view bid documents, click “1” on your Dashboard or on the **1. Download Documents** tab from within the event.



- You can access the **Bid** sub-tab after the event opens. You can access Buyer documents before the event is opened from the **Pre-Bid** sub-tab, if the Buyer utilizes this feature.
- 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**.

Uploading Documents

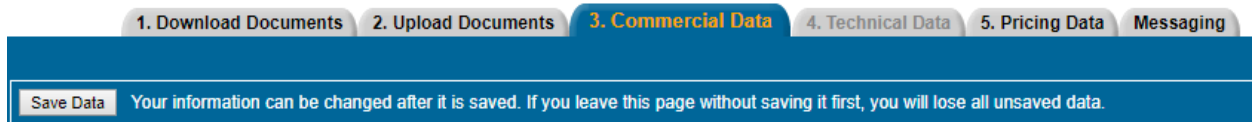
To upload your documents, click “2” on your Dashboard, or on the **2. Upload Documents** tab from within the event.



- Do not upload any files to the Pre-Bid tab.
- 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 will not be used in this RFP event. All Proposal information will be uploaded for submission through the 2. Upload Documents tab above. Buttons/tabs are grayed out (e.g., 4) if the event is not using a particular type of datasheet.

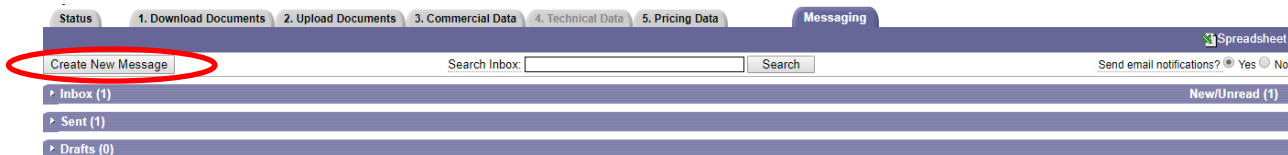


Communicating with the Bid Event Coordinator /Company Contact

Suppliers should use the PowerAdvocate Messaging tool to contact the Bid Event Coordinator (BEC) while the bid event is open.

PowerAdvocate Messaging

To send a message to the BEC, go to the **Messaging** tab and click **Create New Message**. To read or reply to a message from the BEC, click the message subject.



- You can send messages to the BEC and Buyer Team
- The Independent Observer can view all messages in the bid event.
- You can receive external e-mail notification of new PowerAdvocate messages by selecting “Yes” to “Send email notifications?” in the Messaging tab.

Getting More Information

- Click **Help** on the navigation bar to display online help.



- Supplier documentation can be downloaded from the online help system.
- Call PowerAdvocate Support at 857-453-5800 (Mon-Fri, 8 a.m. to 8 p.m. Eastern Time) or e-mail support@poweradvocate.com.

REQUEST FOR PROPOSALS
FOR
DELIVERY OF GRID SERVICES FROM CUSTOMER-SITED
DISTRIBUTED ENERGY RESOURCES
ISLAND OF MAUI

RFP No. 020123-04

2/1/2023

Docket No. 2017-0352

Appendix E – Mutual Confidentiality and Non-Disclosure Agreement



**Hawaiian
Electric**

MUTUAL CONFIDENTIALITY AND NON-DISCLOSURE AGREEMENT
Request for Proposal – (“RFP”)

This Mutual Confidentiality and Non-Disclosure Agreement (this “Agreement”) is effective as of _____, 20____ (the “Effective Date”) between [INSERT NAME OF Bidder] (“Bidder”) and Hawaiian Electric Company, Inc., a Hawai‘i corporation (the “Company”). 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 Company has issued a Request for Proposals (number _____) dated _____ (“RFP”) for [describe project: _____] (the “Project”). The Bidder has or intends to submit a proposal in response to the RFP (the “Proposal”). This Agreement supplements the RFP and is intended to be read and construed in harmony with and in support of the RFP. Terms in the RFP relating to confidentiality remain in full force and effect. As part of the RFP process and in considering the Proposal, the Company and the Bidder may disclose to each other certain Confidential Information. The parties are willing to provide such Confidential Information 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, proprietary or confidential 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 (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’, suppliers’ and other third parties’ past, present and future business affairs including, without limitation, finances, customer information, supplier information, products, services, designs, processes, organizational structure and internal practices, forecasts, sales and other financial results, records and budgets, business, marketing, development, sales and other commercial information and strategies;

(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;

PROVIDED FURTHER that all Personally Identifiable Information shall always be considered and deemed to be Confidential Information whether marked as “confidential” or not;

(c) all information concerning the Company’s generation, transmission, and distribution systems or its information technology or security systems; PROVIDED FURTHER that 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 shall be considered Critical Infrastructure Confidential Information, 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) any third-party confidential information included with, or incorporated in, any information provided by the Provider to the Recipient or its Representatives; and

(f) all notes, analyses, compilations, reports, forecasts, studies, samples, data, statistics, summaries, interpretations and other materials (“Notes”) prepared by or for the Provider or its Representatives that contain, are based on, or otherwise reflect or are derived from, in whole or in part, any of the foregoing.

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 the evaluation of the Project or who otherwise need to know the Confidential Information for the purpose of evaluating the Project.

(b) not to use Confidential Information for any purpose other than in connection with its evaluation of the Project or the consummation of the Project.

(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 evaluation of the Project or who otherwise need to know for the purpose of evaluating the Project) 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 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 Company may disclose Confidential Information to the State of Hawai'i Public Utilities Commission ("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.

5. Required Disclosure and Notice

If the parties or any of their Representatives become legally compelled (by deposition, interrogatory, request for documents, subpoena, civil investigative demand, court order, or similar process) to disclose any of the Confidential Information, 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 Bidder nor any of its Representatives will oppose action by the Company 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 Hawai'i Revised Statute 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 Recipients 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 Recipients 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 Company or otherwise, without written authorization by the respective party's authorized representative. Nothing in this Agreement shall be deemed to constitute either party hereto as a partner, agent or representative of the other party or to create any fiduciary relationship between the parties.

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 in any patents or patent applications of the Provider.

11. Publicly Traded Company

The Bidder acknowledges that the Company's holding company is a publicly traded company, and that Confidential Information of the Company may constitute material, non-public information with respect to the Company. The Bidder understands, and will advise its Representatives to whom Confidential Information of the Company 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) Company:

By Mail:

Hawaiian Electric Company, Inc. |
P.O. Box 2750
Honolulu, Hawai‘i 96840
Attn: [TITLE, DEPARTMENT]

Delivered By Hand or Overnight Delivery:

Hawaiian Electric Company, Inc. [STREET ADDRESS]
[City, State, Zip Code]
Attn: [TITLE, DEPARTMENT]

By E-mail:

Hawaiian Electric Company, Inc. |
Attn: [TITLE, DEPARTMENT]
Email: _____

With a copy to:

By Mail:

Hawaiian Electric Company, Inc.
Legal Department
P.O. Box 2750
Honolulu, Hawai'i 96840

Delivered By Hand or Overnight Delivery:

Hawaiian Electric Company, Inc.
American Savings Bank Tower
1001 Bishop Street, Suite 1100
Honolulu, Hawai'i 96813
Attn: Legal Department

By E-mail:

Hawaiian Electric Company, Inc.
Legal Department
Email: legalnotices@hawaiianelectric.com

(2) Bidder:

By Mail:

[INSERT ADDRESS/CONTACT]

Delivered By Hand or Overnight Delivery:

[INSERT ADDRESS/CONTACT]

By E-mail:

[INSERT ADDRESS/CONTACT]

With a copy to:

By Mail:

[INSERT ADDRESS/CONTACT]

Delivered By Hand or Overnight Delivery:

[INSERT ADDRESS/CONTACT]

By E-mail:

[INSERT ADDRESS/CONTACT]

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. Notwithstanding the foregoing, the Company, at its option, may elect to submit any such dispute to binding arbitration pursuant to the commercial arbitration rules of Dispute Prevention & Resolution, Inc. or the American Arbitration Association then in effect in which case the parties agree that any alternative dispute resolution shall take place in the State of Hawai‘i.

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. Further Assurances

If the Company determines in its reasonable discretion that any further instruments, assurances or other things are necessary or desirable to carry out the terms of this Agreement, Bidder will execute and deliver all such instruments and assurances and do all things reasonably necessary or desirable to carry out the terms of this Agreement.

22. 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 (Return or Destruction of Confidential Information) hereinabove.

23. 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.

24. 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.

25. 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.
("Company")

By: _____
Print Name: _____
Its: _____

[Insert Name of Bidder]

("Bidder")

By: _____
Print Name: _____
Its: _____

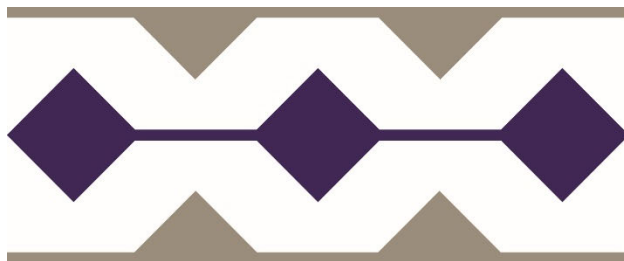
REQUEST FOR PROPOSALS
FOR
DELIVERY OF GRID SERVICES FROM CUSTOMER-SITED
DISTRIBUTED ENERGY RESOURCES
ISLAND OF MAUI

RFP No. 020123-04

2/1/2023

Docket No. 2017-0352

Appendix F – Code of Conduct



**Hawaiian
Electric**

The Hawaiian Electric Companies' Code of Conduct

Hawaiian Electric Company, Inc., Maui Electric Company, Ltd., and Hawai'i Electric Light Company, Inc. (collectively, the "Company")
Code of Conduct Pertaining to the Implementation of a
Competitive Bidding Process for the Aggregation and Delivery of Grid Services

Purpose

The Framework for Competitive Bidding ("Framework"), adopted on December 8, 2006, by the Public Utilities Commission of the State of Hawai'i (the "Commission") pursuant to Decision and Order No. 23121 (Docket No. 03-0372, Instituting a Proceeding to Investigate Competitive Bidding for New Generating Capacity in Hawaii), requires that the Company develop and follow a code of conduct in order to ensure the fairness and integrity of the competitive bidding process, in particular where a utility or its affiliate seeks to advance an energy generation resource proposal in response to a Company RFP (as defined below). The Framework, at Section III.A.4., requires the utility to submit to the Commission for review and approval (subject to modification if necessary by the Commission), a code of conduct prior to the commencement of any competitive bid process under the Framework.

By Order No. 36187 issued on February 27, 2019, the Commission directed the Company to file its draft expedited grid services request for proposals ("RFP") in Docket No. 2017-0352 for Commission review.

This Code of Conduct Pertaining to the Implementation of a Competitive Bidding Process for the Aggregation and Delivery of Grid Services ("Code of Conduct") outlines the policies and general procedures of the competitive bidding process to ensure that it is undertaken in a fair and unbiased manner, that all bidders have access to the same information, and that affiliate options do not have any unfair competitive advantage or enjoy undue preference over third-party bids.

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 who prepare a proposal to be submitted to the Company in response to a Company RFP.
- Company RFP – A written request for proposals issued by the Company to solicit bids from interested third-parties, and, where applicable, from Affiliate(s), to aggregate and deliver grid services to the Company pursuant to the competitive bidding process.
- Company RFP Team – The Company personnel and outside consultants responsible for the development of the Company’s RFPs conducted under the Framework and the evaluation of bids submitted in response to these RFPs.

- Competitive Bidding Code of Conduct Acknowledgement of Receipt (Acknowledgement) – A document that must be signed by all Company RFP Team members acknowledging receipt of the Code of Conduct and that person’s responsibility to comply with the Code.
- Confidential Information – Any non-public information developed and provided by the Company (i.e., proprietary system information, etc.) or bidders during the RFP process (such non-public information may include, for example, the identity of competing bidders, 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 includes Confidential Resource Proposal Information and Confidential RFP Process Information but does not include public information, such as information in the Companies’ public filings with the Commission.
- Confidential Resource Proposal Information – Any non-public information developed and provided by, an Affiliate or third-party bidders during the RFP process (such non-public information may include, for example, the identity of competing bidders, and their technical, trade or financial information).
- Confidential RFP Process Information – Any non-public information regarding the RFP process developed and used during the competitive bidding solicitation process.
- Consumer Advocate – The Division of Consumer Advocacy of the Department of Commerce and Consumer Affairs, State of Hawai‘i.
- Grid Service Contract Manager – The staff position(s) within the Company’s Demand Response Division responsible for managing the Company RFP Team(s). The Grid Service Contract Manager shall be a member of the Company RFP Team he/she manages.
- Independent Observer – The neutral person or entity appointed by the Commission to monitor the Company's competitive bidding process, and to advise the Company and Commission on matters arising out of the competitive bidding process, as described in Part III.C of the Framework.
- Director of Renewables Acquisition Division – The supervisor of the Division within the Company responsible for the implementation of the competitive bidding process pursuant to the Framework. The Director of Renewables Acquisition Division shall be a member of the Company RFP Team.

Implementation and Application of the Code of Conduct

Employees of the Company who will be involved in the competitive bidding process must comply with the Code of Conduct. The Company RFP Team must implement the Code of Conduct in order to be eligible to evaluate bids and select a preferred bidder. The Code of Conduct addresses: (1) communication requirements and procedures associated with the relationship between Company RFP personnel and bidders; (2) the express affirmation that a bid from an Affiliate and any communications with an Affiliate will be treated in the same manner as any other bid or communication from an independent third-party bidder; and (3) communication requirements associated with the relationship between Company management and the various entities involved in the competitive bidding process.

Finally, this Code of Conduct does not apply to communications and information shared between Company employees and an Affiliate in the normal course of their employment that is not associated with any active RFP.

General Rules

1. Competitive Bidding Code of Conduct Acknowledgement of Receipt. Any employee (whether full-time, part-time, temporary or contract) or consultant involved in the competitive bidding process as a member of the Company RFP Team shall comply with the procedures outlined herein in order to be eligible to evaluate bids submitted in response to the Company RFP and must sign the Acknowledgement.
2. Any Affiliate Team Shall be Considered as an Independent Third-Party Bidder. Affiliate Teams shall be considered and treated as a separate third-party bidder for all purposes within any grid services RFP. There shall be no communication or interaction between the Company RFP Team and any Affiliate Team except as may be permitted under the Framework or this Code of Conduct and consistent in all respects with communications and interactions permitted with unaffiliated third-party proposers. Affiliate Teams shall have no access to, interaction or communications for the purpose of completing a proposal in response to any RFP with Company personnel for the purpose of completing a proposal in response to any grid services RFP. Affiliates of the Company shall also be subject to the terms, conditions and restrictions specified in the Company's Affiliate Transaction Requirements issued by the Commission, including the conflict of interest rules applicable to transfers of employees between the Company and any Affiliate.
3. Duty Not to Disclose Confidential Information Across Teams. Members of the Company RFP Team may work with members of an Affiliate on other projects not related to the Company RFP, but are prohibited from discussing or disclosing, directly or indirectly through a conduit, Confidential Information with: (i) disclosure between Company and Affiliate controlled by the Affiliate Transaction Rules ("ATRs"), or (ii) any Company employee, individual or entity without a business need to know. No transfer of an employee of the Company shall be used to circumvent this prohibition to create a conduit for the prohibited transfer of Confidential Information.
4. Access to Information During Bidding Period. It is the objective of the Company that all bidders, including the Affiliate Team, receive access to the same RFP information at the same time. All communications regarding the RFP will be provided to all bidders through the Company's RFP website or other specialized means of access established for purposes of administering the RFP. No members of the Affiliate Team will have access to such information before it is distributed to all potential bidders.
5. Duty Not to Disclose Confidential Resource Proposal Information During RFP Process. All Confidential Resource Proposal Information shall be held in confidence during the RFP evaluation and selection process and negotiation of contracts with selected bidders (if necessary), and shall not be discussed or exchanged by the Company RFP Team with any party except the bidder providing the information, Company management personnel responsible for resource decisions, Company RFP Team members, the Independent

Observer, and the Commission and the Consumer Advocate, and their respective staffs and consultants. Dissemination of such Confidential Resource Proposal Information shall be limited, to the extent possible, to those with a business need to know.

6. No Preferential Treatment. The Company RFP Team, when evaluating proposals will give all proposals the same consideration within the parameters of the particular RFP and the eligibility, threshold and evaluation requirements and criteria contained therein. Similarly, Affiliate Team bids will not be given any preferential or discriminatory treatment.
7. Applicability of Code. Any employee or consultant who directly or indirectly takes part in the conduct of the competitive bidding process, whether an employee of the Company or of a company under contract, shall comply with the requirements for treatment of Confidential Information obtained during the competitive bidding process. Such employee or consultant shall execute the Acknowledgement required under General Rule 1 above.
8. Rules for Evaluators. Any employee or consultant taking part in the evaluation of bids or in the process of selecting grid service suppliers (the "evaluator") must comply with the following rules:
 - a. In carrying out his or her responsibilities, the evaluator must make his/her decision based on the merits of the proposal and irrespective of all partisan considerations;
 - b. The evaluator must not accept any gifts, favors, entertainment or other advantages from any bidder;
 - c. The evaluator must hold in confidence all Confidential Information obtained through the bidding process;
 - d. Should the evaluator be directly contacted by any bidder, he/she must promptly relate such contact to the Grid Services Contract Manager, and, as applicable, the Independent Observer, if such contact could be deemed to have compromised the evaluation process.
9. Company Officer Certification of Code of Conduct Compliance. A Company officer, identified to the Independent Observer and the Commission, shall have the written authority and obligation to enforce the Code of Conduct. Such officer shall certify, by affidavit, Code of Conduct compliance by all employees participating in a specific RFP process after each specific RFP process ends.
10. Term. This Code of Conduct shall remain in effect until: (a) the final contract(s) for RFPs conducted under the Framework with the successful bidder(s) is/are executed or when written notice of termination of the RFPs to be conducted under the Framework is provided by the Director of Renewables Acquisition Division or his/her designee to the Independent Observer and the Commission; and (b) A certification of Code of Conduct compliance by all employees participating in the specific RFP process is submitted by affidavit by the Company Executive in Charge. The Code of Conduct shall remain in effect through all stages or phases of a particular RFP, regardless of the length of time between such stages or phases in the RFP.

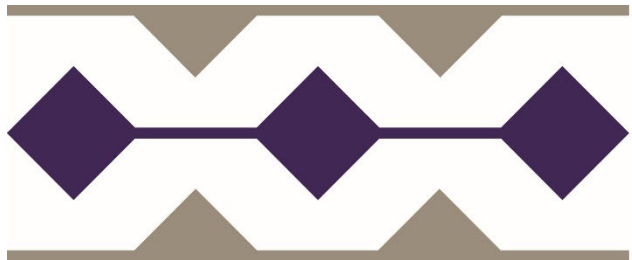
REQUEST FOR PROPOSALS
FOR
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ISLAND OF MAUI

RFP No. 020123-04

2/1/2023

Docket No. 2017-0352

Appendix G – Contract Capability Bid Form



**Hawaiian
Electric**

Contract Capability

Supplier Name	
Submission Date	

					Maui			
					Capacity Build			
					Contract Capability [kW]			
		Quarter	Residential	Commercial	TOTAL			
Contract Year 1		1						
		2						
		3						
		4						
Contract Year 2		1						
		2						
		3						
		4						
Contract Year 3		1						
		2						
		3						
		4						
Contract Year 4		1						
		2						
		3						
		4						
Contract Year 5		1						
		2						
		3						
		4						
Contract Year 6		1						
		2						
		3						
		4						
Contract Year 7		1						
		2						
		3						
		4						
Contract Year 8		1						
		2						

	3			
	4			
Contract Year 9	1			
	2			
	3			
	4			
Contract Year 10	1			
	2			
	3			
	4			

Supplier Name	
Submission Date	

		Maui		
		Capacity Reduction		
		Contract Capability [kW]		
	Quarter	Residential	Commercial	TOTAL
Contract Year 1	1			
	2			
	3			
	4			
Contract Year 2	1			
	2			
	3			
	4			
Contract Year 3	1			
	2			
	3			
	4			
Contract Year 4	1			
	2			
	3			
	4			
Contract Year 5	1			
	2			
	3			
	4			
Contract Year 6	1			
	2			
	3			
	4			
Contract Year 7	1			
	2			
	3			
	4			
Contract Year 8	1			
	2			
	3			
	4			

Contract Year 9	1			
	2			
	3			
	4			
Contract Year 10	1			
	2			
	3			
	4			

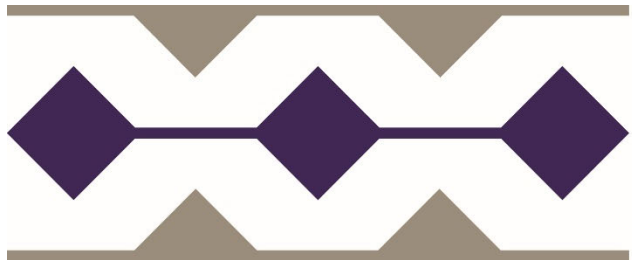
REQUEST FOR PROPOSALS
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Appendix H – Pricing Sheet



**Hawaiian
Electric**

Pricing

Pricing Maui

This section covers pricing agreed upon by Supplier and Company.

Note: All Prices listed should include all applicable local and state taxes (e.g. General Excise Tax (“GET”))

Capacity Reduction only Pricing

Capacity – Reduction

	Price	Unit
Grid Service Monthly Management Price		\$(kW*Month)
Enablement Price		\$/kW
Monthly Incentive Adder Price		\$(kW*Month)
Monthly Minimum Incentive	5	\$(kW*Month)

Bundled Grid Service Pricing

Capacity – Build

	Price	Unit
Grid Service Monthly Management Price		\$(kW*Month)
Enablement Price		\$/kW
Monthly Incentive Adder Price		\$(kW*Month)
Monthly Minimum Incentive	3	\$(kW*Month)

Capacity – Reduction

	Price	Unit
Grid Service Monthly Management Price		\$(kW*Month)
Enablement Price		\$/kW
Monthly Incentive Adder Price		\$(kW*Month)
Monthly Minimum Incentive	5	\$(kW*Month)

Competitive Program Incentive Pricing

	Price	Unit
Competitive Program Incentive - Monthly		\$/kW*Month)
Competitive Program Incentive - Upfront		\$/kW

Hawaiian Electric Companies
RFP for Delivery of Grid Services from Customer-Sited Distributed Energy Resources

Appendix I: Requirements Summary Sheet

Requirement Subcategory	Requirement Description	Meets Requirement (Yes/No)	If proposal does not meet the requirement please provide an explanation below.
Capacity	Respondent will meet all requirements within GSPA Attachment A-2 - Capacity.		
Advanced Metering	Respondent will meet all requirements within GSPA Attachment B - Advanced Metering.		
Operational Forecast	Respondent will meet all requirements within GSPA Attachment C - Operational Forecast.		
Data, Integration, and Testing Requirements	Respondent will meet all requirements within GSPA Attachment D - Data, Integration, and Testing Requirements.		
Service Level Agreements	Respondent will meet all requirements within GSPA Attachment F - Service Level Agreements.		
Reporting	Respondent will meet all requirements within GSPA Attachment G- Reporting.		
Customer Service Agreement Requirements	Respondent will meet all requirements within GSPA Attachment I - Customer Service Agreement Requirements.		
Participant Service Agreement Requirements	Respondent will meet all requirements within GSPA Attachment J - Participant Service Agreement Requirements.		

Hawaiian Electric Companies
RFP for Delivery of Grid Services from Customer-Sited Distributed Energy Resources

Appendix J: Questionnaire Summary Worksheet

Questionnaire Topics	Subtopic	Question	Summary of Respondent's Proposal
Grid Service to Be Provided	Fast Frequency Response	Which grid services will be provided? (See Attachment A of GSPA for definition of grid services.)	
	Capacity-Load Reduction		
	Capacity-Load Build		
Locations (Systems/Islands) Where Grid Service Will Be Delivered	Maui Electric - Maui	At which locations (Systems/Islands) will the grid services will be provided? (See Attachment A of GSPA for definition of grid services.)	
	Preferred Areas	How many and which Grid Services in kW will Supplier provide sourced from the areas identified in Appendix P? (May provide as additional attachment)	
Customer Class	Residential	Which customer class will be targeted to fulfill the grid services?	
	Small Business & Commercial		
	Large Commercial and Industrial		

Hawaiian Electric Companies
RFP for Delivery of Grid Services from Customer-Sited Distributed Energy Resources

Appendix J: Questionnaire Summary Worksheet

Questionnaire Topics	Subtopic	Question	Summary of Respondent's Proposal
End Devices	Residential	Which types of end devices will be utilized for each customer class?	
	Small Business & Commercial		
	Large Commercial and Industrial		
Communications and Controls	2030.5 Standard	Is GSDS able to communicate using IEEE 2030.5-2018 in conformance with the requirements specified in Attachment A-2 and Attachment D of the GSPA?	
	2030.5 CSIP Certification	Is the GSDS received Common Smart Inverter Profile ("CSIP") certification? If so, when?	
	2030.5 Experience	Has Supplier implemented IEEE 2030.5-2018 in a non-pilot application, i.e. program greater than 1,000 participants?	
	2030.5 Architecture	How was IEEE 2030.5-2018 implemented by Supplier? Downstream to end devices or upstream to Utility system? Both?	

Instructions to Vendors Completing This Technology Standards Questionnaire

Thank you for taking the time to complete this Hawaiian Electric questionnaire regarding Technology Standards and Preferences. It is likely that someone very familiar with your underlying technical architecture will be required in order to adequately complete the questionnaire. All of the question responses should be provided within the spaces on Worksheet #2 and #3 which are labeled at the bottom of this page as "Vendor Responses - IT" and "Vendor Responses - IA".

The first view that you will see of the Vendor Response Matrix may be in its fully contracted mode. (NOTE: This may not be true if spreadsheet is sent in 'protected' mode as the Grouping control buttons on the left side will not function under protected mode. If sent in 'protected' mode, the spreadsheet will already be fully expanded). The matrix uses expansion (Group) controls on the far left side of the spreadsheet to control either the individual expansion/contraction of any one item or the full expansion/contraction of all items at once. The example below shows a completed segment of the Matrix in its fully contracted mode.

Update instructions

Enter responses for individual item compliance indicators. A six choice response matrix is presented to the right of each question item and provides you the ability to offer one of the following six answers: (1) System as Proposed Meets Standard, (2) System will meet standards in Scheduled Upcoming Release, (3) System can meet standards using 3rd party products, (4) System can meet standards with customization, (5)

It is important that all of your responses to the six choice response matrix use the value "1" as the entry into the cells. The internal HE assessment process that is applied to the matrix expects the numeric value "1" to be placed into one of the six response columns. It is important that you use this numeric value and no other characters.

See the example below. In this example, the respondent indicated that their technology would currently meet Data Standards, that their technology would incorporate the use of a Data Object Model in a subsequent scheduled release, that the data model would meet the Data Standards, that they do not provide a logical data model for their technology and that they can provide a physical data model using third party tools.

Hawaiian Electric Technology Assessment Questionnaire				Vendor Response Options						
Project Name				XYZ, Inc.						
Information Only	Ideal	Core	Mandatory	Hawaiian Electric Technology Standards Enter the numeric value "1" (not text) as the flag values in the yellow highlighted response options. Do not flag more than 1 (one) box per row. Use Grouping controls on far left side of this spreadsheet to fully open all text and response options. Use beige areas in expanded rows to enter any desired hyperlinks or additional explanation text.	System as Proposed Meets Standard	System will meet standard in scheduled upcoming release	System can meet standard using 3rd Party products	System can meet standard with customization	System as proposed does not meet standard	Other
Data and Database Architecture										
Data Architecture (or Data Object Architecture)				Meets	Will	3rd P	Cust	No	Other	
			1	Adherence to Data Standards	1					

	1	Data Object Model			1				
	1	Alignment of Data Objects with Data Standards				1			
1		Logical Data Model			1				
	1	Physical Data Model		1					
Data Management				Meets	Will	3rd P	Cust	No	Other
	1	Data Access Utility		1					
	1	Data Import/Export Support		1					
1		Extract/Transfer/Load (ETL) Capability		1					
	1	Compatibility with HE Operational Data Stores (ODS)				1			
	1	Adherence to Data Labeling and Handling Requirements					1		

To understand the full meaning of the standard and to provide a full response to the standard, the spreadsheet must be viewed in its expanded mode. (The spreadsheet version sent to you may already show all items in expanded mode.) The graphic that follows illustrates how each item of the questionnaire can be expanded to see more in depth text on the intent of the item and to offer more extensive responses. Many of the items in the questionnaire will require the vendor to offer more in depth answers that can't be adequately communicated with the "six option" flags. In the following example, we can see more of how the example responder offered additional information about their upcoming release of a Data Object Model. The sample vendor also provided a hyperlink to a technical details area of their website (fictitious) that provides more information on their data object technology.

Information Only	1	Mandatory	Hawaiian Electric Technology Standards	Enter the numeric value "1" (not text) as the flag values in the yellow highlighted response options. Do not flag more than 1 (one) box per row. Use Grouping controls on far left side of this spreadsheet to fully open all text and response options. Use beige areas in expanded rows to enter any desired hyperlinks or additional explanation text.	System as Proposed Meets Standard	System will meet standard in scheduled upcoming release	System can meet standard using 3rd Party products	System can meet standard with customization	System as proposed does not meet standard	Other
Data and Database Architecture										
Data Architecture (or Data Object Architecture)				Meets	Will	3rd P	Cust	No	Other	
	1		Adherence to Data Standards		1					
	1		Data Object Model	Comments & Hyperlink Provided		1				
Information Only	1	Mandatory	Standard: System should access data through a data object rather than directly from the DB.	Venders may add any hyperlink to right: http://coolproduct.com	In the next product 4.3 release, our product will include the meta data layer that adheres to a standard object model.					
			Comment: Object models typically offer a higher level 'name based' form of access to data in a DB. When applications utilize a data object model, the data is normally better formulated and allows for easier name based data mapping (at the object model level vs. at the field level in the DB tables).	At right, enter any expanded explanation. Typically, a positive response above to the 'Proposal Meets Standard' is sufficient, but venders may add comments as desired. Responses to any of the other variations should be explained. Also, please pay attention to the Desired Feedback text as it may suggest a helpful response comment. Explanations should be short, but venders may also use hyperlinks above or references in text at right to highlight other relevant sections of proposal materials.						
			Preference: No products specifically preferred.							
			Desired Feedback: System providers should describe whether the application uses a data object model and whether the model provides an easy way to perform object model mapping.							

				proposal materials.					
	1			Alignment of Data Objects with Data Standards			1		
	1			Logical Data Model		1			
	1			Physical Data Model	1				

Viewing and entering responses within the 'Expanded Mode' uses the Group Controls at the far left. To the far left of the Vendor Response spreadsheet, the margin area contains buttons that can be used to expand each item. If not, use the buttons at the very far top of the left margin [1] or [2] to expand all items in the spreadsheet or use the [-] or [+] buttons just to the left of each item to expand the individual items. The expanded space for vendor input allows for two additional types of responses. *Note: The spreadsheet version sent to you may already show all of the items in their expanded mode, and if it is protected, these buttons cannot be used to either expand or contract the spreadsheet.*

Use the large open beige box area to insert extended comments.

Use the "Hyperlink" space above the beige box to link to other MS Office documents, URL sites or parts of your proposal materials.

(1) The large box for adding comments can be expanded by dragging downward on the bottom of the far left row indicator if more space is needed for your
 (2) comments.

Also note that HE has labeled each standard with a Compliance Priority rating. The four ratings used by HE are:

Mandatory: Compliance with these standards are generally considered fully mandatory unless a very unusual circumstance would make compliance non-feasible or inapplicable.

Core: Compliance with these standards help HE maintain its core technology directions and compliance is generally expected, although the situations where non-compliance may be permitted are somewhat more flexible than for mandatory items.

Ideal: These standards often reflect future direction strategies where compliance is sought but the state of technologies or technology implementation may not yet be sufficiently well established in the market place such that practical compliance can always be expected. For instance, use of certain Service Oriented Architecture techniques might fall in this category.

Information Only: In some cases, information may be sought which is useful in better understanding technologies or their implementations but may not correspond to any fully articulated standard in HE. For instance information about certain technology lifecycle management issues might fall in this category where HE may deal with topics on a case by case basis.

Ignore any asterisks that may be located in the Compliance Priority Rating columns A through D.

The Desired Feedback text provided in the left portion of the HE Standards materials created by HE indicates the kinds of things that HE might like to know more about. Vendors are not required or asked to complete long explanations to address the Desired Feedback issues but the Desired Feedback text does illustrate the types of things that would be helpful to understand regarding the responder's approach to a given technical implementation area. Responders who add comments in the beige box may better help HE understand the responder's point of view regarding any particular topic.

Here are a few specific pointers for completing the questionnaire properly:

Set hyperlinks to refer to the web or bundle any hyperlinked documents in a common directory: If you decide to include hyperlinks to additional materials or to other portions of your proposal, zip all forwarded documents (other than proposal) in a special subdirectory for extended explanation documents). We are not encouraging the sending of gratuitous materials or the sending of generic white papers. We also value brevity and all comments should add specific information about how your product or organization addresses specific issues.

Keep spreadsheet comments relevant and short but do not be afraid to use them: We would like to know more about how your organization would choose to approach a technical implementation topic, but rather than get a large amount of generic material, we would typically like to have the essence in a quick sentence or two placed in the item response area. That is why we included the comment space next to each HE standard.

Hawaiian Electric Information Technology Assessment Questionnaire				Vendor Response Options										
Project name				XYZ, Inc.										
Vendor Name: XYZ, Inc.				Spreadsheet Template Version is: 1.1 as of 06/29/2021										
Project: Project name														
Date Questionnaire Released: 02/01/09														
Date Questionnaire Due: 03/15/09														
Date of Last Assessment Ratings Added by HE:														
Information Only	Ideal	Core	Mandatory	Hawaiian Electric Technology Standards Enter the numeric value "1" (not text) as the flag values in the yellow highlighted response options. Do not flag more than 1 (one) box per row. Use Grouping controls on far left side of this spreadsheet to fully open all text and response options. Use beige areas in expanded rows to enter any desired hyperlinks or additional explanation text.				System as Proposed Meets Standard	System will meet standard in scheduled upcoming release	System can meet standard using 3rd Party products	System can meet standard with customization	System as proposed does not meet standard	Other	
Data and Database Architecture														
Data Architecture (or Data Object Architecture)				Meets	Will	3rd P	Cust	No	Other					
Information Only	Ideal	Core	Mandatory	Data Object Model Standard: System shall access data through a data object rather than directly from the DB. Comment: Object models typically offer a higher level 'name based' form of access to data in a DB. When applications utilize a data object model, the data is normally better formulated and allows for easier name based data mapping (at the object model level vs. at the field level in the DB tables). Preference: No products specifically preferred. Desired Feedback: System providers should describe whether the application uses a data object model and whether the model provides an easy way to perform object model mapping.										
				Vendors may add any hyperlink to right: At right, enter any expanded explanation. Typically, a positive response above to the 'Proposal Meets Standard' is sufficient, but vendors may add comments as desired. Responses to any of the other variations should be explained. Also, please pay attention to the Desired Feedback text as it may suggest a helpful response comment. Explanations should be short, but vendors may also use hyperlinks above or references in text at right to highlight other relevant sections of proposal materials.										
Information Only	Ideal	Core	Mandatory	Logical Data Model Standard: Logical data model(s) shall be available and aligned with project and enterprise requirements. Comment: HE desires that systems provide a logical data model AND that the attributes of the model be capable of integration into a Data Modeler. Preference: No products specifically preferred.										
				Vendors may add any hyperlink to right: At right, enter any expanded explanation. Typically, a positive response above to the 'Proposal Meets Standard' is sufficient, but vendors may add comments as desired. Responses to any of the other variations should be explained. Also, please pay attention to the Desired Feedback text as it may suggest a helpful response comment. Explanations should be short, but vendors										

				<p>Desired Feedback: System providers shall indicate whether they have a logical data model and whether it can be provided or made available for review.</p>	<p>Explanations should be short, but vendors may also use hyperlinks above or references in text at right to highlight other relevant sections of proposal materials.</p>						
	1			<p>Physical Data Model</p>							
Information Only	Ideal	Core	Mandatory	<p>Standard: Physical data model(s) shall be available and aligned with project and enterprise requirements.</p>	<p>Vendors may add any hyperlink to right:</p>						
				<p>Comment: HE desires that systems provide a physical data model and that attributes of the modeled data to be capable of integration into a Data Modeler.</p> <p>Preference: No products specifically preferred.</p> <p>Desired Feedback: System providers shall describe their physical data structure and whether it is represented in a model, whether the model is available for use or review and what tools can be used with the physical data model.</p>	<p>At right, enter any expanded explanation. Typically, a positive response above to the 'Proposal Meets Standard' is sufficient, but vendors may add comments as desired. Responses to any of the other variations should be explained. Also, please pay attention to the Desired Feedback text as it may suggest a helpful response comment. Explanations should be short, but vendors may also use hyperlinks above or references in text at right to highlight other relevant sections of proposal materials.</p>						
Data Management						Meets	Will	3rd P	Cust	No	Other
	1			<p>Data Access Utility</p>							
Information Only	Ideal	Core	Mandatory	<p>Standard: System shall include a data access utility that can be used to directly manage the data (business) object.</p>	<p>Vendors may add any hyperlink to right:</p>						
				<p>Comment: The ability to perform basic data access/edits (e.g. data viewing, simple table editing) shall be provided through a data access utility included as part of the system/application. The utility shall access the data through the data object and shall also incorporate the business rules for data edits. (Note: This is not the same as use of a general third party SQL access tool. In general, data shall not be edited directly through use of such general DB tools. However a system provider provided utility which adheres to the system provider's data edit rules is helpful for data repair such switching a flag in the DB directly.)</p> <p>Preference: No products specifically preferred.</p> <p>Desired Feedback: System providers shall provide description of capabilities.</p>	<p>At right, enter any expanded explanation. Typically, a positive response above to the 'Proposal Meets Standard' is sufficient, but vendors may add comments as desired. Responses to any of the other variations should be explained. Also, please pay attention to the Desired Feedback text as it may suggest a helpful response comment. Explanations should be short, but vendors may also use hyperlinks above or references in text at right to highlight other relevant sections of proposal materials.</p>						
	1			<p>Data Import/Export Support</p>							
Information Only	Ideal	Core	Mandatory	<p>Standard: System shall include built-in data import/export utilities.</p>	<p>Vendors may add any hyperlink to right:</p>						
				<p>Comment: Package applications shall provide out-of-the box data import/export capabilities. Such input might be accomplished via CSV, spreadsheet or other common formats. Import/export features shall use the data object (see above) to assist with proper data edits. This type of utility enables more flexible automated processes for performing data entry.</p>	<p>At right, enter any expanded explanation. Typically, a positive response above to the 'Proposal Meets Standard' is sufficient, but vendors may add comments as desired. Responses to any of the other variations should be explained. Also, please pay attention to the Desired Feedback text as it may suggest a helpful response comment. Explanations should be short, but vendors</p>						

Info	Ideal	Core	Mandatory	<p>Preference: No products specifically preferred.</p> <p>Desired Feedback: System provider shall describe the input/export support and indicate if its application uses a data object model. As a plus, the system provider shall provide a way to use object model mapping.</p>	<p>Explanations should be short, but vendors may also use hyperlinks above or references in text at right to highlight other relevant sections of proposal materials.</p>	Appendix K					
				<p>1</p> <p>Extract/Transfer/Load (ETL) Capability</p>	<p>Vendors may add any hyperlink to right:</p>						
Information Only	Ideal	Core	Mandatory	<p>Standard: System shall support ETL capabilities directly or via close integration with other common ETL tools.</p> <p>Comment: Extract/Transfer/Load (ETL) is a potentially important capability for enabling HE to share data across platforms and across different DBs for Data Warehouse (Business Intelligence (BI)) reporting and for the potential use of one application's data by a different application.</p> <p>Preference: MS SQL Server SSIS or SAP Data Services</p> <p>Desired Feedback: If system has incorporated ETL capabilities into its package, such capabilities shall be described by the system provider and shall be counted as a plus.</p>	<p>At right, enter any expanded explanation. Typically, a positive response above to the 'Proposal Meets Standard' is sufficient, but vendors may add comments as desired. Responses to any of the other variations should be explained. Also, please pay attention to the Desired Feedback text as it may suggest a helpful response comment. Explanations should be short, but vendors may also use hyperlinks above or references in text at right to highlight other relevant sections of proposal materials.</p>						
				<p>1</p> <p>Web Content Management Architecture</p>	<p>Meets Will 3rd P Cust No Other</p>						
Information Only	Ideal	Core	Mandatory	<p>Web Data Management Utility</p>	<p>Vendors may add any hyperlink to right:</p>						
				<p>Standard: System dealing with web data shall either have or integrate with a utility to easily add, edit or remove data that are presented or collected on-line.</p> <p>Comment: Well designed on-line web applications shall be data driven (rather than manually managing static pages). A built-in data management utility shall provide HE an interface to add, edit and remove data that will be presented online. Automation of that interface is important.</p> <p>Preference: No products specifically preferred.</p> <p>Desired Feedback: System provider shall describe out of box capabilities regarding data management services.</p>	<p>At right, enter any expanded explanation. Typically, a positive response above to the 'Proposal Meets Standard' is sufficient, but vendors may add comments as desired. Responses to any of the other variations should be explained. Also, please pay attention to the Desired Feedback text as it may suggest a helpful response comment. Explanations should be short, but vendors may also use hyperlinks above or references in text at right to highlight other relevant sections of proposal materials.</p>						
Information Only	Ideal	Core	Mandatory	<p>Web Content Management Utility</p>	<p>Vendors may add any hyperlink to right:</p>						
				<p>Standard: System dealing with web content shall either have or integrate with a utility to easily manage or update the web content.</p> <p>Comment: Web content includes images, style sheets, multimedia files, etc. that typically do not come from the DB but rather from other file systems. Applications involved in presenting such content on the web should have powerful utilities for organizing, versioning, changing and updating content.</p>	<p>At right, enter any expanded explanation. Typically, a positive response above to the 'Proposal Meets Standard' is sufficient, but vendors may add comments as desired. Responses to any of the other variations should be explained. Also, please pay attention to the Desired Feedback text as it may suggest a helpful response comment. Explanations should be short, but vendors</p>						

				<p>Preference: Integration with Ingeniux externally, SharePoint 2013 internally.</p> <p>Desired Feedback: System provider shall provide capabilities regarding out of box web content management tools or integration with other standard tools.</p>	<p>Explanations should be short, but vendors may also use hyperlinks above or references in text at right to highlight other relevant sections of proposal materials.</p>						
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Database Architecture				Meets	Will	3rd P	Cust	No	Other
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		1		ODBC Compliance						
Information Only	Ideal	Core	Mandatory	<p>Vendors may add any hyperlink to right:</p> <p>Standard: System Database shall be ODBC compliant.</p> <p>Comment: The database shall be able to be registered as an ODBC data source, allowing custom applications to access the data through the ODBC layer.</p> <p>Preference: No products specifically preferred.</p> <p>Desired Feedback: System provider shall certify ODBC compliance.</p>	<p>At right, enter any expanded explanation. Typically, a positive response above to the 'Proposal Meets Standard' is sufficient, but vendors may add comments as desired. Responses to any of the other variations should be explained. Also, please pay attention to the Desired Feedback text as it may suggest a helpful response comment. Explanations should be short, but vendors may also use hyperlinks above or references in text at right to highlight other relevant</p>					
		1		JDBC Compliance						
Information Only	Ideal	Core	Mandatory	<p>Vendors may add any hyperlink to right:</p> <p>Standard: System Database shall be JDBC compliant.</p> <p>Comment: JDBC compliance is somewhat less important in many situations, but may be required in certain situations and shall always be noted if it exists.</p> <p>Preference: No products specifically preferred.</p> <p>Desired Feedback: System provider shall indicate whether data base is JDBC compliant.</p>	<p>At right, enter any expanded explanation. Typically, a positive response above to the 'Proposal Meets Standard' is sufficient, but vendors may add comments as desired. Responses to any of the other variations should be explained. Also, please pay attention to the Desired Feedback text as it may suggest a helpful response comment. Explanations should be short, but vendors may also use hyperlinks above or references in text at right to highlight other relevant</p>					
		1		OLEDB Compliance						
Information Only	Ideal	Core	Mandatory	<p>Vendors may add any hyperlink to right:</p> <p>Standard: System Database should be OLEDB compliant.</p> <p>Comment: The database should provide an application programming interface employing the Common Object Model, according to OLEDB standards.</p> <p>Preference: No products specifically preferred.</p> <p>Desired Feedback: System provider should indicate whether data base is OLEDB compliant.</p>	<p>At right, enter any expanded explanation. Typically, a positive response above to the 'Proposal Meets Standard' is sufficient, but vendors may add comments as desired. Responses to any of the other variations should be explained. Also, please pay attention to the Desired Feedback text as it may suggest a helpful response comment. Explanations should be short, but vendors may also use hyperlinks above or references in text at right to highlight other relevant</p>					
		1		SQL Data Access Compliance						
Information Only	Ideal	Core	Mandatory	<p>Vendors may add any hyperlink to right:</p> <p>Standard: System database shall be able to accommodate and respond properly to standard SQL queries run against the database.</p>	<p>At right, enter any expanded explanation. Typically, a positive response above to the 'Proposal Meets Standard' is sufficient, but</p>					

Information Only	Ideal	Core	Mandatory	<p>Comment: The database shall be accessible not only from the package application interface, but shall also allow data extraction via standard SQL. This would mean that data can be extracted via a standard SQL based tool directly from the database.</p> <p>Preference: Oracle / MS SQL language compliance preferred.</p> <p>Desired Feedback: System provider shall verify that the database is SQL compliant.</p>	<p>vendors may add comments as desired. Responses to any of the other variations should be explained. Also, please pay attention to the Desired Feedback text as it may suggest a helpful response comment. Explanations should be short, but vendors may also use hyperlinks above or references in text at right to highlight other relevant sections of proposal materials.</p>	Appendix K					
				1	Use of HE Standard Database						
Information Only	Ideal	Core	Mandatory	<p>Standard: System operates using MS SQL Server 2019 for non-enterprise scale systems or Oracle XI (or newer) for Enterprise-scale applications.</p> <p>Comment: HE prefers to standardize its database technology around MS SQL or Oracle 64 bit versions.</p> <p>Preference: MS SQL Server 2019 or Oracle XI (or newer).</p> <p>Desired Feedback: System provider should certify that system operates on specified databases.</p>	<p>Vendors may add any hyperlink to right:</p> <p>At right, enter any expanded explanation. Typically, a positive response above to the 'Proposal Meets Standard' is sufficient, but vendors may add comments as desired. Responses to any of the other variations should be explained. Also, please pay attention to the Desired Feedback text as it may suggest a helpful response comment. Explanations should be short, but vendors may also use hyperlinks above or references in text at right to highlight other relevant sections of proposal materials.</p>						
				1	Use of Alternate Databases						
Information Only	Ideal	Core	Mandatory	<p>Standard: Systems may support other types of non-SQL databases (Hana, Hadoop, other No SQL databases).</p> <p>Comment: HE acknowledges that large-scale data may require alternate database types to address performance and volume.</p> <p>Preference: No products specifically preferred.</p> <p>Desired Feedback: System provider should provide information about the other types of supported databases.</p>	<p>Vendors may add any hyperlink to right:</p> <p>At right, enter any expanded explanation. Typically, a positive response above to the 'Proposal Meets Standard' is sufficient, but vendors may add comments as desired. Responses to any of the other variations should be explained. Also, please pay attention to the Desired Feedback text as it may suggest a helpful response comment. Explanations should be short, but vendors may also use hyperlinks above or references in text at right to highlight other relevant sections of proposal materials.</p>						
				Scores for Data & Database Architecture				Avg Scores			Mandatory Compliance
				Ideal	Core	Joint	Not Applicable			10.0	
				0	0	0					

Application Architecture

Development Environment				Meets	Will	3rd P	Cust	No	Other						
Information Only	Ideal	Core	Mandatory	1	Mainstream Integrated Development Environment										
				<p>Vendors may add any hyperlink to right:</p> <p>Standard: Systems developed or maintained within HE shall allow development or maintenance work to be performed using a mainstream Integrated Development Environment (IDE).</p> <p>Comment: Many software packages can be customized using an industry mainstream IDE such as MS Visual Studio, Eclipse, etc. HE prefers applications that can be maintained using a mainstream, industry standard IDE with MS Visual Studio or Eclipse.</p> <p>Preference: MS Visual Studio - .Net, Eclipse for Java, SAP Workbench for SAP ABAP Development. For Source repository, we prefer MS Team Foundation Server for .Net, and CA Harvest for non-.Net.</p> <p>Desired Feedback: System provider shall indicate whether the system can be maintained using one of the industry standard development environments.</p>	At right, enter any expanded explanation. Typically, a positive response above to the 'Proposal Meets Standard' is sufficient, but vendors may add comments as desired. Responses to any of the other variations should be explained. Also, please pay attention to the Desired Feedback text as it may suggest a helpful response comment. Explanations should be short, but vendors may also use hyperlinks above or references in text at right to highlight other relevant sections of proposal materials.										
Information Only	Ideal	Core	Mandatory	1	Programmatic Interface for Accessing/Modifying System Information.										
				<p>Vendors may add any hyperlink to right:</p> <p>Standard: System shall provide an organized, programmatic interface or system development kit (SDK) to perform any system configuration or to access/modify system information or accounts.</p> <p>Comment: HE seeks to avoid systems that do not organize their configuration interfaces and make access to system information obtuse. Interfaces shall be documented and consolidated to logical screen groupings in order to make adjustments easy.</p> <p>Preference: Product shall provide a native SDK.</p> <p>Desired Feedback: System provider shall indicate whether system can be configured and maintained using pre-packaged screens with modern interfaces.</p>	At right, enter any expanded explanation. Typically, a positive response above to the 'Proposal Meets Standard' is sufficient, but vendors may add comments as desired. Responses to any of the other variations should be explained. Also, please pay attention to the Desired Feedback text as it may suggest a helpful response comment. Explanations should be short, but vendors may also use hyperlinks above or references in text at right to highlight other relevant sections of proposal materials.										
Information Only	Ideal	Core	Mandatory	1	Mainstream Development Language										
				<p>Vendors may add any hyperlink to right:</p> <p>Standard: Any user configurable or exposed development language used for product customization and maintenance shall be based on one of the following: .Net, Java, or ABAP.</p>	At right, enter any expanded explanation. Typically, a positive response above to the 'Proposal Meets Standard' is sufficient, but vendors may add comments as desired.										

Information Only	1	<p>Comment: HE seeks to avoid use of highly proprietary languages for which programming resources are rare and difficult to acquire. System shall use mainstream languages and technologies.</p> <p>Preference: Preference is .Net, Java, ABAP.</p> <p>Desired Feedback: System provider shall indicate whether system can be programmed and maintained in one of the above designated mainstream languages.</p>	<p>Responses to any of the other variations should be explained. Also, please pay attention to the Desired Feedback text as it may suggest a helpful response comment. Explanations should be short, but vendors may also use hyperlinks above or references in text at right to highlight other relevant sections of proposal materials.</p>	Appendix K					
Programming Model									
Information Only	1	<p>Standard: System/application shall be based on a modern development technology framework such as .Net, ASP.Net, Java EE, or Java Server pages (JSP).</p> <p>Comment: HE seeks to work within modern, web oriented frameworks that employ well established interoperability standards, are industry standard and support a Services Oriented Architecture approach.</p> <p>Preference: Preference is .Net, Java, ABAP.</p> <p>Desired Feedback: System provider shall indicate what, if any, programming model the system is based upon.</p>	<p>Vendors may add any hyperlink to right:</p> <p>At right, enter any expanded explanation. Typically, a positive response above to the 'Proposal Meets Standard' is sufficient, but vendors may add comments as desired. Responses to any of the other variations should be explained. Also, please pay attention to the Desired Feedback text as it may suggest a helpful response comment. Explanations should be short, but vendors may also use hyperlinks above or references in text at right to highlight other relevant sections of proposal materials.</p>						
Use of Plain Text Configuration or GUI Configuration									
Information Only	1	<p>Standard: System customization and other configuration files available to HE developers should make source content available as plain text or through a GUI interface.</p> <p>Comment: Manipulation of configurable system data by HE programmers should not require that the HE programmers have to interpret the formatting of configuration files.</p> <p>Preference: No products specifically preferred.</p> <p>Desired Feedback: System provider should indicate if system configuration information can be accessed and manipulated as plain text or thru GUI for review, development or customization purposes.</p>	<p>Vendors may add any hyperlink to right:</p> <p>At right, enter any expanded explanation. Typically, a positive response above to the 'Proposal Meets Standard' is sufficient, but vendors may add comments as desired. Responses to any of the other variations should be explained. Also, please pay attention to the Desired Feedback text as it may suggest a helpful response comment. Explanations should be short, but vendors may also use hyperlinks above or references in text at right to highlight other relevant sections of proposal materials.</p>						
Preservation of Customization									
Only	1	<p>Standard: System shall allow for the preservation of prior customizations during product upgrades.</p>	<p>Vendors may add any hyperlink to right:</p> <p>At right, enter any expanded explanation. Typically, a positive response above to the 'Proposal Meets Standard' is sufficient, but</p>						

Information C	Ideal	1	Mandatory	<p>Comment: When software packages are upgraded, the ability (or inability) to preserve customizations created within older versions can dramatically impact the feasibility and the cost of the upgrade. Applications that provide specific provisions for creating customizations that are upgradeable can help bridge this issue. Typically, these applications may require that customizations be performed using a specific toolset provided by vendor.</p> <p>Preference: No products specifically preferred.</p> <p>Desired Feedback: System provider shall indicate if system has provisions for preserving customizations against breakage during upgrades, what approach is used and how extensive the protection may be.</p>	<p>vendors may add comments as desired. Responses to any of the other variations should be explained. Also, please pay attention to the Desired Feedback text as it may suggest a helpful response comment. Explanations should be short, but vendors may also use hyperlinks above or references in text at right to highlight other relevant sections of proposal materials.</p>	Appendix K
	Core					

						Meets	Will	3rd P	Cust	No	Other
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Information Only	1	Mandatory	<p>Testing Cycles</p> <p>Standard: System (under its proposed licensing provisions) shall allow for all of the following testing cycles to be performed: Unit Testing, Integration Testing, System/Functional Testing, End-to-End Testing, Performance Testing and Operational Readiness Testing.</p> <p>Comment: The choice of what testing cycles shall be performed is essentially an implementation issue, but the system itself shall not preclude any of the cycles from being exercised. The current standard only requires that the system be capable of being tested via each stage.</p> <p>Preference: No products specifically preferred.</p> <p>Desired Feedback: System provider shall describe any testing cycle provisions and shall further address whether those provisions can be supported by the product.</p>	<p>Vendors may add any hyperlink to right:</p> <p>At right, enter any expanded explanation. Typically, a positive response above to the 'Proposal Meets Standard' is sufficient, but vendors may add comments as desired. Responses to any of the other variations should be explained. Also, please pay attention to the Desired Feedback text as it may suggest a helpful response comment. Explanations should be short, but vendors may also use hyperlinks above or references in text at right to highlight other relevant sections of proposal materials.</p>						
	Core									

Information Only	1	Mandatory	<p>Developer Testing Framework</p> <p>Standard: System shall allow for the use of a Testing tool for development and defect fix test management.</p> <p>Comment: Testing development or customization changes as well as defect fixes must be managed to assure the proper migration of changes from the test to the production environment. HE requires that such changes be managed to assure that changes are fully tested, accepted and properly released for larger testing.</p> <p>Preference: Preference is to leverage IDE identified above.</p> <p>Desired Feedback: System provider shall describe Unit Testing provisions and shall further address whether those provisions can be managed by the preferred IDE.</p>	<p>Vendors may add any hyperlink to right:</p> <p>At right, enter any expanded explanation. Typically, a positive response above to the 'Proposal Meets Standard' is sufficient, but vendors may add comments as desired. Responses to any of the other variations should be explained. Also, please pay attention to the Desired Feedback text as it may suggest a helpful response comment. Explanations should be short, but vendors may also use hyperlinks above or references in text at right to highlight other relevant sections of proposal materials.</p>						
	Core									

		1	User & Performance Testing Framework								
Information Only	Ideal	Core	Mandatory	<p>Standard: System shall allow for the use of a Testing tool for test case development, automation, and tie to defect management software. Also, this shall include performance testing capabilities.</p> <p>Comment: Testing development or customization changes as well as defect fixes must be managed to assure the proper migration of changes from the test to the production environment. HE requires that such changes be managed to assure that changes are fully tested, accepted and properly placed into production.</p> <p>Preference: Preference is HPQC (test tracking/automation) and LoadRunner (performance testing). Jmeter for lighter performance testing. Team Foundation Server for .Net applications.</p> <p>Desired Feedback: System provider shall describe Unit Testing provisions and shall further address whether those provisions can be managed by preferred tools.</p>	At right, enter any expanded explanation. Typically, a positive response above to the 'Proposal Meets Standard' is sufficient, but vendors may add comments as desired. Responses to any of the other variations should be explained. Also, please pay attention to the Desired Feedback text as it may suggest a helpful response comment. Explanations should be short, but vendors may also use hyperlinks above or references in text at right to highlight other relevant sections of proposal materials.						
		1	Change and Defect Management								
Information Only	Ideal	Core	Mandatory	<p>Standard: System shall allow for the use of automated change management and defect tracking.</p> <p>Comment: The tracking of custom changes and defect fixes are important and systems within HE shall allow those issues to be tracked from the time that an issue is defined until the subsequent adjustment is designed, developed, tested, accepted, placed into production and successfully used for a period of time.</p> <p>Preference: End User Discovered Post-go-live bugs: Service Now Developers & Release testing: SAP - Solution Mgr, Visual Studio Team Foundation Server, HPQC</p> <p>Desired Feedback: System provider shall indicate if a change and defect management system is used.</p>	At right, enter any expanded explanation. Typically, a positive response above to the 'Proposal Meets Standard' is sufficient, but vendors may add comments as desired. Responses to any of the other variations should be explained. Also, please pay attention to the Desired Feedback text as it may suggest a helpful response comment. Explanations should be short, but vendors may also use hyperlinks above or references in text at right to highlight other relevant sections of proposal materials.						
		1	Enablement and Use of Event Logs for Error Tracking and Debugging								
			<p>Standard: System shall provide for easy use of log files to track events during testing or debugging operations.</p>	At right, enter any expanded explanation. Typically, a positive response above to the 'Proposal Meets Standard' is sufficient, but							

endix K

Information Or	Ideal	Mandatory	<p>Comment: The support for the system testing shall include generous use of event logs to record system conditions, messages, logical status and events during testing or debugging. Logs shall allow for optional, progressive disablement during normal operations.</p> <p>Preference: No products specifically preferred.</p> <p>Desired Feedback: System provider shall indicate the extent and use of system log capabilities.</p>	<p>vendors may add comments as desired. Responses to any of the other variations should be explained. Also, please pay attention to the Desired Feedback text as it may suggest a helpful response comment. Explanations should be short, but vendors may also use hyperlinks above or references in text at right to highlight other relevant sections of proposal materials.</p>						
			1	Multiple Separate but Consistent Environments						
Information Only	Ideal	Core	Mandatory	<p>Standard: System (under its proposed licensing provisions) can be configured and sized to support multiple environments (including development, staging, and training) that fully emulate the production environment including connectivity to other key systems.</p> <p>Comment: The separate environments shall be configurable to have the same functionality as the production environment to assure that processes created in these non-production environments will operate in the production environment as originally developed.</p> <p>Preference: No products specifically preferred.</p> <p>Desired Feedback: System provider shall describe provisions for establishing separate environments and its configuration and deployment alignment with the production environment.</p>	<p>Vendors may add any hyperlink to right:</p> <p>At right, enter any expanded explanation. Typically, a positive response above to the 'Proposal Meets Standard' is sufficient, but vendors may add comments as desired. Responses to any of the other variations should be explained. Also, please pay attention to the Desired Feedback text as it may suggest a helpful response comment. Explanations should be short, but vendors may also use hyperlinks above or references in text at right to highlight other relevant sections of proposal materials.</p>					
				1	Use of Virtual Server Environment for Multiple Environments					
Ideal	Core	Mandatory	<p>Standard: System (under its proposed licensing provisions) should allow for the hosting of development, staging, or training versions/implementations of the system on Virtual Server.</p> <p>Implementations of the system should be capable of being loaded on an instance a virtual server for fundamental development, testing or training purposes and should behave on a virtual server consistent with behavior on a dedicated server.</p> <p>Preference: VMWare or AIX-based virtualization (LPAR).</p> <p>Desired Feedback: System provider should indicate if systems support virtualization.</p>	<p>Vendors may add any hyperlink to right:</p> <p>At right, enter any expanded explanation. Typically, a positive response above to the 'Proposal Meets Standard' is sufficient, but vendors may add comments as desired. Responses to any of the other variations should be explained. Also, please pay attention to the Desired Feedback text as it may suggest a helpful response comment. Explanations should be short, but vendors may also use hyperlinks above or references in text at right to highlight other relevant sections of proposal materials.</p>						
			1	Straightforward Production Deployment						
				Vendors may add any hyperlink to right:						

Information Only	Ideal	Core	Mandatory	<p>Standard: System can be deployed from a Test to Production environment by straightforward alteration of path names and connections using executable or msi and/or batch files.</p> <p>Comment: The system shall not require any fundamental re-configuration to deploy from test to production. The movement of code or the updating of connections and the loading of current data shall be the only major technical elements of final production deployment. These shall be accomplished via the use of HEs Operational Team Deploy with no required intervention from the system provider.</p> <p>Preference: No products specifically preferred.</p> <p>Desired Feedback: System provider shall indicate if deployment can be accomplished with no fundamental reconfiguration other than connectivity and data updates or movement of tested code to the production system.</p>	<p>At right, enter any expanded explanation. Typically, a positive response above to the 'Proposal Meets Standard' is sufficient, but vendors may add comments as desired. Responses to any of the other variations should be explained. Also, please pay attention to the Desired Feedback text as it may suggest a helpful response comment. Explanations should be short, but vendors may also use hyperlinks above or references in text at right to highlight other relevant sections of proposal materials.</p>						
				<p>Version Consistency among Environments</p>							
Information Only	Ideal	Core	Mandatory	<p>Standard: New system releases can be managed in way that allows for easy and straight forward version control to be maintained consistently among all environments.</p> <p>Comment: Patch and upgrade procedures shall allow for the consistent application of system updates to all environments without undue difficulty.</p> <p>Preference: No products specifically preferred.</p> <p>Desired Feedback: System provider shall indicate how updates are applied to include all relevant environments including a description of tools and processes required.</p>	<p>Vendors may add any hyperlink to right:</p> <p>At right, enter any expanded explanation. Typically, a positive response above to the 'Proposal Meets Standard' is sufficient, but vendors may add comments as desired. Responses to any of the other variations should be explained. Also, please pay attention to the Desired Feedback text as it may suggest a helpful response comment. Explanations should be short, but vendors may also use hyperlinks above or references in text at right to highlight other relevant sections of proposal materials.</p>						
				<p>Componentization and Service Oriented Architecture (SOA) Support</p>							
Information Only	Ideal	Core	Mandatory	<p>Standard: System shall employ use of application development tiers to separate major functions or layers.</p> <p>Comment: Beyond the simple separation of application from data, the system uses a well defined tier approach to separating major services including separation of the presentation layer from the application layer, separation of web server components from application components as well as providing separate security administration, separate report and print services, etc. See these requirements for related information: Multi-Tier System Architecture; Data Tier Separation; Segregation of Reporting Services; and Substantial to Full Separation of the Presentation Layer.</p> <p>Preference: No products specifically preferred.</p>	<p>Vendors may add any hyperlink to right:</p> <p>At right, enter any expanded explanation. Typically, a positive response above to the 'Proposal Meets Standard' is sufficient, but vendors may add comments as desired. Responses to any of the other variations should be explained. Also, please pay attention to the Desired Feedback text as it may suggest a helpful response comment. Explanations should be short, but vendors may also use hyperlinks above or references in text at right to highlight other relevant sections of proposal materials.</p>						
				<p>N-Tier Application Architecture</p>							

				Desired Feedback: System provider shall describe the tier architecture of the system and describe the separation and integration methods for defining tiers.							
			1								
	Ideal	Core	Mandatory	<p>Standard: Data shall be stored in a separate tier distinct from other aspects of the application architecture.</p> <p>Comment: 2 tier to 'n' tier technologies allow more flexible solutions and allow the application to be scaled up to meet higher load levels. At a 2 tier minimum, a separated data tier compliant with the Modeling View Controller (MVC) design pattern is a widely accepted implementation of the standard. If the data is not stored to meet this guideline, the integration, maintenance and reporting functions associated with the application can be problematic.</p> <p>Preference: Data to be stored in a database.</p> <p>Desired Feedback: If system does not meet this standard, what type of data storage approach is used?</p>	Vendors may add any hyperlink to right:	At right, enter any expanded explanation. Typically, a positive response above to the 'Proposal Meets Standard' is sufficient, but vendors may add comments as desired. Responses to any of the other variations should be explained. Also, please pay attention to the Desired Feedback text as it may suggest a helpful response comment. Explanations should be short, but vendors may also use hyperlinks above or references in text at right to highlight other relevant sections of proposal materials.					
			1	No Storage/ Maintenance of Data on Web Servers							
	Information Only	Ideal	Core	Mandatory	<p>Standard: Beyond the separation of data from the application, the system shall specifically avoid storing (other than very short term caching) of any 'content' information on web servers.</p> <p>Comment: No application or system content information shall ever be stored on a web server as part of an on-going data storage arrangement or strategy. Any temporary cache data must also meet HE standards regarding encryption of data outside a HE firewall.</p> <p>Preference: Data to be stored in SQL DB behind Firewall.</p> <p>Desired Feedback: If system does not meet this standard, describe what type of data storage is maintained at the web server level.</p>	Vendors may add any hyperlink to right:	At right, enter any expanded explanation. Typically, a positive response above to the 'Proposal Meets Standard' is sufficient, but vendors may add comments as desired. Responses to any of the other variations should be explained. Also, please pay attention to the Desired Feedback text as it may suggest a helpful response comment. Explanations should be short, but vendors may also use hyperlinks above or references in text at right to highlight other relevant sections of proposal materials.				
			1	Segregation of Reporting Services							
	Information Only	Ideal	Mandatory	<p>Standard: System shall support the segregation of reporting functionality so as to allow use of mainstream external tools for generating reports from the data.</p> <p>Comment: Consistent with the n-tier architecture approach, HE prefers systems or applications architected to allow third party reporting tools such as SAP Business Objects to be used in developing reports from the data.</p>	Vendors may add any hyperlink to right:	At right, enter any expanded explanation. Typically, a positive response above to the 'Proposal Meets Standard' is sufficient, but vendors may add comments as desired. Responses to any of the other variations should be explained. Also, please pay attention to the Desired Feedback text as it may suggest a helpful response comment. Explanations should be short, but vendors					

Info	1	<p>Preference: Preference for SAP Business Objects.</p> <p>Desired Feedback: If system does not meet this standard, what type of data reporting approach is used? If compliant version is planned, provide any information on release date and form of compliance.</p>	<p>Explanations should be short, but vendors may also use hyperlinks above or references in text at right to highlight other relevant sections of proposal materials.</p>						
			Substantial to Full Separation of the Presentation Layer						
Information Only	1	<p>Standard: System shall employ substantial to full separation of the presentation layer from the application layer.</p> <p>Comment: Consistent with the n-tier architecture approach, HE prefers systems or applications architected to allow alternative presentation options such as fat vs. thin client options without affecting fundamental system functionality.</p> <p>Preference: No products specifically preferred.</p> <p>Desired Feedback: System provider shall indicate whether the system has multiple presentation modes or whether it allows the presentation mode to be upgraded separately from the application logic. If system does not meet this standard, what options for altering the presentation mode/layer exist? Is the system tied to a particular presentation mode?</p>	<p>Vendors may add any hyperlink to right:</p> <p>At right, enter any expanded explanation. Typically, a positive response above to the 'Proposal Meets Standard' is sufficient, but vendors may add comments as desired. Responses to any of the other variations should be explained. Also, please pay attention to the Desired Feedback text as it may suggest a helpful response comment. Explanations should be short, but vendors may also use hyperlinks above or references in text at right to highlight other relevant sections of proposal materials.</p>						
			Application Function Componentization						
Information Only	1	<p>Standard: Individual system functions should be modular, thereby providing individual business functions in a componentized fashion.</p> <p>Comment: Separated program modules should allow the individual modules to be 'called' from one another or from a main program in order to 're-use' functionality across the system.</p> <p>Preference: No products specifically preferred.</p> <p>Desired Feedback: System provider should describe degree of componentization and whether the system is more fully based on principles of SOA.</p>	<p>Vendors may add any hyperlink to right:</p> <p>At right, enter any expanded explanation. Typically, a positive response above to the 'Proposal Meets Standard' is sufficient, but vendors may add comments as desired. Responses to any of the other variations should be explained. Also, please pay attention to the Desired Feedback text as it may suggest a helpful response comment. Explanations should be short, but vendors may also use hyperlinks above or references in text at right to highlight other relevant sections of proposal materials.</p>						
			WSDL or WADL Enabled						
ily	1	<p>Standard: System should allow business functions/processes to be defined in WSDL or WADL.</p>	<p>Vendors may add any hyperlink to right:</p> <p>At right, enter any expanded explanation. Typically, a positive response above to the 'Proposal Meets Standard' is sufficient, but</p>						

Information Or	Ideal	Core	Mandatory	<p>Comment: Web Services Description Language (WSDL) is used to define a service within an SOA environment. Applications which are truly Web Services enabled will use this utility. Similarly, Web Application Description Language (WADL) is used to fine services usually within a REST web service.</p> <p>Preference: No products specifically preferred.</p> <p>Desired Feedback: System provider should indicate if and where WSDL/WADL is used to define common services.</p>	<p>vendors may add comments as desired. Responses to any of the other variations should be explained. Also, please pay attention to the Desired Feedback text as it may suggest a helpful response comment. Explanations should be short, but vendors may also use hyperlinks above or references in text at right to highlight other relevant sections of proposal materials.</p>	Appendix K															
				1	SOAP or REST Enabled																
Information Only	Ideal	Core	Mandatory	<p>Standard: Important system functions shall be callable via SOAP or REST protocol.</p> <p>Comment: Application functions that can be evoked via SOAP or REST protocol can be leveraged by other applications as a service. In some cases, functions within legacy applications can be wrapped to become “callable” and may use this technique to into a future HE architecture more smoothly.</p> <p>Preference: No products specifically preferred.</p> <p>Desired Feedback: System provider shall indicate what functions, if any, are available to be called via SOAP or REST consistent procedures.</p>	<p>Vendors may add any hyperlink to right:</p> <p>At right, enter any expanded explanation. Typically, a positive response above to the 'Proposal Meets Standard' is sufficient, but vendors may add comments as desired. Responses to any of the other variations should be explained. Also, please pay attention to the Desired Feedback text as it may suggest a helpful response comment. Explanations should be short, but vendors may also use hyperlinks above or references in text at right to highlight other relevant sections of proposal materials.</p>																
				1	UDDI Enabled																
Information Only	Ideal	Core	Mandatory	<p>Standard: Important system functions can be described using UDDI publishing.</p> <p>Comment: Important application functions may, under certain conditions, be described and published using Universal Discovery, Description and Integration (UDDI) techniques. When used appropriately, these techniques can allow system functions to be more fully exposed and available to other system uses. Appropriate judgment should be used in requiring this standard.</p> <p>Preference: No products specifically preferred.</p> <p>Desired Feedback: System providers should indicate what functions, if any, are described and/or published using UDDI.</p>	<p>Vendors may add any hyperlink to right:</p> <p>At right, enter any expanded explanation. Typically, a positive response above to the 'Proposal Meets Standard' is sufficient, but vendors may add comments as desired. Responses to any of the other variations should be explained. Also, please pay attention to the Desired Feedback text as it may suggest a helpful response comment. Explanations should be short, but vendors may also use hyperlinks above or references in text at right to highlight other relevant sections of proposal materials.</p>																
				Scores for Application Architecture			<table border="1"> <tr> <th colspan="3">Avg Scores</th> <th>Mandatory Compliance</th> </tr> <tr> <td>Ideal</td> <td>Core</td> <td>Joint</td> <td>Failed</td> </tr> <tr> <td>0</td> <td>0</td> <td>0</td> <td></td> </tr> </table>			Avg Scores			Mandatory Compliance	Ideal	Core	Joint	Failed	0	0	0	
Avg Scores			Mandatory Compliance																		
Ideal	Core	Joint	Failed																		
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								10.0													

Integration Architecture

Integration Capabilities				Meets	Will	3rd P	Cust	No	Other
Information Only	Ideal	Core	Mandatory	1	API Extensiveness/Flexibility				
					<p>Vendors may add any hyperlink to right:</p> <p>At right, enter any expanded explanation. Typically, a positive response above to the 'Proposal Meets Standard' is sufficient, but vendors may add comments as desired. Responses to any of the other variations should be explained. Also, please pay attention to the Desired Feedback text as it may suggest a helpful response comment. Explanations should be short, but vendors may also use hyperlinks above or references in text at right to highlight other relevant sections of proposal materials.</p>				
<p>Standard: All user accessible data in the system shall be capable of being accessed via documented APIs (with the preferred method of access being a data access model).</p> <p>Comment: Data transfer in and out of applications is a critical component for evaluation. At a minimum, HE expects applications to have a robust level of Application Program Interfaces (API) or more preferably a data object model that provides flexibility to access the full range of functional data. Testing Excel insertion with paste link to word.</p> <p>Preference: No products specifically preferred.</p> <p>Desired Feedback: System provider shall describe API extensiveness including whether edit controls are applied to APIs and whether a data model is used for outside access to system data. More extensive feedback would include lists of documented APIs or documentation for the data access model.</p>									
Information Only	Ideal	Core	Mandatory	1	Native XML or JSON Support				
					<p>Vendors may add any hyperlink to right:</p> <p>At right, enter any expanded explanation. Typically, a positive response above to the 'Proposal Meets Standard' is sufficient, but vendors may add comments as desired. Responses to any of the other variations should be explained. Also, please pay attention to the Desired Feedback text as it may suggest a helpful response comment. Explanations should be short, but vendors may also use hyperlinks above or references in text at right to highlight other relevant sections of proposal materials.</p>				
<p>Standard: System should support use of XML or JSON natively to present data or to transfer information in and out of the system.</p> <p>Comment: XML is widely accepted by today's IT industry, and it is the fundamental standard for SOA. Both WSDL/WADL and SOAP/REST are all defined in XML format. Native application support for XML is considered ideal with XML compatibility via additional utilities established as a next best alternative.</p> <p>Preference: No products specifically preferred.</p> <p>Desired Feedback: System provider should describe native provisions for presenting data and whether that includes converting data to an XML format for inter system communication.</p>									
Only	Ideal	Core	Mandatory	1	XML Compatibility				
					<p>Vendors may add any hyperlink to right:</p> <p>At right, enter any expanded explanation. Typically, a positive response above to the 'Proposal Meets Standard' is sufficient, but vendors may add comments as desired.</p>				
<p>Standard: Even if the system does not natively support XML, the system shall be architected to extensively support XML processing through 3rd party XML utilities.</p>									

Information C	Ideal	Core	Mandatory	<p>Comment: Irrespective of whether the system natively supports XML interchange, does the system interface tightly with third party XML utilities that can be used to either convert system data to XML or take system provided XML data and process it further?</p> <p>Preference: No products specifically preferred.</p> <p>Desired Feedback: System provider shall explain systems compatibility with 3rd party XML utilities and name its preferred utility if one exists.</p>	<p>Responses to any of the other variations should be explained. Also, please pay attention to the Desired Feedback text as it may suggest a helpful response comment. Explanations should be short, but vendors may also use hyperlinks above or references in text at right to highlight other relevant sections of proposal materials.</p>						
Information Only	Ideal	Core	Mandatory	<p>1 Integration at the Web Services Layer</p> <p>Standard: System should support integration flexibility at the web services layer such as allowing XML/WSDL/WADL calls or the interactive use of portlets.</p> <p>Comment: HE seeks functional flexibility among its applications that allow applications to make calls for web services and to receive calls for web services.</p> <p>Preference: No products specifically preferred.</p> <p>Desired Feedback: System provider should explain the degree to which the system utilizes web services for calling services and for defining services that can be called.</p>	<p>Vendors may add any hyperlink to right:</p> <p>At right, enter any expanded explanation. Typically, a positive response above to the 'Proposal Meets Standard' is sufficient, but vendors may add comments as desired. Responses to any of the other variations should be explained. Also, please pay attention to the Desired Feedback text as it may suggest a helpful response comment. Explanations should be short, but vendors may also use hyperlinks above or references in text at right to highlight other relevant sections of proposal materials.</p>						
Information Only	Ideal	Core	Mandatory	<p>1 Integration with OData</p> <p>Standard: System should support integration with Microsoft's Open Data Protocol (OData).</p> <p>Comment: OData allows for integration of the application data with other applications.</p> <p>Preference: No products specifically preferred</p> <p>Desired Feedback: System provider should explain whether system can be configured to support OData.</p>	<p>Vendors may add any hyperlink to right:</p> <p>At right, enter any expanded explanation. Typically, a positive response above to the 'Proposal Meets Standard' is sufficient, but vendors may add comments as desired. Responses to any of the other variations should be explained. Also, please pay attention to the Desired Feedback text as it may suggest a helpful response comment. Explanations should be short, but vendors may also use hyperlinks above or references in text at right to highlight other relevant sections of proposal materials.</p>						
Interoperability with Key Services Important to HE						Meets	Will	3rd P	Cust	No	Other
Information Only	Ideal	Core	Mandatory	<p>1 Interoperability with MS Exchange</p> <p>Standard: For e-mail related functions, system interfaces with or interoperates with MS Exchange 2016 or higher.</p>	<p>Vendors may add any hyperlink to right:</p> <p>At right, enter any expanded explanation. Typically, a positive response above to the 'Proposal Meets Standard' is sufficient, but</p>						

Information Or	Ideal	Core	Mandatory	<p>Comment: For systems or applications that shall interoperate with e-mail to facilitate workflow notifications or other human messaging services, HE expects that such systems will interface with its current implementation of MS Exchange.</p> <p>Preference: Integrate with MS Exchange 2016</p> <p>Desired Feedback: System provider shall indicate the functions and the degree of integration, if any, with MS Exchange.</p>	<p>vendors may add comments as desired. Responses to any of the other variations should be explained. Also, please pay attention to the Desired Feedback text as it may suggest a helpful response comment. Explanations should be short, but vendors may also use hyperlinks above or references in text at right to highlight other relevant sections of proposal materials.</p>						
				1	Interoperability with MS Office SharePoint						
Information Only	Ideal	Core	Mandatory	<p>Standard: For relevant services, system shall interface with MS Office SharePoint.</p> <p>Comment: For systems or applications that shall integrate with group collaboration or group office productivity software, HE expects that such systems will interface with its current implementation of SharePoint.</p> <p>Preference: Integrate with SharePoint 2013 or Sharepoint Online</p> <p>Desired Feedback: System provider shall outline functions and levels of interoperation with HE currently supported version of SharePoint.</p>	<p>Vendors may add any hyperlink to right:</p> <p>At right, enter any expanded explanation. Typically, a positive response above to the 'Proposal Meets Standard' is sufficient, but vendors may add comments as desired. Responses to any of the other variations should be explained. Also, please pay attention to the Desired Feedback text as it may suggest a helpful response comment. Explanations should be short, but vendors may also use hyperlinks above or references in text at right to highlight other relevant sections of proposal materials.</p>						
				1	Interoperability with MS Office desktop productivity suite						
Information Only	Ideal	Core	Mandatory	<p>Standard: For relevant office productivity integrations at the desktop, system shall interface with MS Office 365 or higher.</p> <p>Comment: For systems or applications that should interoperate with desktop productivity tools, HE expects that such systems will interface with its current implementation of MS Office 365 and will migrate with HE to a newer MS Office at an appropriate later date.</p> <p>Preference: Integration with MS Office 365 or Higher.</p> <p>Desired Feedback: System provider should outline functions and levels of interoperation with MS Office 365 or Higher.</p>	<p>Vendors may add any hyperlink to right:</p> <p>At right, enter any expanded explanation. Typically, a positive response above to the 'Proposal Meets Standard' is sufficient, but vendors may add comments as desired. Responses to any of the other variations should be explained. Also, please pay attention to the Desired Feedback text as it may suggest a helpful response comment. Explanations should be short, but vendors may also use hyperlinks above or references in text at right to highlight other relevant sections of proposal materials.</p>						
				1	Interoperability with SAP Business Objects						
Information Only	Ideal	Core	Mandatory	<p>Standard: For selected enterprise reporting services, the system should support use of SAP Business Objects.</p> <p>Comment: This is a stated direction for the future as HE focuses on Business Objects for enterprise reporting.</p>	<p>Vendors may add any hyperlink to right:</p> <p>At right, enter any expanded explanation. Typically, a positive response above to the 'Proposal Meets Standard' is sufficient, but vendors may add comments as desired. Responses to any of the other variations should be explained. Also, please pay attention to the Desired Feedback text as it</p>						

		EDS				RFP						
		Info	Core	Essential	Mandatory	Meets	Will	3rd P	Cust	No	Other	
Information Only	1	Ideal	Core	Mandatory	<p>Preference: SAP Business Objects preferred.</p> <p>Desired Feedback: For relevant functions, system provider should describe data reporting compatibility with Business Objects.</p>	<p>attention to the Desired Feedback text as it may suggest a helpful response comment. Explanations should be short, but vendors may also use hyperlinks above or references in text at right to highlight other relevant sections of proposal materials.</p>						Appendix K
					EDI Support							
Information Only	1	Ideal	Core	Mandatory	<p>Native EDI Support</p>							
					<p>Vendors may add any hyperlink to right:</p> <p>Standard: When Electronic Data Interchange (EDI) support is required, system/application should provide native EDI support consistent with industry standard EDI file formats when such formats are applicable.</p> <p>Comment: Because some HE business partners require EDI based file transfer communication, native support of EDI in relevant applications is preferred. EDI is relevant for a small minority of business functions, but for those limited functions, it may be quite important.</p> <p>Preference: No products specifically preferred.</p> <p>Desired Feedback: System provider should describe EDI features and compliance with relevant industry protocols for standard file formats.</p>	<p>At right, enter any expanded explanation. Typically, a positive response above to the 'Proposal Meets Standard' is sufficient, but vendors may add comments as desired. Responses to any of the other variations should be explained. Also, please pay attention to the Desired Feedback text as it may suggest a helpful response comment. Explanations should be short, but vendors may also use hyperlinks above or references in text at right to highlight other relevant sections of proposal materials.</p>						
Information Only	1	Ideal	Core	Mandatory	<p>EDI Support</p>							
					<p>Vendors may add any hyperlink to right:</p> <p>Standard: When Electronic Data Interchange (EDI) support is required and application does not natively support EDI communication, the system should easily allow for EDI support to be applied through integration with 3rd party tools.</p> <p>Comment: If the preferred standard of native EDI support is not included in the system/application, the system should be compatible with use of third party EDI tools by providing convenient file export functions that can be linked fairly seamlessly to third party EDI file management tools.</p> <p>Preference: No products specifically preferred.</p> <p>Desired Feedback: System provider should describe the form of integration between system and third party tools including the name of recommended tools.</p>	<p>At right, enter any expanded explanation. Typically, a positive response above to the 'Proposal Meets Standard' is sufficient, but vendors may add comments as desired. Responses to any of the other variations should be explained. Also, please pay attention to the Desired Feedback text as it may suggest a helpful response comment. Explanations should be short, but vendors may also use hyperlinks above or references in text at right to highlight other relevant sections of proposal materials.</p>						
User Interface (UI) Standards – Cross Platform												
Only	1	Ideal	Core	Mandatory	<p>Windows based Web Browser Compatibility – Internal Use</p>							
					<p>Vendors may add any hyperlink to right:</p> <p>Standard: Browser based portions of system shall work with Microsoft Edge (Chromium version)</p>	<p>At right, enter any expanded explanation. Typically, a positive response above to the 'Proposal Meets Standard' is sufficient, but</p>						

Information C	1	<p>Comment: Applications that deliver UI over browser technology shall be compatible with the currently stated HE standard for internal browser compatibility.</p> <p>Preference: Vendor can certify Microsoft Edge</p> <p>Desired Feedback: System provider shall state clearly what their browser compatibilities include and/or what their requirements are.</p>	<p>vendors may add comments as desired. Responses to any of the other variations should be explained. Also, please pay attention to the Desired Feedback text as it may suggest a helpful response comment. Explanations should be short, but vendors may also use hyperlinks above or references in text at right to highlight other relevant sections of proposal materials.</p>						
Information Only	1	<p>General Web Browser Compatibility – External Use</p> <p>Standard: Browser based portions of system exposed to public facing internet shall work with currently supported version of the following browsers: Edge, Firefox, Safari, and Chrome to be inclusive of all external users.</p> <p>Comment: Applications that deliver UI over browser technology shall be compatible with the currently stated HE standard for external browser (public facing) technology and the separate standard for external browser technology.</p> <p>Preference: Certify Edge, Firefox & Safari, Chrome.</p> <p>Desired Feedback: System provider shall state clearly what their browser compatibilities include and/or what their requirements are.</p>	<p>Vendors may add any hyperlink to right:</p> <p>At right, enter any expanded explanation. Typically, a positive response above to the 'Proposal Meets Standard' is sufficient, but vendors may add comments as desired. Responses to any of the other variations should be explained. Also, please pay attention to the Desired Feedback text as it may suggest a helpful response comment. Explanations should be short, but vendors may also use hyperlinks above or references in text at right to highlight other relevant sections of proposal materials.</p>						
Information Only	1	<p>Full Enablement of UI via Browser (without Terminal Services)</p> <p>Standard: When required, web browser can be used as the sole client side access for the application. Native browser support is generally preferred while self-updating plug-ins may be accepted.</p> <p>Comment: The software should have web browser enabled UI (HTML over HTTP) that conducts the user interaction from either an unaided browser, or at minimum, a browser with plug-ins that update automatically. The objective of this standard is to support the application via “thin client” technologies which should not require HE to install any interface application on the user's desktop PC or require use of Terminal Services.</p> <p>Preference: Compatibility on all HE Browsers.</p> <p>Desired Feedback: System provider should indicate level of compliance with all browsers listed in current HE General Web Browser Compatibility standard.</p>	<p>Vendors may add any hyperlink to right:</p> <p>At right, enter any expanded explanation. Typically, a positive response above to the 'Proposal Meets Standard' is sufficient, but vendors may add comments as desired. Responses to any of the other variations should be explained. Also, please pay attention to the Desired Feedback text as it may suggest a helpful response comment. Explanations should be short, but vendors may also use hyperlinks above or references in text at right to highlight other relevant sections of proposal materials.</p>						
y	1	<p>Web Portal Enablement for External Use</p> <p>Standard: Information and functionality in the system UI can be segmented and presented as components within a web portal.</p>	<p>Vendors may add any hyperlink to right:</p> <p>At right, enter any expanded explanation. Typically, a positive response above to the 'Proposal Meets Standard' is sufficient, but</p>						

Information Only	Ideal	Core	Mandatory	<p>Comment: The ability to have meaningful chunks of software application functionality and information displayed within a Web Portal is consistent with HE direction and is desired in any application in as much as it is reasonable and meaningful. Allowing flexible data exchange among portal segments is also desired.</p> <p>Preference: Integration with Yet-to-be-determined</p> <p>Desired Feedback: System provider should outline the system capabilities for expressing its parts as portal components.</p>	<p>vendors may add comments as desired. Responses to any of the other variations should be explained. Also, please pay attention to the Desired Feedback text as it may suggest a helpful response comment. Explanations should be short, but vendors may also use hyperlinks above or references in text at right to highlight other relevant sections of proposal materials.</p>						
	User Interface (UI) Standards - Windows				Meets	Will	3rd P	Cust	No	Other	
		1		Use of Windows 10 Browsers for Presentation							
Information Only	Ideal	Core	Mandatory	<p>Standard: Even if system will not install as a native client on Windows 10 devices, system can use MS Edge browser for full presentation and interaction.</p> <p>Comment: At a minimum, systems that must be accessed via Windows PCs must be able to present information and appropriate functionality via the native browser (MS Edge) features of Windows 10.</p> <p>Preference: MS Edge.</p> <p>Desired Feedback: System provider should indicate how system can be assessed and utilized via Windows 10 workstations.</p>	<p>Vendors may add any hyperlink to right:</p> <p>At right, enter any expanded explanation. Typically, a positive response above to the 'Proposal Meets Standard' is sufficient, but vendors may add comments as desired. Responses to any of the other variations should be explained. Also, please pay attention to the Desired Feedback text as it may suggest a helpful response comment. Explanations should be short, but vendors may also use hyperlinks above or references in text at right to highlight other relevant sections of proposal materials.</p>						
	Scores for Integration Architecture				Avg Scores Ideal Core Joint 0 0 0			Mandatory Compliance Failed		Vendor Responses include:	

Technology Architecture

Server Platforms				Meets	Will	3rd P	Cust	No	Other
		1	Application Server Platform						
Information Only	Ideal	Core	Mandatory	Vendors may add any hyperlink to right:					
				<p>Standard: System should operate on current HE Application Server Platform Standard which is defined as Windows Server or AIX.</p> <p>Comment: HE mandates that any new software packages run on the current HE standard.</p> <p>Preference: Preference for Windows Server 2019 and AIX. Lesser preference for Redhat.</p> <p>Desired Feedback: System provider should specify supported application server platforms.</p>					
		1	Use of MS IIS as Web Server Platform						
Information Only	Ideal	Core	Mandatory	Vendors may add any hyperlink to right:					
				<p>Standard: Web related system services should operate using a currently supported version of Microsoft Internet Information Server (IIS).</p> <p>Comment: Other than limited allowances for Unix web servers, any new software requiring a web server platform should operate from the most recent version of MS IIS.</p> <p>Preference: Preference for most recent version of MS IIS and integration with Tomcat.</p> <p>Desired Feedback: System provider should specify supported web server platforms.</p>					
Scalability and Performance				Meets	Will	3rd P	Cust	No	Other
1			Vertical Scalability						
Information Only	Ideal	Core	Mandatory	Vendors may add any hyperlink to right:					
				<p>Standard: System can be scaled vertically by adding CPU power and/or memory.</p> <p>Comment: This is both application architecture standard and hardware standard. A system shall be able to scale by adding memory and/or CPU power. Horizontal scalability is addressed by a separate standard.</p> <p>Preference: No products specifically preferred.</p> <p>Desired Feedback: System provider shall describe ability to scale by adding resources to a single server and shall further describe any impact on licensing and fees.</p>					
		1	Horizontal Scalability	K-25					

Information Only	Ideal	Core	Mandatory	Vendors may add any hyperlink to right:							
				<p>Standard: System can be scaled horizontally by adding servers.</p> <p>Comment: Horizontal Scaling means applications can be run on a cluster of servers (with balancing), thus enabling HE to add more servers when the work load expands. Not all software allows horizontal scaling.</p> <p>Preference: F5 load balancing preferred.</p> <p>Desired Feedback: System provider should describe ability to scale by adding additional servers.</p>	<p>At right, enter any expanded explanation. Typically, a positive response above to the 'Proposal Meets Standard' is sufficient, but vendors may add comments as desired. Responses to any of the other variations should be explained. Also, please pay attention to the Desired Feedback text as it may suggest a helpful response comment. Explanations should be short, but vendors may also use hyperlinks above or references in text at right to highlight other relevant sections of proposal materials.</p>						
		1		Cluster Awareness							
Information Only	Ideal	Core	Mandatory	Vendors may add any hyperlink to right:							
				<p>Standard: System is 'cluster aware' at the application layer and can fully leverage server based clustering techniques.</p> <p>Comment: To fully leverage clustering features, the application layer must be designed to work with server functionality to engage clustering options. System provides such integration.</p> <p>Preference: Preference is Power HA for AIX, MS clustering for Windows, and Service Guard for Linux.</p> <p>Desired Feedback: System provider should provide information and architectural specifications dealing with how the system leverages clustering capabilities.</p>	<p>At right, enter any expanded explanation. Typically, a positive response above to the 'Proposal Meets Standard' is sufficient, but vendors may add comments as desired. Responses to any of the other variations should be explained. Also, please pay attention to the Desired Feedback text as it may suggest a helpful response comment. Explanations should be short, but vendors may also use hyperlinks above or references in text at right to highlight other relevant sections of proposal materials.</p>						
		1		Manual Failover Procedures							
Information Only	Ideal	Core	Mandatory	Vendors may add any hyperlink to right:							
				<p>Standard: System can be recreated and brought back to prior state through manual restoration processes while also using system logs or other outside messaging / broker services to understand which transactions may have failed.</p> <p>Comment: This standard for failover protection is not intended to cover instant or semi-automatic failover services but instead represents a base line standard to validate that the system can at least be restored to a specific 'before failure' state using manual system restore techniques.</p> <p>Preference: No products specifically preferred.</p> <p>Desired Feedback: If system is not being protected via other semi automated or fully automated fail over techniques, system provider should describe the steps necessary to restore the system and potentially recover transactions in progress at the point of failure.</p>	<p>At right, enter any expanded explanation. Typically, a positive response above to the 'Proposal Meets Standard' is sufficient, but vendors may add comments as desired. Responses to any of the other variations should be explained. Also, please pay attention to the Desired Feedback text as it may suggest a helpful response comment. Explanations should be short, but vendors may also use hyperlinks above or references in text at right to highlight other relevant sections of proposal materials.</p>						
		1		Semi Automated Failover Protection							

Information Only	Ideal	Core	Mandatory		Vendors may add any hyperlink to right:	
				<p>Standard: System supports semi automated failover protection that allows a replacement platform to be brought up within 15 minutes of failure complete with an audit log of failed transactions.</p> <p>Comment: This standard for failover protection is not intended to cover instant failover involving full transaction recovery and seamless, automated re-processing of transactions. This standard assumes some operator intervention to bring up replacement system and to find, account for and re-process failed transactions.</p> <p>Preference: No products specifically preferred.</p> <p>Desired Feedback: System provider shall verify the steps necessary to provide for system restoration (even if manual) including the steps necessary to identify (and restore) transactions in progress at the time of failure.</p>	<p>At right, enter any expanded explanation. Typically, a positive response above to the 'Proposal Meets Standard' is sufficient, but vendors may add comments as desired. Responses to any of the other variations should be explained. Also, please pay attention to the Desired Feedback text as it may suggest a helpful response comment. Explanations should be short, but vendors may also use hyperlinks above or references in text at right to highlight other relevant sections of proposal materials.</p>	
		1		Unattended High Availability Failover Protection		
Information Only	Ideal	Core	Mandatory		Vendors may add any hyperlink to right:	
				<p>Standard: System supports High Availability failover protection that provides for unattended within 1 second with complete transaction recovery and seamless re-processing of failed transactions in progress.</p> <p>Comment: This standard for failover protection assumes near instant failover involving full transaction recovery and seamless, automated re-processing of transactions. This standard assumes no significant operator intervention to bring up replacement system and to find, account for and re-process failed transactions.</p> <p>Preference: Preference is Power HA for AIX, MS clustering for Windows, and Service Guard for Linux.</p> <p>Desired Feedback: System provider shall detail high availability failover protection options.</p>	<p>At right, enter any expanded explanation. Typically, a positive response above to the 'Proposal Meets Standard' is sufficient, but vendors may add comments as desired. Responses to any of the other variations should be explained. Also, please pay attention to the Desired Feedback text as it may suggest a helpful response comment. Explanations should be short, but vendors may also use hyperlinks above or references in text at right to highlight other relevant sections of proposal materials.</p>	
		1		Response Time Performance – Internal Network		
y					Vendors may add any hyperlink to right:	
				<p>Standard: Overall Response time for a simple transaction should be consistent with the needs of the application. Internal Client based systems should generally return a query within 1.0 seconds on networks if one assumes a baseline of 50 mbps effective throughput.</p>	<p>At right, enter any expanded explanation. Typically, a positive response above to the 'Proposal Meets Standard' is sufficient, but vendors may add comments as desired. Responses to any of the other variations should be explained. Also, please pay</p>	

Information Only	Ideal	Core	Mandatory	<p>Comment: Response is difficult to estimate, but in general, response time performance for internally deployed systems operating at an average of 50 mbps should generally fall within 1.0 seconds for simple transactions. HE understands that ultimate responsiveness is heavily influenced by our underlying network and data stores, and HE expects that its systems can support such responsiveness if the application is well constructed.</p> <p>Preference: No products specifically preferred.</p> <p>Desired Feedback: System provider should estimate system architecture requirements to achieve HE response standards. Provider should also indicate estimated response time.</p>	<p>should be explained. Also, please pay attention to the Desired Feedback text as it may suggest a helpful response comment. Explanations should be short, but vendors may also use hyperlinks above or references in text at right to highlight other relevant sections of proposal materials.</p>						
				<p>1</p> <p>Response Time Performance – External Facing</p>							
Information Only	Ideal	Core	Mandatory	<p>Standard: Overall Response time for a simple query should be consistent with the needs of the application. Response to a well powered web client assuming a base overall throughput speed of 8 mbps on the network should be within 1.5 seconds. HE understands that ultimate responsiveness is also heavily influenced by our underlying network and data stores, and HE expects that its systems can support such responsiveness if the application is well constructed.</p> <p>Comment: Response is difficult to estimate, but in general, response time performance for web systems that provide external interactions to HE constituents and community members should provide return pages within 1.5 seconds assuming a typical workstation and an 8 mbps download speed to a major ISP.</p> <p>Preference: No products specifically preferred.</p> <p>Desired Feedback: System provider should estimate system architecture requirements to achieve HE response as stated.</p>	<p>Vendors may add any hyperlink to right:</p> <p>At right, enter any expanded explanation. Typically, a positive response above to the 'Proposal Meets Standard' is sufficient, but vendors may add comments as desired. Responses to any of the other variations should be explained. Also, please pay attention to the Desired Feedback text as it may suggest a helpful response comment. Explanations should be short, but vendors may also use hyperlinks above or references in text at right to highlight other relevant sections of proposal materials.</p>						
				<p>1</p> <p>Network/Communication Architecture</p>	Meets	Will	3rd P	Cust	No	Other	
Information Only	Ideal	Core	Mandatory	<p>Standard: TCP/IP is the standard HE business network transport protocol.</p> <p>Comment: HE does not support Novell NCP, IPX or other proprietary protocols other than VPN encryptions that continue to use TCP/IP. NetBIOS is not supported as a transport protocol even if it is recognized.</p> <p>Preference: IPv4 required.</p> <p>Desired Feedback: System provider shall describe its network transport protocols.</p>	<p>Vendors may add any hyperlink to right:</p> <p>At right, enter any expanded explanation. Typically, a positive response above to the 'Proposal Meets Standard' is sufficient, but vendors may add comments as desired. Responses to any of the other variations should be explained. Also, please pay attention to the Desired Feedback text as it may suggest a helpful response comment. Explanations should be short, but vendors may also use hyperlinks above or references in text at right to highlight other relevant sections of proposal materials.</p>						
				<p>1</p> <p>HTTPS Data Transport Protocols</p>							

Information Only Ideal Core Mandatory	Vendors may add any hyperlink to right:			Appendix K		
	<p>Standard: HTTPS is the standard HE web data transport protocols.</p> <p>Comment: HTTP is the dominant data transport protocol today and it is a HE mandate for on-line applications. HTTPS is, at a minimum, required for secure data transport but can be replaced by more secure forms of connectivity as needed. See the "Cryptographic System" requirement for additional information.</p> <p>Preference: No products specifically preferred.</p> <p>Desired Feedback: System provider shall describe its data transport protocols.</p>	At right, enter any expanded explanation. Typically, a positive response above to the 'Proposal Meets Standard' is sufficient, but vendors may add comments as desired. Responses to any of the other variations should be explained. Also, please pay attention to the Desired Feedback text as it may suggest a helpful response comment. Explanations should be short, but vendors may also use hyperlinks above or references in text at right to highlight other relevant sections of proposal materials.				
Scores for Technology Architecture			Avg Scores		Mandatory Compliance Not Applicable	Vendor Responses include: Avg. HE Rating 10.0
			Ideal 0	Core 0		

System Operation, Management and Support Architecture

System Operation and Management				Meets	Will	3rd P	Cust	No	Other
		1	Compatibility with Storage Area Network (SAN)						
Information Only	Ideal	Core	Mandatory	Vendors may add any hyperlink to right:					
				<p>Standard: System implementer shall deploy storage services within HE Storage Area Network (SAN) based on 3PAR.</p> <p>Comment: System shall be deployed to operate using a SAN for all system data storage needs other than server based logs or configuration files.</p> <p>Preference: 3PAR preferred.</p> <p>Desired Feedback: System implementer shall be familiar with SAN technologies in order to ensure that the product being implemented is configured correctly to function in a SAN environment.</p>	<p>At right, enter any expanded explanation. Typically, a positive response above to the 'Proposal Meets Standard' is sufficient, but vendors may add comments as desired. Responses to any of the other variations should be explained. Also, please pay attention to the Desired Feedback text as it may suggest a helpful response comment. Explanations should be short, but vendors may also use hyperlinks above or references in text at right to highlight other relevant sections of proposal materials.</p>				
		1	Compatibility with Native Fiber Channel for SAN Management						
Information Only	Ideal	Core	Mandatory	Vendors may add any hyperlink to right:					
				<p>Standard: System is compatible with the native fiber channel used with Storage Area Network (SAN) management.</p> <p>Comment: System will operate using native fiber channel standards for transmitting hardware commands used to manage remote services on SAN servers and devices.</p> <p>Preference: EMC SAN services using native fiber channel</p> <p>Desired Feedback: System provider shall indicate compatibility with native fiber channel.</p>	<p>At right, enter any expanded explanation. Typically, a positive response above to the 'Proposal Meets Standard' is sufficient, but vendors may add comments as desired. Responses to any of the other variations should be explained. Also, please pay attention to the Desired Feedback text as it may suggest a helpful response comment. Explanations should be short, but vendors may also use hyperlinks above or references in text at right to highlight other relevant</p>				
		1	Compatibility with On-Line Back-up and Restore Functions						
Information Only	Ideal	Core	Mandatory	Vendors may add any hyperlink to right:					
				<p>Standard: System is capable of effective operation in concert with On-Line data back up procedures including awareness of open transactions and files.</p> <p>Comment: System shall allow data and applications to be backed up using on-line back up and restore services. Back-ups shall work from a schedule and the restore functions shall not first require conventional loading of the OS and relevant applications. HE currently uses CommVault software systems to manage its storage management and back-up services.</p> <p>Preference: Preference is eVault i365.</p> <p>Desired Feedback: System provider shall indicate compatibility with eVault i365 and related procedures.</p>	<p>At right, enter any expanded explanation. Typically, a positive response above to the 'Proposal Meets Standard' is sufficient, but vendors may add comments as desired. Responses to any of the other variations should be explained. Also, please pay attention to the Desired Feedback text as it may suggest a helpful response comment. Explanations should be short, but vendors may also use hyperlinks above or references in text at right to highlight other relevant sections of proposal materials.</p>				
		1	Compatibility with System Configuration Management software						

Information Only	Ideal	Core	Mandatory	Vendors may add any hyperlink to right:							
				<p>Standard: System is capable of effective operation in conjunction with system configuration software.</p> <p>Comment: System software change and configuration management services can be managed using SCCM (for windows) and Uptime (for AIX and Linux).</p> <p>Preference: SCCM management services for Windows, Uptime for AIX & Redhat.</p> <p>Desired Feedback: System provider shall indicate compatibility configuration software.</p>	<p>At right, enter any expanded explanation. Typically, a positive response above to the 'Proposal Meets Standard' is sufficient, but vendors may add comments as desired. Responses to any of the other variations should be explained. Also, please pay attention to the Desired Feedback text as it may suggest a helpful response comment. Explanations should be short, but vendors may also use hyperlinks above or references in text at right to highlight other relevant sections of proposal materials.</p>						
Patch Level Compatibility											
Information Only	Ideal	Core	Mandatory	Vendors may add any hyperlink to right:							
				<p>Standard: Applications must be consistent with current HE upgrade and fixpack levels for the HE Operating Environment.</p> <p>Comment: Most software packages are designed and implemented based on certain patch and upgrade levels within the IT environment. (e.g., .Net, J2EE or JVM level, Operating system version and fix pack level, etc.) Quite often, when people purchase different packages (even from the same system provider), there is a version/specification level conflict. It is important to resolve compatibility issues before packages are purchased or deployed.</p> <p>Preference: Product must maintain compatibility with current platform versions.</p> <p>Desired Feedback: System provider shall state policy to maintain software compatibility with underlying system patches.</p>	<p>At right, enter any expanded explanation. Typically, a positive response above to the 'Proposal Meets Standard' is sufficient, but vendors may add comments as desired. Responses to any of the other variations should be explained. Also, please pay attention to the Desired Feedback text as it may suggest a helpful response comment. Explanations should be short, but vendors may also use hyperlinks above or references in text at right to highlight other relevant sections of proposal materials.</p>						
System Management Utilities											
Information Only	Ideal	Core	Mandatory	Vendors may add any hyperlink to right:							
				<p>Standard: Systems and applications shall be supported by system management utilities commensurate with the management needs of the product.</p> <p>Comment: Systems management requirements must be established to meet the specific needs of the application and its environment. Major categories of requirements will include: (1) system utilities, (2) backup/recovery and (3) routine system management/operational procedures.</p> <p>Preference: Preferences are MS System Center Operations Manager and AIX (native tool).</p> <p>Desired Feedback: System provider shall state compatibility with stated system management utilities.</p>	<p>At right, enter any expanded explanation. Typically, a positive response above to the 'Proposal Meets Standard' is sufficient, but vendors may add comments as desired. Responses to any of the other variations should be explained. Also, please pay attention to the Desired Feedback text as it may suggest a helpful response comment. Explanations should be short, but vendors may also use hyperlinks above or references in text at right to highlight other relevant sections of proposal materials.</p>						

1															
Information Only	Ideal	Core	Mandatory												
				<p>Standard: System supports and is tolerant of Application Performance Management (APM) monitoring.</p> <p>Comment: System should not show ill effects, slow or otherwise be intolerant of APM modules running on the network to provide information on the performance of systems operating from network servers.</p> <p>Preference: SCOM management services.</p> <p>Desired Feedback: System provider should indicate compatibility with SCOM capabilities.</p>	<p>At right, enter any expanded explanation. Typically, a positive response above to the 'Proposal Meets Standard' is sufficient, but vendors may add comments as desired. Responses to any of the other variations should be explained. Also, please pay attention to the Desired Feedback text as it may suggest a helpful response comment. Explanations should be short, but vendors may also use hyperlinks above or references in text at right to highlight other relevant sections of proposal materials.</p>										
		1		Low Intervention Maintenance Requirements											
Information Only	Ideal	Core	Mandatory												
				<p>Vendors may add any hyperlink to right:</p> <p>Standard: System shall have no to low system intervention needs requiring operator initiated or assisted maintenance activities such as purging of log files, data integrity checks, indexing or similar activities.</p> <p>Comment: System management requirements shall be capable of being automated where reasonable and the number of manual or operator initiated interventions shall be small to non-existent.</p> <p>Preference: No products specifically preferred.</p> <p>Desired Feedback: System provider shall outline all maintenance functions requiring regular intervention by system operators.</p>	<p>At right, enter any expanded explanation. Typically, a positive response above to the 'Proposal Meets Standard' is sufficient, but vendors may add comments as desired. Responses to any of the other variations should be explained. Also, please pay attention to the Desired Feedback text as it may suggest a helpful response comment. Explanations should be short, but vendors may also use hyperlinks above or references in text at right to highlight other relevant sections of proposal materials.</p>										
1				Service Lifecycle and Upgrade Schedules											
Information Only	Ideal	Core	Mandatory												
				<p>Vendors may add any hyperlink to right:</p> <p>Standard: Software product service lifecycle and upgrade schedules should be consistent with HE expectations for system life.</p> <p>Comment: This standard is highly discretionary and is included for fundamental data gathering and overall assessment as opposed to strict quantitative evaluation.</p> <p>Preference: No products specifically preferred.</p> <p>Desired Feedback: System provider should describe and service lifecycle and upgrade schedules.</p>	<p>At right, enter any expanded explanation. Typically, a positive response above to the 'Proposal Meets Standard' is sufficient, but vendors may add comments as desired. Responses to any of the other variations should be explained. Also, please pay attention to the Desired Feedback text as it may suggest a helpful response comment. Explanations should be short, but vendors may also use hyperlinks above or references in text at right to highlight other relevant sections of proposal materials.</p>										
System Support										Meets	Will	3rd P	Cust	No	Other
1				Remote Support Capability and Access											

Vendors may add any hyperlink to right:

Information Only	Ideal	Core	Mandatory	<p>Standard: Remote support access for systems or applications is to be granted on a very judicious basis and shall conform to ITS Remote Access policies.</p> <p>Comment: In many cases, direct system provider management and/or support the system via remote access (VPN) can greatly improve the service availability and cut down the cost of IT operation. Allowance of direct access to the application layer or beyond is not to be granted lightly.</p> <p>Preference: TLS (formerly known as SSL) and IPsec VPN.</p> <p>Desired Feedback: System provider should indicate whether system provides a remote administration console or a console application. If so, what is the preferred manner of access by the system provider and does that conform to the HE Standard? What controls are in place on the system provider side to prevent unauthorized access from their location.</p>	<p>At right, enter any expanded explanation. Typically, a positive response above to the 'Proposal Meets Standard' is sufficient, but vendors may add comments as desired. Responses to any of the other variations should be explained. Also, please pay attention to the Desired Feedback text as it may suggest a helpful response comment. Explanations should be short, but vendors may also use hyperlinks above or references in text at right to highlight other relevant sections of proposal materials.</p>					
				<p>Service Level Agreements</p>						
1										
Information Only	Ideal	Core	Mandatory	<p>Standard: In order to support the Performance and Availability standards and requirements, external system providers will need to comply with HE developed Service Level Agreements (SLAs).</p> <p>Comment: Basic expectations include: (1) Back-end system should be available 24x7 (e.g., 8x5, 10x6, 24x7) with allowable down time via a reserved maintenance window scheduled for Wednesday nights between 7:30pm – 12:00am. (In some e-business application outages, service may be maintained via appropriate caching techniques). (2) Back-end systems should provide appropriate transaction logging and tracking mechanisms to perform audits and establish controls.</p> <p>Preference: No products specifically preferred.</p> <p>Desired Feedback: System provider should indicate its ability to comply with HE SLAs.</p>	<p>Vendors may add any hyperlink to right:</p> <p>At right, enter any expanded explanation. Typically, a positive response above to the 'Proposal Meets Standard' is sufficient, but vendors may add comments as desired. Responses to any of the other variations should be explained. Also, please pay attention to the Desired Feedback text as it may suggest a helpful response comment. Explanations should be short, but vendors may also use hyperlinks above or references in text at right to highlight other relevant sections of proposal materials.</p>					
				<p>Scores for Operation, Management & Support</p>					<p>Avg Scores</p>	
				<p>Ideal</p> <p>0</p>	<p>Core</p> <p>0</p>	<p>Joint</p> <p>0</p>	<p>Not Applicable</p>			<p>10.0</p>

Security and Privacy Architecture

User Access Management				Meets	Will	3rd P	Cust	No	Other
		1	Removal of Generic Accounts						
Information Only	Ideal	Core	Mandatory	Vendors may add any hyperlink to right:					
				<p>Standard: At the time of install all generic accounts and default logins shall be removed.</p> <p>Comment: Default accounts and passwords may make the system vulnerable to unauthorized access. Unnecessary accounts shall be removed. For accounts that are required for proper system operation, the system provider shall document all accounts that are required and enable HE to modify them from the default setting.</p> <p>Preference: No products specifically preferred.</p> <p>Desired Feedback: System provider shall confirm that generic accounts and default logins will be removed/modified during installation.</p>					
		1	Multi-level Access Control						
Information Only	Ideal	Core	Mandatory	Vendors may add any hyperlink to right:					
				<p>Standard: Product provides multiple levels of access control based on user profiles.</p> <p>Comment: Product security shall allow access control to be imposed at multiple levels and shall generally extend to the data field level. For example multi-level denotes the ability to control at the field, page, function and/or module.</p> <p>Preference: No products specifically preferred.</p> <p>Desired Feedback: System provider shall verify extent of multi-level access control capabilities.</p>					
		1	Task or Role Based Access Control						
Information Only	Ideal	Core	Mandatory	Vendors may add any hyperlink to right:					
				<p>Standard: Product provides task or role based access control tied to user profiles and group definitions.</p> <p>Comment: Product security shall allow access control to be defined according to tasks or roles that are in turn related to 'groups' defined as part of the user profile administration.</p> <p>Preference: No products specifically preferred.</p> <p>Desired Feedback: System provider shall explain task and role based security controls for function access and data access as well as the manner in which groups are defined to represent these roles.</p>					

		1	Task or Role Based Data Import/Export Control								
Information Only	Ideal	Core	Mandatory	Vendors may add any hyperlink to right:							
				<p>Standard: Product provides task or role based data import/export control tied to user profiles and group definitions.</p> <p>Comment: Product security shall allow data import and export control to be defined according to tasks or roles that are in turn related to 'groups' defined as part of the user profile administration.</p> <p>Preference: No products specifically preferred.</p> <p>Desired Feedback: System provider shall explain task and role based security controls for data import/export and the manner in which groups are defined to represent these roles.</p>	At right, enter any expanded explanation. Typically, a positive response above to the 'Proposal Meets Standard' is sufficient, but vendors may add comments as desired. Responses to any of the other variations should be explained. Also, please pay attention to the Desired Feedback text as it may suggest a helpful response comment. Explanations should be short, but vendors may also use hyperlinks above or references in text at right to highlight other relevant sections of proposal materials.						
Software and Services											
		1	Removal of Unnecessary Software		Meets	Will	3rd P	Cust	No	Other	
Information Only	Ideal	Core	Mandatory	Vendors may add any hyperlink to right:							
				<p>Standard: All software components that are not required for the operation and/or maintenance of the procured product shall be removed. If removal is not technically feasible, then software features that are not required for the operation and/or maintenance of the procured product shall be disabled.</p> <p>Comment: Unnecessary software and features (e.g., messaging services, unused drivers, etc.) that are left enabled may make it easier for unauthorized access to occur and remain undetected. All items retained shall be documented.</p> <p>Preference: No products specifically preferred.</p> <p>Desired Feedback: System provider shall confirm that it will remove/disable all unnecessary software/features and - for features that cannot be disabled - that it will provide risk mitigation support.</p>	At right, enter any expanded explanation. Typically, a positive response above to the 'Proposal Meets Standard' is sufficient, but vendors may add comments as desired. Responses to any of the other variations should be explained. Also, please pay attention to the Desired Feedback text as it may suggest a helpful response comment. Explanations should be short, but vendors may also use hyperlinks above or references in text at right to highlight other relevant sections of proposal materials.						
		1	Disable non-required services and ports								
Information Only	Ideal	Core	Mandatory	Vendors may add any hyperlink to right:							
				<p>Standard: Services and ports not required for operation of the system may provide vulnerability and shall be removed and disabled.</p> <p>Comment: System shall be able to function without the disabled ports and services. All such actions shall be documented by the system provider.</p> <p>Preference: No products specifically preferred.</p> <p>Desired Feedback: System provider shall indicate what ports and services are not required.</p>	At right, enter any expanded explanation. Typically, a positive response above to the 'Proposal Meets Standard' is sufficient, but vendors may add comments as desired. Responses to any of the other variations should be explained. Also, please pay attention to the Desired Feedback text as it may suggest a helpful response comment. Explanations should be short, but vendors may also use hyperlinks above or references in text at right to highlight other relevant sections of proposal materials.						
		1	Version/Patch utility								

Information Only	Ideal	Core	Mandatory		Vendors may add any hyperlink to right:	
	<p>Standard: All versions for software, configurations, firmware, scripts, macros and enabled ports and services shall be accessible and reported through a utility.</p> <p>Comment: Application utility needs to aggregate and report on existing versions/patches by module or executable file.</p> <p>The Supplier shall provide documentation of software/firmware that supports the procured product, including scripts and/or macros, run time configuration files and interpreters, databases and tables, and all other included software (identifying versions, revisions, and/or patch levels, as delivered). The listing shall include all ports and authorized services required for normal operation, emergency operation, or troubleshooting. This documentation must include user guide(s); system installation and maintenance documentation; application flow diagrams and descriptions; data file schema; back-up procedures; and recommended security and user test procedures.</p> <p>Preference: Native to the product (no third party).</p> <p>Desired Feedback: System provider shall confirm that it can provide a full inventory of software, firmware, scripts, ports, etc. supporting procured product and that unnecessary items will be removed or disabled during implementation.</p>			<p>At right, enter any expanded explanation. Typically, a positive response above to the 'Proposal Meets Standard' is sufficient, but vendors may add comments as desired. Responses to any of the other variations should be explained. Also, please pay attention to the Desired Feedback text as it may suggest a helpful response comment. Explanations should be short, but vendors may also use hyperlinks above or references in text at right to highlight other relevant sections of proposal materials.</p>		

System Integrity Assurance

Meets Will 3rd P Cust No Other

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Resistance to Denial of Service

Information Only	Ideal	Core	Mandatory		Vendors may add any hyperlink to right:	
	<p>Standard: The system and or its infrastructure should be designed to resist 'Denial of Service' attacks.</p> <p>Comment: System should employ methods that minimize the impact and risks from 'Denial-of-Service' attacks (e.g., load balancing, packet filtering, connection throttling, etc.).</p> <p>Preference: Application should be configured to limit session.</p> <p>Desired Feedback: System provider should describe architecture components that help mitigate the risks from 'Denial of Service' attempts.</p>			<p>At right, enter any expanded explanation. Typically, a positive response above to the 'Proposal Meets Standard' is sufficient, but vendors may add comments as desired. Responses to any of the other variations should be explained. Also, please pay attention to the Desired Feedback text as it may suggest a helpful response comment. Explanations should be short, but vendors may also use hyperlinks above or references in text at right to highlight other relevant sections of proposal materials.</p>		

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Protection via Security Devices

Information Only	Ideal	Core	Mandatory		Vendors may add any hyperlink to right:	
	<p>Standard: The system and or its infrastructure shall be adequately protected via external and internal security devices on a 24x7x365 basis.</p> <p>Comment: System shall be compatible with and interoperate with host- (HIDS) and network-based (NIDS) security protection devices.</p>			<p>At right, enter any expanded explanation. Typically, a positive response above to the 'Proposal Meets Standard' is sufficient, but vendors may add comments as desired. Responses to any of the other variations should be explained. Also, please pay attention to the Desired Feedback text as it</p>		

Information Only	Ideal	Core	Mandatory	<p>Preference: No products specifically preferred for Cloud providers. For on-prem solutions, will be provided by the Hawaiian Electric's standards.</p> <p>Desired Feedback: System provider shall describe any recommended host and network security devices that provide these functions without impacting performance or functionality of the proposed system.</p>	<p>attention to the Desired Feedback text as it may suggest a helpful response comment. Explanations should be short, but vendors may also use hyperlinks above or references in text at right to highlight other relevant sections of proposal materials.</p>						
			1	<p>Malware and Virus Protection</p>							
Information Only	Ideal	Core	Mandatory	<p>Standard: The system shall monitor for Malware and Viruses.</p> <p>Comment: For systems hosted/maintained by Hawaiian Electric, integrating with Hawaiian Electric Anti-Virus tools is important for a system maintenance staff and cost/licensing perspective.</p> <p>For systems hosted/maintained by third parties, clarify requirements regarding keeping AV/malware signatures updated and notifying Hawaiian Electric whenever malware is detected on systems containing Hawaiian Electric data.</p> <p>Preference: No products specifically preferred.</p> <p>Desired Feedback: System provider shall describe its capabilities for preventing system infection by malware. Provider shall verify that cybersecurity services are compatible malware detection services. If malware detection is not included, service provider shall indicate compatible products.</p>	<p>Vendors may add any hyperlink to right:</p> <p>At right, enter any expanded explanation. Typically, a positive response above to the 'Proposal Meets Standard' is sufficient, but vendors may add comments as desired. Responses to any of the other variations should be explained. Also, please pay attention to the Desired Feedback text as it may suggest a helpful response comment. Explanations should be short, but vendors may also use hyperlinks above or references in text at right to highlight other relevant sections of proposal materials.</p>						
			1	<p>System Heartbeat Monitoring</p>							
Information Only	Ideal	Core	Mandatory	<p>Standard: Signals from system hardware, software, and firmware shall be monitored to detect abnormalities.</p> <p>Comment: The system shall preferably include regular heartbeat signals, but a last gasp from a failing component may also be used.</p> <p>Preference: No products specifically preferred.</p> <p>Desired Feedback: System provider shall identify viable heartbeat signals for network monitoring and examples of their application.</p>	<p>Vendors may add any hyperlink to right:</p> <p>At right, enter any expanded explanation. Typically, a positive response above to the 'Proposal Meets Standard' is sufficient, but vendors may add comments as desired. Responses to any of the other variations should be explained. Also, please pay attention to the Desired Feedback text as it may suggest a helpful response comment. Explanations should be short, but vendors may also use hyperlinks above or references in text at right to highlight other relevant sections of proposal materials.</p>						
Security Compliance						Meets	Will	3rd P	Cust	No	Other
			1	<p>System Backup</p>							
Information Only	Ideal	Core	Mandatory	<p>Standard: The system shall implement a rigorous data backup practice.</p>	<p>Vendors may add any hyperlink to right:</p> <p>At right, enter any expanded explanation. Typically, a positive response above to the</p>						

Information Only	Ideal	Core	Mandatory	<p>Comment: For systems to be hosted at or managed by Hawaiian Electric, vendor system must be compliant with and integrated into the existing Hawaiian Electronic data backup systems and procedures. For systems hosted at external sites managed by the vendor or vendor's agent, vendor must ensure proper ongoing backup and storage of electronic data records.</p> <p>Preference: No products specifically preferred.</p> <p>Desired Feedback: System providers shall Describe how they have a defined a standard and enforced practice for system backup.</p>	<p>'Proposal Meets Standard' is sufficient, but vendors may add comments as desired. Responses to any of the other variations should be explained. Also, please pay attention to the Desired Feedback text as it may suggest a helpful response comment. Explanations should be short, but vendors may also use hyperlinks above or references in text at right to highlight other relevant sections of proposal materials.</p>							
		1		Employee Mobile Device Applications								
Information Only	Ideal	Core	Mandatory	<p>Standard: Any applications intended for use by employees on mobile devices must be compatible with Hawaiian Electric's mobile device security suite.</p> <p>Comment: Testing must be done by selected vendor to confirm compatibility.</p> <p>Preference: Microsoft InTune for applications used by HE employees.</p> <p>Desired Feedback: System provider must describe how the mobile applications are compatible with HE security suite.</p>	<p>Vendors may add any hyperlink to right:</p> <p>At right, enter any expanded explanation. Typically, a positive response above to the 'Proposal Meets Standard' is sufficient, but vendors may add comments as desired. Responses to any of the other variations should be explained. Also, please pay attention to the Desired Feedback text as it may suggest a helpful response comment. Explanations should be short, but vendors may also use hyperlinks above or references in text at right to highlight other relevant</p>							
Process Requirements						Meets	Will	3rd P	Cust	No	Other	
		1		Internet Domain Name Registration								
Information Only	Ideal	Core	Mandatory	<p>Standard: All Internet Domain Name Registrations are purchased and registered by Hawaiian Electric's ITS department.</p> <p>Comment: If new Internet domain name registrations are required these must be procured through HE, not by the vendor directly. If not applicable, bidder shall note that and describe why it is not applicable.</p> <p>Preference: No products specifically preferred.</p> <p>Desired Feedback: System provider must verify that they comply with Internet Domain name registration best practices.</p>	<p>Vendors may add any hyperlink to right:</p> <p>At right, enter any expanded explanation. Typically, a positive response above to the 'Proposal Meets Standard' is sufficient, but vendors may add comments as desired. Responses to any of the other variations should be explained. Also, please pay attention to the Desired Feedback text as it may suggest a helpful response comment. Explanations should be short, but vendors may also use hyperlinks above or references in text at right to highlight other relevant sections of proposal materials.</p>							
		1		System Interfaces								
				<p>Standard: System Interfaces must be fully documented.</p>	<p>Vendors may add any hyperlink to right:</p> <p>At right, enter any expanded explanation. Typically, a positive response above to the</p>							

<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Information Only</p> <p style="writing-mode: vertical-rl; transform: rotate(180deg);">Ideal</p> <p style="writing-mode: vertical-rl; transform: rotate(180deg);">Core</p> <p style="writing-mode: vertical-rl; transform: rotate(180deg);">Mandatory</p>	<p>Comment: For all functions requiring integration of data between systems, provide interface details including packets types/protocols, packet sizes, expected data flow frequency and volume, source & destination systems, latency requirements, and a description of the information being transferred (payload). Also document whether data flows are unidirectional out from system being proposed, unidirectional into the system being proposed, bidirectional initiated by the system being proposed, or bidirectional initiated by systems other than the system being proposed.</p> <p>Preference: SAP PI/PO and SAP Cloud Integration is the desired Enterprise Service Bus for exchange of data between applications.</p> <p>Desired Feedback: Provide required interface documentation, regardless of whether the integrated systems are within the same security zone or in different security zones.</p>	<p>'Proposal Meets Standard' is sufficient, but vendors may add comments as desired. Responses to any of the other variations should be explained. Also, please pay attention to the Desired Feedback text as it may suggest a helpful response comment. Explanations should be short, but vendors may also use hyperlinks above or references in text at right to highlight other relevant sections of proposal materials.</p>	Appendix K										
	<p>Scores for Security and Privacy Architecture</p>		<p>Avg Scores</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%;">Ideal</td> <td style="width: 33%;">Core</td> <td style="width: 33%;">Joint</td> </tr> <tr> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> </tr> </table>			Ideal	Core	Joint	0	0	0	<p>Mandatory Compliance</p> <p style="background-color: red; color: white; padding: 5px;">Failed</p>	<p>Vendor Responses include:</p>
Ideal	Core	Joint											
0	0	0											

Remote Host and Application Service Provider (ASP) Architecture (IF APPLICABLE)

Appendix K

Remote Security				Meets	Will	3rd P	Cust	No	Other	
1	1	Data Preservation Provisions								
Information Only	Ideal	Core	Mandatory	<p style="text-align: right; margin: 0;">Vendors may add any hyperlink to right:</p> <p>Standard: The remote host or ASP shall provide Service Level Agreements (SLAs) regarding the frequency and assuredness of data back-ups along with the provisions and timeliness of restoration/recovery procedures.</p> <p>Comment: Documentation of service levels pertaining to data preservation shall be built into the contract or other agreement documents such as SLAs.</p> <p>Preference: No products specifically preferred.</p> <p>Desired Feedback: System provider shall provide detailed descriptions of data protection and preservation procedures.</p>	<p>Vendors may add any hyperlink to right:</p> <p>At right, enter any expanded explanation. Typically, a positive response above to the 'Proposal Meets Standard' is sufficient, but vendors may add comments as desired. Responses to any of the other variations should be explained. Also, please pay attention to the Desired Feedback text as it may suggest a helpful response comment. Explanations should be short, but vendors may also use hyperlinks above or references in text at right to highlight other relevant sections of proposal materials.</p>					
1	1	System Access & Performance Requirements								
Information Only	Ideal	Core	Mandatory	<p style="text-align: right; margin: 0;">Vendors may add any hyperlink to right:</p> <p>Standard: The remote host or ASP shall provide Service Level Agreements (SLAs) regarding the availability of the system and the required performance of the system when it is available.</p> <p>Comment: Documentation of service levels pertaining to up-time and performance requirements shall be built into the contract or other agreement documents such as SLAs.</p> <p>Preference: No products specifically preferred.</p> <p>Desired Feedback: System provider shall provide detailed commitments to mutually agreeable up-time and performance standards.</p>	<p>Vendors may add any hyperlink to right:</p> <p>At right, enter any expanded explanation. Typically, a positive response above to the 'Proposal Meets Standard' is sufficient, but vendors may add comments as desired. Responses to any of the other variations should be explained. Also, please pay attention to the Desired Feedback text as it may suggest a helpful response comment. Explanations should be short, but vendors may also use hyperlinks above or references in text at right to highlight other relevant sections of proposal materials.</p>					
Scores for Remote Host				Avg Scores			Mandatory Compliance		Vendor Responses include:	
				Ideal	Core	Joint	Not Applicable		Avg. HE Rating	
				0	0	0			10.0	

Summary Across All Categories	Weighted Scores			Mandatory Compliance	Average HE Quality Rating
	Ideal	Core	Overall		
	0	0	0	Failed	10

Hawaiian Electric Information Assurance Assessment Questionnaire				Vendor Response Options									
Project name				XYZ, Inc.									
Information Only	Ideal	Core	Mandatory	<p style="text-align: center;">Hawaiian Electric Technology Standards</p>	<p>Enter the numeric value "1" (not text) as the flag values in the yellow highlighted response options. Do not flag more than 1 (one) box per row. Use Grouping controls on far left side of this spreadsheet to fully open all text and response options. Use beige areas in expanded rows to enter any desired hyperlinks or additional explanation text.</p>			System as Proposed Meets Standard	System will meet standard in scheduled upcoming release	System can meet standard using 3rd Party products	System can meet standard with customization	System as proposed does not meet standard	Other

Security and Privacy Architecture							Meets	Will	3rd P	Cust	No	Other
User Access Management												
		1	Authentication and Identification									
Information Only	Ideal	Core	Mandatory	Vendors may add any hyperlink to right:								
				<p>Standard: System shall provide or allow for user authentication and identification.</p> <p>Comment: System integrated into the HE environment must provide user ID management and logon functions as well as provide or interface with measures designed to guard against fraudulent transmission and imitative communication deception by establishing the validity of the transmission, message, station or individual. System shall provide authentication and identification for employees and customers.</p> <p>Preference: MS Active Directory preferred. LDAPS where Active Directory not supported.</p> <p>Desired Feedback: System provider shall describe authentication and ID capabilities.</p>	At right, enter any expanded explanation. Typically, a positive response above to the 'Proposal Meets Standard' is sufficient, but vendors may add comments as desired. Responses to any of the other variations should be explained. Also, please pay attention to the Desired Feedback text as it may suggest a helpful response comment. Explanations should be short, but vendors may also use hyperlinks above or references in text at right to highlight other relevant sections of proposal materials.							
		1	Single Sign-on									
Information Only	Ideal	Core	Mandatory	Vendors may add any hyperlink to right:								
				<p>Standard: If system uses web based components, system shall interface with Integrated Windows Authentication (IWA) to provide for user authentication and identification on-premise or MS Active Directory Federation Services hosted.</p> <p>Comment: Any new software package must provide user ID management and logon functions and HE desires that its systems use in as much as appropriate, the features of MS Integrated Windows Authentication or MS ADFS.</p> <p>Preference: MS Active Directory preferred - IWA or ADFS</p> <p>Desired Feedback: System provider shall describe the extent of AD capabilities.</p>	At right, enter any expanded explanation. Typically, a positive response above to the 'Proposal Meets Standard' is sufficient, but vendors may add comments as desired. Responses to any of the other variations should be explained. Also, please pay attention to the Desired Feedback text as it may suggest a helpful response comment. Explanations should be short, but vendors may also use hyperlinks above or references in text at right to highlight other relevant sections of proposal materials.							
		1	Internal and External Password Management									
				Vendors may add any hyperlink to right:								
				<p>Standard: System must be capable of enforcing strong password handling for all external customer users and for HE users (employees or contractors), and the ability to enforce different rules based on account type (e.g. internal, customer, supervisor, administrator)</p>	At right, enter any expanded explanation. Typically, a positive response above to the 'Proposal Meets Standard' is sufficient, but vendors may add comments as desired. Responses to any of the other variations should be explained. Also, please pay							

Information Only	Ideal	Mandatory	1	<p>Comment: If Hawaiian Electric's AD or ADFS are not used, vendor system must support the following.</p> <p><u>User</u> accounts (user-to-device) must be:</p> <ul style="list-style-type: none"> • Minimum sixteen (16) characters in length • Refreshed at least every 180 days <p><u>Service</u> accounts (device-to-device) must be:</p> <ul style="list-style-type: none"> • Minimum twenty-four (24) characters in length • Refreshed at least every twelve (12) months <p><u>All</u> accounts must:</p> <ul style="list-style-type: none"> • Contain at least three of the following groups: upper case letters; lower case letters; numbers; special characters (ex: \$, @, #, %, etc.) • Not be used for other purposes, such as access to web accounts • Not be the same as the user/service ID, nor anagrams/variations of the ID • Be different/distinct from the ten prior passwords <p>Preference: No products specifically preferred.</p> <p>Desired Feedback: System provider must verify that password strength and reset requirements can be configured and enforced.</p>	<p>should be explained. Also, please pay attention to the Desired Feedback text as it may suggest a helpful response comment. Explanations should be short, but vendors may also use hyperlinks above or references in text at right to highlight other relevant sections of proposal materials.</p>								
	Core			<p>Customer Privacy Settings- Web</p>									
				<p>Customer Privacy Settings-Mobile</p>									
				<p>Confirmation of Customer Privacy Settings-Mobile</p>									
Connection and Data Transport Security						Meets	Will	3rd P	Cust	No	Other		
			1	Web browser session protection									
			1	SSH File Transfer Protocol									
			1	Inter-process Communication									
			1	Secure Transport of Company non-Public Data									
			1	Multi-Tier System Architecture									
			1	Network Security Zones									
			1	Wireless Technology									
			1	Network Intrusion Detection									
Data Storage Security						Meets	Will	3rd P	Cust	No	Other		
			1	Elimination of 'Cached' Data									
			1	Secure Storage of Company "Confidential-Restricted" Data At Rest.									
Behavior Based Security Controls						Meets	Will	3rd P	Cust	No	Other		
			1	Session Termination for Inactivity									
			1	Limit Concurrent Sessions for Same User									
			1	Lock Out after Unsuccessful Log-On Attempts									
Audit, Alert and Reporting Safeguards						Meets	Will	3rd P	Cust	No	Other		
			1	Real-Time Inventory of Users									
			1	Audit History of Access and Changes									
			1	Customizable Audit Logging and Reports									
			1	User Alert Regarding Prior Log-On									
			1	System Heartbeat Monitoring									
Privacy Compliance						Meets	Will	3rd P	Cust	No	Other		
			1	Customer Data Purging	K-43								

	1		Customer Communications Preference							
		1	Customer Opt-out							
		1	Customer Data Control							
1			Customer Authentication							
Security Compliance					Meets	Will	3rd P	Cust	No	Other
1			Encryption Key Exchange							
		1	Cryptographic System							
	1		Interactive Remote Access							
		1	OWASP Top Ten							
		1	Cyber Asset Reuse and Disposal							
		1	Configuration Change Management							
		1	Vulnerability Assessments							
		1	Masking of Sensitive Data							
Process Requirements					Meets	Will	3rd P	Cust	No	Other
		1	Vendor Support Access							
	1		Patches and Updates							
		1	Protection of Audit Logs							
	1		Incident Response Policy							
1			Security Built into Life Cycle QA							
		1	Data Return Compliance							
	1		Data Confidentiality and Company Privacy Policy							
		1	Company Compliance Program							

Remote Host and Application Service Provider (ASP) Architecture (IF APPLICABLE)											
Remote Security						Meets	Will	3rd P	Cust	No	Other
		1			<i>Determination of Security Trust Level</i>						
Certification Requirements						Meets	Will	3rd P	Cust	No	Other
			1		<i>Sarbanes Oxley's (SOX) IT General Controls</i>						
			1		<i>Current Statement on Standards for Attestation Engagements (SSAE) No. 16 Service Organization Control (SOC) Type II report</i>						

Hawaiian Electric Information Assurance Assessment Questionnaire				Vendor Response Options							
Project name				XYZ, Inc.							
Information Only	Ideal	Core	Mandatory	Hawaiian Electric Technology Standards	Enter the numeric value "1" (not text) as the flag values in the yellow highlighted response options. Do not flag more than 1 (one) box per row. Use Grouping controls on far left side of this spreadsheet to fully open all text and response options. Use beige areas in expanded rows to enter any desired hyperlinks or additional explanation text.	System as Proposed Meets Standard	System will meet standard in scheduled upcoming release	System can meet standard using 3rd Party products	System can meet standard with customization	System as proposed does not meet standard	Other
						Meets	Will	3rd P	Cust	No	Other
Security and Privacy Architecture											
User Access Management											
		1		Authentication and Identification							
Information Only	Ideal	Core	Mandatory	<p>Standard: System shall provide or allow for user authentication and identification.</p> <p>Comment: System integrated into the HE environment must provide user ID management and logon functions as well as provide or interface with measures designed to guard against fraudulent transmission and imitative communication deception by establishing the validity of the transmission, message, station or individual. System shall provide authentication and identification for employees and customers.</p> <p>Preference: MS Active Directory preferred. LDAPS where Active Directory not supported.</p> <p>Desired Feedback: System provider shall describe authentication and ID capabilities.</p>	<p>Vendors may add any hyperlink to right:</p> <p>At right, enter any expanded explanation. Typically, a positive response above to the 'Proposal Meets Standard' is sufficient, but vendors may add comments as desired. Responses to any of the other variations should be explained. Also, please pay attention to the Desired Feedback text as it may suggest a helpful response comment. Explanations should be short, but vendors may also use hyperlinks above or references in text at right to highlight other relevant sections of proposal materials.</p>						

Information Only	Ideal	Core	Mandatory	1	Single Sign-on															
					Vendors may add any hyperlink to right:															
						<p>Standard: If system uses web based components, system shall interface with Integrated Windows Authentication (IWA) to provide for user authentication and identification on-premise or MS Active Directory Federation Services hosted.</p> <p>Comment: Any new software package must provide user ID management and logon functions and HE desires that its systems use in as much as appropriate, the features of MS Integrated Windows Authentication or MS ADFS.</p> <p>Preference: MS Active Directory preferred - IWA or ADFS</p> <p>Desired Feedback: System provider shall describe the extent of AD capabilities.</p>	At right, enter any expanded explanation. Typically, a positive response above to the 'Proposal Meets Standard' is sufficient, but vendors may add comments as desired. Responses to any of the other variations should be explained. Also, please pay attention to the Desired Feedback text as it may suggest a helpful response comment. Explanations should be short, but vendors may also use hyperlinks above or references in text at right to highlight other relevant sections of proposal materials.													
Information Only	Ideal	Core	Mandatory	1	Internal and External Password Management															
					Vendors may add any hyperlink to right:															
						<p>Standard: System must be capable of enforcing strong password handling for all external customer users and for HE users (employees or contractors), and the ability to enforce different rules based on account type (e.g. internal, customer, supervisor, administrator)</p> <p>Comment: If Hawaiian Electric's AD or ADFS are not used, vendor system must support the following. <u>User</u> accounts (user-to-device) must be: <ul style="list-style-type: none"> • Minimum sixteen (16) characters in length • Refreshed at least every 180 days <u>Service</u> accounts (device-to-device) must be: <ul style="list-style-type: none"> • Minimum twenty-four (24) characters in length • Refreshed at least every twelve (12) months <u>All</u> accounts must: <ul style="list-style-type: none"> • Contain at least three of the following groups: upper case letters; lower case letters; numbers; special characters (ex: \$, @, #, %, etc.) • Not be used for other purposes, such as access to web accounts • Not be the same as the user/service ID, nor anagrams/variations of the ID • Be different/distinct from the ten prior passwords </p> <p>Preference: No products specifically preferred.</p> <p>Desired Feedback: System provider must verify that password strength and reset requirements can be configured and enforced.</p>	At right, enter any expanded explanation. Typically, a positive response above to the 'Proposal Meets Standard' is sufficient, but vendors may add comments as desired. Responses to any of the other variations should be explained. Also, please pay attention to the Desired Feedback text as it may suggest a helpful response comment. Explanations should be short, but vendors may also use hyperlinks above or references in text at right to highlight other relevant sections of proposal materials.													
				1	Customer Privacy Settings- Web															
				1	Customer Privacy Settings-Mobile															
				1	Confirmation of Customer Privacy Settings-Mobile															

Connection and Data Transport Security				Meets	Will	3rd P	Cust	No	Other
	1	1	Web browser session protection						
	1	1	SSH File Transfer Protocol						
	1	1	Inter-process Communication						
	1	1	Secure Transport of Company non-Public Data						
	1	1	Multi-Tier System Architecture						
	1	1	Network Security Zones						
	1	1	Wireless Technology						
	1	1	Network Intrusion Detection						
Data Storage Security				Meets	Will	3rd P	Cust	No	Other
	1	1	Elimination of 'Cached' Data						
	1	1	Secure Storage of Company "Confidential-Restricted" Data At Rest.						
Behavior Based Security Controls				Meets	Will	3rd P	Cust	No	Other
	1	1	Session Termination for Inactivity						
	1	1	Limit Concurrent Sessions for Same User						
	1	1	Lock Out after Unsuccessful Log-On Attempts						
Audit, Alert and Reporting Safeguards				Meets	Will	3rd P	Cust	No	Other
	1	1	Real-Time Inventory of Users						
	1	1	Audit History of Access and Changes						
	1	1	Customizable Audit Logging and Reports						
	1	1	User Alert Regarding Prior Log-On						
	1	1	System Heartbeat Monitoring						
Privacy Compliance				Meets	Will	3rd P	Cust	No	Other
	1	1	Customer Data Purging						
	1	1	Customer Communications Preference						
	1	1	Customer Opt-out						
	1	1	Customer Data Control						
	1	1	Customer Authentication						
Security Compliance				Meets	Will	3rd P	Cust	No	Other
	1	1	Encryption Key Exchange						
	1	1	Cryptographic System						
	1	1	Interactive Remote Access						
	1	1	OWASP Top Ten						
	1	1	Cyber Asset Reuse and Disposal						
	1	1	Configuration Change Management						
	1	1	Vulnerability Assessments						
	1	1	Masking of Sensitive Data						
Process Requirements				Meets	Will	3rd P	Cust	No	Other
	1	1	Vendor Support Access						
	1	1	Patches and Updates						
	1	1	Protection of Audit Logs						
	1	1	Incident Response Policy						
1		1	Security Built into Life Cycle QA						
	1	1	Data Return Compliance						
	1	1	Data Confidentiality and Company Privacy Policy						
	1	1	Company Compliance Program						

Remote Host and Application Service Provider (ASP) Architecture (IF APPLICABLE)

Appendix K

Remote Security				Meets	Will	3rd P	Cust	No	Other
1			Determination of Security Trust Level						
Certification Requirements				Meets	Will	3rd P	Cust	No	Other
1			Sarbanes Oxley's (SOX) IT General Controls						
1			Current Statement on Standards for Attestation Engagements (SSAE) No. 16 Service Organization Control (SOC) Type II report						

REQUEST FOR PROPOSALS
FOR
GRID SERVICES FROM CUSTOMER-SITED DISTRIBUTED ENERGY
RESOURCES

ISLAND OF Maui

RFP No. 020123-04

Docket No. 2017-0352

Appendix L – GSPA

GRID SERVICES PURCHASE AGREEMENT

Date: 2/1/2023

GRID SERVICES PURCHASE AGREEMENT BY AND BETWEEN

[NAME OF SUPPLIER]

AND

HAWAIIAN ELECTRIC COMPANY, INC.

THIS GRID SERVICES PURCHASE AGREEMENT (“Agreement”) is made this _____ day of _____, _____ (“Execution Date”), by and between Maui Electric Company, Limited, (“Company”), a Hawai‘i corporation, with principal offices in _____, Hawai‘i and _____ (“Supplier”), a _____, with principal offices in _____, _____, doing business in _____, Hawai‘i.

WHEREAS, Company is an operating electric public utility on the Islands of Maui, Lana‘i and Moloka‘i, subject to the Hawai‘i Public Utilities Law (Hawai‘i Revised Statutes, Chapter 269) and the rules and regulations of the Public Utilities Commission of the State of Hawai‘i (“PUC”); and

WHEREAS, Company operates the Company System as an independent power grid and must maximize system reliability for its customers by ensuring that its system (including transmission and distribution) meets the requirements for capacity, voltage stability, frequency stability, and reliability standards; and

WHEREAS, Supplier desires to establish and operate an aggregated network of Resources that can provide Grid Services to support the reliable operation of the Company System; and

WHEREAS, Supplier understands the need to use commercially reasonable efforts to maximize the overall reliability of the Company System; and

WHEREAS, Supplier desires to sell to Company certain Grid Services as aggregated by Supplier, and Company agrees to purchase such aggregated Grid Services from Supplier, upon the terms and conditions set forth herein.

NOW, THEREFORE, in consideration of the premises and the respective promises herein, Company and Supplier hereby agree as follows:

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ARTICLE 1 DEFINITIONS

The following capitalized terms shall have the meanings set forth below:

“Agreement” – Shall have the meaning set forth in the first paragraph on the first page of this Agreement.

“Appeal Period” – Shall have the meaning set forth in Section 16.2 (Non-appealable PUC Approval Order).

“Attachments” – Shall have the meaning set forth in Section 28.13 (Attachments)

“Business Day” – Any Day that is not a Saturday, Sunday, or a federal or Hawai‘i state holiday.

“Calendar Month” – The period commencing at 12:00 a.m. on the first day of any month and terminating at 11:59 p.m. on the last day of the same month.

“Calendar Year” – The period commencing at 12:00 a.m. on January 1 of any year and terminating at 11:59 p.m. on December 31 of the same year.

“Capability” – For each Grid Service, the amount of the Grid Service available for delivery by Supplier to Company during a GS Event.

“Capacity” or “Capacity Grid Service” – Shall have the meaning set forth in Attachment A-2 (Capacity Grid Service Description and Requirements).

“Claim” – Any claim, suit, action, demand or proceeding.

“Code” – Shall have the meaning set forth in Section 5.1(b)(2)(I) (Supplementary Agreement).

“COI” – Shall have the meaning set forth in Section 13.10 (Certificates of Insurance).

“Commencement of Development” – The date upon which Company provides to Supplier Company’s written statement as provided in Section 16.3 (Company’s Written Statement).

“Commercial and Industrial Customer” or “C&I Customer” – The Customer Class that receives electric service under one or more of the following rate schedules as set forth in Attachment H (Settlement): Schedule J (General Service Demand), Schedule P (Large Power Service), Schedule DS (Large Power Directly Served Service).

“Committed Forecast” – The prior month’s Operational Forecast available for Dispatch by Company.

“Company” – Shall have the meaning set forth in the first paragraph on the first page of this Agreement.

“Company Data” – Shall have the meaning set forth in Section 3.1 (Ownership of Company Data).

“Company System” – The electric system owned and operated by Company (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.

“Company System Operator” – The individual(s) designated by job position(s) as Company’s representative(s) to act on behalf of Company on all issues regarding scheduling and dispatch of Grid Services.

“Company Trademarks” – Shall have the meaning set forth in Section 19.2(a) (Co-Branding; Use of Company’s Trademarks).

“Company’s Corporate Code of Conduct” – Shall have the meaning set forth in Section 19.3(a) (Compliance with Company Policies).

“Conditions Precedent” – The conditions listed in Section 2.2 (Conditions Precedent to Company’s Obligations).

“Confidential Information” – Shall have the meaning set forth in Section 4.1 (Confidential Information).

“Consumer Advocate” – Shall have the meaning set forth in Section 4.5 (Company’s Disclosure).

“Contract Capability” – The Capability that Supplier has committed to deliver to Company per Grid Service per Customer Class over the Term, which is set forth in Attachment E (Contract Capability).

“Contract Year” – The 12-month period beginning on the System Integration Date and/or each succeeding 12-month period thereafter.

“Customer Class” – The category to which each customer of Company can be assigned based on the rate class under which the customer receives electric service.

“Day” – A calendar day.

“Deferral Costs” – Shall have the meaning set forth in Section 19.7(b)(2) (Deferral Costs).

“Delivered Capability” – For each Grid Service, the amount of the Grid Service delivered by Supplier to Company during a GS Event.

“Disclosing Party” – Shall have meaning set forth in Section 4.1 (Confidential Information).

“Dispatch” – Company’s right, through supervisory equipment or otherwise, to schedule and direct the supply of the Grid Services consistent with this Agreement.

“Dispute(s)” – Shall have the meaning set forth in Section 12.2 (Good Faith Negotiations).

“Distributed Energy Resources Management System” or “DERMS” – The system of assets owned and operated by Company consisting of servers and network communications equipment

that enable (i) the exchange of data as described in Attachment D (Data, Integration, and Testing Requirements) and Attachment C (Operational Forecast) and (ii) control functions required for the dispatch of Grid Services. DERMS uses Siemens' Demand Response Management System ("DRMS") to provide event based resource management and combines it with the forecast, scheduling and online control components of Siemens' Distributed Energy Management System ("DEMS") to control distributed energy and load resources to manage capacity, as well as other uses as determined by Company.

"DPR" – Has the meaning set forth in Section 12.4(a) (Mediation).

"Enabled Capability" – The total capability for the applicable Grid Service that Supplier has enabled to provide to Company during each upcoming month.

"Enabled Capability Price" – The price per kW to be paid by Company to Supplier for each increment of Enabled Capability for the applicable Grid Service, which is identified in Attachment H (Settlement).

"Enabled Capability Projection" – The Enabled Capability for the applicable Grid Service that Supplier expects it can make available for delivery during the next month, shown as an hourly average by weekday and weekend or holiday during the month. The Enabled Capability Projection will reflect enrollment and disenrollment of Participants and enablement and disablement of Resources.

"Energy Management System" or "EMS" – A system of computer-aided tools used by bulk power system operators to monitor, control and optimize system performance.

"Environment" – Shall have the meaning set forth in Section 26.1(d) (Malware).

"Equal Opportunity Clause" – Shall have the meaning set forth in Section 15.1 (Equal Employment Opportunity).

"Escrow Agent" – Shall have the meaning set forth in Section 5.1(b)(2)(D) (Proceeds Escrow).

"Event of Default" – An event or occurrence specified in Section 6.1(a) (Default by Supplier) or Section 6.1(b) (Default by Company).

"Execution Date" – The date referred to in the first paragraph on the first page of this Agreement.

"Fast Frequency Response" or "Fast Frequency Response Grid Service" – Has the meaning set forth in Attachment A-1 (Fast Frequency Response Description and Requirements).

"Force Majeure" – Has the meaning set forth in Section 14.1 (Definition of Force Majeure).

"Governmental Approvals"- All permits, licenses, approvals, certificates, entitlements and other authorizations issued by Governmental Authorities, as well as any agreements with Governmental Authorities, required to fulfill a Party's obligations under this Agreement,

including the design, permitting, deployment, operation and maintenance of Supplier's GSDS, and all amendments, modifications, supplements, general conditions and addenda thereto.

"Governmental Authority" – Any federal, state, local or municipal governmental body; any governmental, quasi-governmental, regulatory or administrative agency, commission, body or other authority exercising or entitled to exercise any administrative, executive, judicial, legislative, policy, regulatory or taxing authority or power; or any court or governmental tribunal.

"Grid Services" – The services offered by Supplier to be delivered to Company for use in the Company System pursuant to this Agreement, which will be one or more of the following: Fast Frequency Response Grid Service and Capacity Grid Service, which are described in Attachment A-1 (Fast Frequency Response Grid Service) and Attachment A-2 (Capacity Grid Service), respectively.

"Grid Services Data" – Shall have the meaning set forth in Section 19.2(f) (Meter Data).

"Grid Services Delivery System" or "GSDS" – The system of assets owned and operated by or obligated to Supplier consisting of servers, network communications equipment, control equipment, sensors and other monitoring devices required to deliver Grid Services to Company. The GSDS does not include any Participant Resources or Company revenue-grade meters.

"Grid Services Event" or "GS Event" – The delivery of a Grid Service at the Company's command or request, or in the case of a Grid Service where autonomous delivery is required, the appropriate autonomous delivery of the relevant Grid Service.

"Grid Services Event Performance Factor" or "GS Event Performance Factor" – Shall have the meaning set forth in Attachment H (Settlement).

"Grid Services Tariff" or "GS Tariff" – The set of rules approved by order of the PUC as may be amended from time to time, applicable to any aspect of the Grid Services Delivery System.

"Grid Services Value Ratio" or "GSV Ratio" – Shall have the meaning set forth in Attachment H (Settlement).

"Hawai'i General Excise Tax" – The tax on gross income codified under Hawai'i Revised Statutes Chapter 237 and administered by the Department of Taxation of the State of Hawai'i and all other similar taxes imposed by any Governmental Authority with respect to payments in the nature of a gross receipts tax, sales tax, privilege tax or the like, but excluding federal or state net income tax.

"HST" – Hawai'i Standard Time.

"HRS" – Hawai'i Revised Statutes, as may be amended.

"Indemnified Company Party" – Shall have the meaning set forth in Section 11.1(a) (Indemnification of Company).

“Indemnified Supplier Party” – Shall have the meaning set forth in Section 11.2(a) (Indemnification of Supplier).

“Initial Term” – Shall have the meaning set forth in Section 22.1 (Term).

“Laws” – All federal, state and local laws, rules, regulations, orders, ordinances, permit conditions and other governmental actions.

“Letter of Credit” – Shall have the meaning set forth in Section 21.2 (Letter of Credit).

“Liquidated Damages” – Any of the damages provided for in Section 7.3 (Failure to Meet Contract Capability), Section 7.4 (Termination Damages), Section 7.5 (Failure to Meet Service Level Agreement) and any of the damages characterized as liquidated damages in this Agreement.

“Loss” or “Losses” – Any and all direct, indirect or consequential damages, fines, penalties, deficiencies, losses, liabilities (including settlements and judgments), costs, expenses (including reasonable attorneys’ fees and court costs) and disbursements.

“Malware” – Computer software, code or instructions that: (a) intentionally, and with malice intent by a third party, adversely affect the operation, security or integrity of a computing, telecommunications or other digital operating or processing system or environment, including without limitation, other programs, data, databases, computer libraries and computer and communications equipment, by altering, destroying, disrupting or inhibiting such operation, security or integrity; (b) without functional purpose, self-replicate without manual intervention; (c) purport to perform a useful function but which actually perform either a destructive or harmful function, or perform no useful function other than to utilize substantial computer, telecommunications or memory resources with the intent of causing harm; or (d) without authorization collect and/or transmit to third parties any information or data; including such software, code or instructions commonly known as viruses, Trojans, logic bombs, worms, adware and spyware.

“Management Meeting” – Shall have the meaning set forth in Section 12.2 (Good Faith Negotiations).

“Mediator” – Shall have the meaning set forth in Section 12.4(a) (Mediation).

“Materials” – Shall have the meaning set forth in Section 3.2 (Ownership of Materials).

“MIR” – Shall have the meaning set forth in Section 20.2 (Monthly Invoice).

“Monetary Authorized Use” – Shall have the meaning set forth in Section 5.1(b)(2)(H) (Authorized Use).

“Monthly Invoice Report” or “MIR” – Shall have the meaning set forth in Attachment G (Reporting).

“Monthly Minimum Incentive” – Shall have the meaning set forth in Section 20.1(a) (Monthly Minimum Incentive).

“Non-appealable PUC Approval Order” – Shall have the meaning set forth in Section 16.2 (Non-appealable PUC Approval Order).

“Operational Forecast” – The information shown in the approved Attachment C (Operational Forecast).

“Operator” – Shall have the meaning set forth in Section 6.1(a)(5) (Default by Supplier).

“Participant” – A Residential Customer, SMB Customer, or C&I Customer enrolled by Supplier that contributes one or more Resources to Supplier pursuant to a Participant Service Agreement.

“Participant Data” – All data provided by Supplier to Company and all data provided by Company to Supplier regarding Participants pursuant to this Agreement.

“Participant Incentive and Capability Report” or “PIC” – Shall have the meaning set forth in Attachment G (Reporting).

“Participant Service Agreement” – The agreement between Supplier and Participant, which shall comply with the requirements set forth in this Agreement, including but not limited to the requirements set forth in Section 19.6(b) (Participant Service Agreement).

“Parties” – Supplier and Company, collectively.

“Party” – Supplier or Company.

“Performance Factor” or “Settlement Performance Factor” – Shall have the meaning set forth in Attachment H (Settlement).

“Performance Payment” – Shall have the meaning set forth in Attachment H (Settlement).

“Personally Identifiable Information” – The personally identifiable information of individuals, and any information that may be used to track, locate or identify individuals (or which is otherwise protected by privacy laws), including any automatically generated information (such as IP addresses and other customer identifiers) that identifies or is unique or traceable to a particular individual or computer or other electronic device capable of accessing the internet, including without limitation, name, address, telephone number, social security number, credit card account numbers, email addresses, user identification numbers or names and passwords, which is disclosed to Supplier or its subcontractors in connection with this Agreement by Company employees and individuals who seek to obtain or have obtained products or services from Company, which products and services are used or intended to be used for personal, family or household purposes.

“Portfolio” – Supplier’s collection of Resources.

“Pre-Deferral Estimate” – Shall have the meaning set forth in Section 19.7(b)(2)(C) (Pre Deferral Estimate).

“Prime Rate” – The “prime rate” of interest, as published from time to time by The Wall Street Journal in the “Money Rates” section of its Western Edition Newspaper (or the average prime rate if a high and a low prime rate are therein reported). The Prime Rate shall change without notice with each change in the prime rate reported by The Wall Street Journal, as of the date such change is reported. Any such rate is a general reference rate of interest, may not be related to any other rate, may not be the lowest or best rate actually charged by any lender to any customer or a favored rate and may not correspond with future increases or decreases in interest rates charged by lenders or market rates in general.

“Proceeds” – Shall have the meaning set forth in Section 5.1(b)(2)(C) (Extend Letter of Credit).

“Proprietary Rights” – Shall have the meaning set forth in Section 28.12 (Proprietary Rights).

“PUC” or “Public Utilities Commission” – Shall have the meaning set forth in the recitals above.

“PUC Approval Order” – Shall have the meaning set forth in Section 16.1 (PUC Approval Order).

“PUC Approval Date” – Shall have the meaning set forth in Section 16.4 (PUC Approval Date).

“Receiving Party” – Shall have the meaning set forth in Section 4.1 (Confidential Information).

“Recovery and Incident Response Plans” – Shall have the meaning set forth in Section 26.1(h) (Recovery and Incident Response Plans)

“Residential Customer” – A member of the Customer Class that receives electric service under Schedule R (Residential Service) as set forth in Attachment H (Settlement).

“Resource” – An asset at a Participant’s location enabled by a Supplier under a Participant Service Agreement to provide one or more Grid Services to Company.

“Security” – Shall have the meaning set forth in Section 21.1 (Security for the Performance of Supplier’s Obligations).

“Security Incident” – An occurrence that actually or potentially jeopardizes the confidentiality, integrity, or availability of an information system or the information such system processes, stores, or transmits or that constitutes a violation or imminent threat of violation of security policies, security procedures, or acceptable use policies.

“Settlement Month” – Shall have the meaning set forth in Attachment H (Settlement).

“Small and Medium Business Customer” or “SMB Customer” – A member of the Customer Class that receives electric service under Schedule G (General Service Non-Demand) as set forth in Attachment H (Settlement).

“Source Code” – The human readable source code of the GSDS that consists of narrated documentation related to the compilation, linking, packaging and platform requirements of the GSDS and any other materials or software sufficient to enable a reasonably skilled programmer to build, modify and use the code within a commercially reasonable period of time for the purpose of establishing, operating, and/or maintaining the GSDS and that can reasonably be compiled by a computer for execution.

“Source Code Authorized Use” – Shall have the meaning set forth in Section 5.1(b)(1)(E) (Authorized Use).

“Source Code Escrow” – The escrow established with the Source Code Escrow Agent under the terms of the Source Code Escrow Agreement under which Source Code shall be confidentially deposited by a Source Code Owner for safekeeping and, upon the satisfaction of certain conditions, released to the Company.

“Source Code Escrow Agent” – Iron Mountain Intellectual Property Management, Inc. or other similar escrow agent approved by Company.

“Source Code Escrow Agreement” – A multi-party escrow agreement between Company, Source Code Escrow Agent and any and all Source Code Owners depositing Source Code into the Source Code Escrow which, among other matters, names Company as beneficiary thereunder, and is otherwise acceptable in form and substance to Company.

“Source Code Owner” – The developer and/or owner of the Source Code authorized to deposit the Source Code with the Source Code Escrow Agent upon the terms of the Source Code Escrow Agreement.

“Source Code Recreation Letter of Credit” – Shall have the meaning set forth in Section 5.1(b)(2)(A) (Establishment of Monetary Escrow).

“Supervisory Control and Data Acquisition” or “SCADA” – The system that provides remote control and monitoring of Company’s transmission and sub-transmission systems and enables Company to perform real-time control of equipment in the field and to monitor the conditions and status of the Company System.

“Supplier” – The person or entity identified the first paragraph of this Agreement.

“Supplier Agents” – Contractors, consultants, and other third parties retained by Supplier to assist Supplier to perform under this Agreement.

“Supplier Data” – Shall have the meaning set forth in Section 3.1(a) (Other Data).

“Supplier Policies” – Shall have the meaning set forth in Section 19.3(a) (Compliance with Company’s Corporate Code of Conduct).

“System Integration” – The satisfaction of the following conditions: (i) the Conditions Precedent have been met to the satisfaction of Company, (ii) Supplier has provided Company with written notice that Supplier is ready to declare the System Integration Date, (iii) Supplier has passed the

GSDS Integration Test described in Attachment D (Data, Integration, and Testing Requirements) as demonstrated by a written notice (electronic or paper) from Company, and (iv) Supplier's GSDS is eligible to enroll Participants and to enable and deliver the Grid Services identified in this Agreement as demonstrated by a written notice (electronic or paper) from Company.

“System Integration Date” – The date on which Supplier has achieved System Integration.

“System Integration Date Deadline” – The date that is ninety (90) Days after the Commencement of Development, or as otherwise agreed upon by the Parties.

“Tariff” – The tariff rules applicable to electric service provided by Company.

“Term” – Shall have the meaning set forth in Section 22.1 (Term).

“Termination Assistance Period” – Shall mean a period of time designated by Company, commencing on the date a determination is made that there will be an expiration or termination of this Agreement and continuing for up to ninety (90) days after the effective date of the termination of this Agreement, during which Supplier shall provide the Termination Assistance Services.

“Termination Assistance Services” – Shall mean (1) Supplier's cooperation with Company or any other operator designated by Company in the transition of the GSDS to Company or the other operator designated by Company and (2) any other service requested by Company in order to facilitate the transfer of the GSDS to Company or any other operator designated by Company. Termination Assistance Services might include, by way of example only, training of staff of Company or other operator regarding equipment operation and maintenance, assisting to integrate a Resource to communicate directly with DERMS rather than through Supplier's head end system, assisting to integrate a Resource to communicate with the other operator's head end system, and assisting with development of Company's new head end system (using Supplier's Source Code) that would communicate with a Resource.

“Unfavorable PUC Order” – Shall have the meaning set forth in Section 16.5 (Unfavorable PUC Order).

ARTICLE 2 TERMS AND CONDITIONS

2.1 General Purpose of the Agreement

- (a) Overview. Supplier will design, permit, deploy, operate and maintain the Grid Services Delivery System to deliver Grid Services to Company in compliance with all applicable Laws and the terms and conditions of this Agreement. Grid Services from Supplier will be sold to Company under Dispatch for use in the Company System in accordance with the terms of this Agreement. Supplier will carry out its obligations under this Agreement in all respects in a manner that gives full recognition to the fact that, in order for Company to provide service to

its customers, Supplier must design, permit, deploy, operate, and maintain the GSDS in order to achieve the System Integration Date by the System Integration Date Deadline and thereafter be available to provide Grid Services in accordance with the terms of this Agreement.

- (b) Provision of Grid Services. Company agrees to allow Supplier to operate the GSDS to provide the Grid Services to Company; provided, however, that such operation shall not: (i) adversely affect Company's property or the operations of its customers and customers' property; (ii) present safety hazards to the Company System, Company's property or employees; or Company's customers or the customers' property or employees; (iii) fail to comply with any Laws, Tariff, Government Approvals or Company's interconnection requirements; or (iv) otherwise fail to comply with this Agreement. Such parallel operation shall be contingent upon the satisfactory completion, as determined solely by Company, of the testing and other requirements set forth in Attachment D (Data, Integration, and Testing Requirements).

2.2 Conditions Precedent to Company's Obligations. Company's obligation to purchase the Grid Services from Supplier and any and all obligations of Company that are ancillary to that purchase are contingent upon the occurrence of the Conditions Precedent set forth below prior to the System Integration Date or by such earlier date as specified below. Company's extension of or failure to enforce the time to meet a Condition Precedent shall not be construed as a waiver of that or any other Condition Precedent or the waiver of any other time to meet a Condition Precedent.

- (a) By the Execution Date, execute the Trademark License Agreement.
- (b) By the Execution Date, deliver the Letter of Credit to Company.
- (c) No later than thirty (30) Days prior to the System Integration Date Deadline, provide to Company all marketing materials as described in Section 19.2(a)(1) (Marketing Material).
- (d) No later than thirty (30) Days prior to the System Integration Date Deadline, provide to Company the form(s) of the Participant Service Agreement(s).
- (e) No later than thirty (30) Days prior to the System Integration Date Deadline, provide to Company a successful demonstration of Supplier's portal for engagement with Participants as described in Section 19.2(a)(2) (Participant Engagement Portal).
- (f) No later than thirty (30) Days prior to the System Integration Date Deadline, submit to Company copies of any and all required insurance policies (or binders

as appropriate) procured by Supplier in accordance with Article 13 (Insurance) to be in effect no later than the System Integration Date or any entry upon the property of Company or any potential Participant related to the GSDS, whichever occurs earlier.

- (g) No later than thirty (30) Days prior to the System Integration Date Deadline, deliver all Business Continuity Plans to Company.
- (h) No later than thirty (30) Days prior to the System Integration Date Deadline, establish a Source Code Escrow.
- (i) Satisfy all requirements set forth in Attachment A-1 (Fast Frequency Response Grid Service Description and Requirements) and Attachment A-2 (Capacity Grid Service Description and Requirements) relevant to each of the Grid Services being provided.
- (j) Satisfy the requirements of Attachment B (Advanced Metering).
- (k) Complete and obtain Company's approval of Attachment C (Operational Forecast).
- (l) Satisfy the requirements of Attachment D (Data, Integration, and Testing Requirements).

2.3 Failure to Meet System Integration Date Deadline

- (a) System Integration Date Deadline and Grace Periods. Time is of the essence of this Agreement, and Supplier shall achieve the System Integration Date no later than the System Integration Date Deadline. Supplier's failure to achieve the System Integration Date by the System Integration Date Deadline shall constitute an Event of Default as provided in Section 6.1(a)(10); provided, however, that in the event of Force Majeure or untimely performance by Company Supplier shall have the following grace periods within which to achieve the System Integration Date:
 - (1) Force Majeure. If the failure to achieve the System Integration Date by the System Integration Date Deadline is the result of Force Majeure, Supplier shall be entitled to a grace period following the System Integration Date Deadline equal to the lesser of ninety (90) Days or the duration of the Force Majeure.
 - (2) Untimely Performance by Company. If the failure to achieve the System Integration Date by the System Integration Date Deadline is the direct result of any failure by Company in the timely performance of its

obligations under this Agreement, Supplier shall be entitled to a grace period following the System Integration Date Deadline equal to the duration of the period of delay directly caused by such failure in Company's timely performance. Such grace period shall be Supplier's sole recourse for any such failure by Company. For purposes of this Section 2.3(a)(2) (Untimely Performance by Company), Company's performance will be deemed to be timely if it is accomplished within the time period specified in this Agreement with respect to such performance or, if no time period is specified, within a reasonable period of time. The determination of what period of time is reasonable for a particular activity will take into account Company's past practices for similar activities.

- (b) No extension of Term. Notwithstanding anything that might be construed to the contrary, any grace period allowed pursuant to Section 2.3(a)(2) (Untimely Performance by Company) shall not operate to extend the Term as established under Section 22.1 (Term).
- (c) Reporting. At Company's request, Supplier shall provide written reports regarding its progress towards satisfying the Conditions Precedent set forth in Section 2.2 (Conditions Precedent to Company's Obligations) above. Company may prescribe a form for such report.

ARTICLE 3 OWNERSHIP OF DATA AND MATERIALS

3.1 Ownership of Company Data. As between Company and Supplier, all Company pricing and incentives under this Agreement, all data prepared by Supplier for delivery to Company, and all data provided by Company to Supplier pursuant to this Agreement, including but not limited to all names, addresses, and rate schedules of Company's customers ("Company Data") is, will be, and shall remain the property of Company. Unless approved by Company, which approval may be withheld in Company's sole discretion, the Company Data shall not (i) be used by Supplier other than in connection with its performance under this Agreement, (ii) be disclosed, sold, assigned, leased or otherwise provided to third parties by Supplier, or (iii) be commercially exploited by or on behalf of Supplier. The availability of financial compensation to Company shall not preclude injunctive relief to prevent disclosure of Company Data. This provision shall not apply to data acquired independently by Supplier.

- (a) Other Data. All data provided by Supplier to Company pursuant to this Agreement and not otherwise owned by Company as provided in Section 3.1 (Ownership of Company Data) ("Supplier Data") may be used by Company for any Company business purpose, including, without limitation, any business purpose in connection with this Agreement. Supplier hereby grants to Company

and its affiliates (and their third party service providers) a non-exclusive, perpetual, royalty-free, irrevocable worldwide right and license to use and access, modify, maintain, enhance and create derivative works based upon the Supplier Data accordingly.

- 3.2 Ownership of Materials. Except as otherwise provided, any and all drawings, specifications, technical information, reports, studies, documents, materials and business information of any type whatsoever (“Materials”) provided to Supplier by Company, or prepared or developed by Supplier for or on behalf of Company in the performance of this Agreement (except as provided below), are Company's exclusive property. Any restrictions or claims to ownership or rights included on or within the Materials delivered by Supplier to Company that conflict or are inconsistent with this Section 3.2 (Ownership of Materials) are null and void.

ARTICLE 4 CONFIDENTIALITY

- 4.1 Confidential Information. Each Party may have a proprietary interest or other need for confidentiality in certain information that may be furnished to the other pursuant to this Agreement or any work performed hereunder. For purposes of this Agreement, Confidential Information means all information regarding Company’s customers, customer lists, any of the data and testing results produced under this Agreement, and information identified by either Party as confidential. The Party disclosing such information shall be referred to in this section as the Disclosing Party, and the Party receiving such information shall be referred to as the Receiving Party.
- 4.2 Non-Disclosure. The Receiving Party will hold in confidence and, without the consent of the Disclosing Party, will not use, reproduce, distribute, transmit, or disclose, directly or indirectly, the Confidential Information of the Disclosing Party except as permitted herein. The Receiving Party may only disclose the Confidential Information to its officers, directors, employees, financing parties, professional advisors and independent contractors and consultants with a direct need to know the information for the implementation or exercise of rights and/or performance of obligations under or arising from this Agreement, provided that such persons/entities are bound by written confidentiality agreements with terms and conditions that are no less restrictive than those contained in this section. Without limiting the foregoing, the Receiving Party agrees that it will exercise at least the same standard of care in protecting the confidentiality of the Disclosing Party’s Confidential Information as it does with its own Confidential Information of a similar nature, but in any event, no less than reasonable care.
- 4.3 Exceptions. Confidential Information for purposes of this Agreement shall not include information if and only to the extent that the Receiving Party establishes that the

information: (i) is or becomes a part of the public domain through no act or omission of the Receiving Party; (ii) was in the Receiving Party's lawful possession prior to the disclosure and had not been obtained by the Receiving Party either directly or indirectly from the Disclosing Party; or (iii) is lawfully disclosed to the Receiving Party by a third party without restriction on disclosure. Confidential Information may also be disclosed by the Receiving Party pursuant to a requirement of a governmental agency, regulatory body or by operation of law, provided that the recipient shall disclose only that part of the Confidential Information that it is required to disclose and shall notify the Disclosing Party prior to such disclosure in a timely fashion in order to permit the Disclosing Party to lawfully attempt to prevent or restrict such disclosure should it so elect, and shall take all other reasonable and lawful measures to ensure the continued confidential treatment of the same by the party to which the Confidential Information is disclosed.

- 4.4 Return or Destruction of Confidential Information. At any time during or after the Term, at the Disclosing Party's written request, the Receiving Party will return to the Disclosing Party within ten (10) Business Days, all copies of Confidential Information in tangible form received from the Disclosing Party in the Receiving Party's or its representatives' possession or certify within such period that it has destroyed such Confidential Information; provided, however, that the Receiving Party's sole obligation with respect to the disposition of any documentation prepared for or by the Receiving Party or its representatives that contains, is based on, or otherwise reflects or is derived from, in whole or in part, any Confidential Information shall be to redact or otherwise expunge all such Confidential Information from such documentation and certify to the Disclosing Party that it has so redacted or expunged the Confidential Information.
- 4.5 Company's Disclosure. Any provision herein to the contrary notwithstanding, Company may disclose Confidential Information, as necessary and appropriate, to the Public Utilities Commission and/or the Division of Consumer Advocacy of the Department of Commerce and Consumer Affairs of the State of Hawai'i ("Consumer Advocate") (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 PUC.
- 4.6 Prohibited Activities. Supplier acknowledges that it will derive significant value from Company's provision of Confidential Information that will enable Supplier to optimize the performance of its contractual duties to Company pursuant to this Agreement. Supplier shall not use Company's Confidential Information other than for Company's exclusive benefit.

ARTICLE 5 SOURCE CODE

5.1 Source Code.

- (a) Supplier's Obligation to Provide Source Code. No later than thirty (30) Days prior to the System Integration Date Deadline, Supplier shall provide the Source Code in a form reasonably satisfactory to Company. Supplier shall provide updates of any Source Code within thirty (30) Days of being notified that the Source Code has been modified, updated or superseded by the Source Code Owner.

- (b) Escrow Establishment. If Supplier is unable to provide the Source Code directly to Company, due to its agreement with the Source Code Owner or otherwise, Supplier shall arrange for and ensure that the Source Code and updates are deposited into the Source Code Escrow as set forth in Section 5.1(b)(1) (Source Code Escrow) no later than the time periods set forth in Section 5.1(a) (Supplier's Obligation to Provide Source Code). Supplier shall be responsible for all costs associated with establishing and maintaining the Source Code Escrow.
 - (1) Source Code Escrow.
 - (A) Establishment of Source Code Escrow. Supplier shall arrange for and ensure the deposit of a copy of the current version of the Source Code and any updates to the deposited Source Code with the Source Code Escrow Agent under the terms and conditions of the Source Code Escrow Agreement.

 - (B) Release Conditions. Company shall have the right to obtain promptly from the Source Code Escrow Agent one copy of the escrowed Source Code, and any updates, under the following conditions:
 - i. A receiver, trustee, or similar officer is appointed, pursuant to federal, state or applicable foreign law, for the Source Code Owner;

 - ii. Any voluntary or involuntary petition or proceeding is instituted, under (x) U.S. bankruptcy laws or (y) any other bankruptcy, insolvency or similar proceeding outside of the United States, by or against the Source Code Owner; or

 - iii. Failure of the Source Code Owner to function as an ongoing concern or operate in the ordinary course.

- (C) Remedies. If Company has the right to obtain from the Source Code Escrow Agent the escrowed Source Code, and Company finds that Supplier failed to arrange for and/or ensure the update of the Source Code Escrow with the modified and/or updated Source Code as provided in Section 5.1(b)(1)(A) (Establishment of Source Code Escrow) or that the Source Code is incomplete or otherwise unusable, Supplier shall be liable to Company for liquidated damages in the amount of FIVE HUNDRED DOLLARS (\$500) per Day for each Day Supplier fails to provide such Source Code to Company or such update to the Source Code to Company from the date such Source Code or update was first required to be made to Company. Failure to provide the updated Source Code within thirty (30) Days' notice from Company of a breach of Section 5.1(b)(1)(A) (Establishment of Source Code Escrow) shall constitute an Event of Default pursuant to Section 6.1(a) (Default by Supplier) under this Agreement.
- (D) Certification. The Source Code Escrow Agent shall release the Source Code to Company upon receipt of a signed statement by a representative of Company that reads substantially as follows:
- The undersigned hereby certifies that (i) I am duly authorized to execute this document on behalf of Hawaiian Electric Company, Inc. ("Hawaiian Electric"), and (ii) Hawaiian Electric is entitled to a copy of the Source Code of the GSDS Pursuant to Section 5.1(b)(1)(B) (Release Conditions) of the Grid Services Purchase Agreement dated _____, between _____ and Hawaiian Electric.
- (E) Authorized Use. If Company becomes entitled to a release of the Source Code from escrow, Company may thereafter correct, modify, update and enhance the GSDS for the sole purpose of providing itself the support and maintenance it otherwise would have been entitled to if Supplier had performed under Section 5.1(a) (Supplier's Obligation to Provide Source Code) ("Source Code Authorized Use").
- (F) Confidentiality Obligations. Company shall keep the Source Code confidential pursuant to the confidentiality obligations of this Agreement. Company shall restrict access to the Source Code to those employees, independent contractors and consultants of Company who have agreed in writing to be bound by confidentiality and use obligations consistent with those specified

in this Agreement, and who have a need to access the Source Code on behalf of Company to carry out their duties for the Source Code Authorized Use. Promptly upon Supplier's request, Company shall provide Supplier with the names and contact information of all individuals who have accessed the Source Code and shall take all reasonable actions required to recover any such Source Code in the event of loss or misappropriation or to otherwise prevent its unauthorized disclosure or use.

(2) Monetary Escrow.

(A) Establishment of Monetary Escrow. If the Source Code is not provided to the Company as set forth in Section 5.1(a) (Supplier's Obligation to Provide Source Code) or Section 5.1(b)(1) (Source Code Escrow) then, no later than the time period set forth in Section 5.1(a) (Supplier's Obligation to Provide Source Code) for delivery of the Source Code, Supplier shall provide an irrevocable standby letter of credit ("Source Code Recreation Letter of Credit") with no documentation requirement in the amount of \$ _____ substantially in the form attached to this Agreement as Attachment L (Form of Letter of Credit) from a bank chartered in the United States with a credit rating of "A-" or better. Such Source Code Recreation Letter of Credit shall be issued for a minimum term of one (1) year. Furthermore, at the end of each year, the Source Code Recreation Letter of Credit shall be renewed for an additional one (1) year term so that at the time of such renewal, the remaining term of any such Source Code Recreation Letter of Credit shall not be less than one (1) year. The Source Code Recreation Letter of Credit shall include a provision for at least thirty (30) Days advance notice to Company of any expiration or earlier termination of the Source Code Recreation Letter of Credit so as to allow Company sufficient time to exercise its rights under said Source Code Recreation Letter of Credit if Supplier fails to extend or replace the Source Code Recreation Letter of Credit. In all cases, the reasonable costs and expenses of establishing, renewing, substituting, canceling, increasing, reducing, or otherwise administering the Source Code Recreation Letter of Credit shall be borne by Supplier.

(B) Release Conditions. Company shall have the right to draw on the Source Code Recreation Letter of Credit the funds necessary to develop and recreate the GSDS or such part thereof as deemed

necessary by Company upon Company's request if Supplier fails to provide the Company the Source Code or updates within the time periods set forth in Section 5.1(a) (Supplier's Obligation to Provide Source Code), Company gives written notice of such failure to Supplier, and Supplier fails to remedy such breach within five (5) Days following receipt of such notice.

- (C) Extend Letter of Credit. If the Source Code Recreation Letter of Credit is not renewed or extended no later than thirty (30) Days prior to its expiration or earlier termination, Company shall have the right to draw immediately upon the full amount of the Source Code Recreation Letter of Credit and to place the proceeds of such draw ("Proceeds"), at Supplier's cost, in an escrow account in accordance with Section 5.1(b)(2) (Monetary Escrow), until and unless Supplier provides a substitute form of letter of credit meeting the requirements of Section 5.1(b)(2) (Monetary Escrow).
- (D) Proceeds Escrow. If Company draws on the Source Code Recreation Letter of Credit pursuant to Section 5.1(b)(2)(C) (Extend Letter of Credit), Company shall, in order to avoid commingling the Proceeds, have the right but not the obligation to place the Proceeds in an escrow account as provided in this Section 5.1(b)(2)(D) (Proceeds Escrow) with a reputable escrow agent acceptable to Company ("Escrow Agent"). Without limitation to the generality of the foregoing, a federally-insured bank located in the United States shall be deemed to be a "reputable escrow agent." Company shall have the right to apply the Proceeds as necessary to recover amounts Company is owed pursuant to this Section 5.1 (Source Code). To that end, the documentation governing such escrow account shall be in form and content satisfactory to Company and shall give Company the sole authority to draw from the account. Supplier shall not be a party to such documentation and shall have no rights to the Proceeds. Upon full satisfaction of Supplier's obligations under Section 5.1 (Source Code), Company shall instruct the Escrow Agent to remit to the bank that issued the Source Code Recreation Letter of Credit that was the source of the Proceeds the remaining balance (if any) of the Proceeds. If there is more than one escrow account with Proceeds, Company may, in its sole discretion, draw on such accounts in any sequence Company may select. Any failure to draw upon the Proceeds for any damages or other amounts due

Company shall not prejudice Company's rights to recover such damages or amounts in any other manner.

- (E) Supplier's Obligation. If the Source Code Recreation Letter of Credit is not sufficient to cover Company's associated consultant fees and other costs and expenses to develop and recreate the Source Code, Supplier shall pay to Company the difference within ten (10) Days of Company's written notice to Supplier.
- (F) Model Verification. Supplier shall work with the Company to validate the new Source Code developed by or on behalf of Company within sixty (60) Days of receiving such new Source Code. Supplier shall also arrange for and ensure that Company may obtain new Source Code directly from the Source Code Owner in the event that Supplier ceases to operate as a going concern or is subject to voluntary or involuntary bankruptcy and is unable or unwilling to obtain the new Source Code from the Source Code Owner.
- (G) Certification. The terms of the Source Code Recreation Letter of Credit shall provide for a release of the funds, or in the event the funds have been placed into a Proceeds Escrow, the Escrow Agent shall release the necessary funds to Company upon receipt of a signed statement by a representative of Company that reads substantially as follows:

The undersigned hereby certifies that (i) I am duly authorized to execute this document on behalf of Hawaiian Electric Company, Inc. ("Hawaiian Electric"), and (ii) Hawaiian Electric is entitled to \$_____, pursuant to Section 5.1(b)(2)(B) (Release Conditions) of the Grid Services Purchase Agreement dated _____, between _____, and Hawaiian Electric.

- (H) Authorized Use. If Company becomes entitled to a release of funds from escrow, Company may thereafter use such funds to develop, recreate, correct, modify, update and enhance the Source Code for the sole purpose of providing itself the support and maintenance it otherwise would have been entitled to if it had been provided the Source Code by Supplier under Section 5.1(a) (Supplier's Obligation to Provide Source Code) ("Monetary Authorized Use").

- (I) Supplementary Agreement. The parties stipulate and agree that the escrow provisions in this Section 5.1 (Source Code), and the Source Code Escrow Agreement and Monetary Escrow Agreement are “supplementary agreements” as contemplated in Section 365(n)(1)(B) of the United States Bankruptcy Code (“Code”). In any voluntary or involuntary bankruptcy proceeding involving Supplier, failure by Company to assert its rights to “retain its rights” to the intellectual property encompassed by the Source Code or the funds in the monetary escrow, pursuant to Section 365(n)(1)(B) of the Code, under an executory contract rejected in a bankruptcy proceeding, shall not be construed as an election to terminate the contract by Company under Section 365(n)(1)(A) of the Code.

ARTICLE 6 EVENTS OF DEFAULT

6.1 Events of Default.

- (a) Default by Supplier. The occurrence of any of the following events at any time during the Term shall constitute an Event of Default by Supplier:
 - (1) Supplier shall fail to pay Company any amount as and when due under this Agreement (less any amounts disputed in good faith pursuant to Article 12 (Governing Law; Dispute Resolution)) and Supplier does not remedy such non-payment within thirty (30) Days after written demand therefor by Company served upon Supplier;
 - (2) Supplier shall fail to operate, maintain or repair the GSDS in accordance with the terms of this Agreement such that a condition exists in relation to the GSDS that has an adverse physical impact on the Company System or the equipment of Company’s customers or other suppliers or which Company reasonably determines presents an immediate danger to such personnel or equipment, and Supplier shall fail to initiate and diligently pursue reasonable action to cure such failure within seven (7) Days after actual receipt by Supplier of demand therefor by Company, provided, that Company may, after providing written notice to Supplier, access the GSDS and any of Supplier’s equipment related to the GSDS or Supplier’s provision of Grid Services to Company, and undertake such reasonable action on behalf of Supplier, until either such adverse effect or danger is eliminated or Company is reasonably satisfied that Supplier has, within the aforesaid seven (7) Day period, initiated and is diligently pursuing such reasonable action. Supplier shall bear or reimburse Company, as the

case may be, for all reasonable, documented, out-of-pocket costs incurred by Company in connection with such reasonable actions taken by Company on behalf of Supplier as provided herein, and shall cooperate in good faith with Company in providing access to the GSDS and any of Supplier's equipment related to the GSDS or Supplier's provision of Grid Services to Company, in the event Company elects to undertake such action as provided herein;

- (3) Supplier shall (i) abandon the GSDS prior to the date that is sixty (60) Days after System Integration Date Deadline or (ii) fail to maintain continuous service to the extent required by this Agreement for a period of seven (7) or more consecutive Days, the last twenty-four (24) hours of which shall be after notice by Company to Supplier that it is not in compliance with this provision, unless such abandonment or failure is caused by Force Majeure or an Event of Default by Company. For purposes of this Section 6.1(a) (Default by Supplier), abandonment of the GSDS prior to the System Integration Date shall mean the failure by Supplier to proceed with or prosecute in a diligent manner the planning, design, engineering, permitting, deployment (including, without limitation, purchasing, accounting, training and administration) and start-up of the GSDS for a consecutive period of thirty (30) Days, the last ten (10) Days of which shall be after notice from Company to Supplier that it is not in compliance with this provision;
- (4) Supplier shall fail to meet the warranties and guarantees of performance specified in this Agreement, including but not limited to the agreements set forth in Attachment F (GSDS Service Level Agreement), taking into account any time allowed in Attachment F (GSDS Service Level Agreement) for cure;
- (5) Without the prior written consent of Company, such consent not to be unreasonably withheld, if *[INSERT NAME OF ENTITY OPERATING GSDS]* ("Operator") having been previously approved by Company as the operator of the GSDS, is no longer the operator of the GSDS; provided, however, that to the extent that the grant of consent by Company is dependent upon qualifications to carry out the role of operator, Company's consent shall be granted if Company is reasonably satisfied that the substitute operator (i) has the qualifications or has contracted with an entity having the qualifications to operate the GSDS in a manner consistent with the terms and conditions of this Agreement and (ii) has provided Company with evidence satisfactory to Company of its creditworthiness and ability to perform its financial obligations hereunder

(including such guarantees as Company deems appropriate) in a manner consistent with the terms and conditions of this Agreement.

- (6) Supplier shall (i) be dissolved, be liquidated, be adjudicated as bankrupt, or become subject to an order for relief under any federal bankruptcy law; (ii) fail to pay, or admit in writing its inability to pay, its debts generally as they become due; (iii) make a general assignment of substantially all its assets for the benefit of creditors; (iv) apply for, seek, consent to, or acquiesce in the appointment of a receiver, custodian, trustee, examiner, liquidator or similar official for itself or any substantial part of its property; (v) institute any proceedings seeking an order for relief or to adjudicate it as bankrupt or insolvent, or seeking dissolution, winding up, liquidation, reorganization, arrangement, adjustment or composition of it or its debts under any law relating to bankruptcy, insolvency, reorganization or relief of debtors; or (vi) take any action to authorize or effect any of the foregoing actions;
- (7) Without the application, approval or consent of Supplier, a receiver, trustee, examiner, liquidator or similar official shall be appointed for Supplier, or any part of its property, or a proceeding described in Section 6.1(a)(6) (Default by Supplier) shall be instituted against Supplier and such appointment shall continue undischarged or such proceeding shall continue undismissed or unstayed for a period of sixty (60) consecutive Days or Supplier shall fail to file in a timely manner, an answer or other pleading denying the material allegations filed against it in any such proceeding;
- (8) Without the prior written consent of Company, Supplier shall transfer, convey, lose or relinquish its right to own the GSDS to any person;
- (9) Supplier shall fail to maintain in full force and effect throughout the Term a Letter of Credit in accordance with the provisions of Section 21.2 (Letter of Credit) and such failure continues for forty-five (45) Days after written notice of noncompliance with this Section 6.1(a) (Default by Supplier) by Company;
- (10) Supplier shall fail to perform a material obligation of this Agreement not otherwise specifically referred to in this Section 6.1(a) (Default by Supplier), which failure has or may reasonably be anticipated to have a material adverse effect on Supplier's delivery of Grid Services to Company in accordance with the terms of this Agreement and which

failure shall continue for forty-five (45) Days after written demand by Company for performance thereof;

- (11) Supplier makes any representation or warranty to Company required by, or relating to Supplier's performance of, this Agreement that is false and misleading in any material respect when made; or
 - (12) Supplier modifies its GSDS control schema in a manner that adversely affects its obligations to Company under this Agreement.
 - (13) Supplier, as the non-performing Party in the event of Force Majeure, fails to comply with the requirements of Section 14.4 (Consequences of Force Majeure), Section 14.5 (Effect of Force Majeure on Events of Default), and Section 14.7 (Obligations Remaining After Event of Force Majeure).
- (b) Default by Company. The occurrence of any of the following at any time during the Term of this Agreement shall constitute an Event of Default by Company:
- (1) Company shall fail to pay Supplier any amount as and when due under this Agreement (less any amounts disputed in good faith pursuant to Article 12 (Governing Law; Dispute Resolution)) and shall fail to remedy such non-payment within forty-five (45) Days after demand therefor from Supplier;
 - (2) Company shall (i) be dissolved, be adjudicated as bankrupt, or become subject to an order for relief under any federal bankruptcy law; (ii) fail to pay, or admit in writing its inability to pay, its debts generally as they become due; (iii) make a general assignment of substantially all its assets for the benefit of creditors; (iv) apply for, seek, consent to, or acquiesce in the appointment of a receiver, custodian, trustee, examiner, liquidator or similar official for itself or any substantial part of its property; (v) institute any proceedings seeking an order for relief or to adjudicate it as bankrupt or insolvent, or seeking dissolution, winding up, liquidation, reorganization, arrangement, adjustment or composition of it or its debts under any law relating to bankruptcy, insolvency, reorganization, or relief of debtors; or (vi) take any action to authorize or effect any of the foregoing actions;
 - (3) Without the application, approval or consent of Company, a receiver, trustee, examiner, liquidator or similar official shall be appointed for Company or any part of its respective property, or a proceeding described in Section 6.1(b)(2) (Default by Company) shall be instituted against Company and such appointment shall continue undischarged or such

proceeding shall continue undismissed or unstayed for a period of sixty (60) consecutive Days or Company shall fail to file timely an answer or other pleading denying the material allegations filed against it in any such proceeding;

- (4) Company shall fail to perform a material obligation of this Agreement not otherwise specifically referred to in this Section 6.1(b) (Default by Company), which failure shall have a material adverse effect on its ability to accept and pay for, or Supplier's ability to deliver, Grid Services in accordance with the terms of this Agreement and which failure shall continue for forty-five (45) Days after written demand by Supplier for performance thereof; or
- (5) Company makes any representation or warranty to Supplier required by, or relating to Company's performance of, this Agreement that is false and misleading in any material respect when made.
- (6) Company, as the non-performing Party in the event of Force Majeure, fails to comply with the requirements of Section 14.4 (Consequences of Force Majeure), Section 14.5 (Effect of Force Majeure on Events of Default), and Section 14.7 (Obligations Remaining After Event of Force Majeure).

6.2 Notice of Default. Upon the occurrence of an Event of Default specified in Section 6.1 (Events of Default), the non-defaulting Party shall deliver to the defaulting Party a written notice that (i) declares that an Event of Default has occurred under Section 6.1 (Events of Default); and (ii) identifies the specific provision or provisions of such Section under which such Event of Default shall have occurred.

6.3 Equitable Remedies. Supplier acknowledges that Company is a public utility and is relying upon Supplier's performance of its obligations under this Agreement, and that Company and/or its customers may suffer irreparable injury as a result of the failure of Supplier to perform any of such obligations, whether or not such failure constitutes an Event of Default or otherwise gives rise to one or more of the remedies set forth in Section 9.2 (Termination by Company for an Event of Default by Supplier). Accordingly, the remedies set forth in Section 9.2 (Termination by Company for an Event of Default by Supplier) shall not limit or otherwise affect Company's right to seek specific performance, injunctions or other available equitable remedies for Supplier's failure to perform any of its obligations under this Agreement, irrespective of whether such failure constitutes an Event of Default.

6.4 Forward Contract. The Parties agree that, under U.S.C. § 362(b)(6), this Agreement is a "forward contract" and Company is a "forward contract merchant" such that upon the

occurrence of an event of default by Supplier under Section 6.1(a) (Default by Supplier), this Agreement may be terminated by Company as provided in this Agreement notwithstanding any bankruptcy petition affecting Supplier.

- 6.5 No Waiver. Notwithstanding any provision herein to the contrary, Company's failure to declare an Event of Default within the time periods provided in this Agreement shall not constitute a waiver of the right to declare such Event of Default if such failure is the direct or indirect result of Supplier's misstatement of a material fact or Supplier's omission of a material fact that is necessary to make any representation, warranty, certification, guarantee or statement made (or notice delivered) by Supplier to Company in connection with this Agreement (whether in writing or otherwise) not misleading.

ARTICLE 7 LIQUIDATED DAMAGES; OTHER REMEDIES

- 7.1 Liquidated Damages Generally. Supplier acknowledges that the Grid Services delivered by Supplier are needed by Company to meet the requirements of Company's customers and thus are critical to the business and operations of Company. Supplier also acknowledges that the damages Company would incur in the event of a failure of Supplier to meet the performance standards under this Agreement would be extremely difficult to quantify. Accordingly, the Parties agree that the Liquidated Damages prescribed in this Agreement (i) constitute a reasonable and good faith estimate of the anticipated or actual loss or damage that would be incurred by Company as a result of such failure, (ii) are not intended as a penalty, (iii) may be invoked by Company to ensure that the GSDS meets the performance standards established under this Agreement, and (iv) constitute Company's sole and exclusive monetary remedy with respect to the matters for which they are assessed, except as otherwise expressly stated; provided, however, that the Company's invoking Liquidated Damages shall not limit or otherwise affect Company's right to seek (aa) monetary damages when Liquidated Damages are not applicable under the terms of this Agreement, and (bb) specific performance or injunctive relief when monetary damages will not provide adequate relief.
- 7.2 When Payment is Due. Payment of any Liquidated Damages described in this Article 7 (Liquidated Damages; Other Remedies) will be due within thirty (30) days of the notice of the assessment of the Liquidated Damages.
- 7.3 Failure to Meet Contract Capability. At the ends of Contract Year 1 (beginning of month 13), Contract Year 2 (beginning of month 25), Contract Year 3 (beginning month 37), Contract Year 4 (beginning month 49), Contract Year 5 (beginning month 61), Contract Year 7 (beginning month 73) and Contract Year 10 (beginning month 109). Company will evaluate Supplier's compliance with Contract Capability and Enabled Capability for the Contract Year by performing a performance audit of Supplier or some other means as determined by Company in its sole reasonable discretion. If Supplier falls short of the

stated Contract Capability and/or fails to achieve the Enabled Capability for the Contract Year, Supplier will have ninety (90) Days to achieve the requisite Contract Capability. If at the end of the ninety (90) Days, Supplier has not met its Contract Capability for the applicable Contract Year, Company will be entitled to the following: (i) Company will have the right to rescind the purchase of the unmet Contract Capability of each Grid Service for which the Contract Capability standard is not met, resulting in a permanent reduction in Contract Capability for the remainder of the Term; and (ii) Company, at its sole discretion, may require Supplier to pay Liquidated Damages equal to the shortfall in Contract Capability for the Contract Year at the amount per kW shown on the table below.

GS	Fast Frequency Response	Capacity
Amount per kW	\$58	\$31

- (a) Termination by Supplier. The remedies available to Company under Section 7.3 (Failure to Meet Contract Capability) shall not apply to the extent that Supplier is unable to realize the Conditional Contract Capability as identified in Attachment E (Contract Capability) because Supplier has elected to terminate this Agreement as provided in Section 19.2(i)(1)(A).

7.4 Termination Damages. If this Agreement is terminated by Company in accordance with its terms where Supplier is the defaulting Party, Supplier shall be liable for Liquidated Damages equal to the total Contract Capability at the amount per kW shown on the table below. Payment of any Liquidated Damages described in this Article 7 (Liquidated Damages; Other Remedies) will be due within thirty (30) Days of the notice of the assessment of the Liquidated Damages.

GS	Fast Frequency Response	Capacity
Amount per kW	\$58	\$31

7.5 Failure to Meet Service Level Agreement. If Supplier fails to meet the Service Level Agreement set forth in Attachment F (GSDS Service Level Agreement), then Supplier shall be liable for Liquidated Damages as stated in said Attachment F (GSDS Service Level Agreement).

ARTICLE 8 CONSEQUENTIAL DAMAGES

- 8.1 Consequential Damages. Except to the extent such damages are included in any Liquidated Damages provided in Article 7 (Liquidated Damages; Other Remedies), indemnification as provided in Article 11 (Indemnification), or are a result of a Party's gross negligence or willful and intentional misconduct, damages from claims arising from or related to gross negligence or willful misconduct of a Party or other specified measure of damages expressly provided for herein, neither Party shall be liable to the other Party for special, punitive, indirect, exemplary or consequential damages, whether such damages are allowed or provided by contract, tort (including negligence), strict liability, statute or otherwise. Nothing in this section prevents, or is intended to prevent, Company from proceeding against or exercising its rights with respect to any security as provided in this Agreement, including, but not limited to, Company's rights as provided in Article 21 (Security).

ARTICLE 9 TERMINATION RIGHTS

9.1 Right to Terminate.

- (a) Notice of Termination. If an Event of Default under Section 6.1 (Events of Default) shall have occurred, the non-defaulting Party shall have the right to terminate this Agreement by delivering a written notice of termination, which shall be effective thirty (30) Days from the date such notice is delivered, provided that if such notice of termination is not given within ninety (90) Days of the date such right to terminate is triggered, such termination shall not be effective.

9.2 Termination by Company for an Event of Default by Supplier.

- (a) Company's Assumption of Supplier's Interest. If an Event of Default by Supplier occurs under Section 6.1(a) (Default by Supplier), and if Company delivers to Supplier the notice required under Section 9.1(a) (Notice of Termination) stating that Company has elected to exercise its rights hereunder, Company may elect to assume all right, title and interest of Supplier in the GSDS and this Agreement to the extent it is legally capable of doing so, take over the deployment or operation of the GSDS forthwith and deploy or operate the GSDS during the period in which the foregoing assumption is being perfected, and complete the deployment of and/or operate the same. Upon such assumption, Company shall have no obligation to remedy or cause to be remedied the events that gave rise to the Event of Default under Section 6.1(a) (Default by Supplier) or to pay any delinquent principal, interest, penalties, or other amounts which, but for such Event of Default would not have become due. Despite such assumption of rights by Company, Supplier shall continue to be liable to Company for all obligations to Company arising from events that occurred through the date of Company's

assumption; provided, however, that such obligations shall be reduced for this purpose by an amount equal to the net present value of this Agreement. Supplier shall take all action and provide all information necessary to facilitate Company's decision whether to exercise its rights under this Section 9.2(a) (Company's Assumption of Supplier's Interest) and to implement the exercise of those rights if Company so chooses.

- (b) Supplier's Obligations Upon Termination. If Company elects to exercise its rights under this Section 9.2 (Termination by Company for an Event of Default by Supplier), Supplier shall take all actions as may be necessary, at no cost to Company, (i) to convey to Company free and clear of all liens and encumbrances (other than those of Company) all of Supplier's right, title and interest in and to the GSDS any and all materials, equipment, design materials and supplies relating to the GSDS and (ii) to migrate or transfer the Participants under contract with Supplier to Company or to another operator designated by Company.

- 9.3 Termination Assistance Services. Upon Company's request and without limiting Supplier's obligations under Section 9.2(a) (Company's Assumption of Supplier's Interest) and Section 9.2(b) (Supplier's Obligations Upon Termination), which shall be performed without cost to Company, Supplier shall, for a period of ninety (90) days after the effective date of the termination, provide Termination Assistance Services to Company at a rate mutually agreed upon between Company and Supplier. The quality and level of performance of the Termination Assistance Services shall be commensurate and in accordance with all of the applicable standards of service required of Supplier during the Term and shall not be degraded during the Termination Assistance Period. After Termination Assistance Period, Supplier shall (i) answer questions from Company regarding the GSDS and the Grid Services performed by Supplier pursuant to this Agreement on an "as needed" basis at Supplier's then-standard billing rates and (ii) promptly deliver to Company all Participant Data not previously delivered to Company and any remaining Company-owned documentation still in Supplier's possession.

ARTICLE 10 REPRESENTATIONS, WARRANTIES, AND COVENANTS

- 10.1 By Supplier. Supplier represents, warrants and covenants (as applicable), as of the Execution Date and for the extent of the Term, as follows:
- (a) Compliance with Laws. Supplier covenants to comply with all applicable Laws, including but not limited to the Grid Service Tariff and decisions and orders of the PUC, in its performance pursuant to this Agreement.
 - (b) Duly Organized. Supplier represents and warrants that it is a / / duly organized, validly existing and in good standing under the laws of the State of / /. Supplier

has full power, authority and legal right to execute and deliver and perform its obligations under this Agreement. This Agreement has been duly executed and delivered by Supplier and constitutes a legal, valid and binding obligation of Supplier, enforceable in accordance with its terms, except to the extent that such enforcement may be limited by any bankruptcy, reorganization, insolvency, moratorium or similar laws affecting generally the enforcement of creditors' rights from time to time in effect.

- (c) No Conflict. Supplier represents and warrants that the execution and delivery of, and performance by Supplier of its obligations under, this Agreement will not result in a violation of, or be in conflict with, any provision of its articles of incorporation, bylaws, and/or other organizational documents, or result in a violation of, or be in conflict with, or constitute a default or an event which would, with notice or lapse of time, or both, become a default under, any mortgage, indenture, contract, agreement or other instrument to which Supplier is a party or by which it or its property is bound, where such violation, conflict, default or potential default would materially adversely affect Supplier's ability to perform its obligations under this Agreement, or result in a violation of any statute, rule, order of any court or administrative agency, or regulation applicable to Supplier or its property or by which it or its property may be bound, or result in a violation of, or be in conflict with, or result in a breach of, any term or provision of any judgment, order, decree or award of any court, arbitrator or governmental or public instrumentality binding upon Supplier or its property, where such violation, conflict, or breach would have a material adverse effect on Supplier's ability to perform its obligations under this Agreement.
- (d) No Default. Supplier represents and warrants that it is not in default, and no condition exists which, with notice or lapse of time, or both, would constitute a default by Supplier under any mortgage, loan agreement, deed of trust, indenture or other agreement with respect thereto, evidence of indebtedness or other instrument of a material nature, to which it is party or by which it is bound, or in violation of, or in default under, any rule, regulation, order, writ, judgment, injunction or decree of any court, arbitrator or federal, state, municipal or other governmental authority, commission, board, bureau, agency, or instrumentality, domestic or foreign, where such default, condition or violation would have a material adverse effect on Supplier's ability to perform its obligations under this Agreement.
- (e) No Litigation. Supplier represents and warrants that there is no action, suit, proceeding, inquiry or investigation, at law or in equity, or before or by any court, public board or body, pending against such Supplier, or of which Supplier has otherwise received official notice, or which to the knowledge of Supplier is

threatened against Supplier, wherein an adverse decision, ruling or finding would have a material adverse effect on Supplier's ability to perform its obligations under this Agreement.

- (f) Experience, Qualifications and Resources. Supplier represents that it has entered into this Agreement in connection with the conduct of its business and it has the experience, qualifications and financial resources necessary to operate and maintain the GSDS in accordance with the terms and conditions of this Agreement.
- (g) No Other Use. On the Execution Date, Supplier represents and warrants to Company that Supplier has not used, granted, pledged, assigned, or otherwise committed any of the Grid Services to be supplied to Company under this Agreement to any entity other than Company.
- (h) Supplier Covenants. Supplier covenants that throughout the Term of this Agreement:
 - (i) Supplier will deliver the Grid Services to Company free and clear of all liens, security interests, claims and encumbrances or any interest therein or thereto by any person;
 - (ii) Supplier has been authorized by each Participant to act as an aggregator on behalf of such Participant and its contracted Resource(s);
 - (iii) Supplier will not use, grant, pledge, assign or otherwise commit any Grid Service or portion thereof to any entity other than Company during the Term of this Agreement, except that Supplier may pledge or assign its interest in this Agreement and the assets used in the GSDS to a lender providing financing for the GSDS, provided that Company consents to such financing under terms that provide protection to Company, which consent shall not be unreasonably withheld.
- (i) Continuing Obligation. Supplier's representations, warranties and covenants as set forth in this Article 10 (Representations, Warranties, and Covenants) are continuous for the extent of the Term of this Agreement. Supplier shall provide notice to Company of the occurrence or nonoccurrence of any event that compromises its representations, warranties and covenants made herein within five (5) Business Days of Supplier's knowledge thereof.

10.2 By Company. Company represents, warrants, and covenants (as applicable) as of the Execution Date and for the extent of the Term, as follows:

- (a) Duly Organized. Company represents and warrants that it is a corporation duly organized, validly existing and in good standing under the laws of the State of Hawai'i. Company has full power, authority and legal right to execute and deliver and perform its obligations under this Agreement. This Agreement has been duly authorized, executed and delivered by Company and constitutes a legal, valid and binding obligation of Company, enforceable in accordance with its terms, except to the extent that such enforcement may be limited by any bankruptcy, reorganization, insolvency, moratorium or similar laws affecting generally the enforcement of creditors' rights from time to time in effect.
- (b) No Conflict. Company represents and warrants that the execution and delivery of, and performance by Company of its obligations under, this Agreement will not result in a violation of, or be in conflict with, any provision of the articles of incorporation or bylaws of Company, or result in a violation of, or be in conflict with, or constitute a default or an event which would, with notice or lapse of time, or both, become a default under, any mortgage, indenture, contract, agreement or other instrument to which Company is a party or by which it or its property is bound, where such violation, conflict, default or potential default would materially adversely affect Company's ability to perform its obligations under this Agreement, or result in a violation of any statute, rule, order of any court or administrative agency, or regulation applicable to Company or its property or by which it or its property may be bound, or result in a violation of, or be in conflict with, or result in a breach of, any term or provision of any judgment, order, decree or award of any court, arbitrator or governmental or public instrumentality binding upon Company or its property, where such violation, conflict, or breach would have a material adverse effect on Company's ability to perform its obligations under this Agreement.
- (c) No Default. Company represents and warrants that it is not in default, and no condition exists which, with notice or lapse of time, or both, would constitute a default by Company under any mortgage, loan agreement, deed of trust, indenture or other agreement with respect thereto, evidence of indebtedness or other instrument of a material nature, to which it is party or by which it is bound, or in violation of, or in default under, any rule, regulation, order, writ, judgment, injunction or decree of any court, arbitrator or federal, state, municipal or other governmental authority, commission, board, bureau, agency, or instrumentality, domestic or foreign, where such default, condition or violation would have a material adverse effect on Company's ability to perform its obligations under this Agreement.
- (d) No Litigation. Company represents and warrants that there is no action, suit, proceeding, inquiry or investigation, at law or in equity, or before or by any court,

public board or body, pending against such Company, or of which Company has otherwise received official notice, or which to the knowledge of Company is threatened against Company, wherein an adverse decision, ruling or finding would have a material adverse effect on Company's ability to perform its obligations under this Agreement.

- (e) Continuing Obligation. Company's representations, warranties and covenants as set forth in this Article 10 (Representations, Warranties, and Covenants) are continuous for the extent of the Term of this Agreement. Company shall provide notice to Supplier of the occurrence or nonoccurrence of any event that compromises its representations, warranties and covenants made herein within five (5) Business Days of Company's knowledge thereof.

- 10.3 Limitations. Nothing in this Agreement shall limit Company's ability to exercise its rights as specified in the Tariff as filed with the PUC, or as specified in General Order No. 7 of the PUC's Standards for Electric Utility Service in the State of Hawai'i, as either may be amended from time to time.

ARTICLE 11 INDEMNIFICATION

- 11.1 Indemnification of Company.

- (a) Indemnification Against Third Party Claims. In addition to any other indemnification obligations Supplier may have elsewhere in this Agreement, which are hereby incorporated in this Section 11.1(a) (Indemnification Against Third Party Claims), Supplier shall indemnify, defend, and hold harmless Company, its successors, permitted assigns, affiliates, controlling persons, directors, officers, employees, servants and agents, including but not limited to contractors, subcontractors and the employees of any of them (collectively, "Indemnified Company Party"), from and against any Losses suffered, incurred or sustained by any Indemnified Company Party or to which any Indemnified Company Party becomes subject, resulting from any Claim (whether or not well founded, meritorious or unmeritorious) by a third party not controlled by, or under common ownership and/or control with, Company relating to (i) Supplier's development, permitting, deployment, ownership, operation and/or maintenance of the GSDS; (ii) any breach made by Supplier of its representations, warranties and covenants in Article 10 (Representations, Warranties, and Covenants); (iii) Supplier's obligation to its Participant(s) pursuant to any Participant Service Agreement entered into by and between Supplier and its Participant(s); or (iv) any actual or alleged personal injury or death or damage to property, in any way arising out of, incident to, or resulting directly or indirectly from the acts or omissions of any Indemnified Supplier Party or its agents or subcontractors,

except as and to the extent that any such Loss is attributable to the gross negligence or willful misconduct of an Indemnified Company Party.

- (b) Indemnification for Failure to Comply with Laws. Any Losses incurred by an Indemnified Supplier Party for noncompliance by Supplier or an Indemnified Supplier Party with applicable Laws shall not be reimbursed by Company but shall be the sole responsibility of Supplier. Supplier shall indemnify, defend and hold harmless each Indemnified Company Party from and against any and all Losses in any way arising out of, incident to, or resulting directly or indirectly from the failure of Supplier to comply with any Laws.
- (c) Indemnification Against Joint Employer Claims. Supplier shall indemnify, defend, and hold harmless the Indemnified Company Parties, from and against all Claims that any personnel supplied by Supplier, its affiliates and/or their subcontractors pursuant to this Agreement is an employee or agent of Company, to the extent such Claims arise from the acts or omissions of Supplier, including, but not limited to; (i) the cost of any additional compensation or employee benefits Company is required to provide to or pay for on behalf of any personnel supplied by Supplier, its affiliates and/or their subcontractors; and (ii) any Claim brought by any personnel supplied by Supplier, its affiliates and/or subcontractors against Company based upon the employer-employee relationship, to the extent such Claims arise from the acts or omissions of Supplier, and except for any such Claims and related Losses that arise out of or result from any acts or omissions of the Company.
- (d) Indemnification Against Infringement or Misappropriation. Supplier shall indemnify, defend, and hold harmless the Indemnified Company Parties, from and against all Claims that any item, information, system, deliverable, software or service provided or used in relation to the Grid Services provided by Supplier (or any Supplier affiliate, agent, contractor, subcontractor or representative) to Company pursuant to this Agreement, or Company's use thereof (or access or other rights thereto) authorized by Supplier in any circumstance, infringes or misappropriates a United States patent, trademark or copyright of a third party provided however, Supplier shall have no liability or obligation to any of the Indemnified Company Parties under this Section 11.1(d) (Indemnity Against Infringement or Misappropriation) to the extent the claim of infringement or misappropriation is caused by such Indemnified Company Party's unauthorized use or modification of such item or such Indemnified Company Party's use of such item in combination with any product or equipment not owned, developed, contemplated or authorized by Supplier or with respect to any item provided by Supplier. If any deliverable or item provided by Supplier hereunder is held to constitute, or in Company's reasonable judgment is likely to constitute, an

infringement or misappropriation, Supplier will in addition to its indemnity obligations, at its expense and option, and after consultation with Company regarding Company's preference in such event, either procure the right for Indemnified Company Parties to continue using such deliverable or item, replace such deliverable or item with a non-infringing equivalent, provided that such replacement does not result in a degradation of the functionality, performance or quality of the deliverable or item, modify such deliverable or item, or have such deliverable or item modified, to make it non-infringing, provided that such modification does not result in a degradation of the functionality, performance or quality of the deliverable or item, or create a feasible workaround that would not have any adverse impact on Supplier. THIS IS THE EXCLUSIVE REMEDY AVAILABLE TO COMPANY AS WELL AS SUPPLIER'S ENTIRE OBLIGATION AND LIABILITY IN CASE OF AN INFRINGEMENT OR MISAPPROPRIATION CLAIM.

- (e) Notice. If Supplier shall obtain knowledge of any Claim subject to Section 11.1(a) (Indemnification Against Third Party Claims), Section 11.1(b) (Indemnification for Failure to Comply with Laws) or otherwise under this Agreement, Supplier shall give prompt notice thereof to Company, and if Company shall obtain any such knowledge, Company shall give prompt notice thereof to Supplier.
- (f) Indemnification Procedures.
 - (1) Notice. If any Claim subject to Section 11.1(a) (Indemnification Against Third Party Claims), Section 11.1(b) (Indemnification for Failure to Comply with Laws) or otherwise under this Agreement, is brought against an Indemnified Company Party, Company shall notify Supplier of the commencement thereof and, provided that Supplier has acknowledged in writing to Company its obligation to an Indemnified Company Party under this Section 11.1(f)(1) (Notice), Supplier shall be entitled, at its own expense, acting through counsel reasonably acceptable to Company, to participate in and, to the extent that Supplier desires, to assume and control the defense thereof; provided, however, that Supplier shall not compromise or settle a Claim against an Indemnified Company Party without the prior written consent of Company which consent shall not be unreasonably withheld.
 - (2) Assumption of Control and Defense. Supplier shall not be entitled to assume and control the defense of any such Claim subject to Section 11.1(a) (Indemnification Against Third Party Claims), Section 11.1(b) (Indemnification for Failure to Comply with Laws) or otherwise under this

Agreement, if and to the extent that, in the opinion of Company, such Claim involves the potential imposition of criminal liability on an Indemnified Company Party or a conflict of interest between an Indemnified Company Party and Supplier, in which case Company shall be entitled, at its own expense, acting through counsel acceptable to Supplier to participate in any Claim, the defense of which has been assumed by Supplier. Company shall supply Supplier with such information and documents requested by Supplier as are necessary or advisable for Supplier to possess in connection with its participation in any Claim to the extent permitted by this Section 11.1(f)(2) (Assumption of Control and Defense). An Indemnified Company Party shall not enter into any settlement or other compromise with respect to any Claim without the prior written consent of Supplier, which consent shall not be unreasonably withheld or delayed.

- (3) Subrogation. Upon payment of any Losses by Supplier pursuant to Section 11.1 (Indemnification of Company) or other similar indemnity provisions contained herein to or on behalf of Company, Supplier, without any further action, shall be subrogated to any and all claims that an Indemnified Company Party may have relating thereto.
- (4) Cooperation. Company shall fully cooperate and cause all Company Indemnified Parties to fully cooperate, in the defense of or response to any Claim subject to Section 11.1 (Indemnification of Company).

11.2 Indemnification of Supplier.

- (a) Indemnification Against Third Party Claims. Company shall indemnify, defend, and hold harmless Supplier, its successors, permitted assigns, affiliates, controlling persons, directors, officers, employees, servants and agents, including but not limited to contractors, subcontractors and their employees of any of them (collectively, "Indemnified Supplier Party"), from and against any Losses suffered, incurred or sustained by any Indemnified Supplier Party or to which any Indemnified Supplier Party becomes subject, resulting from, arising out of, or relating to any Claim by a third party not controlled by or under common ownership and/or control with Supplier (whether or not well founded, meritorious or unmeritorious) relating to any actual or alleged personal injury or death or damage to property, in any way arising out of, incident to, or resulting directly or indirectly from the acts or omissions of Company, except to the extent that any such Loss is attributable to the gross negligence or willful misconduct of an Indemnified Supplier Party.

- (1) Indemnity by Company. To the full extent allowed by applicable law, Company will indemnify and hold harmless the Indemnified Supplier Parties, on demand, from and against any and all Losses incurred by any of them as a result of the following third-party claims, and shall defend the Indemnified Supplier Parties against the following claims:
- (A) all claims that any item, information, system, deliverable, software or service provided or used in relation to the Grid Services provided by Company (or any Company affiliate, agent, contractor, subcontractor or representative) to Supplier pursuant to this Agreement, or Supplier's use thereof (or access or other rights thereto) authorized by Company in any circumstance, infringes or misappropriates a United States patent, trademark or copyright of a third party provided however, Company shall have no liability or obligation to any of the Indemnified Supplier Parties under this Section 11.2(a)(1)(A) (Indemnity by Company) to the extent the claim of infringement or misappropriation is caused by such Indemnified Supplier Party's unauthorized use or modification of such item or such Indemnified Supplier Party's use of such item in combination with any product or equipment not owned, developed, contemplated or authorized by Company or with respect to any item provided by Company. If any deliverable or item provided by Company hereunder is held to constitute, or in Supplier's reasonable judgment is likely to constitute, an infringement or misappropriation, Company will in addition to its indemnity obligations, at its expense and option, and after consultation with Supplier regarding Supplier's preference in such event, either procure the right for Indemnified Supplier Parties to continue using such deliverable or item, replace such deliverable or item with a non-infringing equivalent, provided that such replacement does not result in a degradation of the functionality, performance or quality of the deliverable or item, modify such deliverable or item, or have such deliverable or item modified, to make it non-infringing, provided that such modification does not result in a degradation of the functionality, performance or quality of the deliverable or item, or create a feasible workaround that would not have any adverse impact on Company. THIS IS THE EXCLUSIVE REMEDY AVAILABLE TO SUPPLIER AS WELL AS COMPANY'S ENTIRE OBLIGATION AND LIABILITY IN CASE OF AN INFRINGEMENT OR MISAPPROPRIATION CLAIM.

- (b) Knowledge of Claim. If Company shall obtain knowledge of any Claim subject to Section 11.2(a) (Indemnification Against Third Party Claims) or otherwise under this Agreement, Company shall give prompt notice thereof to Supplier, and if Supplier shall obtain any such knowledge, Supplier shall give prompt notice thereof to Company.
- (c) Indemnification Procedures.
- (1) Notice. If any Claim subject to Section 11.2(a) (Indemnification Against Third Party Claims), or otherwise under this Agreement, is brought against an Indemnified Supplier Party, Supplier shall notify Company of the commencement thereof and, provided that Company has acknowledged in writing to Supplier its obligation to an Indemnified Supplier Party under Section 11.2 (Indemnification of Supplier), Company shall be entitled, at its own expense, acting through counsel reasonably acceptable to Supplier, to participate in and, to the extent that Company desires, to assume and control the defense thereof, provided, however, that Company shall not compromise or settle a Claim against an Indemnified Supplier Party without the prior written consent of Supplier which consent shall not be unreasonably withheld.
- (2) Assumption and Control of Defense. Company shall not be entitled to assume and control the defense of any such Claim subject to Section 11.2(a) (Indemnification Against Third Party Claims), or otherwise under this Agreement, if and to the extent that, in the opinion of Supplier, such Claim involves the potential imposition of criminal liability on an Indemnified Supplier Party or a conflict of interest between an Indemnified Supplier Party and Company, in which case Supplier shall be entitled, at its own expense, acting through counsel acceptable to Company, to participate in any Claim the defense of which has been assumed by Company. An Indemnified Supplier Party shall supply Company with such information and documents requested by Company as are necessary or advisable for Company to possess in connection with its participation in any Claim, to the extent permitted by this Section 11.2(c)(2) (Assumption and Control of Defense). An Indemnified Supplier Party shall not enter into any settlement or other compromise with respect to any Claim without the prior written consent of Company, which consent shall not be unreasonably withheld or delayed.
- (3) Subrogation. Upon payment of any Losses by Company pursuant to Section 11.2 (Indemnification of Supplier) or other similar indemnity provisions contained herein to or on behalf of Supplier, Company, without

any further action, shall be subrogated to any and all claims that an Indemnified Supplier Party may have relating thereto.

- (4) Cooperation. Supplier shall fully cooperate and cause all Supplier Indemnified Parties to fully cooperate, in the defense of or response to any Claim subject to Section 11.2 (Indemnification of Supplier).

ARTICLE 12 GOVERNING LAW; DISPUTE RESOLUTION

- 12.1 Governing Law, Jurisdiction, and Venue. Interpretation and performance of this Agreement shall be in accordance with, and shall be controlled by, the laws of the State of Hawai‘i, other than the laws thereof that would require reference to the laws of any other jurisdiction. By entering into this Agreement, Supplier submits itself to the personal jurisdiction of the courts of the State of Hawai‘i and agrees that the proper venue for any civil action arising out of or relating to this Agreement shall be Honolulu, Hawai‘i.
- 12.2 Good Faith Negotiations. Except as otherwise expressly set forth in this Agreement, before submitting any claims, controversies or disputes (“Dispute(s)”) under this Agreement to the Dispute Resolution Procedures set forth in Section 12.4 (Dispute Resolution Procedures), the presidents, vice presidents, or authorized delegates from both Supplier and Company having full authority to settle the Dispute(s), shall personally meet in Hawai‘i and attempt in good faith to resolve the Dispute(s) (“Management Meeting”), within thirty (30) Days after a request by either Party.
- 12.3 Continuity of Service. Supplier acknowledges that the timely and complete performance of its obligations pursuant to this Agreement is critical to the business and operations of Company. Accordingly, in the event of a Dispute between Company and Supplier, Supplier shall continue to perform its obligations under this Agreement in good faith during the resolution of such Dispute unless and until this Agreement is terminated in accordance with the provisions hereof.
- 12.4 Dispute Resolution Procedures.
- (a) Mediation. Except as otherwise expressly set forth in this Agreement and subject to Section 12.2 (Good Faith Negotiations), any and all Dispute(s) arising out of or relating to this Agreement, (i) which remain unresolved for a period of twenty (20) Days after the Management Meeting takes place or (ii) for which the Parties fail to hold a Management Meeting within sixty (60) Days of the date that a Management Meeting was requested by a Party, may upon the agreement of the Parties, first be submitted to confidential mediation in Honolulu, Hawai‘i pursuant to the administration by, and in accordance with the Mediation Rules, Procedures and Protocols of, Dispute Prevention & Resolution, Inc. (or its successor) or, in

their absence, the American Arbitration Association (“DPR”) then in effect. If the Parties agree to submit the dispute to confidential mediation, the Parties shall each pay fifty (50) percent of the cost of the mediation (i.e., the fees and expenses charged by the mediator (“Mediator”) and DPR) and shall otherwise each bear their own costs and attorney’s fees. If the Parties do not submit the Dispute(s) to mediation, or if they do submit the Dispute(s) to mediation but settlement of the Dispute(s) is not reached within sixty (60) Days after commencement of the mediation, either Party may initiate legal proceedings in a court of competent jurisdiction in the State of Hawai‘i.

- (b) Procedures for Appointing a Mediator. The Parties hereby agree that the choice of Mediator, process and procedure for the mediation and any desired outcome from the mediation shall be as the Parties agree in conjunction with their agreement to enter into the mediation.

ARTICLE 13 INSURANCE

13.1 Workers’ Compensation.

- (a) Supplier and anyone acting under its direction or control or on its behalf shall at its own expense procure and maintain in full force at all times during the Term of this Agreement, Workers’ Compensation and other similar insurance required by state or federal laws. In the event that Supplier fails to maintain such insurance as required by law, Supplier acknowledges and agrees that it will not seek or and that it is not entitled to any coverage under Company’s insurance. Permissible self-insurance will be acceptable subject to submission of a copy of appropriate governmental authorization and qualification by Supplier.
- (b) In addition, if Workers’ Compensation is required, Supplier and anyone acting under its direction or control or on its behalf shall at its own expense procure and maintain in full force at all times during the Term of this Agreement, Employers Liability insurance with minimum limits for bodily injury from accident of ONE MILLION DOLLARS (\$1,000,000) - each accident; for bodily injury from disease of ONE MILLION DOLLARS (\$1,000,000) - each employee; and for bodily injury from disease of ONE MILLION DOLLARS (\$1,000,000) - each policy limit.
- (c) If there is an exposure for injury to Supplier’s employees under the U.S. Longshoremen’s and Harbor Workers’ Compensation Act, the Jones Act or other laws, regulations or statutes applicable to maritime employees, coverage shall be included for such injuries or claims.

- 13.2 Commercial General Liability Insurance. Supplier and anyone acting under its direction or control or on its behalf shall at its own expense procure and maintain in full force at all times during the Term of this Agreement, Commercial General Liability insurance with a bodily injury and property damage combined single limit of liability of at least FIVE MILLION DOLLARS (\$5,000,000) for any occurrence. Such insurance will include coverage in like amount for products/completed operations, contractual liability, and personal and advertising injury. “Claims made” policies are not acceptable under this Section unless coverage is continued for three (3) years after completion of the contract.
- 13.3 Automobile Liability Insurance. Supplier and anyone acting under its direction or control or on its behalf shall at its own expense procure and maintain in full effect at all times during the Term of this Agreement, Automobile Liability insurance with a bodily injury and property damage combined single limit of at least ONE MILLION DOLLARS (\$1,000,000) per accident.
- 13.4 Cyber/Network Security/Privacy Liability Insurance. Supplier shall at its own expense procure and maintain in full force at all times during the Term of this Agreement Cyber/Network Security/Privacy Liability insurance, with minimum limits of FIVE MILLION DOLLARS (\$5,000,000) per occurrence and per policy aggregate. Supplier shall ensure that each Supplier Agent that, by virtue of its relationship with Supplier and Supplier’s performance of this Agreement, is able to access the Company’s DERMS, at either the expense of Supplier or at its own expense, procures and maintains in full force and effect at all times during the Term of this Agreement Cyber/Network Security/Privacy Liability insurance, with minimum limits of ONE MILLION DOLLARS (\$1,000,000) per occurrence and per policy aggregate. All such insurance shall include, but not be limited to cyber and network risks such as security breaches, data theft or loss, unauthorized access/use, negligent transmission of a computer virus, identity theft, and any invasion, violation, breach or infringement of any right to privacy resulting from both electronic and non-electronic events with respect to any confidential or non-public personal information. The retroactive coverage date of each insurance policy shall be no later than the Effective Date of this Agreement. All such insurance shall remain in effect after termination of this Agreement in order to respond to any claims or losses subsequently made. Insurance required by this subsection shall be maintained in full effect at all times during the Term of this Agreement and for three (3) years thereafter.
- 13.5 Builders’ Risk Insurance. Supplier may be required to provide Builders’ Risk Insurance during the course of construction of this Agreement. This insurance will cover the interests of Company and Supplier and its subcontractors. If Builders’ Risk Insurance is required, the terms of such coverage shall be acceptable to Company.

- 13.6 Excess and/or Umbrella Insurance. The limits for the above coverages may be satisfied through the use of umbrella and/or excess liability insurance sufficient to meet these requirements.
- 13.7 Waiver of Subrogation. Supplier and anyone acting under its direction will cause its insurers to waive all rights of subrogation which Supplier or its insurers may have against Company, Company's agents, or Company's employees.
- 13.8 Company as Additional Insured. Insurance policies (except Workers' Compensation) providing the insurance coverage required in this Agreement will name Company, Company's agents, and/or Company's employees as an additional insured, as appropriate. Coverage must be primary in respect to the additional insured. Any other insurance carried by the Company will be excess only and not contribute with this insurance.
- 13.9 Subcontractors. Supplier shall ensure that each subcontractor shall either be covered by the insurance procured by Supplier, or by insurance procured by the subcontractor. Should a subcontractor be responsible for procuring its own insurance, Supplier shall ensure that each such subcontractor shall, commensurate with the work performed by such subcontractor, procure and maintain insurance required of Supplier, except that, as between Supplier and Company, Supplier shall have the sole responsibility for determining the limits of coverage to require such subcontractors to obtain in accordance with reasonably prudent business practices. All such insurance shall be provided for at the sole cost of Supplier or its subcontractors.
- 13.10 Certificates of Insurance. Concurrent with the execution of this Agreement or as agreed upon by Company, Supplier shall provide Company with a certificate of insurance ("COI") certifying that each of the foregoing insurance coverages is in force. If the COI is not affixed to this Agreement, then Supplier shall provide a copy of the COI (and any subsequent updates during the Term of this Agreement or as required by Company) to Company's Legal Department (at: PO Box 2750, Honolulu HI 96840-001). The COI MUST reference this Agreement contract number and the date of this Agreement and it shall reference Supplier by name. Supplier will immediately provide written notice to the Company should any of the insurance policies required herein be cancelled, limited in scope, or not renewed upon expiration. Receipt of any certificate showing less coverage than requested is not a waiver of the Supplier's obligation to fulfill the requirements.
- 13.11 Revisions to Insurance Coverages. Company reserves the right to add or modify these requirements, including limits, based on the nature of the risk, prior experience, insurer, coverage, or other circumstances. In which event, Supplier shall obtain such required insurance.

ARTICLE 14 FORCE MAJEURE

- 14.1 Definition of Force Majeure. The term “Force Majeure” as used in this Agreement means any occurrence that:
- (a) In whole or in part delays or prevents a Party’s performance under this Agreement;
 - (b) Is not the direct or indirect result of the fault or negligence of that Party;
 - (c) Is not within the control of that Party notwithstanding such Party having taken all reasonable precautions and measures in order to prevent or avoid such event; and
 - (d) The Party has been unable to overcome by the exercise of due diligence.
- 14.2 Events That Could Qualify as Force Majeure. Subject to the foregoing, events that could qualify as Force Majeure include, but are not limited to, the following:
- (a) acts of God, flooding, lightning, landslide, earthquake, fire, drought, explosion, epidemic, quarantine, pandemic, storm, hurricane, tornado, volcano, other natural disaster or unusual or extreme adverse weather-related events;
 - (i) Effects of COVID-19. The Parties recognize and agree that there is an ongoing epidemic at the time of execution, namely the coronavirus/COVID-19 pandemic, the full effects of which are presently unknown. The Parties agree that if coronavirus/COVID-19 impacts a Party’s performance satisfying the conditions of Section 14.1 (Definition of Force Majeure), that Party will provide notice to the other Party in accordance with Section 14.4 (a) (Satisfaction of Certain Conditions) upon that Party’s recognition that it has been impacted by the coronavirus/COVID-19 pandemic consistent with and satisfying the conditions of said Section 14.1 (Definition of Force Majeure).
 - (b) war (declared or undeclared), riot or similar civil disturbance, acts of the public enemy (including acts of terrorism), sabotage, blockade, insurrection, revolution, expropriation or confiscation; or
 - (c) except as set forth in Section 14.3 (Exclusions from Force Majeure), strikes, work stoppage or other labor disputes (in which case the affected Party shall have no obligation to settle the strike or labor dispute on terms it deems unreasonable).
- 14.3 Exclusions From Force Majeure. Force Majeure, however, does not include any of the following:

- (a) A strike, work stoppage, or labor dispute limited only to any of the Indemnified Supplier Parties or any other third party employed by Supplier to work on the Project;
- (b) any acts or omissions of any third party, including, without limitation, any vendor, materialman, customer, or supplier of Supplier, unless such acts or omissions are themselves caused by an event of Force Majeure as herein defined;
- (c) any full or partial reduction in the Supplier's provision of Grid Services that is caused by or arises from a mechanical or equipment breakdown or other conditions attributable to normal wear and tear;
- (d) changes in market conditions that affect the cost of the Supplier's supplies, or that otherwise render this Agreement uneconomic or unprofitable for the Supplier;
- (e) Supplier's inability to obtain Government Approvals or approvals of any type for the development, deployment, ownership, operation, or maintenance of the GSDS, or Supplier's loss of any such Governmental Approvals once obtained;
- (f) the lack of wind, sun or any other resource of an inherently intermittent nature;
- (g) Supplier's inability to obtain sufficient power or materials to operate the GSDS, except if Supplier's inability to obtain sufficient power or materials is caused by an event of Force Majeure as herein defined;
- (h) Supplier's failure to obtain additional funds, including funds authorized by a state or the federal government or agencies thereof, to supplement the payments made by Company pursuant to this Agreement;
- (i) a forced outage except where such forced outage is caused by an event of Force Majeure as herein defined;
- (j) litigation or administrative or judicial action pertaining to Supplier's interest in this Agreement, the GSDS, Supplier's relationship to its Participants, any Government Approvals, or the design, development, deployment, ownership, maintenance or operation of the GSDS; or
- (k) any full or partial reduction in either the ability of the GSDS to deliver the Grid Services or in the ability of Company to accept the Grid Services which is caused by any action or inaction of a third party, including but not limited to any vendor or supplier of the Supplier or Company, except to the extent such action or inaction is caused by an event of Force Majeure as herein defined.

14.4 Consequences of Force Majeure.

- (a) Satisfaction of Certain Conditions. Section 14.5 (Effect of Force Majeure on Events of Default) and Section 14.6 (Effect of Force Majeure) defer or limit certain liabilities of a Party for delay and/or failure in performance to the extent such delay or failure is the result of conditions or events of Force Majeure; provided, however, that a non-performing Party is only entitled to such limitations or deferrals of liabilities as and to the extent the following conditions are satisfied:
- (i) The non-performing Party gives the other Party, within forty-eight (48) hours after the Force Majeure condition or event begins, written notice stating that such non-performing Party considers such condition or event to constitute a Force Majeure and describing the particulars of such Force Majeure condition or event;
 - (ii) The non-performing Party gives the other Party, within fourteen (14) Days after the Force Majeure condition or event begins, a written explanation of the Force Majeure condition or event and its effect on the non-performing Party's performance, which explanation shall include evidence reasonably sufficient to establish that the occurrence constitutes Force Majeure;
 - (iii) The suspension of performance is of no greater scope and of no longer duration than is required by Force Majeure;
 - (iv) The non-performing Party proceeds with due diligence to remedy its inability to perform and provides weekly progress reports to the other Party describing actions taken to end or minimize the effects of the Force Majeure and the anticipated duration of the Force Majeure; and
 - (v) When the non-performing Party is able to resume performance of its obligations under this Agreement, such Party shall give the other Party written notice to that effect.
- (b) Duty to Mitigate. The Party so excused shall make all reasonable efforts to cure, mitigate or remedy such Force Majeure event. Any payments due as compensation for the obligation so excused shall also be excused for so long as the obligation is not performed due to Force Majeure. The burden of proof shall be on the Party claiming Force Majeure pursuant to this Article 14 (Force Majeure).
- (c) Limited Relief. Other than as provided in Section 14.5 (Effect of Force Majeure on Events of Default), neither Party shall be responsible or liable for any delays or

failures in its performance under this Agreement as and to the extent such delays or failures are substantially caused by conditions or events of Force Majeure.

- 14.5 Effect of Force Majeure on Events of Default. If an occurrence of Force Majeure results in what would otherwise be deemed an Event of Default under Section 6.1 (Events of Default), no Event of Default shall be deemed to have occurred if and for so long as the conditions set forth in Section 14.4(a) (Satisfaction of Certain Conditions) are satisfied, as long as the condition or event that would otherwise be an Event of Default is cured within the lesser of (i) ninety (90) Days following the date that the non-performing Party is able to resume performance of its obligations under this Agreement or (ii) three hundred sixty-five (365) Days from the occurrence or inception of the Force Majeure, as noticed pursuant to Section 14.4 (Consequences of Force Majeure).
- 14.6 Effect of Force Majeure. Other than as provided in Section 14.5 (Effect of Force Majeure on Events of Default), neither Party shall be responsible or liable for any delays or failures in its performance under this Agreement as and to the extent (i) such delays or failures are substantially caused by conditions or events of Force Majeure, and (ii) the conditions of Section 14.4(a) (Satisfaction of Certain Conditions) are satisfied.
- 14.7 Obligations Remaining After Event of Force Majeure. No monetary obligations of either Party which arose before the occurrence of an event of Force Majeure causing the suspension of performance shall be excused as a result of such occurrence. In the event of a Force Majeure which reduces or limits Supplier's capability to deliver Grid Services and subject to the provisions of this Agreement, Company shall be obligated to pay for Grid Services only to the extent it accepts such Grid Services as made available by Supplier. Except as otherwise expressly provided for in this Agreement, the existence of a condition or event of Force Majeure shall not relieve the Parties of their obligations under this Agreement (including, but not limited to, payment obligations, except as limited above) to the extent that performance of such obligations is not precluded by the condition or event of Force Majeure.
- 14.8 Effect on Term. A Party experiencing an event of Force Majeure and not otherwise in default under this Agreement may elect to extend this Agreement equivalent to the duration of such event of Force Majeure; provided, however that under no circumstance shall such extension exceed one hundred eighty (180) Days from the conclusion of the original Term.

ARTICLE 15 EQUAL EMPLOYMENT OPPORTUNITY

- 15.1 Equal Employment Opportunity. (Applicable to all contracts of \$10,000 or more in the whole or aggregate (41 CFR 60-1.4 and 41 CFR 60-741.5)). Supplier is aware of and is fully informed of Supplier's responsibilities under Executive Order 11246 (reference to which include amendments and orders superseding in whole or in part) and shall be

bound by and agrees to the provisions as contained in Section 202 of said Executive Order and the Equal Opportunity Clause as set forth in 41 CFR 60-1.4 and 41 CFR 60-741.5(a), which clauses are hereby incorporated by reference.

- 15.2 Equal Opportunity for Veterans. (Applicable to each federal government contract of \$100,000 or more, entered into or modified on or after December 31, 2003 (41 CFR 60 300.4) If applicable, Supplier agrees that it is, and shall remain, in compliance with the rules and regulations promulgated under The Vietnam Era Veterans Readjustment Assistance Act of 1974, as amended by the Jobs for Veterans Act of 2002, including the requirements of 41 CFC 60-250.5(a), which are incorporated into this Agreement by reference.
- 15.3 Employee Rights under the National Labor Relations Act. (Applicable to (i) all prime contracts of \$100,000 or more and (ii) subcontracts of \$10,000 or more resulting from solicitations issued on or after June 21, 2010). If applicable, Consultant agrees that it shall comply with Executive Order 13496 (Notification of Employee Rights under Federal Labor Laws) and 29 C.F.R. Part 471 regarding employees' rights under the National Labor Relations Act to form, join, and assist a union and to bargain collectively with their employers.

ARTICLE 16 PUC APPROVAL

- 16.1 PUC Approval Order. The Parties acknowledge and agree that this Agreement is subject to approval by the PUC and the Parties' respective obligations hereunder are conditioned upon receipt of such approval, except as specifically provided otherwise herein. Upon execution of this Agreement, the Parties shall use good faith efforts to obtain, as soon as practicable, an order from the PUC ("PUC Approval Order") that does not contain terms and conditions deemed to be unacceptable to Company, and is in a form deemed to be reasonable by Company, in its sole discretion, ordering that:
- (i) This Agreement is approved;
 - (ii) The purchased costs of Grid Services to be incurred by Company as a result of this Agreement are reasonable;
 - (iii) Company's purchased Grid Services under this Agreement are prudent and in the public interest;
 - (iv) Company may include the Grid Services purchase costs incurred by Company pursuant to this Agreement in Company's revenue requirements for ratemaking purposes and for the purposes of determining the reasonableness of Company's rates during the Term of this Agreement.

- 16.2 Non-appealable PUC Approval Order. The term “Non-appealable PUC Approval Order” means a PUC Approval Order that is not subject to appeal to any Circuit Court of the State of Hawai‘i, Intermediate Court of Appeals of the State of Hawai‘i, or the Supreme Court of the State of Hawai‘i, because the period permitted for such an appeal (“Appeal Period”) has passed without the filing of notice of such an appeal, or that was affirmed on appeal to any Circuit Court of the State of Hawai‘i, Intermediate Court of Appeals of the State of Hawai‘i, or the Supreme Court of the State of Hawai‘i, or was affirmed upon further appeal or appellate process, and that is not subject to further appeal, because the jurisdictional time permitted for such an appeal and/or further appellate process such as a motion for reconsideration or an application for writ of certiorari has passed without the filing of notice of such an appeal or the filing for further appellate process.
- 16.3 Company’s Written Statement. Not later than thirty (30) Days after the issuance of a PUC Approval Order, Company shall provide Supplier with a copy of such PUC Approval Order together with a written statement as to whether the conditions set forth in Section 16.1 (PUC Approval Order) and Section 16.2 (Non-appealable PUC Approval Order) have been satisfied.
- 16.4 PUC Approval Date. As used in this Agreement, the term “PUC Approval Date” shall be defined as follows: If Company provides the written statement referred to in Section 16.3 (Company’s Written Statement) to the effect that the conditions referred to in Section 16.1 (PUC Approval Order) and Section 16.2 (Non-appealable PUC Approval Order) have been satisfied, the PUC Approval Date shall be the date of the issuance of the PUC Approval Order; or
- (i) If Company provides the written statement referred to in Section 16.3 (Company’s Written Statement) to the effect that only the conditions referred to in Section 16.1 (PUC Approval Order) have been satisfied, the PUC Approval Date shall be as follows:
 - (A) If a PUC Approval Order is issued and is not made subject to a motion for reconsideration filed with the PUC or an appeal, the PUC Approval Date shall be the date one Day after the expiration of Appeal Period following the issuance of the PUC Approval Order;
 - (B) If the PUC Approval Order becomes subject to a motion for reconsideration, and the motion for reconsideration is denied or the PUC Approval Order is affirmed after reconsideration, and such order is not made subject to an appeal, the PUC Approval Date shall be deemed to be the date one Day after the expiration of the

Appeal Period following the order denying reconsideration of or affirming the PUC Approval Order; or

- (C) If the PUC Approval Order, or an order denying reconsideration of the PUC Approval Order or affirming approval of the PUC Approval Order after reconsideration, becomes subject to an appeal, then the PUC Approval Date shall be the date upon which the PUC Approval Order becomes a non-appealable order within the meaning of the definition of a Non-Appealable PUC Approval Order in Section 16.2 (Non-appealable PUC Approval Order).

16.5 Unfavorable PUC Order. The term “Unfavorable PUC Order” means an order from the PUC concerning this Agreement that: (i) dismisses Company’s application; (ii) denies Company’s application; or (iii) approves Company’s application but contains terms and conditions deemed unacceptable by Company in its sole discretion and therefore does not meet the definition of a PUC Approval Order as set forth in Section 16.1 (PUC Approval Order). If Company receives an Unfavorable PUC Order, Company may, but is not required to, file a motion for reconsideration and/or an appeal. If Company files a motion for reconsideration or an appeal, the Parties’ respective obligations remain conditioned upon the receipt of the items enumerated in Section 16.1 (PUC Approval Order) and Section 16.2 (Non-applicable PUC Approval Order). If, after receipt of an Unfavorable PUC Order, Company files neither a motion for reconsideration nor an appeal, this Agreement is null and void, and neither Party owes any further obligation to each other.

ARTICLE 17 ASSIGNMENT

17.1 Assignment. Neither Party shall assign this Agreement or its rights and obligations hereunder without the prior written consent of the other Party, which consent may be withheld in the exercise of its sole discretion; provided, however, either Party may, without the consent of the other Party, (i) subject to Section 10.1(h)(iii) (Supplier Covenants), transfer, sell, pledge, encumber or assign its rights under this Agreement or the accounts, revenues or proceeds hereof in connection with any financing or other financial arrangements, (ii) transfer or assign this Agreement to an affiliate of such Party which affiliate’s creditworthiness is equal to or higher than that of such Party, or (iii) transfer or assign this Agreement to any person or entity succeeding to all or substantially all of that Party’s assets whose creditworthiness is equal to or higher than that of such Party; provided, however, that in each such case (except a collateral assignment), any such assignee shall agree in writing to be bound by the terms and conditions hereof and so long as the transferring Party delivers such tax and enforceability assurance as the non-transferring Party may reasonably request.

ARTICLE 18 NOTICES

18.1 Notices.

- (a) Method of Delivery. Any written notice provided under this Agreement shall be delivered personally, sent by electronic mail (“Email”) (provided receipt thereof is confirmed via Email or in writing by the recipient) or sent by registered or certified first class mail, with postage prepaid, to the other Party as follows (or to such other addresses or Email addresses as a Party may designate by notice to the other Party):

TO COMPANY	
By Mail:	Hawaiian Electric Company, Inc. P.O. Box 2750 Honolulu, Hawai‘i 96840 Attn: Director, Customer Energy Resources, Operations
Delivered By Hand or Overnight Delivery:	Hawaiian Electric Company, Inc. Alii Place 1099 Alakea St, Suite 1800 Honolulu, Hawai‘i 96813 Attn: Director, Customer Energy Resources, Operations
By Email to:	matthew.chang@hawaiianelectric.com
With a copy to:	
By Mail:	Hawaiian Electric Company, Inc. Legal Department P.O. Box 2750 Honolulu, Hawai‘i 96840

By Email to:	Legalnotices@hawaiianelectric.com
TO SUPPLIER	
By Mail:	
Delivered By Hand or Overnight Delivery:	
By Email to:	

- (b) Date of Delivery. Notice sent by mail shall be deemed to have been given on the date of actual delivery or at the expiration of the fifth (5th) Day after the date of mailing, whichever is earlier. Any Party hereto may change its address for written notice by giving written notice of such change to the other Party hereto.
- (c) Email Notice. Any notice delivered by Email shall request a receipt thereof confirmed by Email or in writing by the recipient and followed by personal or mail delivery of such correspondence and any attachments as may be requested by the recipient, and the effective date of such notice shall be the date of receipt, provided such receipt has been confirmed by the recipient.
- (d) Additional Means. The Parties may agree in writing upon additional means of providing notices, consents and waivers under this Agreement in order to adapt to changing technology and commercial practices.

COMMERCIAL

ARTICLE 19 RIGHTS AND OBLIGATIONS

19.1 Rights and Obligations of Both Parties.

- (a) Sale and Purchase of Grid Services. During the Term of this Agreement, Supplier shall aggregate, sell, and deliver to Company and Company shall take from and pay Supplier for the Grid Services subject to and in accordance with terms and conditions of this Agreement.
- (1) Rejected Export of Contract Capability. In the event that Supplier's export of its Contract Capability is rejected by Company as a result of Company's supplemental screening and review of a Resource as provided in Attachment A-1 (Fast Frequency Response Grid Service Description and Requirements) and Attachment A-2 (Capacity Grid Service Description and Requirements), Supplier may reduce its Contract Capability for the remainder of the Term but only to the extent and in the amount that such Contract Capability is drawn from the Resource rejected under Company's supplemental screening and review. A reduction of Supplier's Contract Capability pursuant to this Section 19.1(a)(1) (Rejected Export of Contract Capability) shall not be considered a failure by Supplier to meet its Contract Capability for the purpose of Section 7.3 (Failure to Meet Contract Capability).
- (2) Addition of Capability. No later than five (5) Days following the first Day of each of Contract Year 2 and Contract Year 3 as established pursuant to this Agreement or such longer period of time as may be agreed upon by the Parties, Supplier may propose to provide to Company additional Capability of up to twenty (20) percent of Supplier's total Contract Capability as of the date that such proposal is made. Company, at its sole discretion, may accept or reject Supplier's proposal by providing written notice to Supplier within thirty (30) Days of Company's receipt of Supplier's proposal.

19.2 Rights and Obligations of Supplier.

- (a) Co-Branding; Use of Company's Trademarks. In connection with the activities set forth in Section 19.2(a)(1) (Marketing Material), and Section 19.2(a)(2) (Participant Engagement Portal) and subject to the terms and conditions related to Supplier's use of Company's name(s), trademarks, and logos ("Company Trademarks") set forth in Attachment K (Trademark License Agreement), Supplier shall co-brand certain media with Company.

- (1) Marketing Material. All marketing material of any form created by Supplier in relation to this Agreement and any agreement between Supplier and its Participants shall be co-branded with Company Trademarks as approved by Company.
 - (2) Participant Engagement Portal. The online participant engagement portal developed by Supplier in relation to this Agreement or any agreement between Supplier and its Participants shall be co-branded with Company Trademarks as approved by Company.
 - (3) No use of Company Trademarks or co-branding is allowed other than as described in Section 19.2(a) (Co-Branding; Use of Company's Trademarks). Without limiting the generality of the foregoing sentence, none of Supplier's employee uniforms, equipment, or vehicles shall use Company Trademarks.
- (b) Participant Installation Protection and Control Equipment. Supplier shall, at no cost to Company, ensure that all equipment related to the GSDS, including but not limited to protective and control equipment, internal breakers, relays, switches, and synchronizing equipment installed by or for each Participant is properly installed, constructed, configured, secured, operated, and maintained to ensure the standard of reliability, quality, and safety as required by this Agreement, all applicable Laws and Government Approvals, and in compliance with Rule 14.H (Interconnection of Distributed Generating Facilities Operating in Parallel with the Company's Distribution System) of the Tariff and all other applicable rules thereof. No part of the equipment related to the GSDS shall be allowed to limit the operation of said Rule 14.H. Supplier shall respond promptly to all requests by Participants, whether communicated directly to Supplier or whether communicated to Company, for repairs and maintenance.
- (1) Company's Right to Review Participant Installation. Company shall have the right, but not the obligation, to inspect and approve the installation, construction, and setting of all Participant protective and control equipment at any time during the progress of installation, construction, setting, and testing. Company may elect to inform Supplier of any problem Company observes and any recommendations it has for correcting such problems with the Participant equipment, and Supplier shall address such problems to the reasonable satisfaction of Company.
 - (2) No Endorsement, Warranty or Waiver. Neither Company's inspection and/or approval of Participants' equipment and settings nor Company's reporting and recommendations to Supplier regarding its inspections shall

be construed as endorsing the design thereof, as any warranty of the safety, durability, or reliability of said equipment and settings, or as a waiver of any of Company's rights. In no event shall any failure by Company to exercise its rights under Section 19.2(b)(1) (Company's Right to Review Participant Installation) constitute a waiver by Company of, or otherwise release Supplier from, any provision of this Agreement.

- (3) Cooperation. Supplier and Company shall cooperate with each other in good faith in agreeing upon design standards for any equipment or settings referred to in Section 19.2(b) (Participant Installation Protection and Control Equipment).
- (4) Timing for Implementation of Company Proposals. Within a reasonable time after receipt of Company's comments referred to in Section 19.2(b) (Participant Installation Protection and Control Equipment) or notification by Company of problems related to Supplier's obligations under Section 19.2(b) (Participant Installation Protection and Control Equipment), but no later than ninety (90) Days after such notification (unless such condition is causing a safety hazard or damage to the Company System or the facilities of any of Company's customers, in which event the correction must be made promptly by Supplier), Supplier shall implement Company's proposals. If Supplier disagrees with Company's proposals, the Parties shall proceed to the dispute resolution procedures described in Article 12 (Governing Law; Dispute Resolution).
- (c) Reporting. Supplier shall comply with the requirements set forth in Attachment G (Reporting). Unless a different time is provided, all reports must be delivered no later than five (5) Business Days after the last Day of the month.
- (d) Operational Forecast. Supplier shall provide the Operational Forecast to Company in compliance with Attachment C (Operational Forecast).
- (e) Compliance with Law. Supplier shall take all appropriate action against a Participant, including disenrollment of a Participant and termination of the applicable Participant Service Agreement, in the event that such Participant is in violation of any applicable Law.
- (f) Meter Data. Supplier shall provide to Company all data regarding Participant Resources ("Grid Services Data") required pursuant to this Agreement. Supplier shall require each of its Participants to expressly authorize Supplier to provide the Grid Services Data to Company.

(g) GSDS Testing.

- (1) Data, Integration, and Testing. Supplier shall perform all testing and comply with all requirements set forth in Attachment D (Data, Integration, and Testing Requirements).
- (2) Compensation. Unless otherwise stated in Attachment D (Data, Integration, and Testing Requirements), Company shall compensate Supplier as provided in Article 20 (Payment and Invoicing) for any Grid Service provided during testing as if it were a GS Event. However, minimum incentives and additional incentives shall not be paid for Grid Services provided as a result of testing.

- (h) Throughout the Term of this Agreement, Company may perform or commission the performance of analyses and evaluations concerning the efficacy of Company's procurement of Grid Services pursuant to this Agreement. Upon Company's request, Supplier shall cooperate with Company in the performance of such analyses and evaluations by providing Company with relevant data and completing surveys, questionnaires, and such other inquiries relevant thereto.

19.3 Standards of Conduct for Supplier.

- (a) Compliance with Company's Corporate Code of Conduct. Supplier has implemented and will maintain and require its employees and Supplier Agents to comply with standards that are no less stringent than those that are set forth in Company's Corporate Code of Conduct in all aspects relevant to Supplier's performance under this Agreement ("Supplier Policies"). Company's Corporate Code of Conduct is available at https://www.hawaiianelectric.com/Prebuilt/contractors/code_of_conduct.pdf
- (b) Acknowledgment of Supplier Policies. Supplier agrees to cooperate with and provide assistance to Company in the investigation of any security breach that relates to this Agreement and may involve Supplier, Supplier's employees, or Supplier Agents. In the event that Company notifies Supplier that a particular employee of Supplier or a Supplier Agent is not conducting himself or herself in accordance with any of the Supplier Policies, Supplier shall promptly investigate the matter and take appropriate action, which may include (i) removing the applicable individual from any work associated with this Agreement, providing Company with prompt notice of such removal, and replacing such individual with a similarly qualified individual, or (ii) taking other appropriate disciplinary action to prevent a recurrence.

- 19.4 Customer Service. Supplier shall provide customer service to its Participants in accordance with Attachment I (Customer Service Requirements).
- 19.5 Project Manager and Participant Contact. Supplier shall appoint a project manager with suitable training and skills to manage and oversee Supplier's performance under this Agreement and serve as Supplier's primary representative under this Agreement. The project manager shall be authorized to act for and on behalf of Supplier with respect to all matters relating to this Agreement and shall be available twenty-four (24) hours per day or shall make arrangements for back-up outside of normal working hours. Supplier shall provide Company with any changes in contact information for the project manager as soon as reasonably possible. Supplier shall notify Company as soon as possible after the project manager position is vacated for any reason, and Supplier shall, as soon as reasonably practicable, fill the position in accordance with this Section 19.5 (Project Manager and Participant Contact). Supplier shall promptly replace any project manager to whom Company raises a reasonable objection. Supplier shall provide all Participants with twenty-four (24) hour contact information to which Participants may direct questions, complaints, and emergencies.
- 19.6 Obligations of Participants.
- (a) Dual Participation Restriction. All Resources connected to the same meter shall only be enrolled with Supplier and no other supplier of a GSDS or any other Company demand response program. In connection with entering into a Participant Service Agreement with any party, Supplier shall ensure that such party has not enrolled its Resource in a participant service agreement with another supplier of Grid Services to the Company or enrolled the Resources in any other Company demand response program.
- (b) Participant Service Agreement. Supplier shall ensure that any Participant Service Agreement executed by Supplier with a Participant includes all the requirements set forth in Attachment J (Participant Service Agreement Requirements). Company, at its sole discretion, reserves the right, but has no obligation, to review and approve Supplier's forms of Participant Service Agreement to ensure Supplier's conformance with the requirements of Attachment J (Participant Service Agreement Requirements) and any other terms of this Agreement. If Company finds that Supplier's forms of Participant Service Agreement do not conform with the requirements of Attachment J (Participant Service Agreement Requirements), Company may elect to inform Supplier thereof and Supplier shall address such nonconformity to the reasonable satisfaction of Company. Company further reserves the right to review any executed Participant Service Agreement. Notwithstanding the foregoing, Company's approval of the Supplier forms of Participant Service Agreement and review of any executed Participant Service

Agreement shall not be construed as approval or endorsement thereof and Supplier shall advise Participants of the foregoing limitation.

- (c) Participant Survey. Company may, but is not required to, conduct surveys of Participants regarding engagement, use, or satisfaction with the GSDS during or after the Term. Company is not obligated to share any information about the surveys or results or analysis of the surveys with Supplier. Supplier shall inform Company of any survey of Participants that it conducts, including the terms and content of each survey, distribution information, and complete survey results together with any analysis thereof.

19.7 Rights and Obligations of Company.

- (a) Dispatch of Grid Services.

- (1) Company shall have the right to dispatch the Grid Services delivered by Supplier to the Company System as it deems appropriate in its reasonable discretion, subject to and consistent with this Agreement.
- (2) Company Dispatch will be by either Supplier's manual control under the direction of the Company System Operator or by computerized control by the DERMS at Company's reasonable discretion.

- (b) Company Right to Defer the System Integration Date.

- (1) Deferral Right. At any time up until the System Integration Date, Company may choose once to defer the System Integration Date by up to six (6) months beyond the then-current System Integration Date Deadline by giving Supplier written notice of its decision to defer and the extent of the deferral period.
- (2) Deferral Costs. Subject to Supplier's obligation to minimize the cost resulting from such deferral as provided below, Company shall bear all reasonable, actual, verifiable, approved costs incurred by Supplier with respect to the GSDS that directly result from a deferral ("Deferral Costs"). Supplier shall provide Company monthly with an accounting of all Deferral Costs. Company shall pay to Supplier the Deferral Costs within thirty (30) Days of each such accounting. If Company decides not to approve any requested Deferral Costs and Supplier disagrees with that decision, the Parties shall proceed to the dispute resolution procedures described in Article 12 (Governing Law; Dispute Resolution).
 - (A) Duty to Minimize Deferral Costs. Upon the commencement of the deferral period, Supplier shall take such steps as may be

reasonably necessary to minimize Deferral Costs, including negotiated deferral fees, penalties or similar charges to be owed by Supplier to Supplier Agents, excluding from such obligation to minimize, however, deferral fees, penalties or similar charges by such parties that have been approved by Company or, if applicable, included in any Pre-Deferral Estimate. Prior to entering into agreements with Supplier Agents, Supplier shall use commercially reasonable efforts to minimize deferral fees, penalties or charges to be paid by Supplier. Company shall not be obligated to pay any costs that Supplier is not obligated to pay arising out of such deferral by Company.

- (B) Reasonable Steps. Consistent with Supplier's obligation to minimize Deferral Costs, Supplier shall take such steps as it reasonably deems necessary during the deferral period to assure the timely occurrence of the System Integration Date (as so deferred), including attainment or renewal of applicable Government Approvals, contracts or rights, and Company shall cooperate with Supplier in such effort.
 - (C) Pre-Deferral Estimate. Upon the written request (and at the expense) of Company given not more often than once in any six (6) month period and before a deferral notice under Section 19.7(b)(1) (Deferral Right) has been given, Supplier shall within thirty (30) Days after the date of such notice provide an estimate ("Pre-Deferral Estimate") of the anticipated costs (to the extent then known by Supplier) to be submitted to Company as Deferral Costs under Section 19.7(b)(2) (Deferral Costs) if a deferral notice were given at or about the time of such request.
- (c) Company Right to Terminate for Convenience. At any time up until the System Integration Date, if Company determines that it no longer needs the Grid Services to be provided by Supplier, Company may choose to cancel this Agreement by giving Supplier written notice of its decision to cancel. No cause need be cited or demonstrated by Company.
- (1) Termination after Commencement of Development. If Company exercises its right to terminate this Agreement pursuant to this Section 19.7(c) (Company Right to Terminate for Convenience) after Commencement of Development by Supplier, immediately upon receipt of such termination notice, Supplier shall cease all development activity and proceed to take such steps as may be necessary to mitigate the losses due

to such termination. Supplier shall use commercially reasonable efforts to salvage the value of any equipment or materials purchased or contracts signed for the GSDS. All such mitigation efforts shall be made in consultation with Company. After the completion of all such mitigation efforts, Contractor will be paid its actually incurred costs of performance under this Agreement, including administrative and general overhead costs and demobilization costs, determined in accordance with generally accepted accounting principles consistently applied, plus an amount equal to eight (8) percent of those costs to account for profit, plus the costs incurred as a direct result of the termination, less the value of any salvaged materials or equipment retained by Supplier, all subject to approval by Company. Payment will be made by Company within thirty (30) Days after such approval. If Company does not approve all amounts requested by Supplier as compensation for the termination, and Supplier disagrees with that decision, the Parties shall proceed to the dispute resolution procedures described in Article 12 (Governing Law; Dispute Resolution).

- (2) Termination before Commencement of Development. If Company exercises its right to terminate this Agreement pursuant to this Section 19.7(c) (Company Right to Terminate for Convenience) before Commencement of Development by Supplier, Supplier shall not be paid any amount.

ARTICLE 20 PAYMENT AND INVOICING

20.1 Pricing; Incentives. Subject to the provisions of this Agreement, commencing on the System Integration Date, for each Settlement Month, Company shall pay Supplier for Grid Services provided by Supplier and accepted by Company. The price to be paid by Company to Supplier and the amount of incentive(s) to be issued by Company to Participants for each type of Grid Service is set forth in Attachment H (Settlement). The incentives issued by Company directly to Participants are as follows:

- (a) Monthly Minimum Incentive. The monthly minimum incentive (“Monthly Minimum Incentive”) shall be issued by Company to all Participants for their participation under Supplier in accordance with this Agreement as a credit on Participants’ electricity bill from Company.
- (b) Upfront Incentive. The upfront incentive (“Upfront Incentive”) shall be issued by Company to a Participant for any Resource that has not previously been enrolled with Supplier or enabled by any other supplier to deliver Grid Services. The Upfront Incentive may, at Company’s sole discretion, either be a credit on a Participant’s electricity bill from Company or a monetary payment.

- 20.2 Monthly Invoice. As soon as practicable, but not later than the fifth (5th) Business Day of each Calendar Month, Supplier shall provide Company with the Monthly Invoice Report (“MIR”) as described in Attachment G (Reporting) and any other data required under Attachment H (Settlement) to compute the payment due as set forth in said Attachment H (Settlement).
- 20.3 Taxes. Supplier shall comply with all applicable federal and state tax laws and regulations. Supplier assumes exclusive liability for all gross receipts, sales, use, excise, transportation, privilege, occupational, property, and other taxes applicable to the services, tangible and intangible materials and supplies furnished in connection with Supplier’s obligations pursuant to this Agreement, including any and all interest and penalties payable as a result of nonpayment thereof or noncompliance therewith.
- (a) Hawai‘i General Excise Tax. Company shall not be liable for payment of the applicable Hawai‘i General Excise Tax levied and assessed against Supplier as a result of this Agreement. The rates and charges in this Article 20 (Payment and Invoicing) shall not be adjusted by reason of any subsequent increase or reduction of the applicable Hawai‘i General Excise Tax.
- (1) Payment of Taxes. Supplier shall, when making payments to Company under this Agreement, pay such additional amount as may be necessary to reimburse Company for the Hawai‘i general excise tax on gross income and all other similar taxes imposed on Company by any Governmental Authority with respect to payments in the nature of gross receipts tax, sales tax, use tax, privilege tax or the like (including receipt of any payment made under Section 20.3 (Taxes)), but excluding federal or state net income taxes. By way of example and not limitation, as of the Execution Date, all payments subject to the 4.5% Hawai‘i general excise tax on O‘ahu would be set at a rate of 4.712% so that the underlying payment will be net of such tax liability.
- (b) Other Taxes or Fees. Company shall not be liable for payment of nor reimbursement of any Supplier payment of any new or modified tax or fee imposed by any Government Authority during the Term of this Agreement.
- 20.4 Payment.
- (a) Date Due. No later than thirty (30) Days after the receipt of the MIR and all information necessary to perform the settlement as described in Attachment H (Settlement), Company shall pay, in immediately available funds, the payment owed computed as set forth in said Attachment H (Settlement) or provide to

Supplier an itemized statement of its objections to all or any portion of the MIR and pay any undisputed amount. If any payments are made after the date due as described in the foregoing sentence, Company shall also include interest on such payments, which shall be computed at the average prime rate (“Prime Rate”) for the period between the date due and the date of payment. Notwithstanding the foregoing, the time in which Company must make payment to Supplier shall be increased on a Business Day-for-Business Day basis for each Business Day that Supplier is delinquent in providing to Company the MIR or any information necessary to perform the settlement.

- (b) Offset. Company at any time may offset against any and all amounts that may be due and owed to Supplier under this Agreement, any and all undisputed amounts, including damages, insurance premiums, and other payments, that are owed by Supplier to Company pursuant to this Agreement or are past due under other accounts Supplier has with Company for other services. Undisputed and non-offset portions of amounts invoiced under this Agreement shall be paid on or before the relevant due date.
- (c) Set-off. Company shall have the right to set off any payment due and owing by Supplier, including but not limited to any payment under this Agreement and any payment due under any award made under Article 12 (Governing Law; Dispute Resolution), against Company’s payments of monthly invoices as necessary.
- (d) Other Payments. Any amounts due from either Party under this Agreement other than monthly Grid Services charges shall be paid or objected to within thirty (30) Days following receipt from either Party of an itemized invoice from the other Party setting forth, in reasonable detail, the basis for such invoice.

20.5 Invoice Disputes. Either Party may dispute invoiced amounts but shall pay to the other Party at least the undisputed portion of invoiced amounts on or before the invoice due date. To resolve any invoice dispute, the Parties shall use the procedures set forth in Article 12 (Governing Law; Dispute Resolution). When the invoice dispute is resolved, the Party owing shall pay the amount owed within thirty (30) Days of the date of such resolution, with interest from the date that such disputed amount was payable until the date that the amount owed is paid at the average Prime Rate for the period.

20.6 Adjustments Due to Inaccuracies in Settlement. In the event adjustments are required to correct inaccuracies in settlement under Attachment H (Settlement), whether as a result of inaccuracies in the settlement process or inaccuracies in the data used in the settlement process, the Party requesting adjustment shall determine the correct measurements or processes and shall recompute the amounts due during the period of such inaccuracies. The difference between the amount paid and that recomputed for the invoice shall either

be (i) paid to Supplier or set-off by Company, as appropriate, in the next invoice payment to Supplier, or (ii) objected to by the Party responsible for such payment within thirty (30) Days following its receipt of such request. If the Party responsible for such payment objects to the request, then the Parties shall work together in good faith to resolve the objection. If the Parties are unable to resolve the objection, the matter shall be resolved pursuant to Article 12 (Governing Law; Dispute Resolution). All claims for adjustments shall be waived for any deliveries of Grid Services made more than thirty-six (36) months preceding the date of any such request.

ARTICLE 21 SECURITY

- 21.1 Security for the Performance of Supplier's Obligations. To secure the performance of Supplier's obligations under this Agreement, Supplier shall provide financial security to Company ("Security"). The Security shall be in the form of the Letter of Credit described below.
- 21.2 Letter of Credit. No less than sixty (60) Days prior to the System Integration Date Deadline, Supplier shall deliver to Company an irrevocable standby letter of credit in the amount of the lesser of (a) five (5) percent of the total value of this Agreement as calculated at the rate set by Company for the Contract Capability amounts set forth in Attachment E (Contract Capability), or [INSERT AMOUNT] \$ _____, substantially in the form of Attachment L (Form of Letter of Credit) attached hereto from a bank located in the United States with a credit rating of "A-" or better ("Letter of Credit"). No less than sixty (60) Days prior to the System Integration Date Deadline, Supplier shall deliver to Company an irrevocable standby letter of credit in the amount of the lesser of (a) five (5) percent of the total value of this Agreement as calculated at the rate set by Company for the Contract Capability amounts set forth in Attachment E (Contract Capability), or [INSERT AMOUNT] \$ _____, substantially in the form of Attachment L (Form of Letter of Credit) attached hereto from a bank located in the United States with a credit rating of "A-" or better ("Letter of Credit"). If the rating (as measured by Standard & Poors) of the bank issuing the Letter of Credit falls below A-, Supplier shall, upon request by Company, replace such Letter of Credit with an irrevocable standby letter of credit from another bank located in the United States with a credit rating of "A-" or better. The Letter of Credit must be issued for a minimum term of one (1) year and must be renewed prior to the end of each term so that at the time of such renewal, the remaining term shall not be less than one (1) year. The Letter of Credit shall include a provision for at least thirty (30) Days advance notice to Company of any expiration or earlier termination of the Letter of Credit so as to allow Company sufficient time to exercise its rights under said Letter of Credit if Supplier fails to extend or replace the Letter of Credit. In all cases, the costs and expenses of establishing, renewing,

substituting, canceling, increasing, reducing, or otherwise administering the Letter of Credit shall be borne by Supplier.

- 21.3 Maintain and Replenish the Letter of Credit. Supplier shall replenish the Letter of Credit within fifteen (15) Business Days after any draw on the Letter of Credit by Company or any reduction in the value of the Letter of Credit below the required level for any other reason.
- 21.4 Company's Right to Draw From Letter of Credit. In addition to any other remedy available to it, Company may, before or after termination of this Agreement, in its sole discretion, draw from the Letter of Credit pursuant to this Article 21 (Security), and from all such forms, and in any sequence Company may select for payment, such amounts as are necessary to recover amounts Company is owed pursuant to this Agreement, including, without limitation, any damages due Company and any amounts for which Company is entitled to indemnification under this Agreement. Any failure to draw upon the Letter of Credit for any damages or other amounts due Company shall not prejudice Company's rights to recover such damages or amounts in any other manner.
- 21.5 Release of Security Funds. Promptly following the end of the Term and the complete performance of all of Supplier's obligations under this Agreement, including, but not limited to, the obligation to pay any and all damages owed by Supplier to Company, under this Agreement, Company shall release its interest in the Security.

ARTICLE 22 TERM

- 22.1 Term. The initial term of this Agreement shall commence upon the Execution Date and shall remain in effect for one hundred twenty (120) months from the System Integration Date Deadline ("Initial Term"), unless terminated earlier as provided herein. The Initial Term and any extensions thereof constitute the Term. If the Agreement is terminated prior to the end of the Initial Term, as provided herein, then the period from the System Integration Date to the effective date of such termination constitutes the Term. Upon expiration of the Term, the Parties hereto shall no longer be bound by the terms and conditions of this Agreement, except as set forth in Section 28.14 (Survival of Obligations).
- 22.2 Effectiveness of Certain Obligations. Prior to the System Integration Date: (i) in no event shall Supplier be obligated to provide Grid Services to Company, or have any other obligations to Company other than those set forth in Section 2.2 (Conditions Precedent to Company's Obligations), this Section 22.1(b) (Effectiveness of Certain Obligations), Article 11 (Indemnification), Article 12 (Governing Law; Dispute Resolution), Article 13 (Insurance), Article 14 (Force Majeure), and Article 29 (Miscellaneous), and (ii) in no event shall Company be obligated to make any payments provided for herein to Supplier or have any other obligations to Supplier other than those set forth in this Section 22.2

(Effectiveness of Certain Obligations), Article 11 (Indemnification), Article 12 (Governing Law; Dispute Resolution), Article 14 (Force Majeure), and Article 29 (Miscellaneous).

OPERATIONAL

ARTICLE 23 AUDIT

- 23.1 Rights of Company. Without limitation of other audit rights described in this Agreement, Company shall have the right throughout the Term and for a period of three (3) years following the end of the Term, as extended, upon reasonable prior notice, to audit the books and records of Supplier to the limited extent necessary to verify the basis for any claim by Supplier for payments from Company or to determine Supplier's compliance with the terms of this Agreement. Company shall not have the right to audit other financial records of Supplier. Supplier shall make such records available at its offices in Honolulu, State of Hawai'i during normal business hours. Company shall pay Supplier's reasonable actual, verifiable costs for such audits, including allocated overhead.

ARTICLE 24 PROVISION OF GRID SERVICES

- 24.1 Compliance with Grid Services Description and Requirements. Supplier shall provide the Grid Services in compliance with the specifications set forth in Attachment A-1 (Fast Frequency Response Grid Service Description and Requirements) and Attachment A-2 (Capacity Grid Service Description and Requirements) relevant to each of the Grid Services being provided throughout the Term.
- 24.2 Telemetry Requirements.
- (a) Metering and Communications Equipment. Supplier shall comply with the requirements set forth in Attachment B (Advanced Metering) for each Resource. Notwithstanding Company's obligation to install meters as stated in said Attachment B (Advanced Metering), Supplier shall ensure that each Participant shall have an installed and operational meter compliant with Attachment B (Advanced Metering) with appropriate meter communication equipment prior to the Resource being included in the Grid Services. Supplier shall provide Company with any telemetry data for a Resource that is required by Attachment B (Advanced Metering) that Company's meter does not provide.
 - (b) Meter Requirements for C&I Customer. In addition to the requirements in Section 24.2(a) (Metering and Communications Equipment), each C&I Customer shall be required to have a Company-approved meter that is capable of recording usage in 5-minute intervals and being read remotely by a remote meter reading system approved by Company. If a C&I Customer does not have a meter that

meets such requirements, Supplier shall supply and install such meter at Supplier's or Participant's expense.

- (c) Additional Company Meter. Supplier may request that Company install an additional Company-owned meter at a Participant's Resource. Supplier's request shall be supported by a detailed explanation regarding the need for an additional Company-owned meter. If Company, in its sole discretion, approves Supplier's request for additional Company-owned meter, Supplier shall be responsible for all costs and expenses related supply and installation of the meter.
- (d) Company Access to Participant Meters. Supplier shall ensure that Participants grant to Company in the Participant Service Agreement the right physically to access the telemetry equipment connected to any Resource to retrieve Grid Services Data.

ARTICLE 25 TESTING

- 25.1 Data, Integration, and Testing. Supplier shall perform all testing and comply with all requirements set forth in Attachment D (Data, Integration, and Testing Requirements) and Attachment F (GSDS Service Level Agreement). Supplier and Company shall coordinate all GSDS testing.
- 25.2 Compensation for Testing. Unless otherwise stated in Attachment D (Data, Integration, and Testing Requirements), Company shall compensate Supplier as provided in Article 20 (Payment and Invoicing) for any Grid Service provided during testing as if it were a GS Event. However, minimum incentives and additional incentives shall not be paid by Company for Grid Services provided as a result of testing.

ARTICLE 26 INFORMATION SECURITY

- 26.1 Information Security Requirements.
 - (a) Safety and Security Procedures. Supplier shall maintain and enforce safety and security procedures to safeguard Company Data, Participant Data and Company Confidential Information in Supplier's possession, including any Company Data, Participant Data or Company Confidential Information that Supplier provides to any Supplier Agents in the course of Supplier's performance pursuant to this Agreement. Supplier warrants that it shall (i) use National Institute of Standards and Technology ("NIST") industry best practices for physical and systems security measures to prevent destruction, loss, alteration or unauthorized access to, use of, or tampering with, the Grid Services, GSDS, software, Company Data, Participant Data and Company's Confidential Information, including to protect the confidentiality and integrity of any of Company's Confidential Information,

operation of Company's systems, and to prevent viruses and similar destructive code from being placed in any software provided to Company, on Supplier's or Company's website, or in Supplier's or Company's programming; and (ii) use NIST industry best practices and precautionary measures as indicated in NIST Special Publication 800-53 Rev. 4 "Security and Privacy Controls for Federal Information Systems and Organizations" and Special Publication 800-82 Rev. 2 "Guide to Industrial Control Systems (ICS) Security" to prevent unauthorized access or damage to a facility under its control or that of its subcontractors, including to protect the confidentiality and integrity of any of Company's Confidential Information as well as the operation of Company's systems. Company shall be notified immediately when there is any condition that would compromise Supplier's physical or cyber security. Supplier shall, at a minimum, protect Company's Confidential Information and provide the standard of care required by NIST cybersecurity requirements, and the same measures it uses to protect its own Confidential Information.

- (1) Endpoint and Server Security. Supplier shall implement appropriate endpoint and server security processes and practices commensurate with the level of risk as determined by periodic risk assessments including without limitation:
 - (A) Mechanisms to identify vulnerabilities and apply security patches in a timely manner (i.e., aligned with the intent of NERC CIP-007-6 R2).
 - (B) Anti-phishing capabilities (i.e., aligned with the intent of NERC CIP-007-6 R3).
 - (C) Access controls to enforce the least privilege principle and provide access to resources only for authorized users (i.e., aligned with the intent of NERC CIP-004-6 R4).
 - (D) Data confidentiality, protection, and encryption technologies for endpoints, servers, and mobile devices (i.e., aligned with the intent of NERC CIP-011-2 R1 and NERC CIP-005-5 R2).
- (b) Cybersecurity Program. Supplier shall establish and maintain a continuous cybersecurity program (i.e., aligned with the intent of NERC CIP-003-6) that enables Supplier to:
 - (1) Define the scope and boundaries, policies, and organizational structure of the cybersecurity program.

- (2) Conduct periodic risk assessments to identify the specific threats to and vulnerabilities of Supplier's organization consistent with guidance provided in NIST Special Publication 800-30 Rev. 1 "Guide for Conducting Risk Assessments".
 - (3) Implement appropriate mitigating controls and training programs and manage resources.
 - (4) Monitor and periodically test the cybersecurity program to ensure its effectiveness. Supplier shall review and adjust its cybersecurity program as appropriate for any assessed risks.
 - (5) The requirements of this Section 26.1(b) (Cybersecurity Program) shall extend to any to third party services Supplier may use.
- (c) Security Reporting. Commencing no less than thirty (30) Days prior to the System Integration Date, and thereafter annually during the Term of this Agreement, Supplier shall deliver to Company evidence of Supplier's information security safeguards, including but not limited to annual third-party penetration tests, within thirty (30) Days of each such report's completion, and any and all such other similar reports, as completed. Supplier shall, at no cost to Company, mitigate all critical and high-risk findings within ten (10) Days of receiving such findings and provide Company with evidence of such mitigation to the reasonable satisfaction of Company.
- (1) In addition to the foregoing, commencing no less than thirty (30) Days prior to the System Integration Date and thereafter annually during the Term of this Agreement, Supplier shall deliver to Company SSAE SOC2 Type 2 reports for the data center in which the control and monitoring components of the GSDS reside within thirty (30) Days of each such report's completion. Supplier shall, at no cost to Company, mitigate all critical and high-risk findings within ten (10) Days of receiving such findings and provide Company with evidence of such mitigation to the reasonable satisfaction of Company.
- (d) Malware. Supplier will (consistent with the following sentence) ensure that no Malware or malicious software, or similar items are coded or introduced into any aspect of the Grid Services, the GSDS, the DERMS, and the Supplier information systems and operating environments and processes used or relied upon by Supplier to provide the Grid Services, including the information, data and other materials delivered by or on behalf of Supplier to Company, the customers of Company, Participants and/or third party providers (collectively, Environment). Supplier will continue to implement improvements to and upgrades of its

Malware prevention and correction programs and processes consistent with the then-current NIST technology industry's standards and, in any case, no less robust than the programs and processes implemented by Supplier with respect to its own information systems and, on a regular basis as requested by Company, Supplier shall provide Company with sufficient evidence of the same. Supplier shall furthermore ensure that all Supplier Agents comply with the obligations of Supplier as set forth in this Section 26.1 (c) (Malware). If Malware, malicious software, or unauthorized code is found to have been introduced into the Environment, Supplier will promptly notify Company, and Supplier shall take immediate action to eliminate and remediate the effects of the Malware, malicious software, or unauthorized code at Supplier's expense. Supplier shall not modify or otherwise take corrective action with respect to the Company Systems except at Company's request. Supplier will promptly report to Company the nature and status of all security incidents, Malware detection, elimination and remediation efforts. On a regular basis as requested by the Company, Supplier shall provide Company with sufficient evidence of its efforts at continuous monitoring to evaluate the effectiveness of Supplier's information security safeguards.

- (e) Media. Supplier shall remove all Company Confidential Information from any media taken out of service and shall destroy or securely erase such media in accordance with Company's security requirements and otherwise in a manner designed to protect against unauthorized access to or use of any Company Confidential Information. Prior to the System Integration Date, Supplier shall develop and provide to Company its plan detailing how it will accomplish such removal, destructions, and erasure.
- (f) Security Breach. In the event that Supplier discovers or is notified of a breach or potential breach of security ("Security Incident") related to Company Data, Participant Data or Company's Confidential Information, Supplier shall immediately (i) notify Company of such Security Incident, whether or not such Security Incident has compromised any of Company's Confidential Information, (ii) investigate and promptly remediate the effects of the Security Incident, whether or not the Security Incident was caused by Supplier, (iii) cooperate with Company with respect to any such Security Incident or unauthorized access or use; (iv) comply with all applicable privacy and data protection laws governing Company's or any other individual's or entity's data; and (v) to the extent such Security Incident was caused by Supplier, provide Company with reasonable assurances satisfactory to Company that such Security Incident shall not reoccur. Supplier shall preserve and provide to Company any forensic evidence obtained as a result of its investigation and remediation of such Security Incident. Any remediation of any such Security Incident will be at Supplier's sole expense. If

any Personally Identifiable Information is breached, notification of individuals affected will be at Company discretion and at the sole expense of Supplier. Supplier shall pay for two (2) years of credit monitoring services for each individual whose Personally Identifiable Information was breached and, if approved or requested by Company, provide other remedies that become commercially available or required by law.

- (g) Data Destruction. Except as otherwise provided in this Agreement, within ten (10) Business Days after any request by Company during the Term and upon termination of this Agreement, Supplier shall destroy, delete, and erase all Company Data and Participant Data in its possession 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 Hawai'i Revised Statutes, Chapter 487-R. A duly authorized representative of Supplier shall certify in writing that all Company Data and Participant Data has been destroyed, deleted, and erased upon completion of such data elimination and immediately forward such certification to Company for its records. Prior to the System Integration Date, Supplier shall develop and provide to Company a detailed plan of how it intends to accomplish any such destruction, deletion, and erasure. Notwithstanding the foregoing, Supplier may retain system-wide historical archived backups for disaster recovery/business continuity purposes. Any Company Data and Participant Data in the disaster recovery backups shall be deleted from the disaster recovery backup upon expiration of the retention period for such backup.
- (h) Recovery and Incident Response Plans. Supplier agrees to implement and maintain during the Term of this Agreement, a recovery (contingency) plan and an incident response plan (“Recovery and Incident Response Plans”) consistent with the level of risk associated with the work under this Agreement. The Recovery and Incident Response Plans shall be provided to Company on or before the System Integration Date. Supplier shall update the Recovery and Incident Response Plans during the Term to reflect lessons learned from real recovery events and as required due to significant changes in risk or the business or regulatory environments. Company shall have the right to review the Recovery and Incident Response Plans at any time during the Term and Supplier shall make such Recovery and Incident Response Plans available to Company immediately upon request.
- (i) Monitoring and Audit. Supplier shall provide Company with information on available audit logs and reports relating to cyber and physical security (i.e., aligned with the intent of NERC CIP-007-6 R4). Company may audit Supplier’s records to ensure Supplier’s compliance with the terms of this Article 26

(Information Assurance), provided that Company has provided reasonable notice to Supplier and any such records of Supplier's will be treated by Company as confidential.

- (j) Compliance with Laws. Supplier shall cause its employees and Supplier Agents to comply, at no cost to Company, with all applicable Laws related to the obligations assumed by Supplier under this Agreement, including those related to data privacy, data security, and the transmission of technical or personal data.

ARTICLE 27 IMPLEMENTATION OF GSDS

27.1 Design and Deployment of GSDS.

- (a) General. Supplier shall furnish all financial resources, labor, tools, materials, equipment, transportation, supervision, and other goods and services necessary to completely design, develop, deploy, maintain and operate the GSDS to fulfill the requirements of this Agreement. The design, development, deployment, maintenance, and operation of the GSDS shall be certified to meet applicable Underwriters Laboratory applicable standards and shall meet the information technology and information assurance standards, based on the NIST Cybersecurity Framework and 800-53 standards, set forth in Section 26.1 (Information Security Requirements) and the service level agreement as more fully described in Attachment F (GSDS Service Level Agreement). The GSDS shall have an operational life equal to at least the Term of this Agreement. Supplier agrees that no modifications to the GSDS shall be made after the System Integration Date without prior written approval by the Company, unless such modifications could not reasonably be expected to have a material effect on the assumptions used in performing the tests described in Attachment D (Data, Integration, and Testing Requirements). In no event will Supplier make any modifications to the GSDS that cause the GSDS to fall below the information technology and information assurance standards set forth in Section 26.1 (Information Security Requirements).
- (b) System Integration Requirements. The GSDS shall comply with the network and communication requirements set forth in Attachment B (Advanced Metering) and Attachment D (Data, Integration, and Testing Requirements). The GSDS shall be capable of sending telemetry data to the Company System, receiving load dispatch signals from the Company System, and responding with appropriate Grid Services within the response requirements set forth in Attachment A-1 (Fast Frequency Response Grid Service Description and Requirements), Attachment A-2 (Capacity Grid Service Description and Requirements), and Attachment D (Data, Integration, and Testing Requirements).

- (c) Status Meeting. At least once every year during the Term, or on request following at least thirty (30) Days' notice from Company, Supplier shall meet with representatives of Company to review the status of the GSDS program, including but not limited to Participant satisfaction and Supplier's compliance with the service level agreements set forth in Attachment F (GSDS Service Level Agreement). Supplier may also be required to explain the operations of the GSDS and to provide such training and documentation as Company may require for Company to understand and operate the Company System efficiently and safely with the GSDS.

ARTICLE 28 MISCELLANEOUS

- 28.1 Entire Agreement. This Agreement, including all Attachments, (together with any confidentiality or non-disclosure agreements entered into by the Parties during the process of negotiating this Agreement and/or discussing the specifications of the GSDS) constitutes the entire agreement between the Parties relating to the subject matter hereof, superseding all prior agreements, understandings or undertakings, oral or written. Each of the Parties confirms that in entering into this Agreement, it has not relied on any statement, warranty or other representation (other than those set out in this Agreement) made or information supplied, by or on behalf of the other Party.
- 28.2 Binding Effect. This Agreement shall be binding upon and inure to the benefit of the Parties hereto and their respective successors, legal representatives, and permitted assigns.
- 28.3 Relationship of the Parties. Nothing in this Agreement shall be deemed to cause either Party hereto to become a partner, agent or representative of the other Party or to create any fiduciary relationship between the Parties. Supplier does not hereby dedicate any part of GSDS to serve Company, Company's customers or the public.
- 28.4 Further Assurances. If either Party determines in its reasonable discretion that any further instruments, assurances or other things are necessary or desirable to carry out the terms of this Agreement, the other Party will execute and deliver all such instruments and assurances and do all things reasonably necessary or desirable to carry out the terms of this Agreement.
- 28.5 Severability. If any term or provision of this Agreement or the application thereof to any person, entity or circumstance shall to any extent be 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.

- 28.6 Modification or Amendment. No modification, amendment or waiver of all or any part of this Agreement shall be valid unless it is reduced to a writing and duly executed by both Parties.
- 28.7 Electronic Transmittal and Counterparts. The Parties agree that this Agreement and any subsequent writings, including amendments, may be executed and delivered by exchange of executed copies via Email or other acceptable electronic means, and in electronic formats such as Adobe PDF or other formats mutually agreeable between the Parties which preserve the final terms of this Agreement or such writing. A Party’s signature transmitted by facsimile, Email or other acceptable electronic means shall be considered an “original” signature which is binding and effective for all purposes of this Agreement. 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.
- 28.8 Computation of Time. In computing any period of time prescribed or allowed under this Agreement, the Day of the act, event or default from which the designated period of time begins to run shall not be included. If the last Day of the period so computed is not a Business Day, then the period shall run until the end of the next Day which is a Business Day.
- 28.9 Headings. The paragraph headings of the various sections and Attachments have been inserted in this Agreement as a matter of convenience for reference only and shall not modify, define or limit any of the terms or provisions hereof and shall not be used in the interpretation of any term or provision of this Agreement.
- 28.10 Definitions. Capitalized terms used in this Agreement not otherwise defined in the context in which they first appear are defined in Article 1 (Definitions)
- 28.11 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.
- 28.12 Proprietary Rights. Supplier agrees that in fulfilling its responsibilities under this Agreement, it will not use any process, program, design, device or material that infringes

on any United States patent, trademark, copyright or trade secret (“Proprietary Rights”). Supplier agrees to indemnify, defend and hold harmless Company from and against all losses, damages, claims, fees and costs, including but not limited to reasonable attorneys’ fees and costs, arising from or incidental to any suit or proceeding brought against Company for infringement of third party Proprietary Rights arising out of Supplier’s performance under this Agreement, including but not limited to patent infringement due to the use of technical features of the GSDS to perform under this Agreement.

28.13 Attachments. Each attachment to this Agreement (collectively, “Attachments”) constitutes an essential and necessary part of this Agreement.

28.14 Survival of Obligations. The rights and obligations that are intended to survive a termination of this Agreement are all of those rights and obligations that this Agreement expressly provides shall survive any such termination and those that arise from Supplier’s or Company’s covenants, agreements, representations, and warranties applicable to, or to be performed, at or during any time prior to or as a result of the termination of this Agreement, including, without limitation:

- (a) The limitation of damages under Article 8 (Consequential Damages);
- (b) Supplier’s obligations under Section 9.2(b) (Termination by Company);
- (c) The indemnity obligations to the extent provided in Article 11 (Indemnification), Section 28.12 (Proprietary Rights) and Attachment J (Participant Service Agreement Requirements);
- (d) The requirements of Article 12 (Governing Law; Dispute Resolution); and
- (e) The requirements of Article 28 (Miscellaneous).

28.15 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.

28.16 Change in Standard, System or Organization.

- (a) Consistent with Original Intent. If, during the Term of this Agreement, any standard, system or organization referenced in this Agreement should be modified or replaced in the normal course of events, such modification or replacement shall from that point in time be used in this Agreement in place of the original standard, system or organization, but only to the extent such modification or replacement is mutually agreed by the Parties and generally consistent with the original spirit and intent of this Agreement.

- (b) Eliminated or Inconsistent with Original Intent. If, during the Term of this Agreement, any standard, system or organization referenced in this Agreement should be eliminated or cease to exist, or is modified or replaced and such modification or replacement is inconsistent with the original spirit and intent of this Agreement, then in such event the Parties will negotiate in good faith to amend this Agreement to a standard, system or organization that is mutually agreeable to the Parties and would be consistent with the original spirit and intent of this Agreement.

28.17 Certain Rules of Construction. For purposes of this Agreement:

- (a) The phrase “breach of a representation” includes a misrepresentation and the failure of a representation to be accurate.
- (b) “Including” and any other words or phrases of inclusion will not be construed as terms of limitation, so that references to “included” matters will be regarded as non-exclusive, non-characterizing illustrations.
- (c) “Copy” or “copies” means that the copy or copies of the material to which it relates are true, correct and complete.
- (d) When “Article,” “Section” or “Attachment” is capitalized in this Agreement, it refers to an article, section or attachment to this Agreement.
- (e) “Will” has the same meaning as “shall” and, thus, connotes an obligation and an imperative and not a futurity.
- (f) Titles and captions of or in this Agreement, the cover sheet and language in parenthesis following section references are inserted only as a matter of convenience and in no way define, limit, extend or describe the scope of this Agreement or the intent of any of its provisions.
- (g) Whenever the context requires, the singular includes the plural and plural includes the singular, and the gender of any pronoun includes the other genders.
- (h) Each Attachment to this Agreement is hereby incorporated by reference into this Agreement and is made a part of this Agreement as if set out in full in the first place that reference is made to it.
- (i) Any reference to any statutory provision includes each successor provision and all applicable law as to that provision.
- (j) Acknowledging that the Parties have participated jointly in the negotiation and drafting of this Agreement, if an ambiguity or question or intent or interpretation arises as to any aspect of this Agreement, then it will be construed as if drafted

jointly by the Parties and no presumption or burden of proof will arise favoring or disfavoring any Party by virtue of the authorship of any provision of this Agreement.

28.18 Electric Services by Company. This Agreement does not provide for any electric services by Company to Supplier. If Supplier requires any electric services from Company, Company shall provide such service on a non-discriminatory basis in accordance with Company's applicable Tariff schedule, as of the Execution Date, as amended or revised from time to time by Company or successors thereof.

IN WITNESS WHEREOF, Company and Supplier have caused this Agreement to be executed by their respective duly authorized officers as of the date first above written.

Company:

Supplier:

By: _____

By: _____

Name: _____

Name: _____

Its: _____

Its: _____

By: _____

By: _____

Name: _____

Name: _____

Its: _____

Its: _____

Attachment A
Grid Services

Description and Requirements

Service Requirements.

A. Sections below define each grid services and its delivery requirements.

(1) A-2 Capacity Grid Service

Attachment A-2

Capacity Grid Service

Description and Requirements

1. Additional Definitions.
 - A. Non-Event Days – Any day in which a Resource is not manipulated by a Grid Services Event.
 - B. Similar Usage Days – Days that have the same usage characteristics, i.e., weekdays with other weekdays, non-holidays with other non-holidays, and Non-Event Days with other Non-Event Days.

2. Grid Service Description: Capacity Resources can be derived from generation resources, energy storage, or controlled load. Capacity for firm dispatchable generation is defined as the power (MW) rating of the generating unit. Capacity for energy storage is defined as the amount of capacity (MW) that can be assured during the next two (2) hours from the Resource. Capacity of controlled load is defined as the minimum amount of load under control during the dispatch time window for Capacity Reduction, and maximum of load under control during the dispatch time window for Capacity Build.

3. Service Requirements.
 - A. Resource. Resource enrolled with Supplier offering Capacity must have the following operating characteristics and technical capabilities:
 - (1) Capacity Build: Provide Capacity Build continuously for up to two (2) hours during the system mid-day renewable generation peak, as specified under Section 3.E Availability Requirement, below.
 - (2) Capacity Reduction: Provide Capacity Reduction capability for up to two (2) hours during evening peak periods, as specified under Section 3.E Availability Requirement, below.
 - (3) Supplier must ensure that its control and monitoring or related SCADA equipment for its Resources enrolled with Supplier is operational throughout the time period during which Capacity is required to be provided. The polling rate of monitored equipment may not exceed the rate specified in Section 8.A Protocol/Specification, below.
 - B. Resource Ramp Rate. Preceding a Capacity event, Resources enrolled with Supplier must be able to ramp in aggregate to the Operational Forecast at the aggregate ramp rate (increase or decrease in MW/minute) specified below. Immediately following a Capacity event, each Resource enrolled with Supplier must return to normal operating state at the aggregate ramp rate specified below.
 - (1) Hawaiian Electric Company Oahu Requirement:
 1. Each Resource shall ramp at a rate not to exceed ten percent (10%) of Supplier's total Operational Forecast per minute until an aggregate of 50 MW or more of Capacity becomes available. When fifty (50) MW of Capacity is available, the Company will assign a ramp rate to Supplier not to exceed a maximum ramp rate

of five (5) MW per minute across all Resources enrolled with Supplier.

2. Each Resource must return to its normal operating state at a rate not to exceed ten percent (10%) of Supplier's total Operational Forecast per minute until an aggregate of fifty (50) MW or more is enrolled in the Capacity grid service across all Supplier Resources. When 50 MW or more of Capacity is available, Company will assign a ramp rate to Resources enrolled with Supplier such that the maximum ramp rate across all Resources does not exceed five (5) MW per minute.

(2) Maui Electric Company Requirement:

1. The aggregate response of the Resources enrolled with Supplier must be able to ramp to its Operational Forecast at a rate not to exceed the lesser of:
 - a. ten percent (10%) of Supplier's total Operational Forecast per minute or,
 - b. two (2) MW per minute.
2. Company will assign an aggregate ramp rate to Supplier per event, through the DRMS. The Supplier will start and end of the event at the Company assigned ramp rate with its Resources in aggregate.

(3) Hawai'i Electric Light Company Requirement:

1. Preceding and immediately following a Capacity event, the Resources enrolled with Supplier must meet its Operational Forecast and return to its original state at a Ramp Rate (increase or decrease in MW/minute) of 2MW/minute.

C. Response Timeline: Resources enrolled with Supplier shall respond to a scheduled event trigger sent by Company as specified below.

- (1) Capacity Build: Company will schedule a Capacity Build event at least eight (8) hours, but no earlier than twenty-four (24) hours prior to the Capacity Build event. Each Resource enrolled in Supplier's portfolio shall ramp up to the Scheduled Capacity Build amount up to the Operational Forecast for Capacity Build Capability in the thirty (30) minutes preceding the scheduled event start time at the Ramp Rate specified in Section 3.B Resource Ramp Rate, and must achieve the Capacity Build Capability scheduled provided in the Operational Forecast by the start of the build event. Following the event, each Resource may return to its normal operating state within the thirty (30) minutes following the end of the Capacity Build event at the Ramp Rate specified in Section 3.B Resource Ramp Rate, or, within the thirty (30) minutes after receiving an event cancellation from Company DRMS while an event is in progress, at the Ramp Rate specified in Section 3.B Resource Ramp Rate.
- (2) Capacity Reduction: Company will schedule a Capacity Reduction event at least one (1) minute but no earlier than twenty-four (24) hours prior to the Capacity Reduction event. Resources enrolled with Supplier's must meet the Scheduled Capacity Reduction Capability up to the Operational Forecast for

Capacity Reduction Capability at the Ramp Rate specified in Section 3.B Resource Ramp Rate such that the Scheduled Capacity Reduction Capability is achieved at the number of minutes determined by the Scheduled Capacity Reduction Capability divided by the specified Ramp Rate. Following the event, each Resource may return to normal operating state within the thirty (30) minutes after the end of the Capacity Reduction event at the Ramp Rate specified in Section 3.B Resource Ramp Rate, or, within the thirty (30) minutes after receiving a command from the Company DRMS at the Ramp Rate specified in Section 3.B Resource Ramp Rate.

- D. Event Duration Limits.
 - (1) Capacity Build: Supplier shall continuously provide Capacity Build for up to two (2) hours within the specified timeframes.
 - (2) Capacity Reduction: Supplier shall provide service for up to two (2) hours for Reduction within the specified timeframes. The event duration will be determined by the Company and communicated to the Supplier through the DRMS at the time of event scheduling. An active Capacity Event may be modified (duration or capability) at any time during the event through the DRMS, so long as not to exceed a total event duration of two (2) hours, or a Capability exceeding the Operational Forecast for Capacity Reduction Capability.
 - E. Availability Requirement: Supplier is to ensure Resources enrolled with Supplier are available to provide Capacity for up to the Event Duration Limits specified in Section 3.D during the Capacity Build and Capacity Reduction Availability Periods. The Availability Periods should be reflected in the Supplier's Operational Forecast and will be as follows.
 - (1) Capacity Build Availability Period: 10:00AM – 4:00PM
 - (2) Capacity Reduction Availability Period: 6:00AM-10:00AM or 2:00PM – 8:00PM
 - F. Periods of no Availability: If Supplier is temporarily unable to provide Capacity, Supplier shall update its Operational Forecast as soon as the period of unavailability is known to identify the period(s) during which Capacity will be unavailable.
 - G. Export provision: Supplier shall not be allowed to export energy into the Company System (i.e., no backfeed capability), unless otherwise permitted under a Company approved interconnection agreement, DER participation requirement, or supplemental screening and review performed by Company for each Resource.
4. Event Triggering Requirements.
- A. Trigger. Supplier will poll for a signal from the Demand Response Resources Management System (“DRMS”) indicating the start of the scheduled event.
5. Forecasting Requirements.
- A. A separate forecast file will be required for Capacity Build and Capacity Reduction.
 - B. Refer to Attachment C (Operational Forecast), for information regarding forecasting requirements.

6. Baseline.

A. Estimated Baseline Calculation. The Estimated Baseline calculation shall be the average demand of ten (10) previous Similar Usage Days, using five (5) minute interval data for the same period as the Event. This establishes the average normal demand for Resources enrolled with Supplier during the event period based on the corresponding interval points from the previous ten (10) Similar Usage Days.

7. Performance Factor Calculation.

- A. The Performance Factor for each Grid Service (GS) Event will be the percentage of Delivered Capability compared to the Operational Forecast.
- B. The ramp-in and ramp-out periods of a GS Event will not affect the GS Event Performance Factor calculation for that GS Event, as applicable.
- C. GS Event Performance Factor Calculation:
- a. Interval Performance Factor Calculation

For the purpose of GS Event Performance Factor Calculation, use below methodology to determine applicable Interval Performance Factor for interval i in GS Event e :

$$\text{if } D_{interval_i} < -T, PF_i = 0$$

$$\text{if } F_{interval_i} < 0, PF_i = 0$$

$$D_i = \max(D_{interval_i}, T)$$

$$F_i = \max(F_{interval_i}, T)$$

$$\text{if } \left(1 - \left|1 - \frac{D_i}{F_i}\right|\right) \leq 0, PF_i = 0$$

$$\text{if } 0 < \left(1 - \left|1 - \frac{D_i}{F_i}\right|\right) < 0.9, PF_i = \left(1 - \left|1 - \frac{D_i}{F_i}\right|\right)$$

$$\text{if } \left(1 - \left|1 - \frac{D_i}{F_i}\right|\right) \geq 0.9, PF_i = 1$$

- PF_i = Interval Performance Factor during interval i
- $D_{interval_i}$ = Delivered Capability (kW) during interval i
- $F_{interval_i}$ = Operational Forecast (kW) for time of interval i
- i = 15 minute interval during GS Event e
- D_i = Adjusted Delivered Capability (kW) for time of interval i
- F_i = Adjusted forecasted capability (kW) for time of interval i

b. Tolerance Band for Grid Services

$$T = \min(0.05 * E_{s,agg}, T_{max})$$

- T = Tolerance Band for Grid Services
- T_{max} = Maximum Tolerance band for Grid Services
 - T_{max} = 1000 kW for Oahu
 - T_{max} = 500 kW for Maui and Hawaii
- $E_{s,agg}$ = Aggregated Enabled Capability for the Settlement Month

c. GS Event Performance Factor Calculation

$$PF_{e,raw} = \frac{\sum_{i=1}^n PF_i}{n}$$

$$\text{If } PF_{e,raw} \geq 0.9, PF_e = 1$$

$$\text{If } PF_{e,raw} < 0.9, PF_e = \frac{\sum_{i=1}^n (PF_i)^2}{n}$$

- $PF_{e,raw}$ = Raw GS Event Performance Factor during Build/Reduction period for event e
- PF_e = GS Event Performance Factor during Build/Reduction period for event e
- PF_i = Interval Performance Factor during interval i
- i = 15 minute interval
- n = number of 15 minute intervals in a GS Event

8. Communications and Control.

A. Protocol/Specification.

- (1) Minimum Requirement: Supplier's GSDS shall use OpenADR 2.0b to communicate with the DERMS. One OpenADR 2.0b certified Virtual End Node (VEN) will be required for Capacity Build communications and control and Capacity Reduction communications and control. Data and Signal requirements apply to each VEN.
- (2) Desired Requirement: Supplier's GSDS shall use IEEE 2030.5-2018 to communicate with the DERMS.

B. Data.

- (1) Minimum Requirement: Real-time metered values in kW representing all Resources enrolled with Supplier shall be made available for polling by the DERMS every five (5) minutes using the OpenADR 2.0b Data Reports TELEMETRY_USAGE. TELEMETRY_USAGE shall reflect real-time

metered values. Real-time metered values reported via OpenADR shall be reported at the end of the interval, i.e., kW values reported at 00:15 are for interval from 00:10-00:15. The TELEMETRY_STATUS report shall be provided to Company upon request.

- (2) Desired Requirement: Real-time metered values in kW representing all Resources enrolled with Supplier shall be made available for polling by the DERMS every five (5) minutes using the CSIP Monitoring Data with IEEE 2030.5-2018. Real-time metered values reported via IEEE 2030.5-2018 shall be reported at the end of the interval, i.e., kW values reported at 00:15 are for the interval from 00:10 – 00:15. CSIP Operational Status Information shall be provided to the Company upon request.

9. Testing.

- A. Annual Testing. Refer to Attachment F (GSDS Service Level Agreement), for information regarding testing requirements.

10. Maximum events called per year:

Contract Years	1	2	3	4	5	6	7	8	9	10
Oahu										
Build	104	104	104	104	104	104	104	104	104	104
Reduction	130	130	130	130	130	130	130	130	130	130

In the event that Supplier’s System Integration Date does not allow participation for a full calendar year, the maximum events called per year for affected year(s) may be prorated based on Contract Start Date, at the discretion of Company.

Attachment B

Advanced Metering

1. Purpose

The purpose of this Attachment B (Advanced Metering) is to establish metering requirements for Suppliers who offer Grid Services to Company using Customer resources. Any metering equipment placed into service or returned to service shall meet the provisions as set forth in this Attachment.

2. Metering Requirements

2.1 Data interval requirement

Supplier shall monitor, collect, and report monthly 5-minute interval demand and generation data. This may be accomplished in one of two ways and the approach can be different for each resource:

1. Supplier can install a monitoring device on each Resource, or
2. Supplier can install a whole house/whole building monitoring device for each participating customer.

2.2 Applicability

These requirements apply to all residential customers and any commercial customers who do not have interval meters already installed.

For commercial customers with interval data: if a commercial customer has a 15-minute interval meter installed, Company shall upgrade it to a 5-minute interval meter.

Supplier must conform to applicable Laws (including tariff requirements) including, as applicable, performance, monitoring and control capabilities.

2.3 Validity

Upon Company's implementation of a next generation metering system, including installation or upgrade of customer meter, a telecommunications network and a corresponding Meter Data Management System (MDMS), these metering requirements described herein will no longer be applicable. Upon that event, Company will install and operate advanced meters for all Participants. Company will assume responsibility for the calibration of the advanced meters and assume responsibility for meter data management. At that time, a Supplier may interface with Company's meters.

3. Metering accuracy specifications

3.1 Acceptable performance

The performance of Supplier metering equipment is acceptable when the percent registration is not less than 98% or more than 102%. This is effectively an accuracy requirement of $\pm 2\%$.

4. Testing and Test Plan

Metering equipment shall be tested by Supplier prior to or during installation. In addition, Supplier shall define a Test Plan that is designed to test metering equipment at or prior to installation and monitor a reasonable percentage of the installed metering equipment to verify the metering equipment's accuracy and performance during the Term. Supplier shall have flexibility to define the Test Plan so that it is appropriate for the type of metering equipment used by Supplier. The Test Plan shall document Supplier's test, calibration and maintenance procedures of Supplier installed metering equipment. The Test Plan shall be delivered to Company for review and the plan must be approved by Company prior to the start of Grid Service delivery by Supplier; Company's approval is not to be unreasonably withheld.

5. Additional Specifications by Grid Service

5.1 Fast Frequency Response

In addition to the 5-minute interval demand values, as per Attachment A-1 – Fast Frequency Response - 1 (“FFR-1”) and Fast Frequency Response - 2 (“FFR-2”), Supplier shall demonstrate through a mutually-agreeable certification process, that the end devices are capable of performing specified responses and requirements. Certification shall at a minimum require a statement of compliance with Attachment A-1 requirements, including equipment description and specification, signed by an officer of Supplier's corporation.

For FFR-1, a maximum of 30-second interval data is required to determine performance. For FFR-2, 5-minute interval data will be sufficient for verifying the 30-minute delivery requirement associated with FFR. This data will be used for the verification of event response. Supplier shall submit this data to Company at the end of each month for event performance assessment.

6. Reporting and documentation

Supplier shall make the following reports available to Company:

- A monthly report summarizing end device response to FFR events including all data specified in Section 5.1.
- Interval timestamps are interval ending, i.e. 00:15 is for interval from 00:01-0:15.
- Any updates or changes to the Supplier's Test Plan, annually.

Attachment C

Operational Forecast

The Operational Forecast represents Supplier’s forecasted Capability for the given period. An Operational Forecast is required for each Grid Service that Supplier is contracted to provide as Capability. The Operational Forecast shall be made available to the DERMS via CSV files in accordance with the following attributes:

Attributes	FFR	Capacity Build	Capacity Reduction
Forecast Capability	kW/kWh	kW/kWh	kW/kWh
Forecast Term	Min 4 days	Min 4 days	Min 4 days
Data Resolution (Interval)	15 Minute	15 Minute	15 Minute
Update Timing	Hourly	1am/1pm	1am/1pm
Update Frequency	Hourly	12 hours	12 hours

Table 1 - Operational Forecast Attributes

The values stated in Table 1 may be changed periodically at the discretion of Company; as system operators gain experience dispatching grid services, changes or additions to Operational Forecast attributes may be required.

The table below shows the fields included in the file from the Supplier to the DERMS with the Aggregated Forecast Capability. The format will be a CSV file. The values/columns will be in the order described in following table.

Field Name	Format	Values/Comments
VEN ID	String	ID of the Aggregator’s VEN for this Grid Service. The VEN ID will be used for both the Service Point and Device ID. Unique identifier used in import.
Aggregator Id	Char 16	ID for the Aggregator who is providing the forecast. Used in verifications.
Grid Service Name	String	Name of the Grid Service for which the Aggregator is providing the forecast. As the Aggregator will have 1 VEN per Grid Service, this is not used in import. Informational
Forecast Unit of Measure	String	Identifier of the type of forecast value being provided. Values <ul style="list-style-type: none"> • <i>Aggregate Operational Forecast KWH 15 Minute</i> • <i>Aggregate Operational Forecast KW 15 Minute</i>
Forecast Interval End Time	Date/Time	End of interval timestamp for the forecast value. MM/DD/YYYY HH:MM where HH is a 24 hour (0-23)
Forecast Value	Real	Aggregator’s forecast capability aggregated for all their enrolled customers in this Grid Service. Provide only 1 Value for each Grid Service. This will be reported as a positive number. Value should be rounded to the thousandth (3) decimal place

Table 2 – Operational Forecast Import File Fields

File Pattern = *.csv

Required pattern:

{AggregatorID}_{HawaiianElectricCompanyCode}_{GridServiceProgramName}_{Date:yyyy-MM-dd_HH-mm-ss}_forecast.csv

One Operational Forecast file will be submitted per grid service (FFR, Capacity Build, Capacity Reduction) at the intervals specified in Table 1.

The Operational Forecast shall be updated within 10 minutes of a grid service Dispatch to reflect the activation or reservation of the Capability and the impact of such activation or reservation on any other Grid Service. For example, if Resource's Capability is enabled for participation in both FFR and Capacity Build, and Capacity Build is scheduled for the next day, the Operational Forecast should be updated to remove that Resource's Capability from the FFR Operational Forecast. The updated FFR Operational Forecast must be available to the DERMS within 10 minutes of scheduling Capacity Build Dispatch.

Supplier shall not modify or update the Operational Forecast for a Grid Service Capability after said Grid Service has been scheduled and/or dispatched by the Company for the duration of the GS Event.

Supplier must update the Operational Forecast within 5 minutes of any change to the Capability that was previously reported.

If Supplier is unable to provide Capability for any reason during a 4 hour window, Supplier shall update its Operational Forecast within 15 minutes of such inability to provide Capability to identify the period(s) during which Grid Service Capability will be unavailable.

Capacity Build shall be forecasted for the Build period (e.g. 10am-2pm). Intervals outside the Build period shall be zero.

Capacity Reduction shall be forecasted for the Reduction period (e.g. 5pm-9pm). Intervals outside the Reduction period shall be zero.

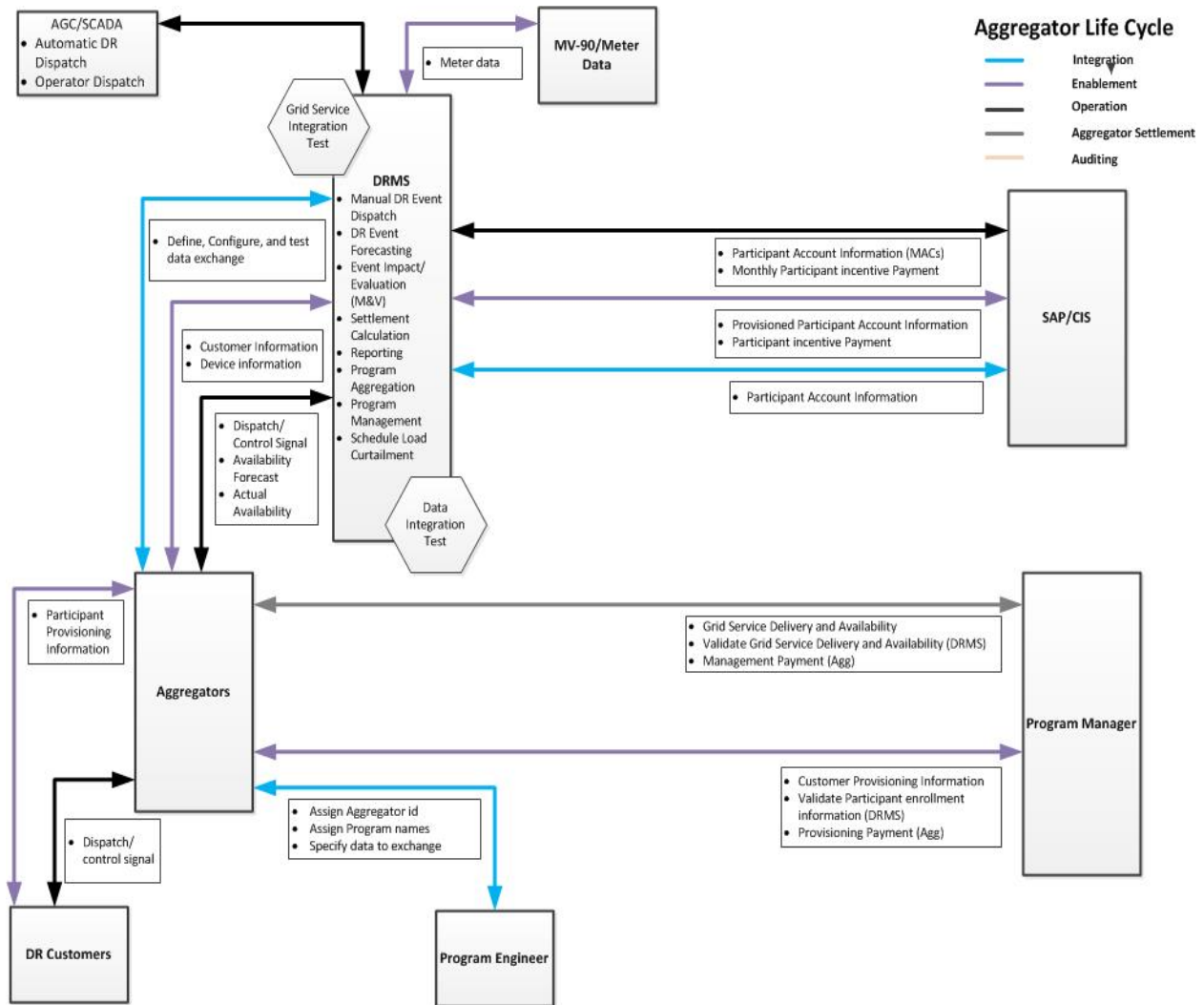
If the failure to make the Operational Forecast available to Company is the result of Force Majeure, Supplier must inform Company as soon as possible.

Attachment D

Data, Integration, and Testing Requirements

Overview

This Attachment D (Data, Integration, and Testing Requirements) provides an overview of integrating with the Companies' Distributed Energy Management System (DERMS). Detailed instructions and steps are provided in the Aggregator Handbook. The following diagram represents the processes required to implement and maintain data exchange and control functionality between Supplier and Company for purposes of scheduling or dispatching Grid Services .



Process Definitions

Integration Process is the initial integration of data exchanges to communicate participant status, incentives, enablement information, and control functionality between the Company’s DERMS and Supplier’s GSDS. The Integration Process is concluded by a successful Data Integration and inaugural Grid Service Integration Test.

Enablement Process is the ongoing enablement of Resource Capability by Supplier and the submission of Participant information to the DERMS to be included in the Dispatch or scheduling of Supplier’s Capability.

Operation Process is the ongoing dispatch or scheduling of Supplier’s Capability and updates from Supplier to Company. Additional data and integration requirements for the Operation Process are specified in Attachment C (Operational Forecast).

Aggregator Settlement Process is the monthly provisioning of data to Company to support Supplier’s Management and Enablement payment.

Audit Process is the periodic verification of data provided to Company in accordance with section 23.1 .

Data Integration

The following data exchanges are required between Supplier’s GSDS and the DERMS. Data shall be delivered in a flat file transmitted via secure File Transport Protocol (FTP) to a FTP designated by Company. The format of the file shall be extensible markup language (XML).

Participant Enablement Status

Supplier will provide Company with a file that contains data about Participants that have been enabled and are ready to be included in the Dispatch or scheduling of Supplier’s Capability (“Participant Enabled File”). After the receipt and processing of the Participant Enablement File by the DERMS, Company anticipates that the Capability of the enrolled Participant’s Resource will be included in Supplier’s Operational Forecast and available for Dispatch or scheduling of Supplier’s Capability (see Attachment C (Operational Forecast)). The Participant Enabled File will be updated to Company daily (excluding weekends and holidays) and will reflect changes since the previous Participant Enabled File was provided. This file will also reflect any Participant removal from participation.

The following data is anticipated to be provided in the Participant Enablement File. Details of the file format are provided in the Aggregator Handbook.

Field	Comments
Enroller Id	Assigned by HECO
Enroller Type	Aggregator
Contract ID	Assigned by HECO
Contract Account Number	Account number
Meter Id	Required for aggregator

W4 Email	Email to receive any Federal tax information
Participant Name	
Participant Service Address	
GS Program Name	Assigned by HECO
Participant Resource Capability	Nominated Load – required for enrollment
Participant Resource Capability Start Date	Nominated Load Effective start date – required for enrollment
Enrollment Start Date	
Enrollment End Date	Required for de-enrollment
Incentive name	Minimum incentive, Additional incentive, etc.
Incentive value	How much incentive
Incentive Start Date	Incentive effective start date

An entry into the Participant Enablement File is required for each Grid Service that Supplier anticipates providing Capability for via enrolled Resources. An entry is also required if any Resource is withdrawn and no longer contributing to Supplier’s provision of Capability. For example, if Supplier enables Resource Capability to deliver FFR and Capacity Build , two entries shall be present in the Participant Enablement File with a different GS Program Name, as provided by Company, to represent each of the Grid Services. Certain fields in the Participant Enablement File require a timestamp. Any change or update to these fields requires an update to the corresponding date field.

Company will provide Supplier with its Supplier ID and permitted GS Program Names.

In developing the Resource Capability, Supplier should take into account the expected load shape, generation profile, etc. for the enrolled device as compared to the Grid Service Value Ratio (as defined in [Attachment H](#) (Settlement)) to determine the weighted average hourly capability per service for the individual device.

Participant Incentives

Supplier will provide to Company a comma-separated values (CSV) file (Participant Incentives File) that contains the Participant energy incentive, as applicable, for each Participant identified independently. The file will be updated to Company monthly by the 7th of each month and will reflect energy incentives to be paid to Participants based on the previous month’s performance. Details of the file format are provided in the Aggregator Handbook.

Field name	Comments
Enroller Id	Assigned by Company
Contract Account	Participant’s Account No. to which incentive should be applied. Must

	match account number supplied with Participant's enrollment
Utility Contract	Contract No. from Participant bill
GS Program Name	Assigned by HECO
Incentive Type	Must be Energy
Incentive Month	Month to which the incentive applies.
Incentive Amount	

GSDS Integration Test

The GSDS Integration Test is performed in two parts: A) a Data Integration Test and B) a Grid Service Dispatch Test. Test plans and test preparation (e.g. scripts) may be developed concurrently, but both tests must be successfully completed to achieve GSDS certification for Grid Service delivery.

The Grid Service Dispatch Test must include the operation and control of at least one Resource.

Part A: Data Integration Test

The purpose of the Data Integration Test is to verify and validate that the exchange of data in the Participant Enablement File and Participant Incentive File is performed reliably and consistently, and that the data and data files are produced and consumed by Supplier's GSDS and Company's DERMS properly. The details of preparing for and performing the Data Integration Test shall be agreed to by Supplier and Company but will adhere to the following guidelines:

- The Data Integration Test Plan shall be developed by Supplier in coordination with Company and agreed to by Supplier and Company.
- The Data Integration Test Plan will include independent integration tests for the exchange of data in the two Participant data files identified above.
- The Data Integration Test Plan will at a minimum include the following use cases:
 - Customer Enrollment: Customer enrolls in a program
 - Customer Unenrollment: Customer unenrolls from a program
 - Customer Changes: Modifications to a customer's enrollment (i.e. incentives or capability)
 - Customer Moves: Special case for customer move outs and move ins
 - Participant incentive amounts are received from Supplier
 - Failure to deliver or receive data exchange
- Each independent integration test will, at a minimum, include the purpose of the test, any external dependencies, test description, and expected results.
- Company will make available to Supplier a DERMS test system for the purpose of preliminary testing.

- Before Supplier may initiate data exchanges with Company’s production DERMS, tests identified in the Data Integration Test Plan must be performed on the DERMS test system and the tests must result in the expected results defined in the Data Integration Test Plan.
- If practical, Company desires a “burn-in” period (3-7 days) to be included in the Data Integration Test Plan to demonstrate reliable and consistent data exchange between Supplier’s GSDS and Company’s DERMS.
- When the Data Integration Test Plan has been performed on Company’s production DERMS and the tests performed result in the expected results as defined in the Data Integration Test Plan, the Data Integration Test will be deemed successful.

Part B: Grid Service Dispatch Test

The Grid Service Dispatch Test will be performed for each Grid Service for which Supplier is contracted to provide. The purpose of the test is to demonstrate the controllability of Supplier’s Capability by Company via operable communications as specified by the Grid Service Requirements. Controllability of Supplier’s Capability is demonstrated by the following:

- Receipt of Supplier’s Operational Forecast for each Grid Service as specified in Attachment C by DERMS.
- Issuance of a signal¹.
- Activation of Supplier’s Capability and updates to Capability as prescribed by the Grid Service Description and Requirements attachments (Attachment A-1 (Fast Frequency Response) and Attachment A-2 (Capacity)).

During preparation for GSDS integration, Company will select their preferred Communications and Control Protocol/Specification and Data that Supplier has committed to provide as specified in Attachment A-2 (Capacity).

The details of preparing for and performing the Grid Service Dispatch Test shall be agreed upon by Supplier and Company but will adhere to the following guidelines:

- The Grid Service Dispatch Test Plan shall be developed by Supplier in coordination with Company and agreed to by Supplier and Company.
- The Grid Service Dispatch Test Plan will include independent tests for each Grid Service as specified in the Grid Service Description and Requirements attachments (Attachment A-1 (Fast Frequency Response) and Attachment A-2 (Capacity) and as contracted by Supplier.
- Independent tests will evaluate the controllability and behavior of Capability under certain conditions such as loss of communications.
- Each independent test shall at a minimum include the purpose of the test, any external dependencies, test description, and expected results.
- Company will make available to Supplier a DERMS test system for purposes of preliminary testing.

¹ Signal may be a direct control signal activating Grid Services or may be a request to reserve Grid Services for future activation as described by Grid Service Exhibits A-1 through A-3.

- Before Supplier may initiate the Grid Service Dispatch Test on Company's production DERMS, tests identified in the Grid Service Dispatch Test Plan must, at a minimum, have been executed to the satisfaction of Company on the DERMS test system.
- When the Grid Service Dispatch Test Plan has been performed on Company's production DERMS and the tests performed are acceptable as defined in the Grid Service Dispatch Test Plan, the Grid Service Dispatch Test will be deemed successful.

Test Plan Approval

Supplier shall submit all test plans as soon as practicable after contract execution. Company will review and respond to Supplier's submitted Test Plans within ten (10) Business Days of company's receipt thereof. Execution of test plans may occur no earlier than three (3) Business Days after they are approved by Company.

GSDS Certification for Grid Service Delivery

The GSDS will be certified for Grid Service delivery after the successful completion of the Data Integration Test Plan and Grid Service Dispatch Test Plan on Company's production DERMS. Company will provide electronic and written notification of GSDS certification to Supplier within two (2) Business Days of successful completion of the Data Integration Test Plan and Grid Service Dispatch Test Plan.

Company will not accept or pay invoices for enabled Capability prior to the System Integration Date and likewise Company will not Dispatch Grid Services prior to the System Integration Date.

Attachment E

Contract Capability

Supplier Name	
Submission Date	

		Maui		
		Capacity Build		
		Contract Capability [kW]		
	Quarter	Residential	Commercial	TOTAL
Contract Year 1	1			
	2			
	3			
	4			
Contract Year 2	1			
	2			
	3			
	4			
Contract Year 3	1			
	2			
	3			
	4			
Contract Year 4	1			
	2			
	3			
	4			
Contract Year 5	1			
	2			
	3			
	4			
Contract Year 6	1			
	2			
	3			
	4			
Contract Year 7	1			
	2			
	3			
	4			

Contract Year 8	1			
	2			
	3			
	4			
Contract Year 9	1			
	2			
	3			
	4			
Contract Year 10	1			
	2			
	3			
	4			

Supplier Name	
Submission Date	

		Maui		
		Capacity Reduction		
		Contract Capability [kW]		
	Quarter	Residential	Commercial	TOTAL
Contract Year 1	1			
	2			
	3			
	4			
Contract Year 2	1			
	2			
	3			
	4			
Contract Year 3	1			
	2			
	3			
	4			
Contract Year 4	1			
	2			
	3			
	4			
Contract Year 5	1			
	2			
	3			
	4			
Contract Year 6	1			
	2			
	3			
	4			
Contract Year 7	1			
	2			
	3			
	4			
Contract Year 8	1			
	2			
	3			
	4			

Contract Year 9	1			
	2			
	3			
	4			
Contract Year 10	1			
	2			
	3			
	4			

Attachment F

GSDS Service Level Agreement

1. GSDS Availability

GSDS availability will be calculated as Available Uptime. The GSDS must be available for the dispatch or scheduling of Capability by Company pursuant to the GSDS Availability Requirement. The calculation of Available Uptime will begin at the System Integration Date. GSDS availability applies to any components or elements that make up the GSDS that either individually or collectively prevent or hinder Company's ability to schedule or dispatch Supplier's Capability.

1.1 Maintenance Downtime

GSDS maintenance downtime ("Maintenance Downtime") shall not exceed four (4) hours per month except as otherwise approved by Company in its sole discretion. Supplier shall give Company notice of its intended Maintenance Downtime at least seven (7) Business Days prior to such Maintenance Downtime by email to the account specified by Company. To the extent practicable, Maintenance Downtime shall occur between 11 PM-4 AM HST. Maintenance Downtime shall be used for update releases of the GSDS, including bug fixes, patches, error corrections, and minor enhancements of and to the GSDS ("minor updates") or new versions of the GSDS that include significant hardware changes or enhancements in features, performance or functionality ("major updates"). Maintenance Downtime will not be deducted from Available Uptime. Maintenance Downtime shall be indicated as appropriate in Supplier's Operational Forecast and updated in accordance with Attachment C (Operational Forecast).

1.2 Emergency Downtime

GSDS emergency downtime ("Emergency Downtime") shall not exceed two (2) hours per month except as otherwise approved by Company in its sole discretion. Supplier shall give Company at least 24 hours' advance notice by telephone of any Emergency Downtime. To the extent practicable, Emergency Downtime should be scheduled to occur between 11 PM-4 AM HST. Emergency Downtime will not be deducted from Available Uptime. Emergency Downtime shall be indicated as appropriate in Supplier's Operational Forecast and updated to the Company in accordance with Attachment C (Operational Forecast).

1.3 Unscheduled Downtime

GSDS unscheduled downtime ("Unscheduled Downtime") is any period during which, without prior notification to Company of Emergency or Maintenance Downtime, the GSDS is not available for the dispatch or scheduling of Capability by Company. Supplier shall notify Company of any Unscheduled Downtime as soon as possible. If possible, Unscheduled Downtime shall be accounted for in Supplier's Operational Forecast and updated to the Company in accordance with Attachment C (Operational Forecast).

1.4 Maximum Available Uptime

GSDS maximum available uptime (“Maximum Available Uptime”) is the total number of minutes in the applicable month, typically 43,200.

1.5 Available Uptime

GSDS available uptime (“Available Uptime”) represents the time in minutes the GSDS was available for the dispatch or scheduling of Capability by Company (Maintenance and Emergency Downtime do not count against Available Uptime). Available Uptime is calculated as total number of minutes in the applicable month minus any Unscheduled Downtime:

$$\text{Available Uptime} = \text{Maximum Available Uptime} - \text{Unscheduled Downtime}$$

2. Uptime Metric

The GSDS shall maintain 85% available uptime or higher per month (“GSDS Availability Requirement”). 85% uptime equates to 6,480 minutes or 4.5 days of Unscheduled Downtime per month. The GSDS will be available on average 85% of the time, measured on a Calendar Month basis. GSDS Availability Requirement is calculated as an uptime percent as follows:

$$\text{Uptime Percent} = (\text{Available Uptime}/\text{Maximum Available Uptime}) * 100$$

The minutes that the GSDS is available for dispatch or scheduling of Capability by Company will be measured by tracking the online and offline status as represented by Supplier’s virtual end node (“VEN”) in Company’s DERMS.

3. Company DERMS Availability

If the DERMS is unavailable for any reason such that the dispatch or scheduling of Capability by Company is impaired, the total number of minutes the DERMS is unavailable will be deducted from the Maximum Available Uptime.

4. Tracking and Reporting

Supplier shall submit monthly reports to validate GSDS availability and include Available Uptime, Unscheduled Downtime and Maintenance Downtime statistics. In addition, Supplier shall track and report on a monthly basis the following items:

1. All problem resolution requests submitted by Company and their respective resolutions.
2. Modifications to the GSDS, such as minor updates or other modifications that did not require downtime, but resulted in changes to the GSDS, including but not limited to software, firmware, hardware and communication protocols.
3. Errors or inconsistencies in measurements and the corrective action taken to resolve such errors as specified in Attachment B (Advanced Metering).

5. Problem Reporting, Response, and Resolution

When software vulnerabilities are revealed, Supplier will obtain the necessary patch and apply it after first testing and determining it to be safe.

Problem Reporting. Company shall report any technical or connectivity problems with the GSDS as follows:

1. Company shall submit a resolution request via the online support portal, if available. Otherwise, Company shall submit the request via email or phone call. Supplier shall provide a 24-hour staffed phone number by which Company may request resolution of Priority 1 or 2 problems and to respond to Participant calls received by Company's customer service representatives and relayed to Supplier as described below.
2. The priority of problem reports is as follows:
 - Priority 1: A priority 1 ("P1") level should be used to request resolution of a problem causing the GSDS to not be available.
 - Priority 2: A priority 2 ("P2") level should be used to request resolution of any problem causing any mission critical function of the GSDS to perform unacceptably or to fail. Mission critical functions of the GSDS include provisioning of Operational Forecast as described in Attachment C (Operational Forecast), provisioning of Participant Enablement Status, including subsequent enrollment transactions, and Participant Incentives as described in Attachment D (Data, Integration, and Testing), and Grid Service Communications and Control as described in Section 8 of each of the Grid Service Description and Requirements Attachments (Attachment A-1 (Fast Frequency Response Grid Service) and Attachment A-2 (Capacity Grid Service)).
 - Priority 3: A priority 3 ("P3") level should be used to request resolution of any problem related to the GSDS that does not qualify as a P1 or P2 level request.
3. Participant calls received by Company's call center that identify safety concerns will be submitted as a P1 level request. All other calls received by Company's call center will be submitted as P3 level calls.

Problem Response. Supplier shall respond to Company problem resolution requests and use commercially reasonable efforts to resolve such problems and return the GSDS to its normal operation in the time frames described in the table set forth below:

Priority Level	Response Time	Target Resolution Time
P1	Thirty (30) Minutes	One (1) Hour
P2	Two (2) Hours	Eight (8) Hours
P3	Twelve (12) Hours	Five (5) Days

Table 1: Problem Response Time Periods by Priority Level

Company acknowledges that the Target Resolution Time metrics are only targets and cannot be guaranteed. If the Target Resolution Time cannot be achieved for a problem resolution request, the request will be remediated as described in Section 6 below.

The following definitions shall be used:

Priority Level: The level assigned to a given problem resolution request based on the guidelines set forth in this section.

Response Time: The time period for Supplier to acknowledge the submission of the problem resolution request by Company. Such period will commence on submission of the problem resolution request to the online support portal, via email or phone call and conclude upon first response by Supplier.

Target Resolution Time: The target time period for Supplier to resolve the problem or provide a work-around or other temporary fix. Such period will commence on submission of the problem resolution request to the online support portal, via email or phone call and conclude when such request is identified as resolved and shall not include any time that a request is identified as awaiting Company input.

For P1 and P2 level requests, hours and days shall be determined on a 24 x 7 x 365 basis and may be submitted 24 x 7 x 365. For all other requests, hours and days shall be determined on a 24 x 5 basis, excluding federal and state holidays. In the event that Supplier addresses any request to resolve a problem by providing a work-around or other temporary fix, Supplier will use commercially reasonable efforts to determine a permanent resolution to the problem described in the problem resolution request.

For all P1 and P2 level requests, Supplier shall provide a postmortem report describing Problem Report, resolution, and steps taken to ensure the problem will not re-occur, within fourteen (14) days of problem resolution.

If Supplier does not respond to P1 and P2 level requests within in the Response Time specified in Table 1 above, each ten (10) minutes past the Response Time (Response Time + 10 minutes) will be subtracted from the Available Uptime. Company allows for a ten (10) minute grace period beyond the Response Time specified in Table 1 before deducting minutes from Available Uptime.

6. Remediation

Upon Company's request, Supplier and Company shall meet to review the availability of the GSDS. In the event of a consistent failure of Supplier to meet the timelines stated in Section 5, or should other operational issues be identified by Company or Supplier, or as a result of submission of a Problem Report, Supplier will develop a remedial plan to rectify such failure and a suggested timetable for its implementation ("Recovery Plan"). The Parties shall negotiate in good faith to agree on a Recovery Plan. Supplier shall implement the agreed upon Recovery Plan in accordance with its terms and shall be responsible for all costs and expenses incurred in the implementation of the Recovery Plan. Supplier's failure to implement the approved Recovery

Plan is an Event of Default under Section 6.1(a) (Default by Supplier) of the Grid Services Purchase Agreement.

7. GSDS Re-Test

Company reserves the right to retest the GSDS upon the completion of major updates or to ensure resolution of a P1 or P2 level problem report. Retest of the GSDS may also be included in the Recovery Plan. A GSDS retest will be performed in accordance with Attachment D (Data, Integration, and Testing Requirements).

8. GSDS Annual Test

Company reserves the right to request an annual test of the GSDS. Such annual test will be performed in accordance with Attachment D (Data, Integration, and Testing Requirements).

9. Failure to Meet GSDS Availability Requirements

If Supplier fails to comply with the GSDS Availability Requirement specified in Section 2, the following reductions in the Management Payment for the Settlement Month will be applied:

1. Third incidence of non-compliance will result in a 5% reduction in the Management Payment for the Settlement Month for all Grid Services
2. Fourth incidence of non-compliance will result in a 10% reduction in the Management Payment for the Settlement Month for all Grid Services
3. Each successive incidence of non-compliance will result in an additional 5% reduction in the Management Payment for the Settlement Month for all Grid Services
4. 22nd incidence of non-compliance will result in a 100% reduction in the Management Payment for the Settlement Month for all Grid Services

The first and second incidences of non-compliance will not result in any reductions in Management the Management payment.

10. Unique Authorization

Access to and use of the GSDS is restricted to Supplier's authorized users only. Supplier shall ensure that all Supplier users maintain the security of any password, username, or other form of authentication involved in obtaining access to the GSDS. Usernames and passwords must be uniquely assigned to a specific individual and may not be shared by multiple individuals or transferred.

11. Participant Company Account Numbers

Supplier may not use a Participant's Company Account number for tracking or display purposes. The GSDS shall not reflect a Participant's Company Account number. It must use a unique identifier associated with the Participant's account.

12. Datacenter and Security Requirements

Supplier agrees to provide SSAE SOC 2 reports (Type 2 required) for the data center in which the control and monitoring components of the GSDS reside. SOC Type 2 reports must be updated annually and provided to the Company for review. At the Company's discretion, Supplier may provide equivalent security authorization/certification reports for the data center (e.g. FedRAMP authorization).

Attachment G

Reporting

Monthly Invoice Report (MIR)

The MIR is submitted on a per island, per Grid Service, and consists of multiple *.CSV files containing the following information in a format prescribed by the Company:

- Monthly Committed Forecast in 15-minute intervals
- Monthly Settlement Capability for Settlement Month
- GS Event Performance Factors for each event in the Settlement Month
- Monthly Performance Factor (Average of performance factors in Settlement Month)
- Monthly Settlement Factor (Based on previous 6 months, see Attachment H (Settlement))
- Number of Events per Settlement Month

Upon request from Company, Supplier may also be required to deliver the following data:

- All data (on an aggregated level) used for the calculation of performance factors for the Settlement Month; including,
 - Baseline calculations
 - Demand values preceding events (as applicable)
- End device data and associated baseline calculations from all participating Resources used for the calculation of any performance factors

Participant Incentive and Capability Reports (PIC)

The PIC reports are submitted monthly as *.CSV files and reports the following information on a per Participant basis in the following tables:

Supplier ID	Assigned by the Company
Contract Account	From Participant bill
Customer Class	Res, SMB, C&I
Customer Schedule	R,G,J,P,DS
Participant Island	1 = Oahu, 2 = Hawaii, 3 = Maui, 4 = Lanai, 5 = Molokai
Grid Service	FFR, Rep Rsv, Cap-Build, Cap-Red, Reg
Value	kW or kWh
Enablement Start Date	Date of read, MM/DD/YYYY
Enabled Capability	E_s
Minimum Incentive	real
Incentive Adder	real

PIC-E Report - Grid Service and Event

The format for the Participant Incentive and Capability Report (PIC), by Grid Service and by event. All Grid Services should be included in the same file.

Supplier ID	Assigned by the Company
Contract Account	From customer bill
Meter Number	From customer bill
Customer Schedule	R,G,J,P,DS
Participant Island	1 = Oahu, 2 = Hawaii, 3 = Maui, 4 = Lanai, 5 = Molokai
Grid Service	FFR, Rep Rsv, Cap-Build, Cap-Red, Reg
Value	kW or kWh
Enabled Capability	E _s
Event Date	MM/DD/YYYY
Event Start Time	Military time in HST
Event End Time	Military time in HST
Energy Delivered	real

Data Formats

Data-End Use

This is the format for End Use Data. All customers should be included in the same file.

Supplier ID	Assigned by the Company
Contract Account	From customer bill
Meter ID	From customer bill
Date	Date of read, MM/DD/YYYY
Time	Time of read, military time in HST
Type	Type of end use: HEM, BMS, WH, AC, ESS, PV
Value	kW or kWh
Actual read	real

FFR Event Frequency Data

This is the format to use for reporting FFR GS Event frequency trigger and return to normal operations data.

Supplier ID	Assigned by the Company
Contract Account	From customer bill
Meter ID	From customer bill
Date	Date of read, MM/DD/YYYY
Type	Type of end use: HEM, BMS, WH, AC, ESS, PV

Value	kW or kWh
Time - FFR trigger detected	Time of read, military time in HST
Frequency detected at trigger	Hz
Time - FFR trigger return to normal detected	Time of read, military time in HST
Frequency detected at return to normal	Hz
Time - Return to normal Resource	Time of read, military time in HST

FFR Event Data

This is the format to use for reporting FFR GS Event interval data.

Supplier ID	Assigned by the Company
Contract Account	From customer bill
Meter ID	From customer bill
Date	Date of read, MM/DD/YYYY
Time	Time of read, military time in HST
Type	Type of end use: HEM, BMS, WH, AC, ESS, PV
Value	kW or kWh

MIR-Forecast

This is the format for Monthly Invoice Report (MIR) - forecast. All Grid Services should be included in the same file. Timestamps for Interval are defined as interval ending, e.g. 00:15 is for interval from 00:00-00:15.

Supplier ID	Assigned by the Company
Grid Service	FFR, Rep Rsv, Cap-Build, Cap-Red, Reg
Date	MM/DD/YYYY
Time	Military time in HST
Value	kW or kWh
Forecast	OFC _i

MIR-Settlement Report

This is the format for Monthly Invoice Report (MIR) – Settlement Cap. All Grid Services should be included in the same file.

Supplier ID	Assigned by the Company
Grid Service	FFR, Rep Rsv, Cap-Build, Cap-Red, Reg
Settlement Month and year	e.g. 4/2018
Monthly Settlement Capability	MSC _s
Settlement Factor	SPF _s

MIR-Event Performance Factor

This is the format for the Monthly Invoice Report (MIR) – Event Performance Factor. All Grid Services should be included in the same file.

Supplier ID	Assigned by the Company
Grid Service	FFR, Rep Rsv, Cap-Build, Cap-Red, Reg
Event Date	MM/DD/YYYY
Event Start Time	Military time in HST
Event End Time	Military time in HST
Performance Factor	PF _{s,e}

Baseline Calculations

This is the format for baseline calculations of Customer baselines.

Supplier ID	Assigned by the Company
Contract Account	From customer bill
Meter Number	From customer bill
Grid Service	FFR, Rep Rsv, Cap-Build, Cap-Red, Reg
Value	kW or kWh
Date	Date of read, MM/DD/YYYY
Time	Time of read, Military time in HST
Energy Delivered	kWh

Attachment H

Settlement

Definitions

Settlement Month – Month for which settlement is calculated

- MSC_S = Aggregate Monthly Settlement Capability for Settlement Month [kW]
- CC_S = Contract Capability for the Settlement Month (kW), based on the Contract Capability for the quarter.
- P_D = Grid Service Monthly Management Price [\$/kW*Month]
- P_E = Enablement Price [\$/kW]
- P_{AI} = Additional Incentive Price [\$/kW*Month]
- P_{MI} = Monthly Minimum Incentive Price [\$/kW*Month]
- P_{EX} = Monthly Competitive Pricing Incentive [\$/kW*Month]
- P_{UP} = Upfront Incentive [\$/kW] P_{MS} = Monthly Minimum Incentive Supplemental [\$/kW*Month]
- P_J = Energy Incentive Price [\$/kWh]
- E_S = Enabled Capability by Customer Class for the Settlement Month
- $E_{S,Agg}$ = Aggregate Enabled Capability for the Settlement Month
- SPF_S = Settlement Performance Factor for the Settlement Month
- E_I = Incremental Enablement for the Settlement Month
- $E_{I,SUM}$ = The sum of all previous E_I by Customer Class
- $PF_{S,e}$ = Grid Service Event Performance Factor for event e in Settlement Month
- $PF_{S-1,e}$ = Grid Service Event Performance Factor for event e in 1 month prior to Settlement Month
- n_S = Number of Grid Service Events in Settlement Month.
- n_{S-1} = Number of Grid Service Events in one month previous to Settlement Month
- DC_W = Aggregate Weighted Daily Capability (C&I and Residential Customer Class)
- GSV_i = Grid Service Value Ratio for interval i
- OFC_i = Operational Forecast for interval i , per Grid Services Attachment A, as set forth in Attachment C
- $DC_{W,d}$ = Aggregate Weighted Daily Capability (C&I and Residential Customer Class) for day d
- MC_S = Weighted Average Monthly Capability for Settlement Month
- DIM_S = Amount of qualifying days in Settlement Month
- E_{INC} = Incrementally enabled capability by Customer Class for the Settlement Month
- $E_{INC,SUM}$ = The sum of all previous E_{INC} by Customer Class, including Settlement Month

- E_p = Participant Enabled Capability
- J_s = Energy delivered for the Settlement Month in Capacity or Replacement Reserve [kWh]

General Rules for Settlement

- Aggregate Monthly Settlement Capability of Settlement Month (MSC_s) cannot exceed 110% of aggregate Contract Capability (C&I and Residential Customer Class) for Settlement Month (CC_s).
- The Company is only responsible for customer Monthly Minimum Incentives up to 110% of Contracted Capability for Settlement Month (CC_s). Any incentives to be paid out to Participants beyond 110% of CC_s will be deducted from the Suppliers settlement
- Enabled Capability cannot exceed 100% of Contract Capability for the Settlement Month.
- Payment for Enablement cannot exceed 100% of Contract Capability for Settlement Month (CC_s).
- Payment for Enabled Capability shall be made on a per-enablement basis up to Supplier's attainment of 100% of its Contract Capability; provided, however, that under no circumstance shall Supplier be paid for substitute or replacement Enabled Capability.
- The Contract Capability for the Settlement Month (CC_s) is the Contract Capability for the quarter containing the month. Contract Capability for the Settlement Month (CC_s) will be the same for three consecutive months.
- All settlement calculations must be calculated on a per Grid Service (Capacity has to be separated in build period and reduction period), per Customer Class basis. Customer Classes are defined per table below:

Customer Class	Customer Rate Schedule
Residential	R
Small and Medium Business (SMB)	G
Commercial and Industrial (C&I)	J P DS

- Customer Incentives can be changed, if
 - Company changes the Monthly Minimum Incentive Price (P_{MI}) by Grid Service or Customer Class (updated upon request by Company)
 - Supplier changes the Participant Enabled Capability (E_p) for a Customer
 - Supplier changes the Additional Incentive Price (P_{AI})

Invoicing

Invoices will be submitted monthly. Invoices must clearly state the required payments itemized per list below on a per Grid Service (capacity shall be separated in Build Period and Reduction Period) and per Customer Class basis.

- Management Payment
- Enablement Payment
- Additional Incentive Subtraction
- Monthly Minimum Incentive Subtraction (if applicable)

Supplier is responsible for performing all calculations required for proper invoicing as described in this Attachment. Company reserves the right to audit Supplier's invoice, calculations, and data. The invoice needs to be submitted with all supporting data as described in Attachment G – Reporting.

Pricing

This section covers pricing agreed upon by Supplier and Company. Pricing includes all applicable taxes and fees.

Capacity – Build

		Price	Unit
Grid Service Monthly Management Price	P_D		\$/kW*Month
Enablement Price	P_E		\$/kW
Monthly Incentive Adder Price	P_{AI}		\$/kW*Month
Monthly Minimum Incentive	P_{MI}	3.00	\$/kW*Month

Capacity – Reduction

		Price	Unit
Grid Service Monthly Management Price	P_D		\$/kW*Month
Enablement Price	P_E		\$/kW
Monthly Incentive Adder Price	P_{AI}		\$/kW*Month
Monthly Minimum Incentive	P_{MI}	5.00	\$/kW*Month

Competitive Program Incentive

		Price	Unit
Competitive Program Incentive-Monthly	P_{EX}		\$/kW*Month
Upfront Incentive	P_{UP}		\$/kW

Monthly Settlement with Supplier

Data for Settlement

Settlement will be calculated on a portfolio level based on data that has been derived as follows:

- Supplier has to collect whole house data at all its participating facilities
- Supplier has to aggregate the data to portfolio level
- Supplier has to establish baselines on a per facility basis
- Supplier has to establish baselines on a portfolio level

In absence of whole house metering at participant facilities, the data has to be derived as:

- Supplier has to collect data for each participating end device
- Supplier has to aggregate all end device data on a per facility bases
- Supplier has to aggregate all facility data to portfolio level data
- Supplier has to establish baselines on an end device basis
- Supplier has to establish baselines on a per facility basis
- Supplier has to establish baselines on a portfolio level

Settlement

The settlement between Supplier and Companies will be calculated on a monthly basis.

Settlement must be calculated on a per Grid Service (Capacity has to be separated in Build Period and Reduction Period). Company will only be responsible for Monthly Minimum Incentives up to 110% of Supplier's Settlement Capability for the Settlement Month, any incentives that needs to be paid out beyond 110% of Supplier's Settlement Capability will be deducted from Supplier's settlement.

If $E_{S,Agg} \leq 1.1 \times MSC_S$

$$Payment = \underbrace{SPF_S \times MSC_S \times P_D}_{\text{"ManagementPayment"}} + \underbrace{E_I \times P_E}_{\text{"EnablementPayment"}} - \underbrace{E_S \times P_{AI}}_{\text{"AdditionalIncentiveSubtraction"}}$$

If $E_{S,Agg} > 1.1 \times MSC_S$

$$Payment = \underbrace{SPF_S \times MSC_S \times P_D}_{\text{"ManagementPayment"}} + \underbrace{E_I \times P_E}_{\text{"EnablementPayment"}} - \underbrace{E_S \times P_{AI}}_{\text{"AdditionalIncentiveSubtraction"}} - \underbrace{(E_S - 1.1 \times MSC_S) \times P_{MI}}_{\text{"MinimumIncentiveSubtraction"}}$$

Delivery

Performance Factors:

Grid Services “GS” Event Performance Factor

The performance factor for each GS Event is determined based on a per Grid Service per event basis in accordance with the Grid Services definitions:

- Attachment A-1 (Fast Frequency Response Grid Service)
- Attachment A-2 (Capacity Grid Service)

Settlement Performance Factor

The Settlement Performance Factor (SPF) is an aggregate of C&I and Residential Customer Class and is calculated based on GS Event Performance Factor from the previous six (6) months and is calculated based on the GS Event Performance Factors for events in the six (6) preceding months. GS Event Performance factors will be assessed starting in month 4 of the contract. The SPF will be 1.0 for the first 9 months of the contract, where after it will be calculated based on the equation below. GS Event Performance Factor calculated as 0.9 or greater will receive a score of 1.0. If there are no GS Events in a settlement month, then $PF_{S,e} = 1$ and $n_s = 1$ for the current month, this factor will be omitted from the calculation of SPF in subsequent months.

$$SPF_S = \frac{6 \sum_{e=1}^{n_s} PF_{S,e} + 5 \sum_{e=1}^{n_{s-1}} PF_{S-1,e} + 4 \sum_{e=1}^{n_{s-2}} PF_{S-2,e} + 3 \sum_{e=1}^{n_{s-3}} PF_{S-3,e} + 2 \sum_{e=1}^{n_{s-4}} PF_{S-4,e} + \sum_{e=1}^{n_{s-5}} PF_{S-5,e}}{6n_s + 5n_{s-1} + 4n_{s-2} + 3n_{s-3} + 2n_{s-4} + n_{s-5}}$$

- $PF_{S,e}$ = GS Event Performance Factor for event e in the Settlement Month.
- $PF_{S-1,e}$ = GS Event Performance Factor for event e in one month previous to Settlement Month.
- n_s = Number of events in Settlement Month.
- n_{s-1} = Number of events in one month previous to Settlement Month.

Aggregate Monthly Settlement Capability

The Monthly Settlement Capability (MSC) is used for settlement and is calculated based on the Grid Service Value Ratio (GSV) of the Grid Service through the time of day and averaged over the month. The Operational Forecast (OFC) value is multiplied by the GSV for the pertinent 15-minute block per the GSV Table. The OFC should match the Operational Forecast (from Attachment C – Operational Forecast) that is submitted to Company DERMS via CSV during the Settlement period. The values in the GSV table change depending on the time of the day, and from year to year and are defined

Weighted Daily Capability (DC)

The Grid Service Value (GSV) is the weighing factor for the calculation of the Daily Weighted Capability (DC) and is available as part of this Attachment. in the form of a spreadsheet on a

Grid Service basis, with values for each quarter hour of the day, with values changing on an annual basis.

$$DC_W = \sum_{q/h=0}^{96} \quad *$$

Weighted Average Monthly Capability (MC)

$$MC_S = \sum_{d=1}^{DIM_S} \frac{DC_{W,d}}{DIM_S}$$

Aggregate Monthly Settlement Capability (MSC)

If $MC_S \leq 1.1 * CC_S$

$$MSC_S = MC_S$$

If $MC_S > 1.1 * CC_S$

$$MSC_S = 1.1 * CC_S$$

Enablement

Incremental Enablement by Customer Class

The Incremental Enablement by Customer Class E_I is the incremental enablement added for the Settlement Month based on the amount of new Capability enabled by the Supplier. Company will not pay for Enablement beyond 100% of Contract Capability, hence:

If $E_{I,SUM} \geq CC_S$

$$E_I = 0$$

Else if $E_S \leq E_{I,SUM}$

$$E_I = 0$$

Else if $E_{I,SUM} < CC_S$ and $E_S \geq CC_S$

$$E_I = CC_S - E_{I,SUM}$$

Else

$$E_I = E_S - E_{I,SUM}$$

Monthly Settlement with Participants

Settlement

The settlement between Company and the Participants will be calculated on a monthly basis and will be paid via the customer bill. Settlement has to be calculated on a per Grid Service basis. The settlement calculations differ for the different Grid Services. Participant will receive their monthly settlement the month after their first month enrolled.

Residential and Small and Medium Business

Fast Frequency Response

$$\text{Payment} = E_P \times (P_{MI} + P_{AI})$$

Capacity Build

$$\text{Payment} = E_P \times (P_{MI} + P_{AI})$$

Capacity Reduction

$$\text{Payment} = E_P \times (P_{MI} + P_{AI})$$

Competitive Program Incentive – Capacity Reduction (as applicable)

$$\text{Payment} = P_{EX}$$

Commercial and Industrial

Fast Frequency Response

$$\text{Payment} = E_P \times (P_{MI} + P_{AI})$$

Capacity Build

$$\text{Payment} = E_P \times (P_{MI} + P_{AI})$$

Capacity Reduction

$$\text{Payment} = E_P \times (P_{MI} + P_{AI}) + J_S \times P_J$$

Competitive Program Incentive – Capacity Reduction (as applicable)

$$\text{Payment} = P_{EX}$$

Attachment I

Customer Service Requirements

Supplier shall provide customer service and support to Participant and in response to trouble calls, repairs, and other field services related to installed devices as contemplated under the Agreement. Company may transfer Participant calls and/or requests that it receives to Supplier as appropriate, and Supplier shall address such calls accordingly.

Call Center Requirements	<ul style="list-style-type: none">• Service Level: >78% of calls answered within 30 seconds• Average Speed of Answer: <60 seconds• Force Busy: <1% of total inbound calls• First call resolution: >70% of calls are resolved on the first call• Operating Hours of Call Center shall be provided to Company & Participants
Resource control equipment installation	Supplier will provide all labor, materials, transportation and other services necessary to install and provision Resource control equipment (e.g. communication gateway). Provisioning of equipment will include verification of communication and successful operation of the Resource during all applicable tests.
Field Device Support	Supplier will maintain an in-state, dispatchable, on-site support capability to manage maintenance and repair issues related to Resource control equipment.
Scheduling Participant site visit	Supplier will manage scheduling/rescheduling of Participant visits.
Service Requests by Company or Participant	Supplier will respond via phone or email to field service requests initiated by a Participants or Company within 24 hours of such request.
Supervision	Supplier will supervise its installers to ensure that all necessary devices are installed properly.
Field Service Personnel	Supplier shall conduct criminal history background checks on all of its field service personnel and require them to submit to appropriate drug screening tests. At a minimum, all device installers shall be journeyman electricians working under the supervision of an electrical contractor licensed by the State of Hawai'i.
Testing equipment	Supplier will provide its own tools and equipment for pre- and post-installation testing. All such equipment must meet relevant certifications.

Installation completion	Supplier will manage the workforce and installation process for all allocated VENs until installation is complete.
Emergency repairs	Supplier will handle any emergency repairs encountered during the installation process as soon as practicable and in any event within 24 hours of repairs being required.
Quality control	Supplier shall have log records of all customer transactions during the term of the Agreement.
Installer work flow supporting data	Supplier will provide each installer with only the customer data associated with a single day's work for that installer, and shall ensure that customer data is appropriately destroyed by the installer at the end of that work day.
W-9 Reporting Requirements	On an annual basis, Supplier will provide to Company the W-9 information for each Participant that is paid the equivalent of \$600.00 or more in incentives during the applicable year. The W-9 information is subject to all of the cybersecurity and confidentiality obligations of the GSPA.
Customer Interaction Requirements	<p>When Interacting with Customers:</p> <ul style="list-style-type: none"> • Compose a greeting where they clearly state their Company Name & state in partnership with Hawaiian Electric's Demand Response program. • Have Company photo ID on hand and should be in uniform that clearly states Company name. • Any flyer should include program information, which should include HECO's logo and some qualification statement, i.e. "in partnership with Hawaiian Electric's Demand Response program..." • A company website, so a link can be posted on Hawaiian Electric's webpage that will validate the company with the DR Program.

Attachment J

Participant Service Agreement Requirements

The Participant Service Agreement (“PSA”) between a Supplier and a Participant setting forth the terms and conditions by which a Participant may enroll with a Supplier to participate in the provision of Grid Services to the Company shall, at a minimum, include the following in a single document:

1. Term: (a) The term of the PSA, including the start and end dates of the Participant’s enrollment with the Supplier; and (b) the term of the Grid Services Purchase Agreement between the Supplier and the Company.
2. Payment: All estimated payment amounts, including all incentives, due from the Company or Supplier to the Participant during the term, together with the type and frequency of such payments. Supplier must indicate that the incentives will be paid by the Company as credit on the Participant’s electricity bill. Supplier must also indicate the Company will report incentive payments as Participant income to the U.S. Internal Revenue Service. The Supplier shall promptly notify the Participant of any change to such payments.
3. Charges: All recurring and nonrecurring charges due from the Participant to the Supplier during the term, including the types, frequency and amounts of such charges.
4. Grid Services Event Notification: The frequency, duration, and criteria under which the Participant’s Resource(s) may be engaged in response to a Grid Services Event.
5. Equipment: The equipment that the Supplier will site at the Participant’s service location in order to engage the Participant’s Resource(s), together with the ownership status of all such equipment.
6. Appointment of Supplier as Participant’s Agent: The legal appointment by the Participant of the Supplier as the agent of the Participant for the purpose of delivering the Grid Services from the Participant’s Resource(s) to the Company pursuant to the terms of the Grid Services Purchase Agreement between the Supplier and the Company.
7. Access by Company: The Company may access the equipment for any purpose in furtherance of the Company’s rights under the Grid Services Purchase Agreement.
8. Service Address: The physical residence or business address serviced by the Company where the Participant’s Resource(s) is/are located and the Participant is a primary account holder of record.
9. Participant W-9 Information: Supplier must collect and provide W-9 information to the Company for each Participant that receives the equivalent of \$600.00 or more in incentives during a Calendar Year.
10. Data: The types of Participant data that will be accessed by the Supplier, how it may use the data, and with whom the Supplier may share the data, together with all information security and privacy policies enacted by the Supplier that apply to such data.
11. Consent and Release: A separate consent and release, to be duly executed by the Participant, granting the Company the right, without restriction, to use all Participant data produced as a result of the Participant’s enrollment with the Supplier for all legal purposes.

12. Penalties for Non-performance: Any penalties for non-performance, under performance, or over performance and a description of how penalties will be calculated.
13. Cancellation: A grace period during which the Participant may cancel its enrollment without any penalties. The grace period must terminate prior to the Supplier notifying the Company of the Participant's enrollment.
14. Early Termination by Participant: The process by which the Participant may terminate its enrollment with the Supplier prior to the end of the term, and any penalties that may apply against the Participant for such early termination.
15. Events of Termination: Any specific event by a party that may result in a termination of the PSA by the other party.
16. Warranties: All warranties that the Supplier will provide to the Participant, as well as all warranties that the Supplier explicitly disclaims and will not provide to the Participant.
17. Force Majeure: The conditions under which a party's performance may be excused due to the existence of a force majeure.
18. Dispute Resolution: The Participant's options should a dispute arise between the Supplier and the Participant.
19. Insurance: The types and levels of insurance that each party must have in place throughout the term.
20. Indemnity: The Supplier will indemnify the Participant against all claims flowing from a breach of the Supplier's representations under the PSA.
21. Damages: Any limitations on the Supplier's liability for damages that may arise under the PSA.
22. Authority to Sign: The Participant's affirmative representation that it possesses the full right and authority to execute the PSA on behalf of the Participant and that it is the rightful account holder of the underlying electricity account with the Company.
23. Grid Modernization: A requirement that the Participant consents to Company's installation of a smart meter at the service address where the Resource is located.
24. Customer Information Sharing: Vendor shall obtain each individual customer's consent to disclosure of his/her non-public information in writing. If the consent is included in a form used for other purposes, the consent portion shall have a separate space for the customer to initial. The consent shall list the specific types of information that are to be disclosed, the purpose of obtaining the information, and shall specify that the customer may revoke his/her consent at any time by contacting the Vendor or the Company. The original consent form shall be maintained by the Vendor for a period of six (6) years and shall be provided to the Company upon request.

Notices: The Supplier's contact information for all purposes related to the PSA and the Participant's enrollment with the Supplier.

Attachment K

Form of Trademark License Agreement

THIS TRADEMARK LICENSE AGREEMENT (“Agreement”) is made and entered into as of _____, by and between _____. (“Licensee”), a _____ corporation and Hawaiian Electric Company, Inc. (“Company”), a Hawai‘i corporation.

WHEREAS, Licensee provides certain grid services to Company pursuant to the Grid Services Purchase Agreement between Company and Licensee dated [_____];

WHEREAS, Company is an operating electric public utility, and owns and/or controls certain trademarks and other intellectual property related thereto;

WHEREAS, Licensee wishes to use certain trademarks and other intellectual property of Company as identified herein for the purpose of marketing and administering certain grid services for use by Company.

NOW, THEREFORE, in consideration of the mutual covenants and agreements set forth herein, the parties hereby agree as follows:

1. Grant. Company hereby grants, and Licensee hereby accepts, a limited, non-exclusive, non-transferable, non-sublicensable, royalty-free, revocable license to use the Company owned name, trademarks and logos set forth on Attachment A (the “Company Trademarks”) solely in direct connection with the production and distribution of marketing material, customer enrollment forms, and customer engagement portals related to the grid services provided by Licensee to Company.

2. Restriction of Use/Ownership. Licensee agrees that (a) it shall use the Company Trademarks solely in direct connection with the production and distribution of marketing material, customer enrollment forms, and customer engagement portals related to the grid services provided by Licensee to Company and in accordance with all of the terms and conditions set forth herein, (b) the Company Trademarks shall be exhibited and displayed in the exact form provided by Company and attached as Attachment A to this Agreement, (c) its use of the Company Trademarks shall include all standard proprietary notices prescribed by Company, and (d) its use of the Company Trademarks shall conform to quality standards which are consistent with the level of past practices for the use of the Company Trademarks. All right, title and interest in and to the Company Trademarks, including all associated goodwill, or in any copyright or other proprietary right now existing or hereinafter created pursuant to this Agreement, shall remain vested in Company subject only to the rights of use granted in this Agreement. Licensee shall provide Company with preview copies of all materials displaying the Company Trademarks for Company’s written approval prior to Licensee use, display or publication of such materials.

3. Governing Law. This Agreement and all questions arising hereunder shall be governed by, and construed in accordance with, the laws and decisions of the State of Hawai‘i without giving effect to the principles thereof relating to conflicts of law. Each of the parties

hereto (a) irrevocably agrees that the federal courts of the District of Hawai‘i and the Hawai‘i State courts shall have sole and exclusive jurisdiction over any suit or other proceeding arising out of or based upon this Agreement, (b) submits to the venue and jurisdiction of such courts and (c) irrevocably consents to personal jurisdiction by such courts.

4. Assignment. Licensee may not assign this Agreement, in whole or in part, without the prior written consent of Company. Any assignment in contravention of this Article 4 shall be deemed null and void.

5. Term and Termination. This Agreement shall commence on the date hereof and shall remain in effect for the Initial Term of the Grid Services Purchase Agreement between Licensee and Company, unless earlier terminated pursuant to this Article 5. Company shall have the right to terminate this Agreement at any time, with or without cause, immediately upon notice to Licensee. Upon termination of this Agreement, Licensee shall immediately cease using or displaying the Company Trademarks.

6. Publicity. Except as otherwise expressly set forth in this Agreement, neither party shall use any name, trademark or logo of the other party or its affiliates, or otherwise refer to, the other party or any of its affiliates, in any press releases, publicity, marketing or promotional materials, unless specifically authorized in advance and in writing by such party, in its sole and absolute discretion.

IN WITNESS WHEREOF, the parties have caused this Agreement to be executed as of the day and year first written above.

HAWAIIAN ELECTRIC COMPANY, INC.

SUPPLIER NAME

By: _____

By: _____

Name: Joe Viola

Name:

Title: Senior Vice President,
Customer Service

Title:

ATTACHMENT K-A
COMPANY TRADEMARKS

Attached is the initial list of Company owned name, trademarks and logos that comprise the “Company Trademarks” licensed to Licensee pursuant to the Agreement. Company will provide to Licensee digital files of the Company Trademarks as applicable. Company, in its sole discretion, may update this Attachment A at any time, upon notice to Licensee, by removing or adding additional Company owned name, trademarks and logos to the list of “Company Trademarks” for the purposes of this Agreement.

1. Hawaiian Electric: See attached logos and trademark guidelines.

LOGO USAGE GUIDELINES QUICK REFERENCE SHEET

COLOR
Royal Purple PMS 2685C

HORIZONTAL

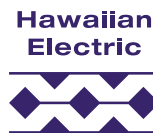
The preferred logo is the one-color horizontal version, either:

- purple logo on white or light background; or
- white logo on purple or dark background.



STACKED

The stacked version is acceptable, particularly when a square format is more suited.



ICON

Our Hawaiian Electric icon is acceptable in many instances, especially if the company name will not be legible due to the size of the logo. Consider the context when using the icon alone. For example, will our company name be spoken or displayed in the same piece or publication?



Some gentle reminders:

- Please do not alter, stretch or compress the logo.
- Please do not alter the proportions or relationship between the icon and company name.
- Please do not apply the logo over colors that obscure readability.
- Please do not crowd the logo; leave ample space around it, about half the height of the logo.

In black-and-white and grayscale scenarios, our black-and-white logo is acceptable.

If you have questions or need further guidance about the use of our company logos, please contact:

[Donna Mun](#), Director, Digital Communications; or
[Pamela Chun](#), Marketing Program Manager.

Attachment L

Form of Letter of Credit

[Bank Letterhead]

[Date]

Beneficiary: [Hawaiian Electric Company, HELCO or MECO, as appropriate]

[Address]

[Bank's Name]

[Bank's Address]

Re: **[Standby Letter of Credit Number]**

Ladies and Gentlemen:

We hereby establish, in your favor, our standby Letter of Credit Number _____ (this "Letter of Credit") for the account of **[Applicant's Name]** and **[Applicant's Address]** in the initial amount of \$ _____ **[dollar value]** and authorize you, Hawaiian Electric Company **[HELCO or MECO, as appropriate]** ("Beneficiary"), to draw at sight on **[Bank's Name]**.

Subject to the terms and conditions hereof, this Letter of Credit secures **[Project Entity Name]**'s certain obligations to Beneficiary under the Grid Services Purchase Agreement dated as of _____ between **[Project Entity Name]** and Beneficiary.

This Letter of Credit is issued with respect to the following obligations: _____.

This Letter of Credit may be drawn upon under the terms and conditions set forth herein, including any documentation that must be delivered with any drawing request.

Partial draws of this Letter of Credit are permitted. This Letter of Credit is not transferable. Drafts on us at sight shall be accompanied by a Beneficiary's signed statement signed by a representative of Beneficiary substantially as follows:

The undersigned hereby certifies that (i) I am duly authorized to execute this document on behalf of Hawaiian Electric Company **[HELCO or MECO, as appropriate]**, and [(ii) the amount of the draft accompanying this certification is due and owing to Hawaiian Electric Company **[or HELCO or MECO, as appropriate]** under the terms of the Grid Services Purchase Agreement dated as of _____, between _____, and Hawaiian Electric Company **[or HELCO or MECO, as appropriate]**][(ii) the Letter of Credit will expire in less

than thirty (30) Days, it has not been replaced or extended and collateral is still required under Section 5.3 of the Grid Services Purchase Agreement¹].

Such drafts must bear the clause "Drawn under **[Bank's Name and Letter of Credit Number _____ and date of Letter of Credit.]**"

All demands for payment shall be made by presentation of originals or copies of documents, or by email transmission of documents to **[Bank email address]** or other such number as specified from time to time by the bank, with originals or copies of documents to follow by overnight mail. If presentation is made by email transmission, you may contact us at **[Bank Phone Number]** to confirm our receipt of the transmission. Your failure to seek such a telephone confirmation does not affect our obligation to honor such a presentation.

This letter of credit shall expire one year from the date hereof. Notwithstanding the foregoing, however, this letter of credit shall be automatically extended (without amendment of any other term and without the need for any action on the part of the undersigned or Beneficiary) for one year from the initial expiration date and each future expiration date unless we notify you in writing at least thirty (30) days prior to any such expiration date that this letter of credit will not be so extended. Any such notice shall be delivered by registered or certified mail, or by FedEx, both to **[revise for HELCO or MECO, as appropriate]**:

Director, Customer Energy Resources Operations
Hawaiian Electric Company, Inc.
American Savings Bank Tower
1001 Bishop Street, Suite 1050
Honolulu, Hawai'i 96813

and to

SVP & Chief Financial Officer
Hawaiian Electric Company, Inc.
American Savings Bank Tower
1001 Bishop Street, 25th Floor
Honolulu, Hawai'i 96813

We hereby agree with drawers that drafts and documents as specified above will be duly honored upon presentation to **[Bank's Name]** and **[Bank's Address]** if presented on or before the then-current expiration date hereof.

Payment of any amount under this Letter of Credit by **[Bank]** shall be made as the Beneficiary shall instruct on the next Business Day after the date the **[Bank]** receives all documentation required hereunder, in immediately available funds on such date. As used in this Letter of Credit, the term "Business Day" shall mean any day other than a Saturday or Sunday or

¹ For draw relating to lapse of Letter of Credit while credit support is still required pursuant to the Grid Services Purchase Agreement.

any other day on which banks in the State of Hawai'i are authorized or required by law to be closed.

Unless otherwise expressly stated herein, this irrevocable standby letter of credit is issued subject to the rules of the International Standby Practices, International Chamber of Commerce publication no. 590 ("ISP98").

[Bank's Name]:

By: _____

Name: _____

Title: _____

[Authorized Signature]

Instructions

1. Populate the bidding price into the "Price" tab. (Fill in green cells as applicable.)
2. Populate the monthly kW into the "Monthly-Maui" tab.
Monthly kW number is the available load at the beginning of the month. (Fill in green cells as applicable.)
Bidder may assume their own monthly growth of contract capability from Contract Year 1 to Contract Year 4.
3. The worksheet will automatically calculate the management fee, enablement fee, and customer incentives by class segment. (See various tab of island-grid service to see calculation; ex: Oahu-FFR)
4. The same tabs that calculate the costs will calculate the average of levelized cost over the 5 years for each grid service.
5. The "Summary" tab will summarize the levelized grid service price and various costs by island.

Summary

Capacity - Build		
	Maui	
Levelized Grid Services (\$/kW)	#DIV/0!	
Total Contract Capability (kW)	0	
Total Grid Service amount	\$	-
Total Contract Amount (Aggregator Cost)	\$	-
Total Customer Incentives	\$	-

Capacity - Reduction		
	Maui	
Levelized Grid Services (\$/kW)	#DIV/0!	
Total Contract Capability (kW)	0	
Total Grid Service amount	\$	-
Total Contract Amount (Aggregator Cost)	\$	-
Total Customer Incentives	\$	-

Pricing - Maui

Note: All Prices listed should include all applicable local and state taxes (e.g. General Excise Tax (“GET”))

Capacity - Build	Price	Unit
Monthly Management Price		\$/ (kW*Month)
Enablement Price		\$/kW
Monthly Incentive Adder Price		\$/ (kW*Month)
Competitive Program Incentive - Upfront		\$/kW
Competitive Pricing Incentive - Monthly		\$/ (kW*Month)
Monthly Minimum Incentive	3	\$/ (kW*Month)

Note: Incentive Adder will be subtracted from Monthly Management Payment for Total Cost

Capacity - Reduction	Price	Unit
Monthly Management Price		\$/ (kW*Month)
Enablement Price		\$/kW
Monthly Incentive Adder Price		\$/ (kW*Month)
Competitive Program Incentive - Upfront		\$/kW
Competitive Pricing Incentive - Monthly		\$/ (kW*Month)
Monthly Minimum Incentive	5	\$/ (kW*Month)

Note: Incentive Adder will be subtracted from Monthly Management Payment for Total Cost

Contract Capability (Monthly) - Maui

Month	Oahu Capacity Build		Oahu Capacity Reduction	
	Contract Capability [KW]		Contract Capability [KW]	
	Res.	C&I	Res.	C&I
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2				
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Note:
 1. FFR - Fast Frequency Response
 2. Res. - Residential Customers
 3. SMB - Small and Medium Business Customers
 4. C&I - Commercial & Industrial Business Customers

REQUEST FOR PROPOSALS
FOR
DELIVERY OF GRID SERVICES FROM CUSTOMER-SITED
DISTRIBUTED ENERGY RESOURCES
ISLAND OF MAUI

RFP No. 020123-04

2/1/2023

Docket No. 2017-0352

Appendix N – Supplemental Review Process



**Hawaiian
Electric**

Supplemental Review Process

Suppliers intending to deliver Grid Service products utilizing end devices that have the potential to export power to the grid may be subject to additional technical review. This document provides clarification and guidelines for Generating Facilities that are Interconnected under an existing approved interconnection application.

Any material changes or additions made to a Generating Facility cannot be made without written consent from the Companies. However, to the extent that a Generating Facility owner, operator, or Customer-Generator wishes to participate in a DR program without making a material change to their existing Generating Facility may be afforded expedited review upon meeting certain requirements. The table below clarifies that solar photovoltaic facilities that have an approved Interconnection Agreement under the NEM, CGS, CGS+, CSS, Smart Export, or SIA programs may deliver a Grid Service as long as the export across the Point Of Interconnections does not exceed the limits indicated in Table 1 between the hours of 9am – 5pm. If solar photovoltaic facility is capable of export of power after 5pm (through the use of an energy storage system), the Generating Facility may do so without having to go through a Technical Review screening process as long as the export is limited to the values indicated in Table 1.

Program	NEM (including add-ons)	CGS	CGS+	CSS	Smart Export	App-IIB	SIA
9AM -5PM	Existing Program Size	Existing Program Size	Existing Program Size	0 ¹	0 ²	0 ⁴	Existing Program Size ⁵
5PM - 9AM	3kW	3kW	3kW	3kW	3kW ³	0 ⁴	3kW

Table 1: Existing Executed Interconnection Agreement Pre-Approved Net Export

¹ Participants in non-export programs will have to go through re-screening and obtain approval if exporting occurs during Grid Service delivery.

² The 0 export applies to smart export systems that have controls in place to prevent export between 9AM and 5PM (like a CSS, these customers received expedited technical review based on having non-export controls). Smart export systems that were approved and did not have CSS, non-export controls, may export up to the program system size during the hours of 9AM to 5PM.

³ 3 kW or Max Generation Capacity between 4PM – 9AM, whichever is greater.

⁴ App-IIB systems must file an Interconnection Application with the Company to convert to another DER program such as CSS.

⁵ Limited to 100kW or less based on current export program screening process.

If a Supplier wishes to utilize a DER for the delivery a Grid Service in a manner that exceeds the Pre-approved Export Participation Limit, the Companies will require a Technical Review of the Generating Facility in accordance with Tariff Rule No. 14. The Companies thought it prudent to make Suppliers aware of this requirement so that Suppliers can take these potential timelines into

account when developing a customer enrollment plan. Enrollment of DER customers with export expectations that exceed the limits noted above will not be permitted until written consent and approval is provided by the Company.

Below is an outline of the indicative data that is expected to be required for the review process.

Anticipated Data Required

- Aggregator Information
- Customer Equipment Information (derived from DER application):
- Grid Services Anticipated to be delivered
 - Demand Response Program(s) resource will subscribe to (REQUIRED)
 - DR Capability (kW)

Additionally, the following is reflective of the type of data that may be required per location/device:

FAST FREQUENCY RESPONSE	
<u>PARTICIPANT NAME</u>	
PARTICIPANT ADDRESS	
DER APPLICATION OR ACCOUNT NUMBER	
DATE OF DER PROGRAM ENROLLMENT	
CIRCUIT	
NODE	
INTERCONNECTION TYPE	
<u>MAXIMUM CAPABILITY (KW)</u>	
<u>MAXIMUM NET EXPORT DURING GS EVENT</u>	
<u>(KW)</u>	
9AM – 5PM	
5PM – 9AM	
<u>GROSS MINIMUM LOAD</u>	
<u>MAXIMUM IMPORT FOR LOAD (KW)</u>	
9AM – 5 PM	
5PM – 9AM	

CAPACITY	
<u>PARTICIPANT NAME</u>	
PARTICIPANT ADDRESS	
DER APPLICATION OR ACCOUNT NUMBER	
DATE OF DER PROGRAM ENROLLMENT	
CIRCUIT	
NODE	
INTERCONNECTION TYPE	
<u>MAXIMUM CAPABILITY (KW)</u>	
<u>MAXIMUM NET EXPORT DURING GS EVENT</u>	
<u>(KW)</u>	
9AM – 5PM	

5PM – 9PM	
<u>GROSS MINIMUM LOAD</u>	
<u>MAXIMUM IMPORT FOR LOAD (KW)</u>	
9AM – 5 PM	
5PM – 9PM	

REQUEST FOR PROPOSALS
FOR
DELIVERY OF GRID SERVICES FROM CUSTOMER-SITED
DISTRIBUTED ENERGY RESOURCES
ISLAND OF MAUI

RFP No. 020123-04

2/1/2023

Docket No. 2017-0352

Appendix O – Aggregator Handbook

For the latest version of the Aggregator Handbook: [Click Here](#)



**Hawaiian
Electric**

Hawaiian Electric Companies’ Aggregator Handbook

Revision Table		
Rev. #	Revision Date	Revision Description
0	7/22/2021	Baseline
1	9/24/2021	CIT Amendment Process

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Introduction

This handbook describes processes required to implement and maintain data exchange and control functionality between the Supplier (aka Aggregator) and the Companies. Aggregators must comply with the data exchange, control functionality, and testing requirements specified in this handbook.

This handbook may be updated from time to time as a result of operational changes. The aggregators defined Project Manager (as specified in section 3.13 or 19.3 of the GSPA) will be provided with notice that the handbook has been updated. The updated handbook and a redline

version of the handbook will be provided to the aggregator.

Data Integration

Participant data will be provided to the Companies using a combination of comma-separated value (CSV) and extensible markup language (XML) files delivered to a secure file transfer protocol (SFTP) site.

The Enroller Id/Aggregator Id/Vendor ID are used interchangeably and will be provided by the Company. If the Vendor packet is not completed prior to initial testing, a unique temporary ID will be provided for the test environment.

The Company will additionally provide a GSPA contract ID number which will be a required field in the enrollment file. This contract ID will be used to specify which contract the customer is enrolled.

All data required for enrollment may be found on a customer's bill as shown in Attachment E. Note, the Contract Account number is typically referred to as the customer's account number while the Utility Contract number is typically referred to as their contract number.

The Company will not share any customer data with Aggregators except in those instances when it may be required to troubleshoot enrollment errors.

Data File Transfers

Company will provide SFTP file locations and credentials to Aggregator. The Company will maintain SFTP folders.

SFTP Structure

The SFTP location is unique to each Aggregator and as such will be provided in advance of integration testing. The top SFTP directory will include access to each of the Company's environments. Initial testing will be performed in Quality Assurance system ("QA") or Development DERMS ("DEV"). The prod directory will be used for production.

Monthly Reports or Reports folder is a repository for various reports or data that must be exchanged between the Company and Aggregator. Under the Reports folder are four additional folders:

Settlement: All data supporting monthly invoicing should be placed here. Meter Data:
Repository for any ad hoc requests for data

Enrollment Errors: The Company will provide any data related to enrollment errors in this folder
Move Outs: The Company will provide regular updates indicating which customers have moved out, that the Aggregator must subsequently unenroll from their programs.

Name	Ext
⬅️ ..	
📁 dev	
📁 monthly reports	
📁 prod	
📁 qa	

Each environment has the following subdirectories for enrollment transactions, Operational Forecast and Incentive files:

Name	Ext
⬅️ ..	
📁 enrollment	
📁 forecast	
📁 incentive	

Each subdirectory contains an “out” file where the data files will be deposited:

Name	Ext
⬅️ ..	
📁 out	

Participant Enablement Status

This section describes processes required to implement and maintain data exchange and control functionality between the Aggregator and the Companies.

Aggregator will provide the Participant Enablement File in XML format. The data contained in the Participant Enablement File describes Participants that have been enabled and enrolled, i.e. are ready to be included in the dispatch or scheduling of Aggregator’s Capability.¹ A file will be provided via SFTP to the Company daily, except weekends and holidays, and will reflect enrollment changes since the previous file was provided, i.e. incremental changes. The file will also include any Participant removal (un-enrollment) from participation and during the allowed period, changes to Enabled Capability, Minimum Incentive (as impacted by Enabled Capability), and Incentive Adder (Additional Incentive).

File naming convention for enrollment data is as follows: {EnrollerId}_HECO_{Date:yyyy-

¹ An enrollment (or un-enrollment) is an “EnrollmentDetailsType” as specified in Attachment A.

MM-dd_HH-mm-ss}_enrollment.xml, for example, 100001_HECO_2018-07-13_16-59-03_enrollment.xml. HH represents hour in military time (0-23). In the future, if an aggregator has Participants that are customers of Maui Electric or Hawaii Electric Light, MECO or HELC respectively, a separate file would be submitted where MECO or HELC replaces HECO.

Participant Enablement Status files will be updated to the Company weekdays by 8pm HST.

The file details, including the XML Schema Definition (XSD) are specified in Attachment A. Grid Service Program Names are specified in Attachment B.

Enrollment Transactions

There are four basic types of transactions:

1. Participant Enrollment: Customer enrolls in DR
2. Participant Un-enrollment: Customer unenrolls from DR
3. Participant Changes: Modifications to a customer’s enrollment, i.e. incentives or capability
4. Participant Moves: Special case for customer move outs and move ins

Special Cases

For customers with a “master meter”, enrollment transactions should only be submitted for the account associated with the Company meter. If it is a multi-tenant facility, but the tenants do not have a Company meter, then the tenants would not be included in enrollment transactions.

Participant Enrollment

Each Participant must be enrolled via the Participant Enablement File. Each program or Grid Service that Participant is enabled to participate in requires its own separate enrollment. Each meter or meters that will be impacted by participation must be enrolled in a separate enrollment with enabled capability and incentives assigned appropriately.

A typical enrollment transaction would be a customer with one meter. For this typical scenario, all start dates will be the same, i.e. on the day that the customer is enrolled, the device (if applicable) is also enrolled, incentives are started, and the resource capability is available.

However, it is not unusual for a customer to have two meters or require a second device to be enrolled in DR. For example, if a Participant has two meters at a single location and both meters will be impacted (i.e. participating in events for Grid Services) and the Participant will be participating in two Grid Services, four (4) separate enrollments will be required. See Table 1 for a conceptual representation of required enrollments.

Enrollment 1	Participant 1	Meter 1	Grid Service 1
Enrollment 2	Participant 1	Meter 2	Grid Service 1
Enrollment 3	Participant 1	Meter 1	Grid Service 2
Enrollment 4	Participant 1	Meter 2	Grid Service 2

Table 1: Conceptual enrollment for single participant with two meters, enrolled in two Grid Services

The total minimum and adder incentive for the Participant should be split appropriately between the meter enrollments for each Grid Service. All dates must be specified in “yyyy-MM-dd” format. If the Enrollment End Date is populated, when that date is reached, the Participant will be considered to no longer be participating and incentives will no longer be paid.

Participant Minimum Incentive, additional incentive, and enrollment start date must be the same for a new enrollment. Participant enrollment end date is not required for enrollment.

Participant Un-enrollment

If a Participant will no longer be participating an un-enrollment must be submitted via the Participant Enablement File. Enrollment End Date must be populated; this is the Participant’s un-enrollment date. All dates must be specified in “yyyy-MM-dd” format.

Incentive payment will automatically be prorated from the un-enrollment date. If a Participant changes address (Participant Move), but wishes to continue participating, an un-enrollment and new enrollment (with Participant’s new address) must be submitted.

All unenrollments must be submitted prior to the last day of the Settlement Month to ensure agreement between the Company’s DERMS and Aggregator’s MIRs.

Monthly (or more frequently) the Company will provide the Aggregator with a list of customers that have moved out. Each of these customers should be unenrolled from the program associated with their vacated address.

Participant Changes - Updates to Participant Information

The following information may only be updated within 36 hours of initial enrollment:

- Enrollment Start Date
- Enrollment End Date
- Incentive Name
- Incentive Value
- Incentive Start Date
- Resource Capability
- Resource Capability Effective Start Date

If changes are made outside of the 36-hour window, it will be flagged as an error. As background, the short window is specified to attempt to guarantee that any changes to customer information that will impact their bill credit will be performed within the customer’s billing cycle. If changes are received outside of the customer’s billing cycle, a manual reconciliation must be performed and approved. This is a safeguard to ensure validity of customer billing.

Outside of the 36-hour window, the following Participant information may be updated at any time prior to the 25th of each month:

- Incentive update: Incentive Name, Incentive Value, Incentive Start Date
- Enrolled kW: Resource Capability, Resource Capability Effective Start Date. Enrolled kW updates must be aligned to the start of month.

- W4 Email
- Customer Name

Any change to Participant Information must use original meter and program combination Enrollment Start Date. Note that any updates to Participant Enrolled kW that cumulatively results in a change to Aggregator's Capability will be processed as applicable during the monthly settlement process.

An exception to this rule is for multi-family units with a single meter. In this case, the account for the single meter is the enrolled participant and subsequent enrollments or unenrollments for this type of premise will be permitted. For this type of premise, the following enrollment transactions would be performed:

- Initial enrollment with the sum of the enabled capability and incentive that correctly reflects the capability of the enabled participants.
- Future enrollments require a change to the total aggregated enabled capability and incentives (with accompanying Date updates) to reflect the increased kW, however the enrollment start date shall remain the same.
- Subsequent unenrollments shall result in a reduction to the total aggregated enabled capability and incentive by the amount of kW unenrolled. The enrollment end date shall not be populated until the last resident is unenrolled and the single meter is unenrolled.

Participant Moves

A Participant move is treated like a un-enrollment. When a participant moves out of their premise, they should notify their Aggregator, who would then execute a Participant un-enrollment transaction. There must be a 24 hour period between a Participant move out un-enrollment and a new Participant move in enrollment to allow for assignment of a new Participant's Contract Account to the premise in the Companies' customer information system.

To ensure move outs are expeditiously processed as unenrollment transactions, on a weekly basis, the Company will provide to Aggregators a list of customers that have moved out during the previous week. Aggregators should then unenroll each moved out customer as quickly as possible to ensure that their enrollments reflect actual customer occupancy.

Enrollment Transaction Assumptions

Enrollment and Un-enrollment transactions must adhere to the following assumptions:

1. All un-enrollment transactions precede enrollment transactions in the Participant Enablement File. Enrollment and un-enrollment entries are in chronological order.
2. The original Participant Enrollment Start Date is the same for each successive enrollment transactions effecting any paired meter and program enrollment.
3. For any resource participating in the delivery of Grid Services, the load and/or generation's corresponding meter is enrolled in a Grid Service program.
4. Transactions are submitted on the date that they occur or on the next business day; this is the only future dating of transactions that is permitted. Billing cycles differ for all customers, if a transaction, e.g. enrollment, unenrollment or incentive change transaction is posted after a customer is billed, then correcting the bill becomes unnecessarily complicated and confusing to the customer.

5. There must be a 24 hour period between a Participant move out un-enrollment and a new Participant move in enrollment.
6. If ending an additional incentive for a Participant, a new \$0 incentive with new start date is required. A minimum incentive for a Participant should never be discontinued unless Participant is un-enrolling.
7. The Participant Enrollment Start Date is the date that the Participant can take part in Grid Service events.
8. An unenrollment date is required only when a Participant unenrolls.
9. A Participant that will be opted out for lengthy period should be unenrolled to stop incentive payments.

Error Handling

The Company will contact the Aggregator regarding any failed enrollments within 48 hours of submission. The following items will result in an error and failed enrollment:

- Incorrect meter id and Contract Account pairing will result in a failed enrollment
- Incorrect meter id
- Enrollment with another aggregator – Participant must not be enrolled with another aggregator when enrollment is received.
 - The customer’s electric bill will show a demand response bill credit if they are currently enrolled in a DR program.
- Submitted file name or contents are not in the required format.

Aggregated Operational Forecast

After the receipt and processing of the Participant Enablement File, Company expects the Resource Capability to be included in Aggregator’s Operational Forecast; likewise, if a Participant is un-enrolled, the Resource Capability should no longer be included in Aggregator’s Operational Forecast.

Aggregator will submit an Operational Forecast file in CSV format as specified. The Operational Forecast represents Aggregator’s Total Capability by Grid Service for the given period. If the Aggregator’s resources are offline or dispatched to support another Grid Service, the Operational Forecast for the Grid Service(s) dispatched, and any Grid Services impacted by the dispatch shall be updated to reflect the reduction in available resources within 10 minutes. If during an active or scheduled event, the event is extended, any impacted Operational Forecasts must be updated.

An Operational Forecast may contain kW and kWh information in one file for each Grid Service that Aggregator is contracted to provide. The Operational Forecast shall be submitted in accordance with Table 2.

Attributes	FFR	Capacity Build	Capacity Reduction
Forecast Capability	kW/kWh	kW/kWh	kW/kWh
Forecast Term	Min 4 days	Min 4 days	Min 4 days
Data Resolution (Interval)	15 Minute	15 Minute	15 Minute

Update Timing	Hourly	1am/1pm	1am/1pm
Update Frequency	Hourly	12 hours	12 hours

Table 2: Operational Forecast Attributes

Aggregator’s Operational Forecast will be provided to the Companies using a comma-separated value (CSV) file delivered to a secure file transfer protocol (FTP) site. File naming convention for the Operational Forecast is as follows:

{EnrollerId}_{HawaiianElectricCompanyCode}_{VEN_ID}_{Date:yyyy-MM-dd_HH-mm-ss}_forecast.csv, for example, 100001_HECO_VENID_2018-07-13_16-59-03_forecast.csv. HH represents hour in military time (0-23). In the future, if an aggregator has Participants that are customers of Maui Electric or Hawaii Electric Light, MECO or HELC respectively, a separate file would be submitted where MECO or HELC replaces HECO. Figure 1 is an example operational forecast file containing kW and kWh for a Capacity Build program.

Table 3 shows the fields included in the file to be submitted by the Aggregator with the Aggregated Operational Forecast. There should be one row for each Forecast Interval End Time entry, e.g. 384 entries for 15 minute interval data for four (4) days. A separate file must be submitted for each VEN representing a Grid Service. There cannot be two VENs in one Operational Forecast file. The values/columns shall be in the order specified in Table 2.

Field Name	Format	Values/Comments
VEN ID	String	ID of the Aggregator’s VEN for this Grid Service Program. Assigned by the VTN to the VEN at the time of provisioning.
Enroller Id	Char 16	ID for the Aggregator who is providing the forecast. ID will be provided by the Companies.
Company Name	String	HECO, MECO, or HELCO
Grid Service Program Name	String	Grid Service program name as provided by the Companies in Attachment B. Aggregator will have 1 VEN per Grid Service.
Forecast Unit of Measure	String	Identifier of the type of forecast value being provided. Two (2) possible values: <ul style="list-style-type: none"> Aggregate Operational Forecast KWH 15 Minute Aggregate Operational Forecast KW 15 Minute
Forecast Interval End Time	Date/Time	End of interval timestamp for the forecast value. MM/DD/YYYY HH:MM where HH is a 24 hour (0-23) format.

Forecast Value	Real	Aggregator's operational forecast capability (shed) aggregated for all their enrolled customers in this Grid Service. This will be reported as a positive number and accurate to three decimal points.
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Table 3: Operational Forecast Format

Forecast Assumptions

Operational Forecast must adhere to the following assumptions:

1. Forecast interval end times are aligned to the interval length and hour. For example, 1:15, not 1:17 for a 15 minute interval forecast.
2. Forecast intervals will be interval ending, e.g. at 00:15 would represent the forecast for the 00:00-00:15 period.
3. Grid Service forecast updates required as the result of event dispatch should update available capability of dispatched resources after the event, not during or prior.
4. If event dispatch impacts available capability of other Grid Services, i.e. for dual enrolled resources, forecast updates to that availability capability should update available capability during and after event.
5. The Field Names are required as headers in each file submitted.
6. No spaces are allowed in the title of the files.
7. Forecast kW and kWh should be accurate to three decimal places, i.e. x.xxx, and always positive, or zero.
8. No leading spaces are allowed in any of the files.

Error Handling

The import of the aggregated operational forecast will fail if the VEN ID and Enroller Id pairing is incorrect or the submitted file name or contents are not in the required format. If there is an error, the last submitted operational forecast will be used as the current Operational Forecast.

```
*10000001_HELC_A1Aggregaor-CB02_2021-06-17_19-17-101_forecast.csv - Notepad
File Edit Format View Help
A1Aggregaor-CB02,1000001,HELC,Capacity Build Aggregator,Aggregate Operational Forecast KW 15 Minute,6/17/2021 21:45,0
A1Aggregaor-CB02,1000001,HELC,Capacity Build Aggregator,Aggregate Operational Forecast KW 15 Minute,6/17/2021 22:00,0
A1Aggregaor-CB02,1000001,HELC,Capacity Build Aggregator,Aggregate Operational Forecast KW 15 Minute,6/17/2021 22:15,0
A1Aggregaor-CB02,1000001,HELC,Capacity Build Aggregator,Aggregate Operational Forecast KW 15 Minute,6/17/2021 22:30,0
A1Aggregaor-CB02,1000001,HELC,Capacity Build Aggregator,Aggregate Operational Forecast KW 15 Minute,6/17/2021 22:45,0
A1Aggregaor-CB02,1000001,HELC,Capacity Build Aggregator,Aggregate Operational Forecast KW 15 Minute,6/17/2021 23:00,0
A1Aggregaor-CB02,1000001,HELC,Capacity Build Aggregator,Aggregate Operational Forecast KW 15 Minute,6/17/2021 23:15,0
A1Aggregaor-CB02,1000001,HELC,Capacity Build Aggregator,Aggregate Operational Forecast KW 15 Minute,6/17/2021 23:30,0
A1Aggregaor-CB02,1000001,HELC,Capacity Build Aggregator,Aggregate Operational Forecast KW 15 Minute,6/17/2021 23:45,0
A1Aggregaor-CB02,1000001,HELC,Capacity Build Aggregator,Aggregate Operational Forecast KW 15 Minute,6/18/2021 0:00,0
A1Aggregaor-CB02,1000001,HELC,Capacity Build Aggregator,Aggregate Operational Forecast KWH 15 Minute,6/17/2021 0:15,1.21
A1Aggregaor-CB02,1000001,HELC,Capacity Build Aggregator,Aggregate Operational Forecast KWH 15 Minute,6/17/2021 0:30,0.23
A1Aggregaor-CB02,1000001,HELC,Capacity Build Aggregator,Aggregate Operational Forecast KWH 15 Minute,6/17/2021 0:45,0.34
A1Aggregaor-CB02,1000001,HELC,Capacity Build Aggregator,Aggregate Operational Forecast KWH 15 Minute,6/17/2021 1:00,0.85
A1Aggregaor-CB02,1000001,HELC,Capacity Build Aggregator,Aggregate Operational Forecast KWH 15 Minute,6/17/2021 1:15,0.6
A1Aggregaor-CB02,1000001,HELC,Capacity Build Aggregator,Aggregate Operational Forecast KWH 15 Minute,6/17/2021 1:30,1.06
A1Aggregaor-CB02,1000001,HELC,Capacity Build Aggregator,Aggregate Operational Forecast KWH 15 Minute,6/17/2021 1:45,0.96
A1Aggregaor-CB02,1000001,HELC,Capacity Build Aggregator,Aggregate Operational Forecast KWH 15 Minute,6/17/2021 2:00,0.67
A1Aggregaor-CB02,1000001,HELC,Capacity Build Aggregator,Aggregate Operational Forecast KWH 15 Minute,6/17/2021 2:15,0.53
Swell1207225-CB02,1004259,HELC,Capacity Build Aggregator,Aggregate Operational Forecast KWH 15 Minute,6/17/2021 2:30,0.85
```

Figure 1: Operational Forecast delivered in one file (kW and kWh)

Participant Energy Reduction Incentive Data (GSPA-1 Only)

For Participants receiving an Energy Reduction Incentive (ERI), Aggregator will submit a Participant Incentives File in CSV format as specified herein. ERI should only be calculated and provided for Participant's that participated in events in the previous month. Participants who are enrolled but did not participate in any events in the previous month should not be included in the Participant Incentives File, i.e. no \$0 incentive payments should be included in the file.

Aggregator must submit the incentive file by 8pm HST of 7th day of the month for Participant energy reduction in the previous month.

File naming convention for enrollment data is as follows: {EnrollerId}{HawaiianElectricCompanyCode}_{Date:yyyy-MM-dd_HH-mm-ss}_incentive.csv, for example, 100001_HECO_2018-07-13_16-59-03_incentive.csv HH represents hour in military time (0-23). In the future, if an aggregator has Participants that are customers of Maui Electric or Hawaii Electric Light, MECO or HELC respectively, a separate file would be submitted where MECO or HELC replaces HECO.

Table 3 shows the fields to be included in the file submitted by the Aggregator with the monthly ERI payments to be made for their Participants. The format will be a CSV file. The values/columns shall be in the order described in following table.

Field Name	Format	Values/Comments
EnrollerID	Char 16	ID for the Aggregator who has enrolled the customer. ID will be provided by the Companies.
Contract Account	Char 12	Participant's Account No. to which this incentive should be applied. Must match account number supplied with Participant's enrollment.
Utility Contract	Char 10	Contract No. from Participant bill. Utility Contract number is typically 8 characters, leading zeroes must be inserted until string is 10 characters long. Contract Account to which this incentive applies.
Grid Service Program Name	String	Grid Service program name as provided by the Companies in Attachment B. Program Name must match the value sent by the Aggregator with Participant's enrollment.
Incentive Type	String	Must be Energy. This indicates the type of incentive.
Incentive Month	Date	Month to which the incentive applies in the following format: MM/YYYY.
Incentive Amount	Real	Monthly incentive amount for this incentive type to be paid to customer. No currency sign should be provided.

ERI Assumptions

ERI must adhere to the following assumptions:

1. Customer Utility Contract number must be 10 digits, if Utility Contract number is fewer than 10 digits, it must be padded with preceding zeroes.
2. The Field Names are required as headers in each file submitted.
3. No spaces are allowed in the title of the files.
4. A customer must be enrolled in a Grid Service Program.

Error Handling

The Company will contact the aggregator regarding any failed enrollments within 48 hours of submission. The following items will result in an error and failed import:

- Participant's Contract Account provided is not enrolled.
- Participant Account and Utility Contract No. pairing are invalid or does not match an enrolled Participant.
- Participant is not enrolled in Grid Service program that allows energy payment, e.g. FFR.
- The Participant's Contract Account is not associated with the Aggregator as of the Incentive Month.
- Submitted file name or contents are not in the required format.

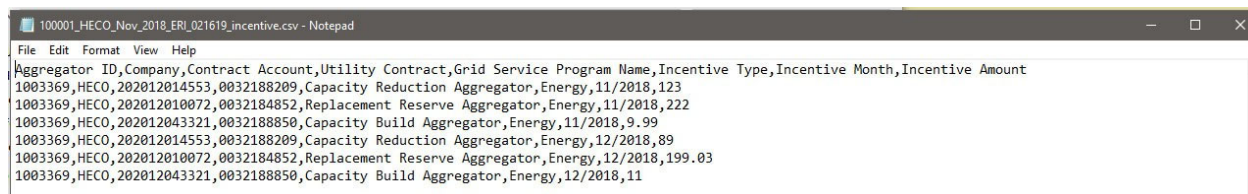


Figure 2: Example Energy Incentive File

FFR Certification and Monthly Testing

Aggregator must demonstrate to the Company compliance with FFR timing and accuracy requirements as defined in GSPA FFR Exhibit/Attachment. Demonstration may be performed through observed testing using appropriate testing equipment, manufacturer documentation, or a report documenting operation that resources are activated within the specified period. FFR data submitted to the Company for FFR Certification must include:

- A list of all equipment tested, including model and firmware version.
- Description of testing methodology used to show compliance with FFR requirements.
- Test data and/or graphs that show compliance with UF setpoint and response accuracy as specified in GSPA FFR Exhibit/Attachment.
- Screenshot of setting(s) that has been applied to all field equipment.
- A statement on official Aggregator company letterhead stipulating that
 - 1) all field equipment that will be delivering FFR is identical in model and firmware version, etc. to the equipment whose test results are included in the FFR Certification submission,

- 2) the screenshots of equipment setting(s) is of the equipment that was tested for FFR Certification and installed in the field,
- 3) the screenshots of all telemetry equipment used for verifying performance during an FFR event, and
- 4) the equipment delivering FFR is in compliance with the GSPA FFR exhibit/attachment Response Timeframe and Accuracy requirement.

That is, the equipment that was tested to demonstrate FFR compliance is the exact same equipment that is installed in the field, the screenshot(s) are of the same equipment, and the equipment complies with the FFR requirements.

- The following statement, “I certify on behalf of [Supplier corporation], that [Supplier corporation] is in full compliance with the Exhibit/Attachment A-1 and the authority to sign such certification has been assigned to me in accordance with corporate procedures.” Must be included.
- Statement must be signed by an officer of Aggregator’s corporation.

All equipment will have to follow this same certification process for eligibility to participate in FFR. A single stipulation letter is acceptable if different equipment is providing FFR, however a demonstration of successful test results is required for each different model/firmware version of the equipment. If during the course of the GSPA term, equipment and/or firmware is updated, Aggregator must re-submit for FFR Certification.

A monthly FFR manual dispatch test event will be performed by the Companies. This test will be performed at the end of the month provided an FFR event has not already occurred in the Settlement Month. For the test, resources enrolled in FFR must be activated using the same method as the autonomous frequency response. The FFR test event duration will be a minimum of 15 minutes and a maximum of 30 minutes. This test does not require activation of the resources within 12ms. At the end of the test event, the aggregated resource must ramp out of the event as required for FFR.

OpenADR Provisioning

The Companies rely on OpenADR 2.0b to signal Grid Service events. If Aggregator has more than one GSPA with the Company, they will be required to implement a second set of VENs for each Grid Service Specific to that GSP. Further, each Hawaiian Electric company will have their own VTN, for example the VTN URL for Hawaiian Electric is drmsvtn.hawaiielectric.com (see Table 5 and Table 6)

Island	VTN URL	VTN ID
Hawaii	testdrmsvtn.hawaiielectriclight.com	DERMSHELIC
Maui	testdrmsvtn.mauielectric.com	DERMSMECO
Oahu	testdrmsvtn.hawaiielectric.com	DERMS

Table 5: QA VTN URLs for each organization

Island	VTN URL	VTN ID
Hawaii	drmsvtn.hawaiielectriclight.com	DERMSHELIC
Maui	drmsvtn.mauielectric.com	DERMSMECO
Oahu	drmsvtn.hawaiianelectric.com	DERMS

Table 6: Production VTN URLs for each organization

OpenADR Requirements

The Companies' VTN is OpenADR 2.0 B profile (OpenADR2.0b) certified. The Companies require that all VENs connecting to the Companies VTN be OpenADR 2.0b certified. OpenADR Certification means that VTNs and VENs have undergone OpenADR testing and conform to the current OpenADR interface specification. The OpenADR Alliance manages the OpenADR certification process² and the OpenADR 2.0 (A and B) Profile Specification (OpenADR Specification).³ One OpenADR 2.0b VEN is required to enable delivery of Grid Services. The Companies require one VEN for each Grid Service to be delivered. The VEN may be a software or hardware VEN. The Company VTN uses an RSA certificate.

Security and Security Certificates

OpenADR requires VTN and VEN digital certificates to authenticate communication links. VEN certificates will be embedded on the VEN by the manufacturer or the VEN purchaser will be required to contact the manufacturer to obtain the certificate. The Certificate Authority for OpenADR is Kyrio (previously NetworkFX).⁴ The fingerprint file for the VEN which is provided with the VEN zip package from Kyrio, must be provided to the Companies for each VEN prior to provisioning.

Ven Naming Conventions

Table 7 provides the naming conventions for VENs associated with Aggregators for each island and Grid Service.

Island	VEN Id - Capacity Build	VEN Id - Capacity Reduction	VEN Id - FFR
Hawaii Island	AGGX-CB02	AGGX-CR02	AGGX-FFR02
Maui	AGGX-CB03	AGGX-CR03	AGGX-FFR03
Oahu	AGGX-CB01	AGGX-CR01	AGGX-FFR01

Table 7: Naming conventions for VENs

Data and Event Signal Details

Capability in kW shall be made available for polling by the DERMS every five (5) minutes using the OpenADR 2.0b Data Reports TELEMETRY_USAGE. During a GS Event, TELEMETRY_USAGE shall reflect Available Capability or other telemetry data that is representative of available resources, accommodations may be discussed during integration. The OpenADR SignalPayload will be SIMPLE, specific SignalPayload value will depend on the finalization of the design and implementation of the DERMS. Table 8 presents OpenADR

² <https://www.openadr.org/certification-process>

³ <https://www.openadr.org/specification>

⁴ <https://www.openadr.org/cyber-security>

parameter/configuration requirements.

	Configuration/ Parameter	DERMS Value
Event Signals	SignalPayload	1 (MODERATE)
	SignalName	SIMPLE
	SignalType	level
	marketContext	Name of Grid Service program
	Priority	1
VEN Information	Resource ID	N/A, Defaults to wildcard
	Poll rate for event signal	1 minute
	Report Update Rate	5 minute
	VTN URL	see Table 5 and Table 6
	VTN ID	DERMS
	VEN ID	Provided by Company
Opt Responses	optType	Optin
Reporting	Report type	Usage
	ReportName	TELEMETRY_USAGE
	Rid	powerReal
	Rid	energyReal

Table 8: OpenADR Parameters

Provisioning Process

The VEN ID is defined in advance by the Companies and provided to Customer/Manufacturer. The Customer/Manufacturer must provide the VEN Fingerprint to the Companies prior to provisioning. The VEN Fingerprint is SHA-256, the last 10 octets in the fingerprint text file from Kyrio.

VEN from new manufacturer or new model

The VEN will initially be provisioned for testing against the Companies test VTN using a OpenADR certificate.

The VEN production certificate SHA-256 fingerprint (provided by Manufacturer or Kyrio) must be provided to the Company in advance. Upon registration request from the VEN, the fingerprint information is validated with the test DERMS. The Companies test VTN is set-up with the production certificates and will use the same fingerprint in QA and PROD.

The Companies will configure the VEN on the test DERMS to participate in events and will issue events to the VEN.

Provisioning steps:

1. Aggregator will provide the fingerprint information to the Companies. The Companies will provide the VEN ID to the Aggregator.
2. Aggregator will configure and connect the VEN to the internet. Aggregator will ensure network connectivity to the internet.
3. The Companies will add the VEN to the test DERMS and coordinate the performance of

a test event where Grid Services are not delivered. The Aggregator must demonstrate (e.g. provide logs from the VEN) to the Companies that the VEN received the event. The Companies will also request the following tests to be performed/demonstrated:

- a. Power cycle or loss of VEN communications and re-establishment connection to the VTN, including during an event
 - b. Opt out of event when opt out requested
 - c. Delivery of Telemetry_Usage reports
4. After a successful testing in step 3, the Aggregator and the Companies will coordinate the connection of the VEN to the production DERMS. The Companies will then perform a Grid Service Dispatch Test in accordance with the Program Rules or contract.

VEN model previously provisioned

The VEN will be provisioned against the production DERMS VTN. Upon registration request from the VEN, the fingerprint information is validated with the VTN. The VEN must be configured in accordance with Table 7 above unless specified below. If the Aggregator has successfully provisioned their VEN to the production DERMS and is provisioning a VEN for a different Grid Service, the following steps would be used.

Provisioning steps:

1. The Aggregator will provide the fingerprint information to the Companies. The Companies will provide the VEN ID to the Aggregator.
2. Aggregator will configure and connect the VEN to the internet. The Aggregator will test network connectivity to the internet.
3. The Companies will add the VEN to the DERMS and coordinate the performance of a test event where Grid Services are not delivered. The Aggregator must demonstrate (e.g. provide logs from the VEN) to the Companies that the VEN received the event and would have controlled the appropriate customer resources.
4. After a successful testing in step 3, the Aggregator and the Companies will coordinate the connection of the VEN to the production DERMS. The Companies will then perform a Grid Service Dispatch Test.

VEN Provisioning Assumptions

VEN provisioning must adhere to the following assumptions:

1. The VEN must re-register on power cycle.
2. Each Grid Service delivered by the Aggregator is represented by its own VEN

Other Data and Reporting Requirements

As specified in the GSPA Exhibits/Attachments for Advance metering (E/B) and Reporting (J/G), Aggregators are required to provide the data necessary to validate the Grid Service delivery.

FFR Data Requirements

Aggregator must provide 5-minute interval data for each Resource participating in an FFR GS Event to verify event response. Aggregator will submit this data to Company at the end of each month with the monthly invoice. Files shall be in .CSV format. One file per event, each file shall include the first full interval before the event, the event duration, and the first full interval after the event. The file shall include the following columns:

Date	Time	Contract Account Number	Segment (Res, SMB, C&I)	Value
------	------	-------------------------	-------------------------	-------

End-use or Whole House Data

Upon request from the Company, the Aggregator may also be required to deliver the following data:

- All data (on an aggregated level) used for the calculation of performance factors for the Settlement Month; including,
 - Baseline calculations
 - Demand values preceding events (as applicable)

End device data and associated baseline calculations from all participating Resources used for the calculation of any performance factors.

Advanced Metering and Test Plan

Metering equipment shall be tested for accuracy by Aggregator prior to or during installation. In addition, Aggregator must define a Test Plan that is designed to their test metering equipment at or prior to installation and monitor a reasonable percentage of the installed metering equipment to verify the metering equipment’s accuracy and performance during the Term. Aggregator shall define the Test Plan so that it is appropriate for the type of metering equipment they use. The Test Plan shall document Aggregator’s test, calibration, and maintenance procedures of Aggregator’s installed metering equipment. The Test Plan shall be delivered to Company for review and the plan must be approved by Company prior no later than the System Integration Date.

Service Level Agreement

The GSDS must be available for Grid Service dispatch at least 85% of the time during the month, excluding Maintenance and Unscheduled Downtime. Aggregators must report GSDS availability to the Company. This report will be included in Aggregators’ monthly invoice reporting and include Available Uptime, Unscheduled Downtime, Maintenance Downtime, and any Emergency Downtime, the date, time, duration and reason for each downtime. Further, Aggregator must report on the follow:

- All problem resolution request reported to the Aggregator by the Company and their resolution. A report from Aggregators’ problem reporting system is sufficient provided it includes the necessary information, such as dates reported and resolved.
- Modifications to the GSDS during the month that did not require downtime. The report may be in narrative form with date, time, and description.
- Any errors or inconsistencies identified in metering and the actions taken to resolve. Metering inconsistency reporting must include the location of the metering equipment, date of failure, date of remediation and remediation actions taken.

It is acceptable to combine reporting for downtime, problem resolutions, system modifications into one report provided the required information is easily identifiable

DERMS Grid Service Delivery System (“GSDS”) Integration Testing

As specified in Exhibit G/Attachment D of the GSPA, integration of Aggregator’s GSDS requires two tests: A) Data Integration Test and B) Grid Service Dispatch Test.

Test Plans

Data Integration and Grid Services Test Plans will be developed in coordination with Companies and agreed to by the Aggregator and the Company prior to commencing testing. The test plan for Data Integration and Grid Services Test may be combined. The Test Plan should include the testing schedule and tests to be conducted and maybe modified during the testing process.

Further, the Aggregator must provide a Go Live plan/schedule 2 weeks prior to Go Live for one week before and after Go Live. The Go-Live plan should also include any additional support required. One week prior to Go Live, the Company will make a Go No-Go Decision for cutover. An example of Go-Live Readiness Criteria is attached as Attachment F. Final testing for certification must follow production behavior, e.g. periodicity of transfer of enrollment and forecast files, etc. Aggregator must provide documentation that final testing for approval is performed on Aggregators production system.

Testing Process Overview

Meetings should be set prior to pre-testing commencing and possibly prior to each testing scenario and prior to sign off testing. The following is high level test process to be used as a guide:

1. Determine Test data – aggregator must provide data for testing; Company will not share customer information
2. Company provides Enroller/Aggregator ID
3. Company provides SFTP location and credentials
4. Aggregator tests access to SFTP site
5. Aggregator generates enrollment files, incentive and forecast files, DR reviews prior to processing
6. Files processed manually
7. Iterate until successful
8. Aggregator generates ERI (GSPA-1 only), DR reviews prior to processing
9. Files processed manually
10. Iterate until successful
11. Aggregator generates Operational Forecast, DR reviews prior to processing
12. Files processed manually
13. Iterate until successful
14. Company initiates OpenADR event and telemetry testing
15. Iterate until successful
16. Perform final testing for sign-off (this testing must be from Aggregators production system).

Data Integration Test

The Data Integration Test requires testing each enrollment transaction and each program Aggregator is participating in. Attachment C specifies each enrollment transaction that must be

tested. The Data Integration Test also includes processing of the Energy Reduction Incentive (GSPA-1 only) and Operational Forecast files. Operational Forecast for each Grid Service must be submitted twice a day, i.e. at 1am and 1pm.

Grid Services Dispatch Test

The Grid Services Dispatch Test will be performed using OpenADR 2.0b. The following transactions will be tested for each Aggregator VEN:

1. Dispatch Grid Service for each Grid Service delivering (including telemetry and Operational Forecast update for dispatched Grid Service and any other impacted Grid Service)
2. Extend Scheduled Grid Service dispatch
3. Cancel Scheduled Grid Service dispatch
4. Stop Active Grid Service dispatch
5. Extend Active Grid Service dispatch
6. Simulate a failed VEN will be performed: Take Grid Service VEN offline, receive email notification (70 minutes), return to online, receive email notification (30 minutes)

Final Testing & Sign Off

The environment of the final testing for sign off will be dependent on the configuration of the Aggregator's and the Company's systems. For example, final testing for sign off for the data integration, enrollment transaction, incentive file, forecast may be done on the Company's QA so that no test data is inputted into the Company's Production system.

However final testing must be completed using Aggregator's production GSDS⁵ and the Aggregator must demonstrate that testing has been completed on their production GSDS. Grid Services Dispatch final test will be performed on production.

It is highly recommended that Aggregator consider performing a Mock Go-Live on their production system to fulfill testing requirements. Further, the Company will require a require a one week "burn-in" period to monitor the flow of enrollments, Operational Forecasts, and VEN connectivity and telemetry. The "burn-in" period may occur before or after the Grid Services Dispatch final test, depending on the status and progression of prior testing.

Conditional certification may be considered in circumstances where successful completion of certain tests that the Company deems non-critical or not immediately required are delayed until after the System Integration Date.

Monthly Settlement

[TBD]

⁵ Enrollment transactions and Operational Forecasts will flow unattended, the Company will process enrollment and unenrollment files and notify Aggregator of customer that has moved out.

Support Obligations

General Company support is available by calling the Help Desk at 808-543-7894 which is available 24 hours a day. For issues related to sftp access, please contact 808-543-5678 and select #4 for the Enterprise System Administrator.

Aggregator will be provided with access to DERMS Portal where VEN's may be scheduled out of service and event notifications can be configured. For Maintenance and Emergency Downtime, affected VENs should be scheduled as unavailable (opted out) via the DERMS Portal.

If a VEN is not reachable for all or part of an event, event performance shall be prorated accordingly.

Aggregator must operate their GSDS in accordance with Service Level Agreement. As such, Aggregator is required to submit a monthly report that includes the following items:

1. Problem Report: All problem resolution requests submitted by Company and their respective resolutions, to include unique identifier, description, priority, date submitted, status, and date closed.
2. Modifications to the GSDS, such as minor updates or other modifications that did not require downtime, but resulted in changes to the GSDS, including but not limited to software, firmware, hardware and communication protocols.
3. Errors or inconsistencies in measurements and corrective action taken to resolve such errors to Aggregator installed metering equipment as specified in Exhibit E/Attachment B (Advanced Metering).

Aggregator must also provide street address and phone number for business, plus information to contact help desk.

Production Export Approval

Using the Company's Customer Interconnection Tool ("CIT") customers and/or their verified vender that have been registered in CIT and designated by the customer through the submission of a Grant of Authority to the Companies, a request for DR Export can be submitted. Any export request of less than 3kW will be expeditiously approved.

Ad-Hoc Reporting

Reporting other than settlement report, such as requirements define in Exhibit E/Attachment B: Advanced Metering shall be in the format of device identifier, date, time (HST), kW, Hz.

Customer Bill Incentive

Below is a snapshot of what the Aggregator & EnergyScout Program incentive credits will look like on a customer bill. If a customer has this on their bill prior to your enrollment of the customer you will need to work with that customer or their current aggregator to have them unenroll in their current program in order for you to enroll them in your program.

	Total for Electric Service	\$151.06
Other Charges		
Demand Response Credit	\$3.00-	
	Total for Current Charges	\$148.06

Hawaiian Electric EnergyScout Incentive:

	Total for Electric Service	\$169.61
Other Charges		
Water Heater LCR Credit	\$3.00-	
	Total for Current Charges	\$166.61

Customer Amendment Process

1. New customer
 - a. Go thru interconnection process using CIT
 - b. In application, under the description of ESS operations, say how delivering grid services, see item #2 in the attached.
2. Existing customer, not adding resources, just changing operation of resources
 - a. Use DR Review for the project in CIT, see item #1 and #2 in the attached.
3. Existing customer, adding new resources
 - a. Use amendment paper form
 - b. In comment section, say how delivering grid services, see item #2 in the attached.

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Docket No. 2017-0352

Appendix P – Preferred Recruitment Locations



**Hawaiian
Electric**

Preferred Locations for Participant Recruitment

The Company has identified several areas on Maui where load relief or additional generation will reduce the risk of 69/23 kV tie transformers overloading in future during N-1 conditions.

Details on areas are provided in Table P-1 and P-2 the specific areas are presented in Figures P-1 to P-18 below.

Table P-1: Approximate Customers per Circuit

Circuit #	Voltage (kv)	Total Approx Customers
1	4.16	655
2	4.16	435
3	12.47	150
4	12.47	2124
5	12.47	428
6	12.47	1330
7	4.16	302
8	4.16	293
9	4.16	772
10	4.16	465
11	4.16	406
12	4.16	262
13	12.47	758
14	12.47	1473
15	4.16	576
16	4.16	951
17	12.47	12
18	12.47	75
19	4.16	220
20	4.16	450
21	4.16	641

Table P-2: Interconnection Programs per Circuit

Circuit #	CGS, CGS+	NEM, NEM+	Smart Export	SIA, FIT	CSS
1	6	86	11	0	8
2	9	44	0	0	1
3	31	113	7	10	4
4	40	158	4	2	9
5	14	35	3	3	2
6	31	186	15	8	11
7	23	155	20	1	9
8	26	131	26	0	14
9	7	75	7	0	8
10	38	215	27	0	7
11	12	73	9	0	8
12	24	59	1	0	2
13	67	365	23	2	18
14	95	601	64	1	50
15	21	84	5	0	3
16	29	76	9	1	7
17	0	0	0	0	0
18	1	0	0	0	0
19	9	141	0	1	5
20	35	195	9	0	13
21	18	122	3	0	10

Figure P-1: Circuit #2 Preferred Location



Figure P-1: Circuit #3 Preferred Location



Figure P-1: Circuit #4 Preferred Location

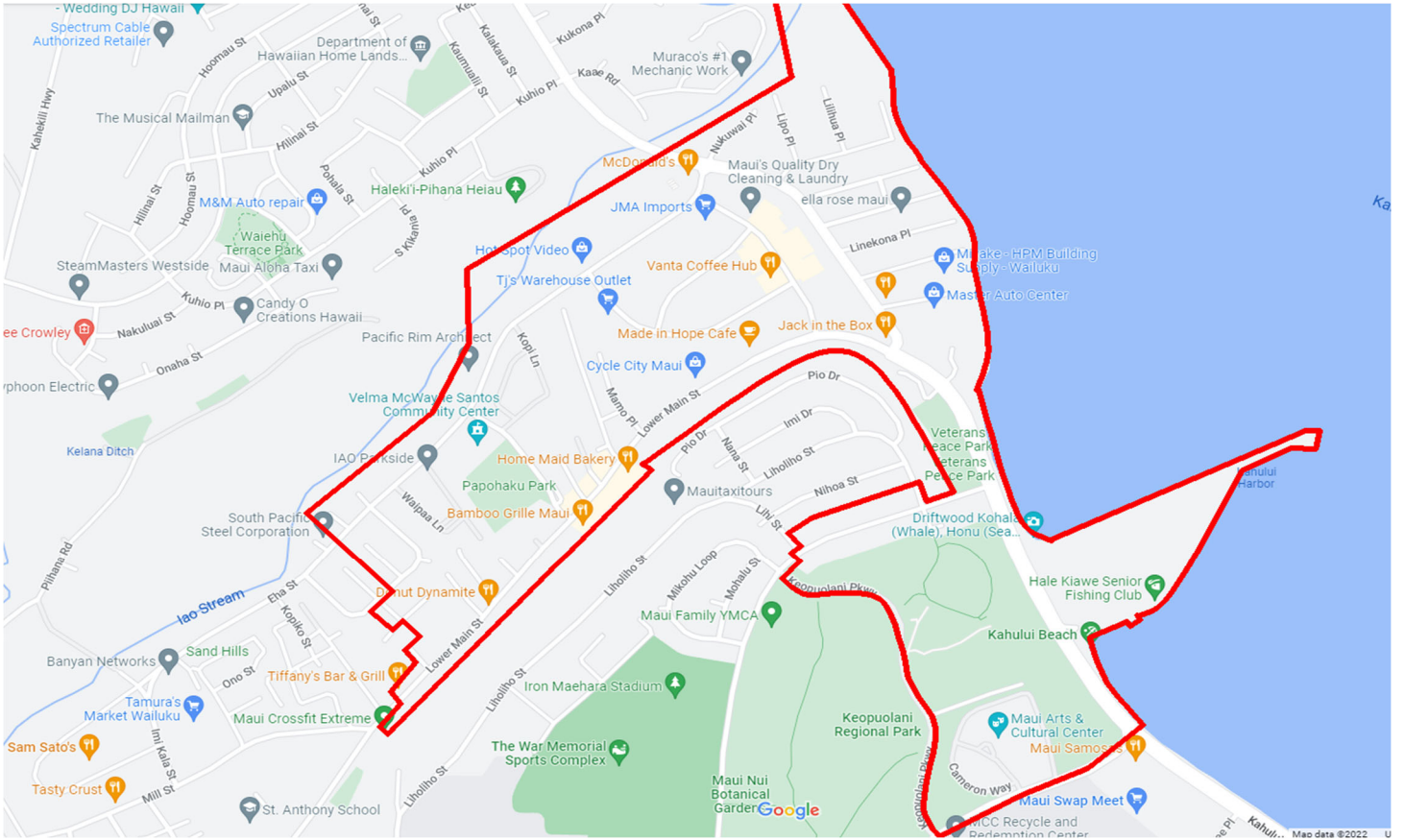


Figure P-1: Circuit #5 Preferred Location

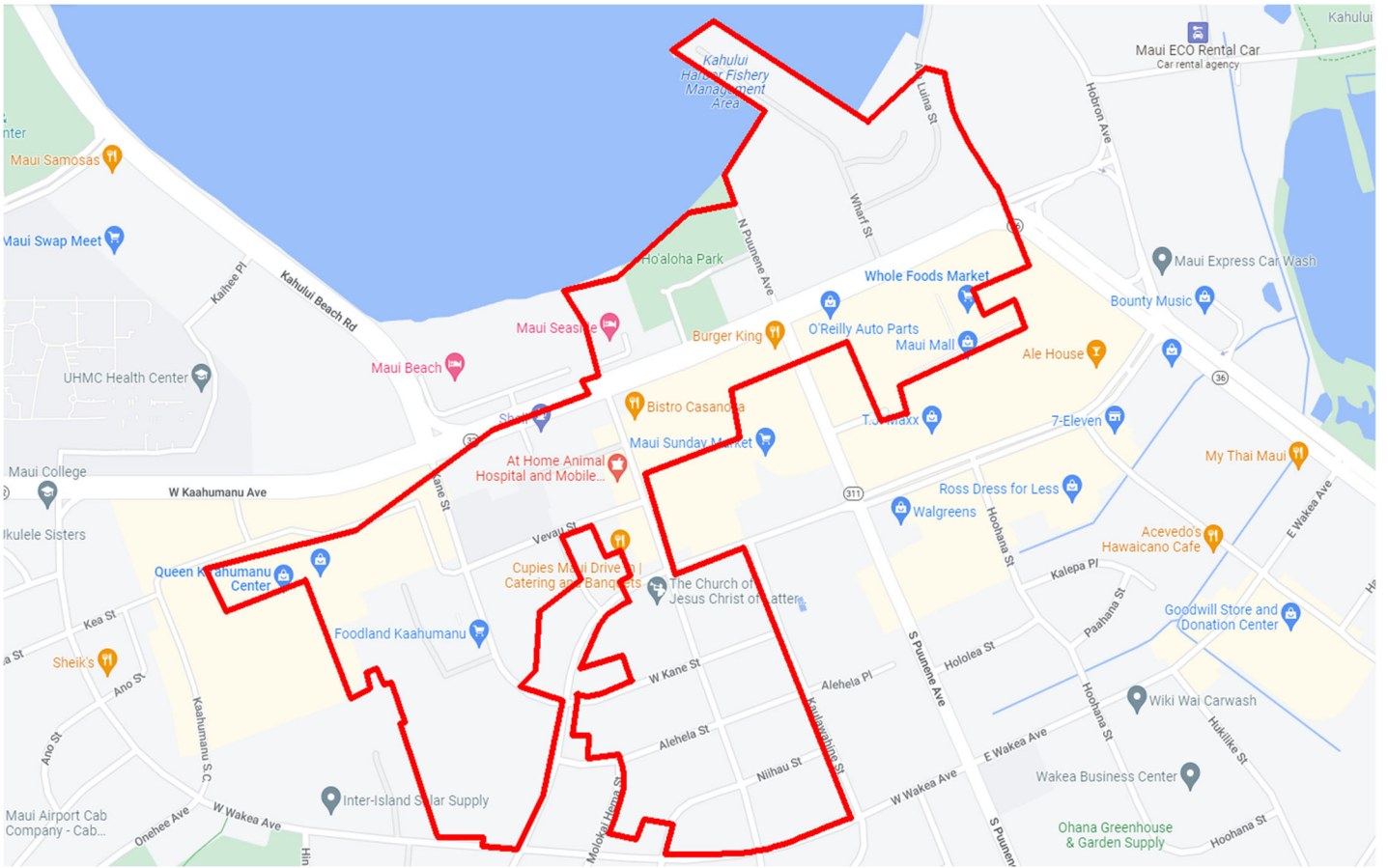


Figure P-1: Circuit #6 Preferred Location



Figure P-1: Circuit #7 Preferred Location



Figure P-1: Circuit #8 Preferred Location

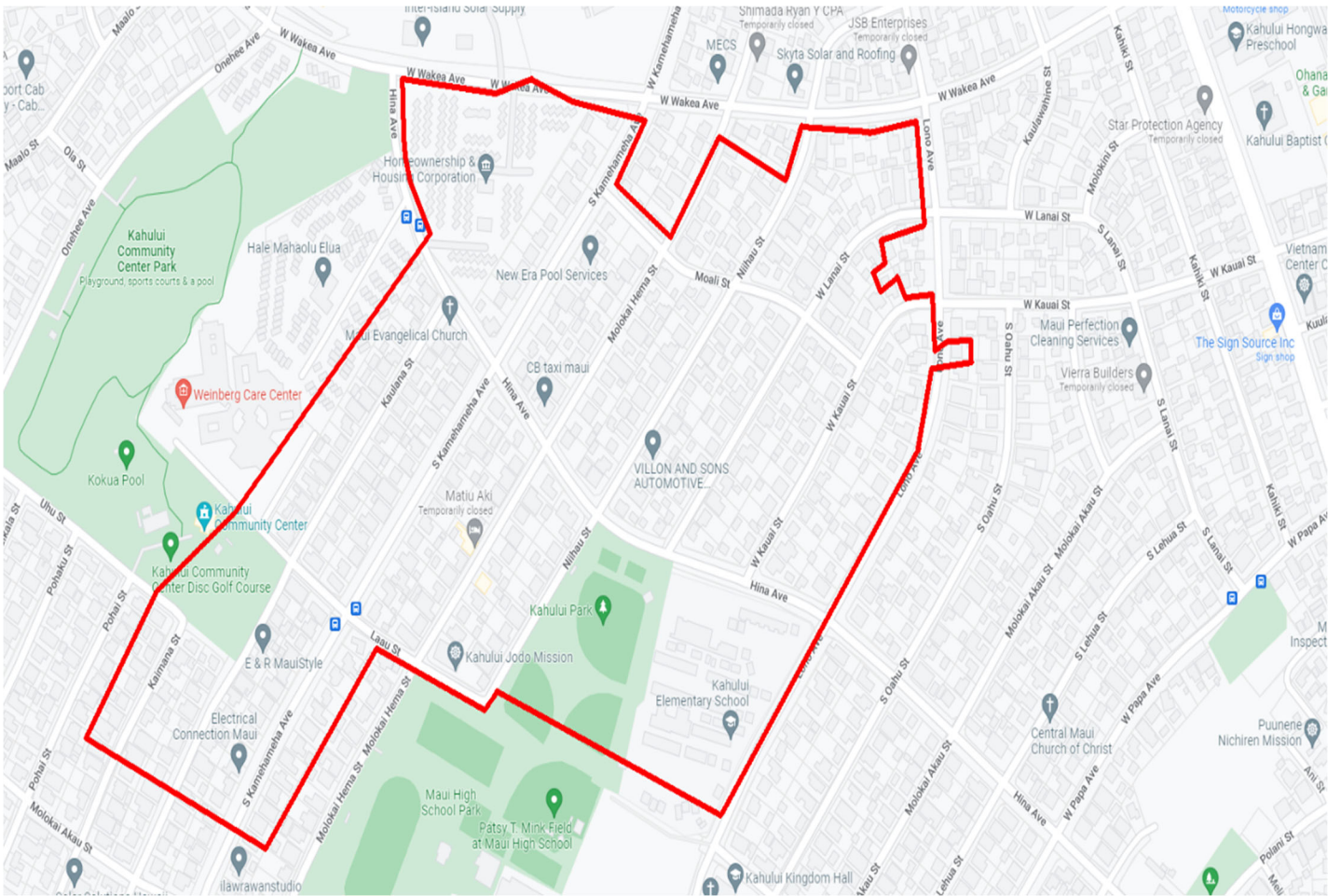


Figure P-1: Circuit #9 Preferred Location

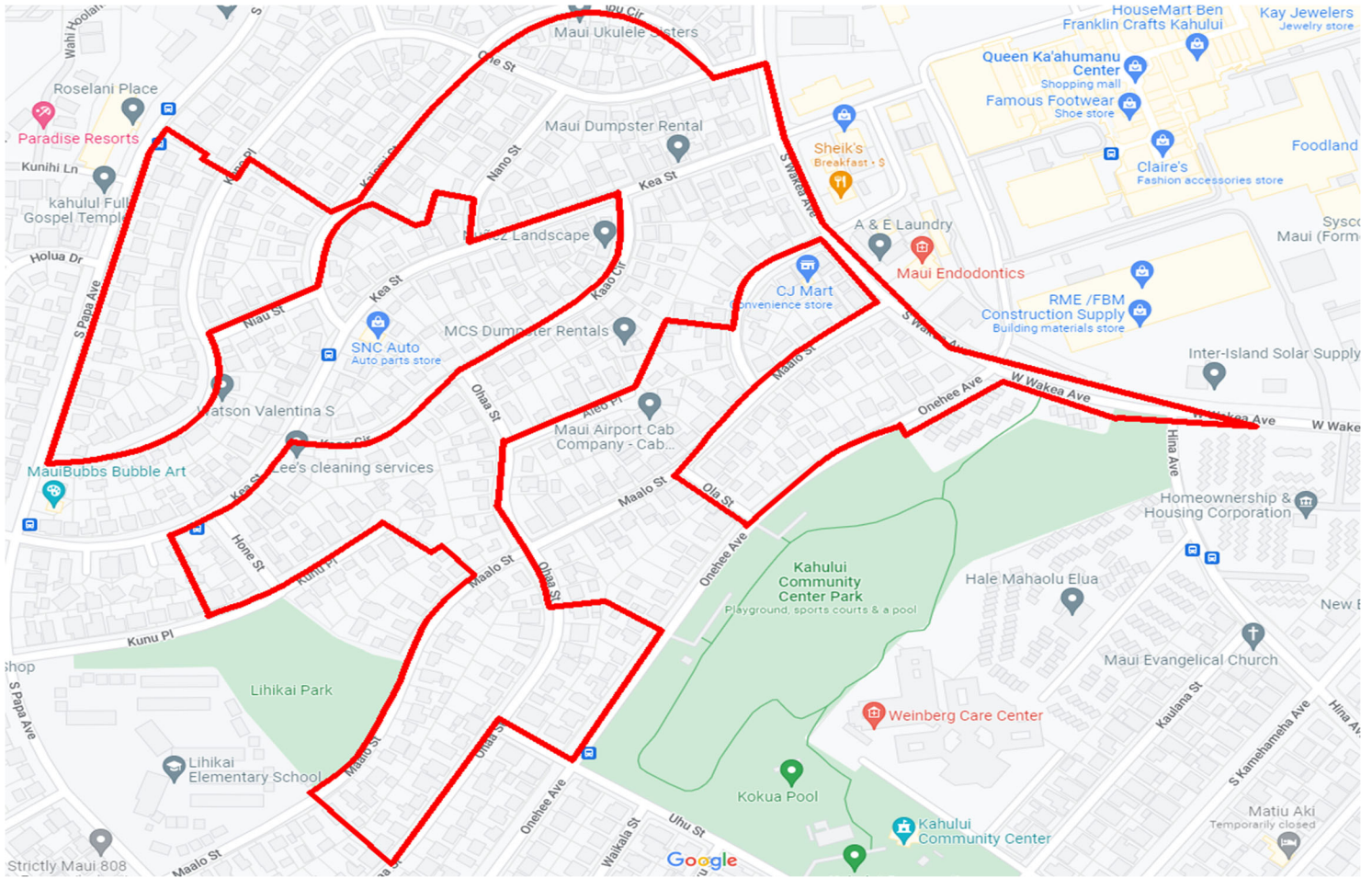


Figure P-1: Circuit #10 Preferred Location



Figure P-1: Circuit #12 Preferred Location

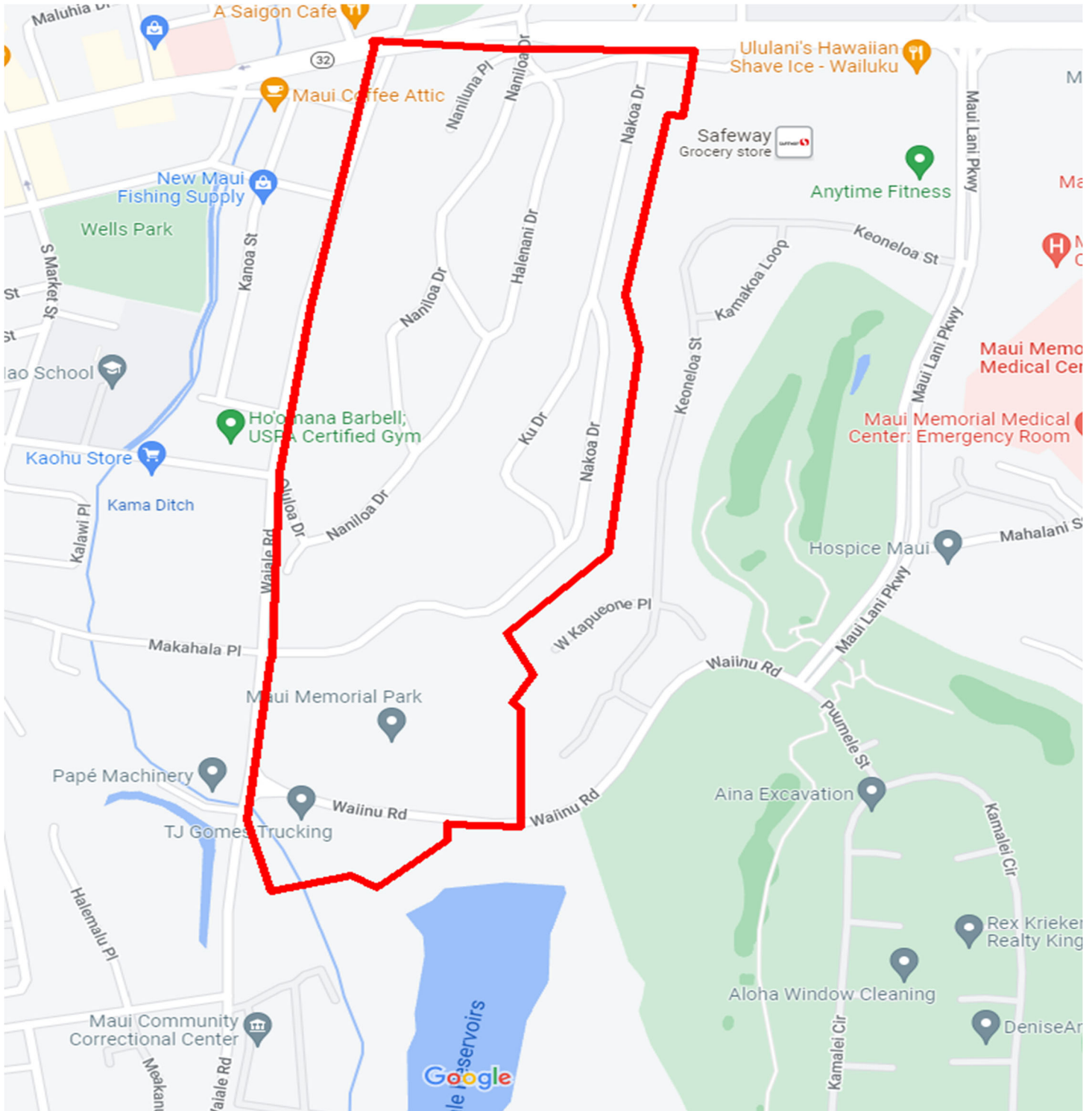


Figure P-1: Circuit #13 Preferred Location

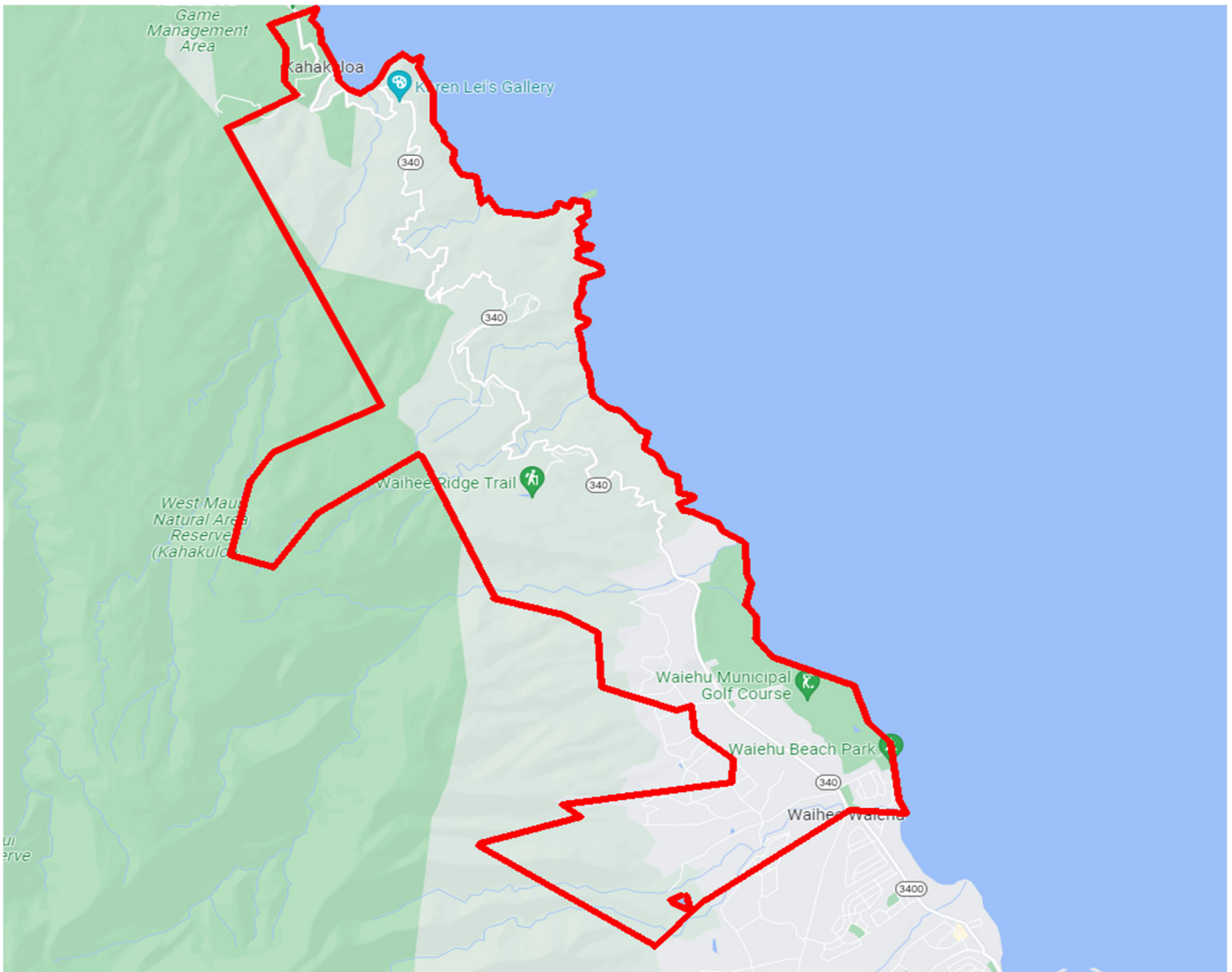


Figure P-1: Circuit #14 Preferred Location

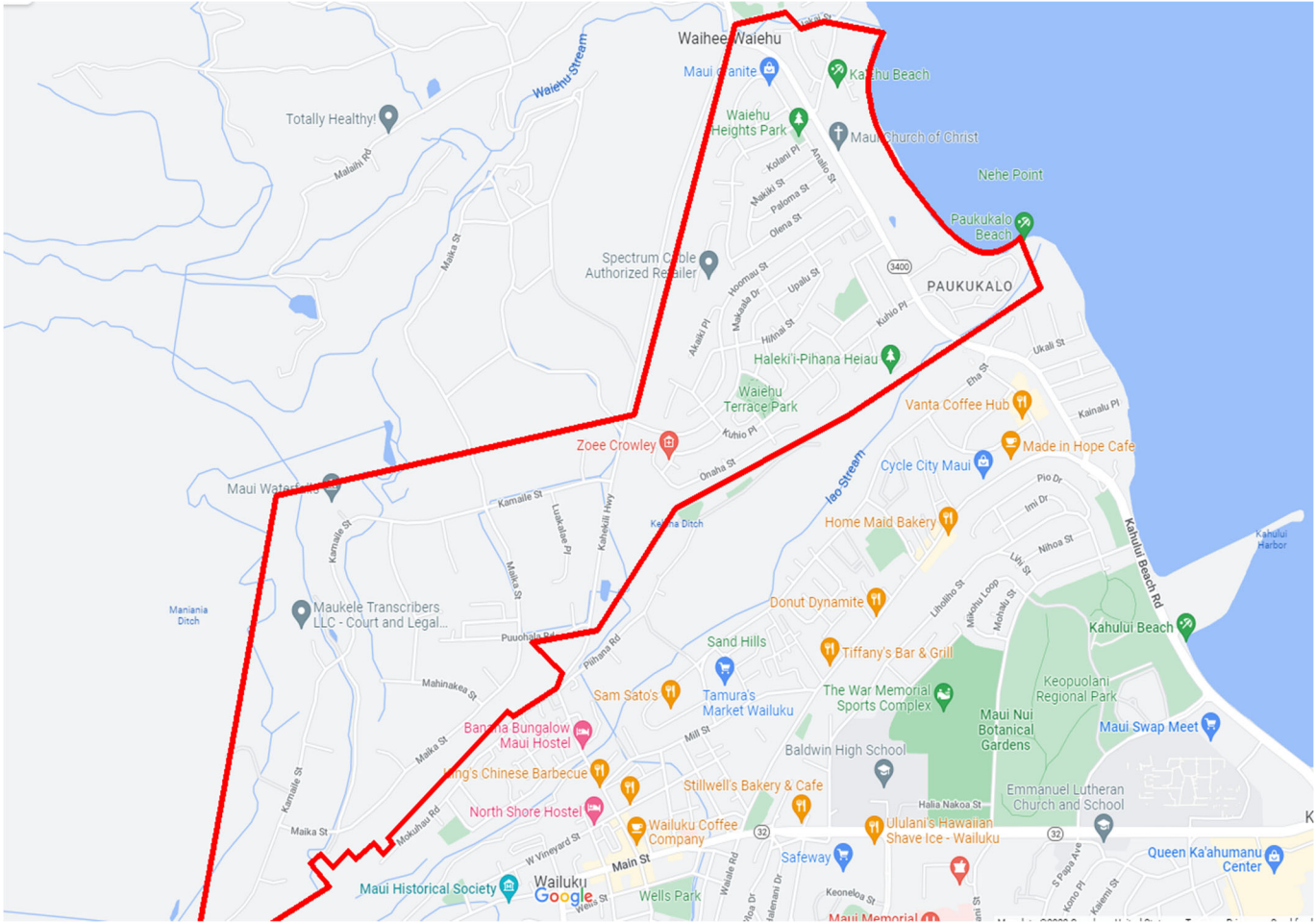


Figure P-1: Circuit #15 Preferred Location



Figure P-1: Circuit #16 Preferred Location

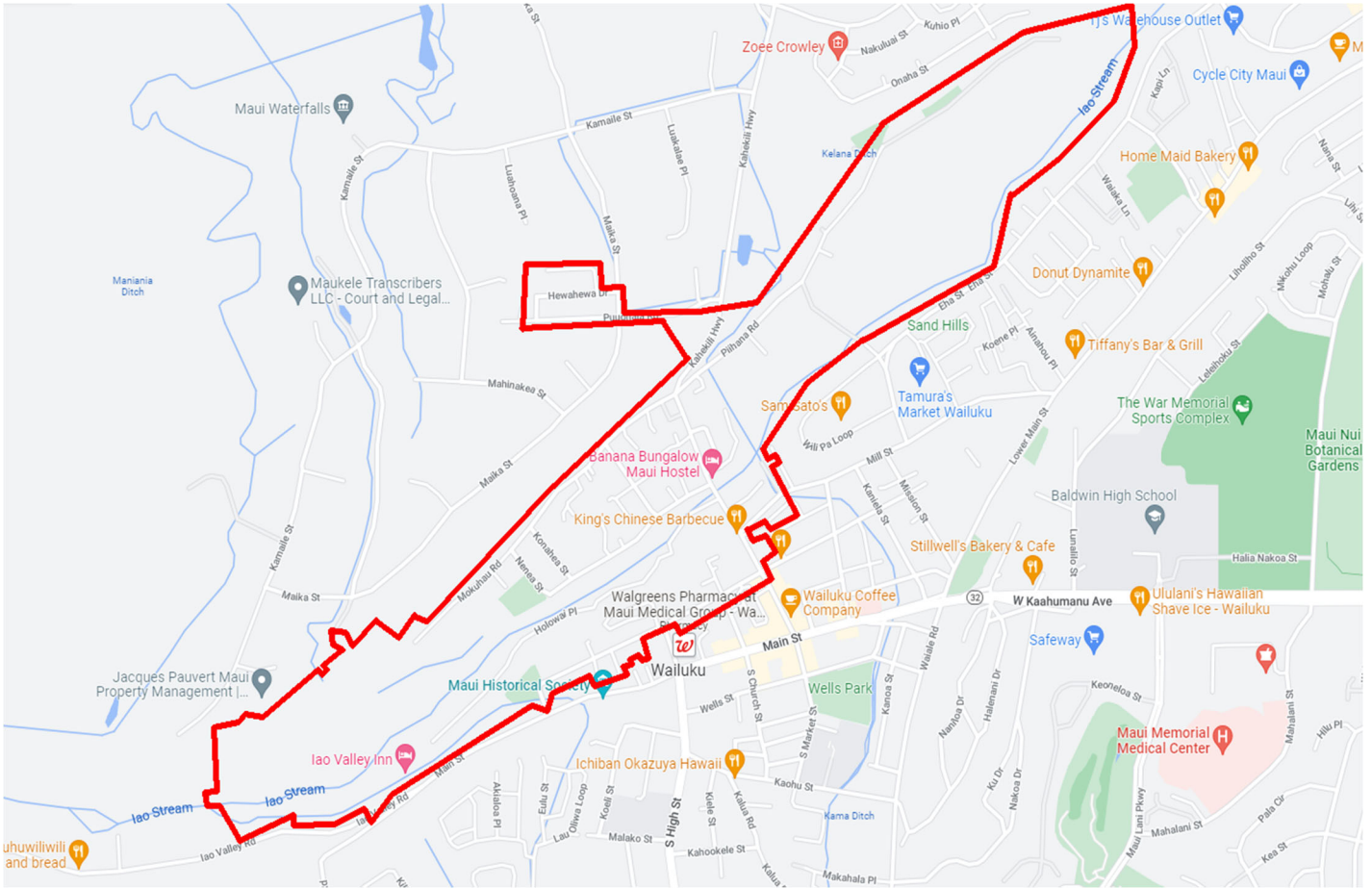


Figure P-1: Circuit #17 Preferred Location

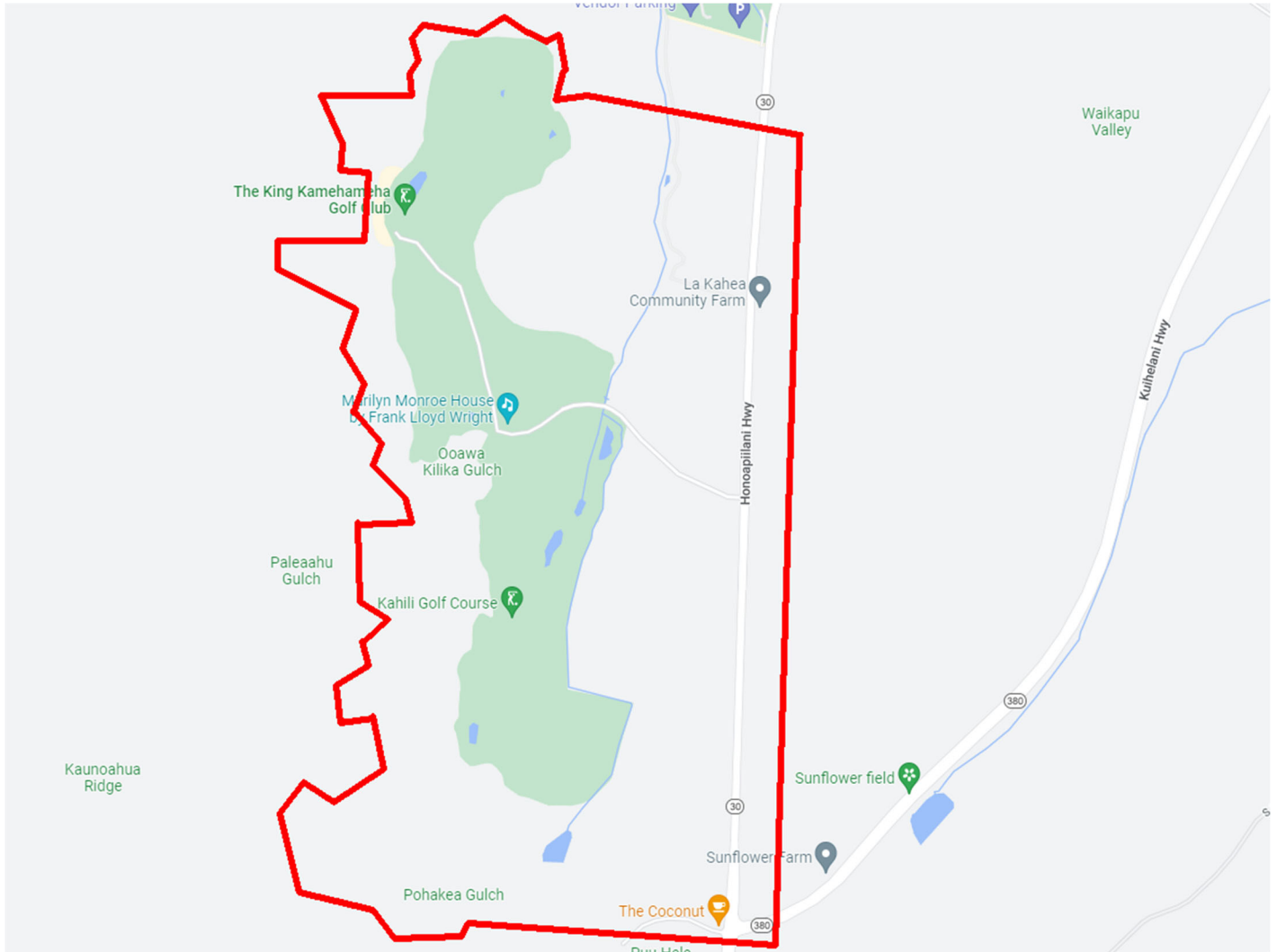


Figure P-1: Circuit #18 Preferred Location

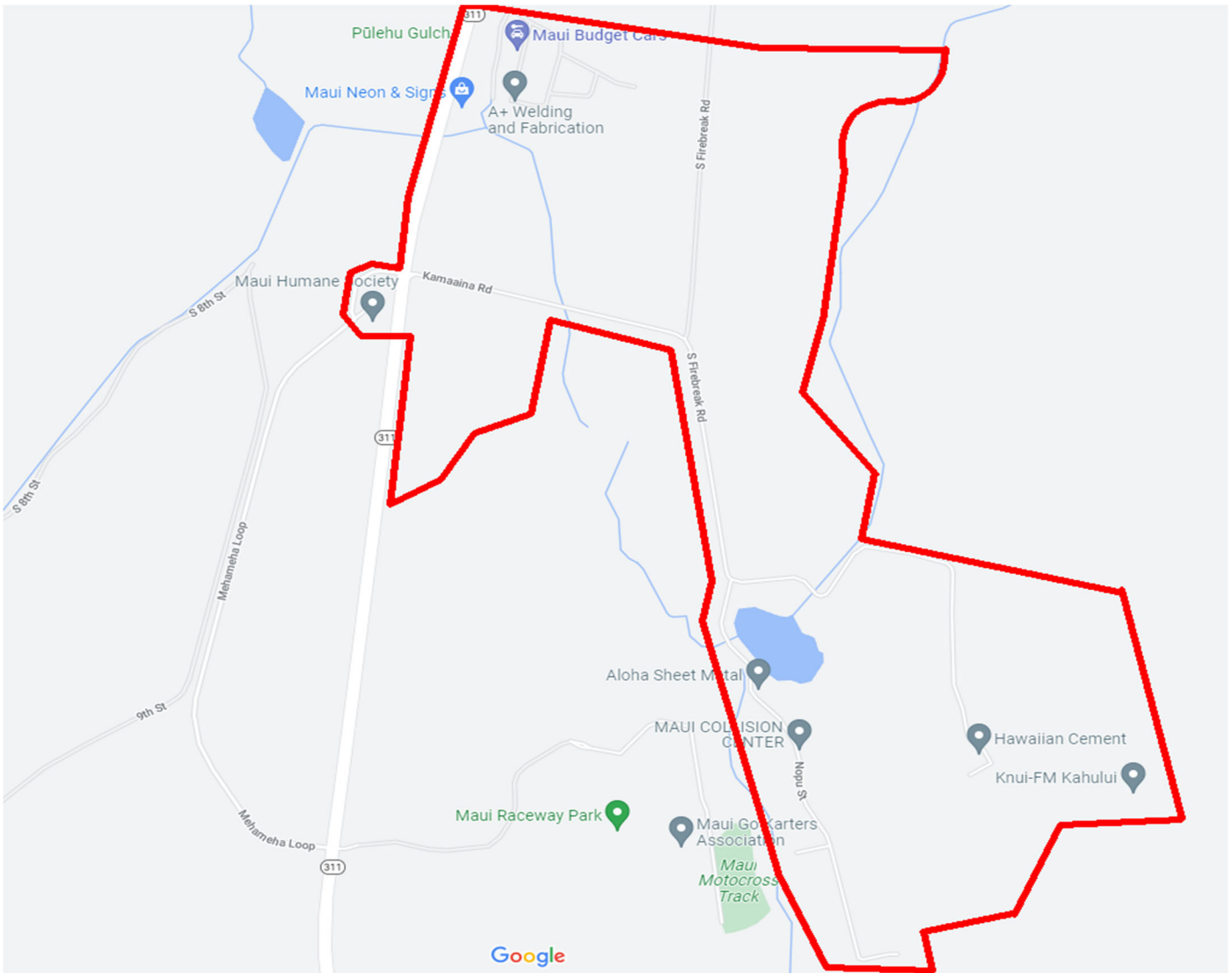


Figure P-1: Circuit #19 Preferred Location

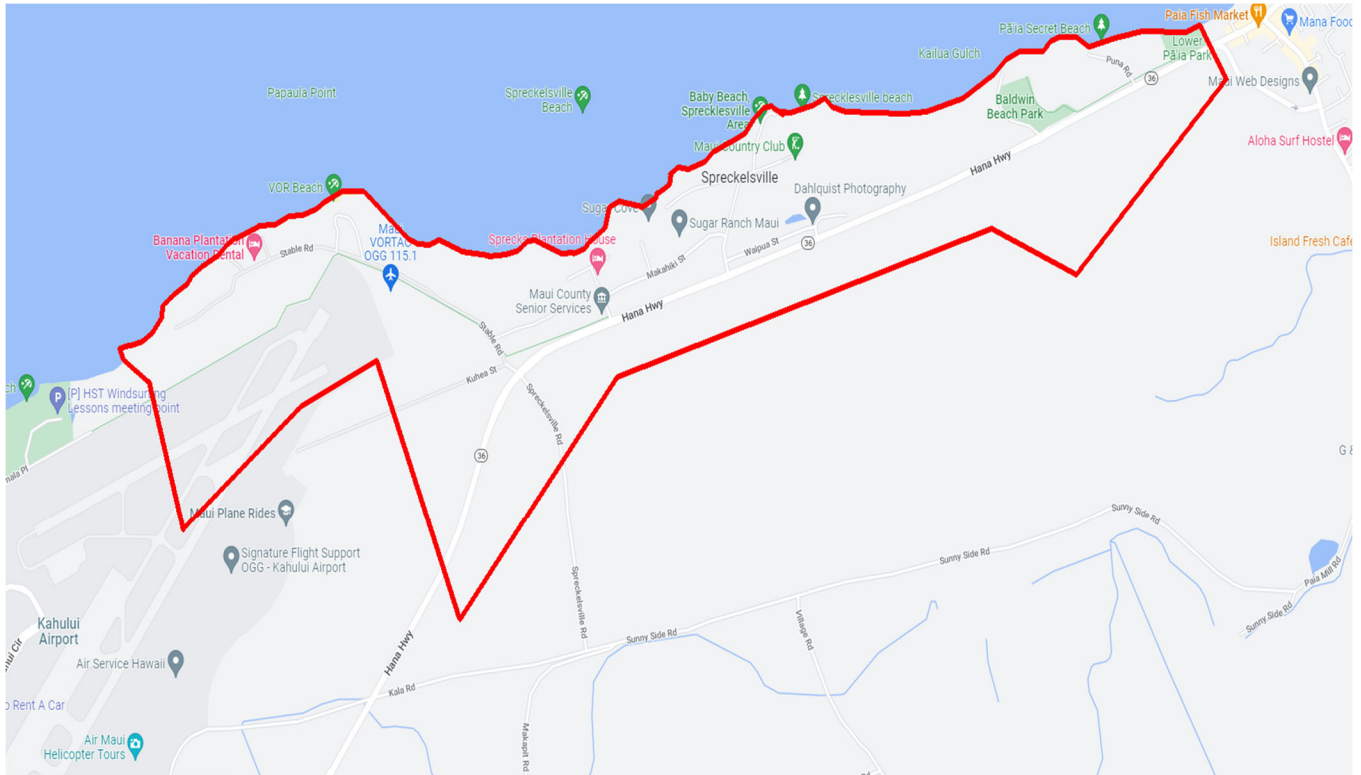


Figure P-1: Circuit #20 Preferred Location

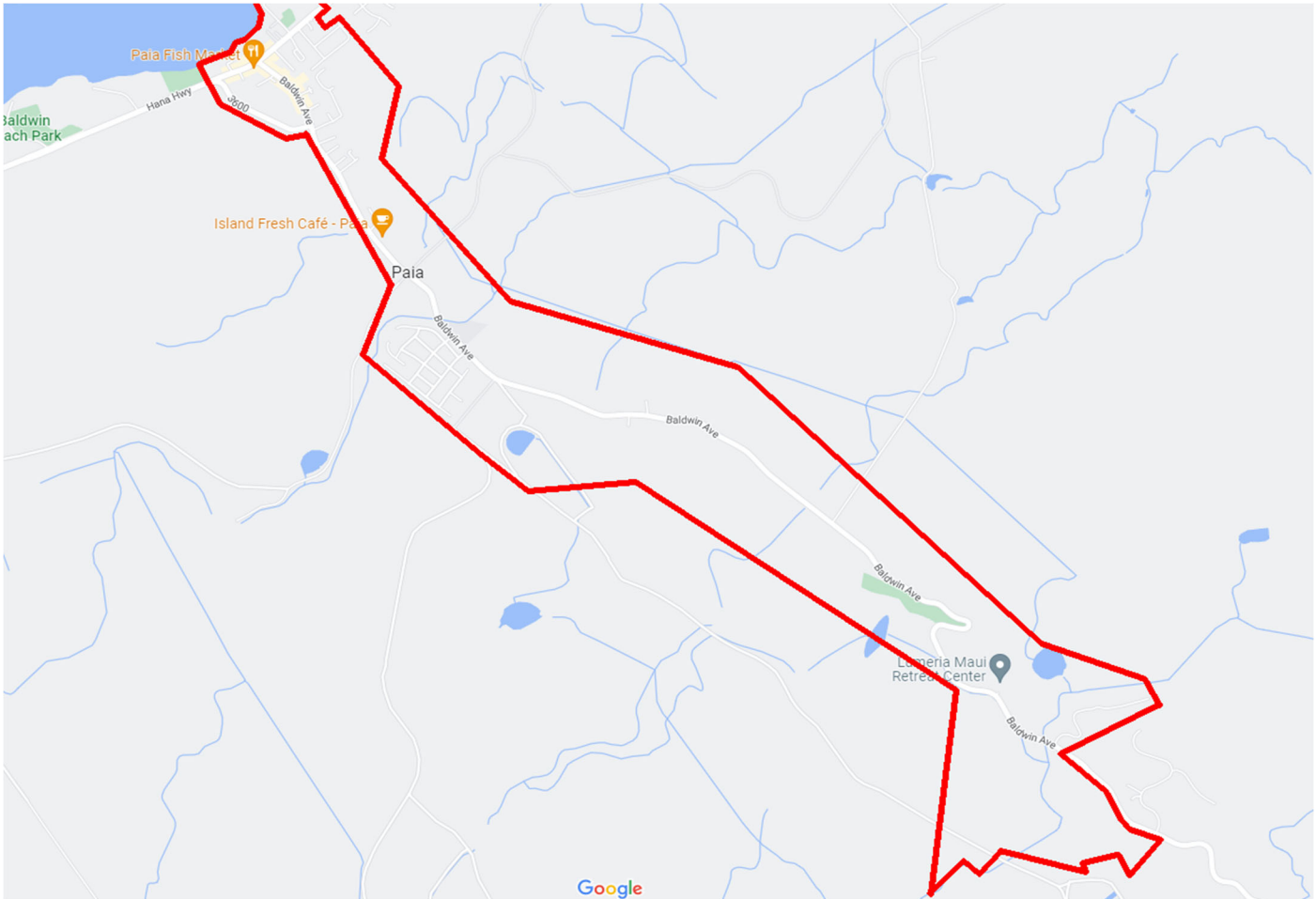


Figure P-1: Circuit #21 Preferred Location



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Appendix Q – Carbon Emissions Questionnaire



**Hawaiian
Electric**

CARBON EMISSION QUESTIONNAIRE

Please answer the following Carbon Criteria questions:

Phase	#	Question	Answer Choices
1. Project Specific Information	1	Please provide approximately how many customers would be involved in delivering grid services.	Write-in
	2	Please provide the customer count by their class: a. Residential b. Small and medium business c. Commercial and industrial	Write-in
2a. Procurement Solar	3	At full capacity, what is the aggregated amount of customer-sited solar (MW) participating?	Write-in
	4	What is the annual production capacity (MWh/yr) based on the aggregated amount?	Write-in
	5	What is the average size of customer-sited solar (kW) participating?	Write-in
2b. Procurement Energy Storage	6	At full capacity, what is the aggregated amount of customer-sited battery (MW and MWh) participating?	Write-in
	7	What are the average lifetime cycles of the energy storage systems?	Write-in
	8	For a typical customer, how much of the battery capacity is participating in grid services? (ex: 5kW battery with 2kW grid services participation would be 40%)	Write-in
	9	Approximately what percentage of energy storage systems will need to be replaced to maintain committed capacity over the life of the contract term?	Write-in
	10	For electrochemical energy storage that must be replaced during the contract term, is there a recycling program in place for the old energy storage system?	Yes / No If "Yes", include write-in explanation of the program
2c. Procurement Non-electrochemical battery solution	11	At full capacity, what is the aggregated amount of customer-sited resource (MW and MWh) participating?	Write-in
	12	If non-electrochemical battery solutions are being enrolled, please provide customer-sited resources that are being used.	Write-in
	13	Are the resources being replaced with smart appliances to participate?	Write-in
3. IT Infrastructure	14	Will any IT clients or servers be located at aggregator site powered primarily by renewable energy?	Yes / No
4. General	15	Please provide any additional information available likely to impact the Project's lifecycle (i.e., including raw materials and extraction, transportation, construction, operations & maintenance, and decommissioning & disposal) greenhouse gas emissions.	Write-in