

Hawaiian Electric

DRAFT REQUEST FOR PROPOSALS

FOR

NON-WIRES ALTERNATIVES TO PROVIDE RELIABILITY (BACK-TIE) SERVICES

ISLAND OF O'AHU - EAST KAPOLEI AREA

SEPTEMBER 3, 2019

Docket No. 2018-0165

This Request for Proposals ("RFP") is a DRAFT only, circulated to stakeholders for input prior to issuing the final RFP.

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Introduction and General Information

Hawaiian Electric Company, Inc. (“Hawaiian Electric” or the “Company”) seeks proposals for qualified non-wires alternatives¹ (“NWA”) to provide Reliability (back-tie) Services for the East Kapolei Area Distribution System in accordance with this Request for Proposals (“RFP”).

The Company seeks NWAs to provide Reliability (back-tie) Services in this RFP that can be deployed individually or as a portfolio. The Company intends to contract for these resources, as described in Section 3.8, through the following contracts: (1) Grid Services Purchase Agreement (“GSPA”) provided in Appendix K for behind the meter (“BTM”)² resource projects, (2) Scheduled and Contingency Capacity Purchase Agreement (“SCCPA”) provided in Appendix L for in front of the meter (“IFTM”)³ scheduled and contingency capacity projects, and (3) Energy Storage Power Purchase Agreement (“ESPPA”) provided in Appendix M for IFTM standalone energy storage projects (GSPA, SCCPA, and ESPPA are collectively referred to herein as the “Agreements”). If the Reliability (back-tie) Service solution (“Proposed Solution”) utilizes a technology not applicable to one of the three agreements, then the terms of the most applicable agreement will be modified to address the specific technology and/or component. The final executed version (if any) of all contracts will be submitted for approval by the State of Hawai‘i Public Utilities Commission (“PUC” or “Commission”) in a docketed proceeding.

The Company will evaluate Proposals using the evaluation and selection process described in Chapter 4 of this RFP. The evaluation and selection process will be based on both price and non-price factors that impact the Company, its customers, and communities affected by the Proposed Solution(s). The amount of Reliability (back-tie) Services that the Company may acquire from this RFP depends on, among other things, the quality and cost-effectiveness of bids received in response to this RFP, economic comparison to other RFP responses, updates to the Company’s forecasts, and changes to regulatory or legal requirements.

All requirements necessary to submit a Proposal are stated 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 Agreements, 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 given to them in this RFP.

¹ A non-wires alternative is generally defined as an electricity grid project that uses non-traditional transmission and distribution solutions, such as distributed generation, energy storage, energy efficiency (“EE”), demand response (“DR”), and grid software and controls, to defer or avoid the need for conventional transmission and/or distribution infrastructure investments. See Docket No. 2018-0165, Hawaiian Electric Companies’ Integrated Grid Planning Workplan, filed December 14, 2018, at 21.

² Defined as a service located on the customer side of the meter.

³ Defined as a service located on the utility side of the meter.

1.1 Authority and Purpose of the Request for Proposals

- 1.1.1 This RFP is issued in accordance with the Integrated Grid Planning (“IGP”) Workplan submitted by the Hawaiian Electric Companies on December 14, 2018, as accepted through Order No. 36218 issued on March 14, 2019 in Docket No. 2018-0165 by the PUC.
- 1.1.2 This RFP is a product of the IGP Soft Launch as described in the IGP Workplan. The IGP Soft Launch is intended to demonstrate the sourcing processes and evaluation methods for distribution NWAs. This Soft Launch will help inform development of the full scale IGP planning and sourcing effort beginning in 2020.
- 1.1.3 A generation Solution submitted in response to this RFP must utilize qualified renewable energy resource(s) as defined under the Hawai’i Renewable Portfolio Standards (“RPS”) law.⁴ By statute, “Renewable Energy” means energy generated or produced using the following sources: (1) wind; (2) the sun; (3) falling water; (4) biogas, including landfill and sewage-based digester gas; (5) geothermal; (6) ocean water, currents, and waves, including ocean thermal energy conversion; (7) biomass, including biomass crops, agricultural and animal residues and wastes, and municipal solid waste and other solid waste; (8) biofuels; and (9) hydrogen produced from renewable energy sources.⁵

1.2 Scope of the RFP

- 1.2.1 Hawaiian Electric is seeking NWAs that meet the requirements noted in this RFP to cost-effectively defer the distribution investment needed to serve new load growth in the East Kapolei Area. There are two (2) distribution deferral opportunities located in the East Kapolei Area. In total, Hawaiian Electric is seeking to procure a minimum of 23.5 MW.

The deferral opportunities in the East Kapolei Area are:

1. Kapolei 4 Circuit Extension with Commercial Operations Date (“COD”) of February 1, 2022
2. Ho’opili Substation Transformer #1 and #2 with COD of January 1, 2023

The table below summarizes the distribution investment deferral opportunity and the associated operational and performance requirements. For each one of the deferral opportunities, all of the expected performance and operational requirements need to be met to defer the planned investment.

⁴ RPS requirements in Hawai’i are codified in Hawai’i Revised Statutes (“HRS”) §§ 269-91 through 269-95.

⁵ See HRS § 269-91.

Table 1: Summary of Distribution Capacity Service Requirements (Normal Overloads)

Deferral							
	Kaloi 1 Tsf ⁶	5.1	Jan 2023	Jan - Dec	1PM - 11AM	10	365
	Kaloi 3 Ckt ⁶	0.3	Aug 2023	Aug - Oct	7PM - 9PM	2	69

Table 2: Summary of Reliability (Back-Tie) Service Requirements

Deferral							
	Kapolei 2 Tsf	3.8	Feb 2022	Jan - Dec	5PM - 11PM	6	365
	Ewa Nui 2 Ckt	5.4	Jan 2023	Jan - Dec	11AM - 12AM	13	365
	Kaloi 1 Tsf ⁶	10.6	Jan 2023	Jan - Dec	6AM - 8AM, 9AM - 12AM	17	365
	Kaloi 3 Ckt ⁶	2.7	Jan 2023	Jan - Dec	5PM - 11PM	6	365
	Kamokila 4 Ckt	1.0	May 2023	Jan - Dec	5PM - 10PM	55	226

1.2.2 Reliability (Back-Tie) Services

Reliability (back-tie) Services are load-modifying or supply services capable of improving local distribution reliability under abnormal conditions. Specifically, these services reduce contingent loading of grid infrastructure to enable operational flexibility to reconfigure the distribution system to restore electric service to customers in a safe and reliable manner.

The Proposed Solution must provide Reliability (back-tie) Service in the distribution system locations described in Chapter 2, throughout the term of the Agreement. The Company does not have a predetermined preference for a particular technology.

⁶ Note that the Distribution Capacity Service need for the Kaloi 1 Transformer and Kaloi 3 Circuit can be met through scheduled dispatch of the Reliability (back-tie) Service due to the overlapping performance and operational requirements.

1.2.3 For Both BTM and IFTM Proposed Solutions

- 1.2.3.1 Each Proposed Solution submitted in response to this RFP must be located in the East Kapolei Area.
- 1.2.3.2 A Proposed Solution(s) that requires system upgrades and the construction of which, in the reasonable judgment of the Company, creates a significant risk that the COD of the Proposed Solution will not be met will not be considered in this RFP.
- 1.2.3.3 Each Proposed Solution must meet the requirements of this RFP without having to rely on the completion or implementation of any other Proposed Solution submitted in response to this RFP or any other RFP.
- 1.2.3.4 Proposers shall pursue all available applicable federal and state tax credits, and Proposed Solution pricing must be set to incorporate the benefit of such available tax credits or to pass the benefit of the tax credits to the Company's customers.
- 1.2.3.5 Each Proposed Solution submitted in response to this RFP must be capable of meeting the requirements of this RFP without having to rely on a proposed change in law, rule, or regulation.

1.2.4 Specific to BTM Proposed Solutions

- 1.2.4.1 Each BTM Proposed Solution must meet the system integration data exchange requirements in both Exhibit G of the GSPA as well as the Aggregator Handbook, which can be found in Appendix H of this RFP.

1.2.5 Specific to IFTM Proposed Solutions

- 1.2.5.1 Proposers must locate all IFTM Proposed Solution infrastructure within areas of their Site that are outside the 3.2 feet sea level rise exposure area (SLR-XA) as described in the Hawai'i Sea Level Rise Vulnerability and Adaptation Report (2017)⁷ and are not located within a Tsunami Evacuation Zone.⁸

⁷ Hawai'i Climate Change Mitigation and Adaptation Commission. 2017. Hawai'i Sea Level Rise Vulnerability and Adaptation Report. Prepared by Tetra Tech, Inc. and the State of Hawai'i Department of Land and Natural Resources, Office of Conservation and Coastal Lands, under the State of Hawai'i Department of Land and Natural Resources Contract No: 64064. This report is available at: https://climateadaptation.hawaii.gov/wp-content/uploads/2017/12/SLR-Report_Dec2017.pdf

⁸ See Hawai'i Sea Level Rise Viewer at <https://www.pacioos.hawaii.edu/shoreline/slr-hawaii/>, and National Oceanic and Atmospheric Administration (NOAA) interactive map in partnership with the State of Hawai'i at <https://tsunami.coast.noaa.gov/#/>.

- 1.2.5.2 IFTM Proposed Solution(s) must interconnect to the distribution 12kV circuit.
- 1.2.5.3 If selected, Proposers will be solely responsible for the decommissioning of the IFTM Proposed Solution and the restoration of the Site upon the expiration of the SCCPA or ESPPA, as described in Attachment G, Section 7 of the SCCPA and ESPPA.

1.3 Communications Between the Company and Proposers

- 1.3.1 Communications and other procedures under this RFP are governed by the “Code of Conduct Procedures Manual,” (also referred to as the “Procedures Manual”) developed by the Company and attached as Appendix C to this RFP.
- 1.3.2 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 1.4 of this RFP (the “RFP Email Address”). Frequently asked questions submitted by prospective Proposers and the answers to those questions may be posted on the Company website or sent through either email or the Electronic Procurement Platform to registered individuals. The Company reserves the right to respond only to comments and questions it deems are appropriate and relevant to the RFP. Proposers are advised to submit questions no later than fifteen Days before the Proposal Due Date (see RFP Section 3.1 – Table 4: Proposed RFP Schedule). The Company will endeavor to respond to all questions no later than five Days before the Proposal Due Date.
- 1.3.3 After Proposals have been submitted, the Company may contact individual Proposers for purposes of clarifying their Proposal(s).
- 1.3.4 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 IGP Soft Launch Mutual Confidentiality and Non-Disclosure Agreement (“NDA”). See Appendix E of this RFP.
- 1.3.5 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.
- 1.3.6 Any affiliate bid that is submitted will be treated in the same manner as any other proposer bid. Affiliates are governed by the ATRs and are not able to be supported by any employee of the Company concerning this RFP.

1.4 Company Contact for Proposals

The primary contact for this RFP is:

Isaac Kawahara
Energy Contract Manager
Hawaiian Electric Company, Inc.
Renewable Acquisition Division
Central Pacific Plaza Building, Suite 2100
220 South King Street
Honolulu, Hawai’i 96813

RFP Email Address: responses@hawaiianelectric.com

1.5 Proposal Submission Requirements

- 1.5.1 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.
- 1.5.2 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. Proposers may also submit up to a total of four (3) variations of their Proposal, one variation of which is the base variation of the Proposal. Variations of pricing terms, Proposal size, with/without storage, or grid-charging capabilities can be offered. All variations within a Proposal must be proposed on the same Site and using the same generation technology. All unique information for each variation of a Proposal, no matter how minor such variation is, must be clearly identified and separated by following the instructions in Appendix B Section 3.
- 1.5.3 In submitting a Proposal in response to this RFP, each Proposer certifies that the Proposal has been submitted in good faith and without fraud or collusion with any other unaffiliated person or entity. The Proposer shall acknowledge this in the Response Package submitted with its Proposal. Furthermore, in executing the NDA provided as Appendix E, the Proposer agrees on behalf of its Representatives (as defined in the NDA) that the Company's negotiating positions will not be shared with other Proposers or their respective Representatives.

In addition, in submitting a Proposal, a Proposer will be required to provide Company with its legal counsel's written certification in the form attached as Appendix B Attachment 1 certifying in relevant part that irrespective of any proposer's direction, waiver, or request to the contrary, that the attorney will not share a proposer's confidential information associated with such proposer with others, including, but not limited to, such information such as a proposer's or Company's negotiating positions. If legal counsel represents multiple unaffiliated proposers whose Proposals are selected for the Final Award Group, such counsel will also be required to submit a similar certification at the conclusion of Agreement negotiations that he or she has not shared a proposer's confidential information or the Company's confidential information associated with such proposer with others, including but not limited to, such information as a proposer's or Company's negotiating positions.

1.5.4 Proposals must be submitted via the Electronic Procurement Platform by 2:00 pm Hawai'i Standard Time (HST) on the Proposal Due Date shown in RFP Section 3.1 – Table 4: Proposed RFP Schedule. No hard copies of the Proposals will be accepted. It is the Proposer's sole responsibility to ensure that complete and accurate information has been submitted on time and within the instructions of this RFP. With this assurance, Company shall be entitled to rely upon the completeness and accuracy of every Proposal. Any errors identified by the Proposer or Company after the Proposal Due Date has passed may jeopardize further consideration and success of the Proposal. If an error or errors are later identified, Company may permit the error(s) to be corrected without further revision to the Proposal, or may require Proposer to adhere to terms of the Proposal as submitted without correction. Additionally, and in Company's sole discretion, if such error(s) would materially affect the Priority List or Final Award Group, Company reserves the right, to remove or disqualify a Proposal upon discovery of the material error(s). The Proposer of such Proposal shall bear the full responsibility for such error(s) and shall have no recourse against Company's decision to address Proposal error(s), including removal or disqualification. The Electronic Procurement Platform will cease accepting any submission of late information for this RFP after the Proposal Due Date.

1.6 Dispute Resolution Process

- 1.6.1 Proposers who challenge or contest any aspect of the RFP process must first attempt to resolve their concerns with the Company ("Initial Meeting").
- 1.6.2 Any and all disputes arising out of or relating to the RFP which remain unresolved for a period of twenty (20) Days after the Initial Meeting takes place may, upon the agreement of the Proposer and the Company, be submitted to confidential Mediation in Honolulu, Hawai'i, pursuant to and in accordance with the Mediation Rules, Procedures, and Protocols of Dispute Prevention Resolution, Inc. ("DPR") (or its successor) or, in its absence, the American Arbitration Association then in effect ("Mediation"). The Mediation will be administered by DPR. If the parties agree to submit the dispute to Mediation, the Proposer and the Company shall each pay fifty percent (50%) of the cost of the Mediation (i.e., the fees and expenses charged by the mediator and DPR) and shall otherwise each bear their own Mediation costs and attorney's fees.
- 1.6.3 If settlement of the dispute is not reached within sixty (60) Days after commencement of the Mediation, or if after the Initial Meeting, the parties do not agree to submit any unresolved disputes to Mediation, the Proposer may submit the dispute to the PUC.
- 1.6.4 The PUC will serve as the arbiter of last resort for any disputes relating to this RFP involving Proposers. The PUC will use an informal expedited dispute resolution process to resolve the dispute within thirty (30) Days. There shall be no right to a hearing or appeal from this informal expedited dispute resolution process. The PUC encourages affected parties to seek to work cooperatively to resolve any dispute or pending issue. The Company will conduct informational meetings with the PUC and the Division of Consumer Advocacy of the Department of Commerce and Consumer Affairs of the State of Hawai'i ("Consumer Advocate") to keep each apprised of issues that arise between or among the parties.

1.6.5 Timely PUC review, approval, consent, or other action is essential to the efficient and effective execution of this RFP process. Accordingly, to expedite PUC action in this RFP process, whenever PUC review, approval, consent, or action is required, the PUC may do so in an informal expedited process.

1.6.6 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 Section 1.6 of this RFP (e.g., a court proceeding), then such Proposer shall be responsible for any and all attorneys’ fees and costs that may be incurred by the Company or the PUC in order to resolve such claim.

1.7 No Protest or Appeal

Subject to Section 1.6 of this RFP, no Proposer or other person will have the right to protest or appeal any award of a Proposed Solution made by the Company.

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

1.8 Modification or Cancellation of the Solicitation Process

1.8.1 Unless otherwise expressly prohibited, the Company may, at any time up to the final execution of an Agreement, postpone, withdraw and/or cancel any requirement, term or condition of this RFP, including deferral of the award or negotiation of any Agreement, and/or cancellation of the award all together, all of which will be without any liability to the Company.

1.8.2 The Company may modify this RFP or solicit additional Proposals from Proposers after reviewing the initial Proposals. 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

The following are requirements that must be met when submitting offers for each specific distribution system need. Hawaiian Electric will accept offers for less than the full need for each requirement in a minimum of 50 kW, 2-hour increments. For any specific deferral opportunity, Proposers are encouraged, but not required, to submit an offer for all grid needs associated with that specific deferral opportunity. A summary of each need is provided below. Additional information regarding each need can be found in Appendix J – Distribution Needs.

A. Ho’opili Substation Transformer #1 and #2

Equipment						
5.4	Jan - Dec	11AM - 12AM	13	365	32.6	
10.6	Jan - Dec	6AM - 8AM, 9AM - 12AM	17	365	68.2	
2.7	Jan - Dec	5PM - 11PM	6	365	8.9	
1.0	Jan - Dec	5PM - 10PM	5	226	3.2	

B. Kapolei 4 Circuit Extension

Equipment	MVA peak	Delivery Months	Delivery Hours	Hours Duration	Max Days	MVAH
Kapolei 2 Tsf	3.8	Jan - Dec	5PM - 11PM	6	365	12.4

2.1 Technical Requirements

Below is a summary of the high-level technical requirements of the Reliability (back-tie) Service.

Table 3: Technical Requirements

Technical Requirements – All bids	
Purpose	<p>Kapolei 4 Circuit Extension: Reduce loads on a portion of the Kamokila 4 circuit and all of Kapolei 4 circuit during a contingency event on the Kamokila 4 circuit.</p> <p>Ho’opili Substation Transformer #1 and #2: Reduce loads on affected Ho’opili circuits during a contingency event. See, Appendix J – Distribution Needs for details.</p>
Term Dates	<p>Kapolei 4 Circuit Extension: Start: No later than February 1, 2022 End: February 28, 2027 For BTM Proposed Solutions, all contracted MW must be available by February 1, 2022 start date.</p> <p>Ho’opili Substation Transformer #1 and #2: Start: No later than January 1, 2023 End: December, 31, 2027 For BTM Proposed Solutions, all contracted MW must be available by January 1, 2023 start date.</p>
Maximum times the service can be called upon per year	Number of days in a particular calendar year.
Settlement	See applicable Agreement
Telemetry	IFTM – Tariff Rule No. 14, Paragraph H (“ Rule 14H ”) telemetry BTM - Rule 14H telemetry if applicable, 5min kW USAGE, online/offline status.
Metering	Payment for performance requires a Revenue Meter.
DER Interconnection Technical Requirements	Rule 14H, Supplemental Review Process Appendix F.
Reporting	Post Event data - MW, MWh during event, start time and end time. Hourly – Available/Not Available
Dispatch Options	Option A: Automatic Dispatch w/Manual Controls Option B: Scheduled Dispatch w/Manual Controls
Communications Protocol	Option A: Contingency Event (i.e. SCADA or Direct Transfer Trip for automatic contingency activation) Option B: Daily Schedule (i.e. local control schedule) Note: For both options, manual controls from Company Control Center

	by SCADA if 1MW or larger or OpenADR 2.0b otherwise.
Event Start	Option A: solution must reach full output within 12 seconds of the contingency event. Option B: solution must reach full output at the Daily Schedule start time. During the daily scheduled event, at no time should there be an interruption of the Reliability (back-tie) Service, except and unless, a proportional amount of load is also reduced during the duration of the interruption.
Event Stop	Solution must stop when directed by Company equipment <u>or</u> Daily Schedule end time . Ramp Rate for return to normal operation must be 2 MW/minute or slower.

2.2 Performance Standards

Proposals must meet the attributes set forth in this RFP and the requirements within the Agreements. This RFP and the Agreements set forth the minimum requirements that all Proposals must satisfy to be eligible for consideration in this RFP. Additional Performance Standards may be required based on the results of the IRS.

Proposed Solutions procured through this RFP should not create additional problems on the distribution system. Any Proposed Solution must not operate in a manner that negatively impacts the system.

- Proposed Solutions for the Ho’opili Substation Transformer #1 and #2 deferral opportunity shall not increase net loading during delivery hours (including an hour before and after the delivery hours) and between 5am-8am.
- Proposed Solutions for the East Kapolei deferral opportunity shall not increase net loading during delivery hours (including an hour before and after the delivery hours).

The time periods identified are to ensure that no increase in net loading occurs during shoulder periods of the grid needs identified and/or during the morning circuit peak. The net loading restrictions apply only on days when the Proposed Solution is needed.

2.3 Interconnection to the Company System

- 2.3.1 All assets subject to interconnection standards and review as articulated in Rule 14H remain subject to those standards as a precondition for inclusion in this RFP.
- 2.3.2 If in order to achieve anticipated service, an existing interconnected system would be expected to export power in excess of pre-approved export limits, the resource would be subject to a Supplemental Review Process as described in Appendix I.
- 2.3.3 All Proposals must include a description of the Proposer's plan to transmit power from the Facility to the Company System. The proposed Interconnection Facilities must be compatible with the Company System. In the design, Proposal must adequately consider Company requirements to address impacts on the performance and reliability of the Company System.
- 2.3.3.1 In addition to the Performance Standards, the design of the Interconnection Facilities, including power rating, Point(s) of Interconnection with the Company System, and scheme of interconnection, must meet Company standards. The Company will provide its construction standards and procedures to the Proposer (Engineer, Procure, Construct Specifications for Hawaiian Electric Power Lines and Substations) if requested via the RFP Email Address in Section 1.4 and upon execution of an NDA as specified in Section 1.3 and Section 1.5. These specifications are intended to illustrate the scope of work typically required to administer and perform the design and construction of a Hawaiian Electric substation and power line.
- 2.3.4 The Proposer shall be responsible for all costs required to interconnect to the Company System.
- 2.3.5 Proposers are required to include in their pricing proposal all costs for distribution-level service interconnection for station power.
- 2.3.6 All Proposals will be screened for general readiness to comply with the requirements for interconnection. Proposals selected to the Final Award Group will be subject to further study as required by Rule 14H. The IRS process is further described in Section 5.1 of this RFP. Mitigation measures identified will be incorporated into the terms and conditions of a final executed Agreement.

2.4 Approximate Value of Reliability (back-tie) Service

The estimated value of the Reliability (back-tie) Service is based on deferring the traditional solution for five years ("Approximate Value"). This is calculated by converting the capital cost of the traditional solution into annual revenue requirements using a levelized deferral rate.

Approximate 5-Year Value:

- Kapolei 4 Circuit Extension: \$2.3M NPV
- Ho'opili Substation Transformer #1 and #2: \$3.9M NPV

This Approximate Value is intended to be used as an order of magnitude financial estimate of the NWA opportunity to enable bidders to develop competitive value propositions and is based on the current planning level estimate for the traditional solution. The Non-Price Evaluation will consider additional system benefits provided by the NWA solutions in addition to bid price and the deferral value of the traditional project.

Chapter 3: Instructions to Proposers

3.1 Schedule for the Proposal Process

Table 4 sets forth the proposed 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 Proposal Due Date will be posted to the RFP website. Changes to the RFP Schedule after the Proposal Due Date will be communicated via email or via the Electronic Procurement Platform to the Proposers.

Table 4: Proposed RFP Schedule

Milestone	
Draft RFP Circulated to Stakeholders	September 3, 2019
RFP is Issued	November 1, 2019
Prerecorded Webinar Conference	November 8, 2019
Proposal Due Date	December 31, 2019 at 2:00 pm HST
Selection of Final Award Group	March 2, 2020
Contract Negotiations Start	March 9, 2020

3.2 Company RFP Website/Electronic Procurement Platform

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

www.hawaiianelectric.com/competitivebidding

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

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

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

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

3.3 Prerecorded Webinar Conference

The Company will post a prerecorded webinar (“Proposers’ Conference Webinar”) for prospective Proposers to learn about the provisions and requirements of this RFP on the Company’s RFP website.

Following the Proposers’ Conference Webinar, prospective Proposers may submit clarifying questions to the RFP Email Address set forth in Section 1.4 to better understand the Company’s RFP process.

The Company will endeavor to address all questions that will be helpful to prospective Proposers via a Q&A section on the RFP website. General responses will be posted to the RFP website. Duplicate questions will not be answered.

Prospective Proposers should review the RFP website's Q&A section prior to submission of their Proposal.

3.4 Preparation of Proposals

- 3.4.1 Each Proposer shall be solely responsible for reviewing the RFP (including all attachments and links) and for thoroughly investigating and informing itself with respect to all matters pertinent to this RFP, the Proposer's Proposal, and Proposer's anticipated performance under the Agreements. It is the Proposer's responsibility to ensure it understands all requirements of the RFP, to seek clarification if the RFP's requirements or Company's request is not clear, and to ask for any confirmation of receipt of submission of information. Under Section 1.5.4, the Proposer is responsible for any errors in its Proposal(s).
- 3.4.2 Proposers shall rely only on official information provided by the Company in this RFP when preparing their Proposal. The Company will rely only on the information included in the Proposals and additional information solicited by the Company to Proposers in the format requested, to evaluate the Proposals received. Evaluation will be based on the stated information in this RFP and on information submitted by Proposers in response to this RFP. Proposal submissions should not reference previous RFP submissions for support. Proposers also should not assume that any previous RFP decisions/preferences will also pertain to this RFP.
- 3.4.3 Each Proposer shall be solely responsible for, and shall bear all of its costs incurred in the preparation of its Proposal and/or its participation in this RFP, including, but not limited to, all costs incurred with respect to the following: (1) review of the RFP documents; (2) meetings with the Company; (3) Site visits; (4) third-party consultant consultation; and (5) investigation and research relating to its Proposal and this RFP. 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 an agent⁹ of the Proposer.

3.5 Organization of the Proposal

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

3.6 Proposal Limitations

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

⁹ 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.

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 to accept or reject, in whole or in part, any or all Proposals submitted in response to this RFP, to negotiate with any or all Proposers eligible to be selected for award, or to withdraw or modify this RFP in whole or in part at any time.

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

3.7 Proposal Compliance and Bases for Disqualification

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

- Any unsolicited contact by a Proposer or prospective Proposer with personnel of the Company pertaining to this RFP as described in Section 1.3.
- Any illegal or undue attempts by or on behalf of the Proposer or others to influence the Proposal Review process.
- The Proposal does not meet one or more of the Eligibility Requirements specified in Section 4.2.
- The Proposal does not meet one or more of the Threshold Requirements specified in Section 4.3.
- The Proposal is deemed to be unacceptable through a fatal flaws analysis as described in Section 4.4.2.
- The Proposer does not respond to a Company request for additional information to clarify the contents of its Proposal within the timelines specified by the Company.
- The Proposal contains misrepresentations or errors.

3.8 Agreements

If selected for the Final Award Group, a Proposer will be expected to enter into an Agreement with the Company for the Proposed Solution, subject to the parties' final agreement. The Agreement utilized will depend on the type of technology proposed. For proposed resources that contain components that are not encompassed by the available Agreements, then the terms of the Agreement will be modified to address the specific technology and/or component.

3.8.1 For Both BTM and IFTM Proposed Solutions

- As described in Section 2.2, the Performance Standards identified in the applicable Agreement establish the minimum requirements a Proposal must satisfy to be eligible for consideration in this RFP. A Proposed Solution's ability to meet these Performance Standards is a Threshold Requirement under Section 4.3. Note that for IFTM only, Performance Standards is also a Non-Price Related Criteria under Section 4.4.2.2. As such, the Performance Standards included in the Agreements are non-negotiable. Proposers may propose modifications to other sections of the Agreements but are encouraged to accept such terms as written in order to expedite the overall RFP process and potential contract negotiations. As a component of their Proposals, Proposers who elect to propose modifications shall provide a Microsoft Word red-line version of the relevant document identifying specific proposed modifications to the language that the Proposer is agreeable to, as well as a detailed explanation and supporting rationale for each modification.
- General comments, drafting notes and footnotes such as "parties to discuss" are unacceptable and will be considered non-responsive. Proposed modifications to the Agreements 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 Agreements on the RFP website and through the PowerAdvocate platform for the RFP. Any proposed modifications to the Agreements except for Performance Standards will be subject to negotiation between the Company and the Final Award Group. As stated above, since general comments, drafting notes, and footnotes without accompanying specific proposed language modifications are unacceptable and non-responsive, the Company will not negotiate provisions simply marked by such general comments, drafting notes and footnotes.
- The Company has an interest in maintaining consistency for certain provisions of the Agreements, such as the calculation of availability and payment terms. Therefore, for such provisions, the Company will endeavor to negotiate similar and consistent language across the Agreements for the Final Award Group.
- Proposals that do not include specific proposed modifications to the applicable Agreements will be deemed to have accepted such applicable Agreement in its entirety.

3.8.2 Specific to BTM Proposed Solutions

The Company intends to contract for an aggregation of BTM customer-sited assets through this RFP using its GSPA, attached as Appendix K.

- 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.

3.8.3 Specific to IFTM Proposed Solutions

3.8.3.1 The Company intends to contract for IFTM variable renewable dispatchable generation projects through this RFP using its SCCPA, attached as Appendix L.

- The SCCPA was created for the sole use for contracting under this IGP Soft Launch RFP only. The SCCPA is for in front of the meter projects that will provided the requested services. The SCCPA provides a fixed monthly payment in exchange for the availability of the contracted service. Liquidated damages will be assessed if the project fails to provide the contracted services as and when required under the SCCPA.
- If the Proposed Solution utilizes a technology other than photovoltaic (“PV”) and/or contains components that are not encompassed by the SCCPA, then the terms of the SCCPA will be modified to address the specific technology and/or component.
- In general, under the SCCPA, payment to the Seller will be in the form of a Lump Sum Payment component to cover the fixed costs of the Proposal. In return, the Seller shall guarantee minimum performance and availability metrics to ensure that the Facility is maintained and available for energy storage (if applicable) and dispatch, as well as provide an indication of the available energy in near real-time for the Company’s dispatch. Company shall not be obligated to accept, or be required to pay for test energy generated by the Facility during acceptance testing or other test conditions.

3.8.3.2 The Company intends to contract for IFTM standalone energy storage projects through this RFP using its ESPPA, pursuant to which Hawaiian Electric will purchase energy storage services (i.e., capacity, energy, and ancillary services), attached as Appendix M.

- In general, under the ESPPA, payment to the Seller consists of a Lump Sum Payment to cover dispatchability and availability of the Facility. In return, the Seller shall guarantee minimum performance and availability metrics to ensure that the Facility is maintained and available for energy storage and dispatch, as well as provide an indication of the available energy in near real-time for the Company’s dispatch.

3.9 Pricing Requirements

The Pricing Requirements will depend on the technology proposed.

3.9.1 For both BTM and IFTM Proposed Solutions

- Proposers must submit pricing for the Proposal as set forth in Attachment B and responsible for understanding the terms of the applicable Agreement.
- Pricing cannot be specified as contingent upon other factors (e.g., changes to state or federal tax policy).
- Escalation in pricing over the terms of the Agreement is prohibited.
- Pricing information must only be identified within specified sections of the Proposal instructed by this RFP’s Appendix B Proposer’s Response Package (i.e., Proposal pricing information must be contained within defined Proposal sections of the Proposal submission). Pricing information contained anywhere else in a Proposal will not be considered during the evaluation process.

3.9.2 Specific to BTM Proposed Solutions

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

The Proposer's Response Package must include the following pricing components:

- **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, in whole or in part, the enablement of customer assets for delivering Reliability (back-tie) 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 Adder¹⁰:** As set forth in Exhibit K of the GSPA, the Company has published minimum incentives on a \$ per kW basis for each of the services to be procured. The Proposer may opt to offer additional incentives to participating customers, which will in turn be paid by the Company via the customer bill. The Incentive Adder will be added to the Proposer's total contract costs in the determination cost effective bids.

3.9.3 Specific to IFTM Proposed Solutions

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

3.10 Proposal Description

Proposer must furnish the following as described and/or provided as part of Attachment B.

3.10.1 For both BTM and IFTM Resources

- State if Proposed Solution is a BTM or IFTM resource.
- Each Proposer must also agree to provide Proposal financial information, including a proposed finance structure information specified in Appendix B. Such information will be used to evaluate Threshold Requirements and non-price criteria (e.g., Financial Viability of Proposer, Financial Strength and Financing Plan, State of Project Development and Schedule) set forth in Sections 4.3 and 4.4.2 of this RFP. Upon selection, the Final Award Group may be requested to provide further detailed cost information if requested by the PUC or the Consumer Advocate as part of the

¹⁰ Customer incentives can begin to be administered at the start of enrollment or as late as the COD. If customer incentives are provided for a longer period, the total NPV of the contract (See Section xx) increases, but if customers do not receive incentives at the start of enrollment, the customer may be less likely to enroll.

Agreement approval process. If requested, such information would be provided to the PUC, Consumer Advocate and Company pursuant to a protective order in the docket.

- The Proposer agrees that no material changes or additions to the Facility from what is submitted in its Proposal will be made without the Proposer first having obtained prior written consent from the Company. Evaluation of all Proposals in this RFP is based on the information submitted in each Proposal on the Proposal Due Date. If any Proposer requests any Proposal information to be changed after that date, the Company, in consideration of whether the evaluation is affected, will determine whether the change is permitted.
- Proposers must agree to provide Reliability (tie-back) Service in accordance with the technical requirements set forth in Table 3.
- Proposers must select which Event Dispatch Option the Proposed Solution will be providing in Attachment B-4 Questionnaire. Table 3 provides the requirements for each option.
 - Option A, Automatic Dispatch: Company equipment identifies a contingency event from either a (1) protective relay trip signal from each circuit breaker that triggers the need for the Reliability (back-tie) Service, or (2) loss of voltage reading from the appropriate Transformer 12kV bus that triggers the need for the Reliability (back-tie) Service, or (3) manual controls to turn on/off delivery during the delivery times and facility shutdown from Company Control Center. The Proposed Solution must reach full output within 12 seconds of the contingency event or manual controls. Proposer shall develop and explain the process to receive contingency event start/end alert from Company equipment.
 - Option B, Scheduled Dispatch: Proposer's solution must reach full output by the stated Delivery Hours start and end time with manual controls to turn off the delivery or shutdown facility from Company Control Center. During the daily scheduled event, at no time should there be an interruption of the Reliability (back-tie) Service, except and unless, a proportional amount of load is also reduced during the duration of the interruption. For instance, if the Reliability (back-tie) Service is located on a circuit that will be transferred to another circuit in the event of a contingency event and is depended on the prevent an overload on the circuit it is being transferred to, and that Proposed Solution is an inverter-based solution, the anti-islanding feature will prevent that resource from immediately re-connecting to the grid to provide that service for 5 minutes. That interruption will not be allowed unless a proportional amount of load is also reduced from being served by the grid until the inverter-based resource is restored to full output.

3.10.2 Specific to BTM Proposed Solutions

- At minimum, provide projected 24-hour energy profiles for a typical weekend and weekday in each month (an annual 8760 hour profile is preferred) in Excel or CSV format

which include availability of resource (for both BTM and IFTM), and PV production, storage charge/discharge, and load without modifications.

- Proposals must include information on data exchange to allow the Company's Information Assurance team to assess the risks in areas such as secure data transfer, data protection and encryption. See Information Assurance Worksheet (Appendix G).
- Proposals must include a Sample Participant Services Agreement. The Participant Services Agreement shall be reviewed by the Company to establish such agreement's alignment with Company guidelines.
- Proposals must provide all information pertaining to the acquisition and enablement of participants as specified in Appendix B to this RFP.

3.10.3 Specific to IFTM Proposed Solutions

- Proposals shall provide projected hourly annual energy production profile of the Facility (8760 hours/year).¹¹
- Proposals that include a generation component are required to provide a Daily Energy Potential ("DEP") RFP Projection. The DEP RFP Projection represents the estimated percentage of days in a year the Proposed Solution will generate enough renewable energy to meet the distribution reliability (back-tie) need as stated in Chapter 2 defined by the Event Dispatch Option selected by the Proposer in accordance with Section 3.10.1, with a probability of exceedance of 95% over a five-year period. The DEP RFP Projection should take into account any losses associated with storing the energy generated in order to provide the required capacity at the time identified by the option. The DEP RFP Projection will be used in the RFP evaluation process and therefore Proposers will be held to their provided value.
- Proposers must provide all information pertaining to the design, development, and construction of the Interconnection Facilities as specified in Appendix B to this RFP.

3.11 Solution Eligibility Requirement

New solutions (in whole or "added on" to an existing system) or existing solutions not utilized in an existing program are eligible for this RFP. The intent of this requirement is to ensure that an existing solution is not double counted or paid more than once for the services it already provides to the grid and already accounted for in the load and DER forecasts. Re-purposing an existing solution to provide the Reliability (back-tie) Service may adversely affect the grid need. The solution could be a combination of renewable resources, energy efficiency, distributed energy resources (PV, PV + Storage), demand response (water heaters, thermostats, etc.), and/or pricing tariffs. If the solution is incrementally participating in another distributed energy resources or demand response program, solicitation or tariff, the Proposal must describe how the solution will perform differently as required and specified in Section 2.1. For example, the Proposal could state it is adding, for the sole use of this procurement, (1) solar panels to a solar project, or (2) utilizing batteries that capture solar energy made available and not

¹¹ The projected hourly annual energy production profile is the projected output from the generating facility without curtailment and before any energy is directed to an energy storage facility, if one will be provided.

currently being utilized under an existing agreement with the Company. Utility scale generation projects currently under contract, including those under Feed-in Tariff, are not eligible for incremental addition for this procurement. Energy Efficiency participants cannot receive a rebate if they receive incentives by participation in this solicitation.

3.12 Confidentiality

- 3.12.1 Each prospective Proposer must submit an executed NDA in the form attached as Appendix E to this RFP by the Proposal Due Date RFP Section 3.1 – Table 4: Proposed RFP Schedule specified in RFP Section 3.1 – Table 4: Proposed RFP Schedule. The form of the NDA is not negotiable. Information designated as confidential by the Company will be provided on a limited basis, and only those prospective Proposers who have submitted an executed NDA will be considered. Proposers must clearly identify all confidential information in their Proposals. However, Proposers should take care to designate as confidential only those portions of their Proposals that genuinely warrant confidential treatment. The Company discourages the practice of marking each and every page of a Proposal as confidential. The Company will make reasonable efforts to protect any such information that is clearly marked as confidential. Consistent with the terms of the NDA, the Company reserves the right to share any information, even if marked confidential, to its agents, or contractors for the purpose of evaluating the Proposal and facilitating potential contract negotiations.
- 3.12.2 Proposers, in submitting any Proposal(s) to Company in response to this RFP, certify that such Proposer has not shared its Proposal(s), or any part thereof, with any other Proposer of a Proposal(s) responsive to this RFP.
- 3.12.3 The Company will request that the PUC issue a Protective Order to protect confidential information provided by Proposers to the Company and to be filed in a proceeding before the PUC. A copy of the Protective Order, once issued by the PUC, will be provided to Proposers. Proposers should be aware that the Company may be required to share certain confidential information contained in Proposals with the PUC, the Consumer Advocate, and the parties to any docket instituted by the PUC, provided that recipients of confidential information have first agreed in writing to abide by the terms of the Protective Order. Notwithstanding the foregoing, no Proposer will be provided with Proposals from any other Proposer, nor will Proposers be provided with any other information contained in such Proposals or provided by or with respect to any other Proposer.

3.13 Credit Requirements for Agreements

- Proposers with whom the Company concludes contract negotiations must post an irrevocable standby letter of credit (for IFTM only – in the form of Development Period Security and Operating Period Security) from a bank chartered in the United States as required and set forth in Article 14 of the PPA and Article 21 of the GSPA.
- The letter of credit amount (for IFTM only – in the form of Development Period Security and Operating Period Security) set forth in the applicable Agreement is a minimum

requirement. Proposers shall not propose an amount lower than that set forth in the applicable Agreement.

- Proposers may be required to provide an irrevocable standby letter of credit in favor of the Company or a monetary escrow account from a bank chartered in the United States in lieu of the required Source Code Escrow in an amount and as required and set forth in the applicable Agreement.
- (IFTM Only) Each Proposer shall be required to provide a satisfactory irrevocable standby letter of credit in favor of the Company from a bank chartered in the United States to guarantee Proposer's payment of interconnection costs for all Company-Owned Interconnection Facilities in excess of the Total Estimated Interconnection Costs and/or all relocation costs in excess of Total Estimated Relocation Costs that are payable to Company as required and set forth in Attachment G to the SCCPA or the ESPPA.

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Chapter 4: Evaluation Process and Evaluation Criteria

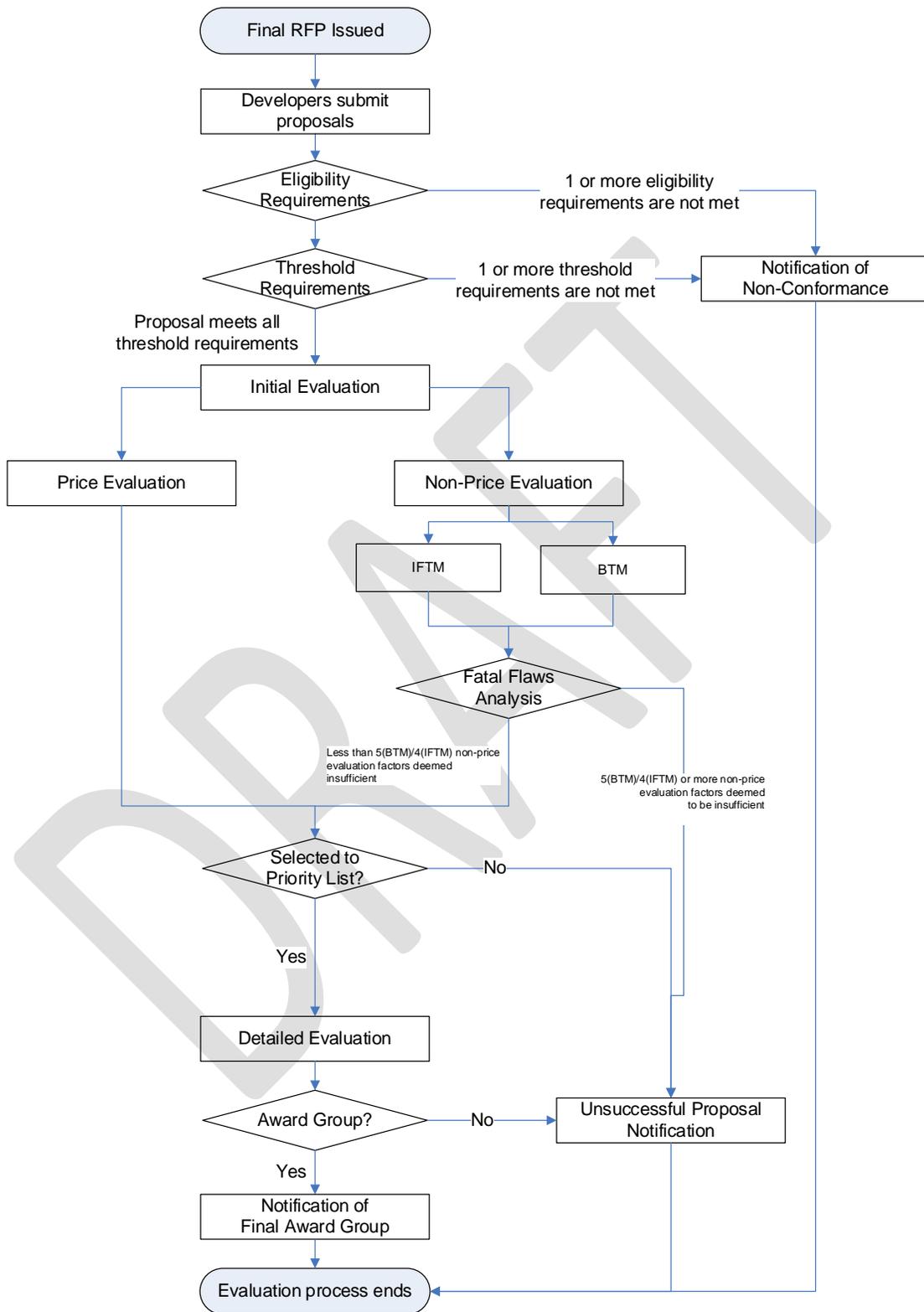
4.1 Proposal Evaluation and Selection Process

The Company will employ a multi-step evaluation process. Once the Proposals are received, the Proposals will be subject to a consistent and defined review, evaluation, and selection process. This Chapter provides a description of each step of the process, along with the requirements of Proposers at each step. Figure 1 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 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.¹² If a Proposer is provided the opportunity to cure any aspect of its Proposal, the Proposer shall be given three (3) business days to cure from the date of notification to cure. Proposals that have successfully met the Eligibility and Threshold Requirements will then enter a two-phase process for Proposal evaluation, which includes the Initial Evaluation resulting in the development of a Priority List, and then a Detailed Evaluation process to arrive at a Final Award Group.

¹² As a general rule, if a Proposer does not include a requested document, inadvertently excludes minor information or provides inconsistencies in its information, it may be given a chance to cure such deficiency. If a Proposer fails to provide material required information in its Proposal and providing the Proposer an opportunity to cure is deemed by the Company as an unfair advantage to such Proposer, the Proposal could be classified as non-conforming and eliminated for failure to meet Eligibility Requirements.

Figure 1: 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.

- Proposal including required uploaded files must be received on time via the PowerAdvocate Platform.
- Proposal must not contain material omissions.
- Proposal must be signed and certified by an officer or other authorized person of the Proposer.
- Proposers must fully execute the agreements or other documents required pursuant to this RFP.
- Proposer must provide a certificate of good standing from the State of Hawai'i Department of Commerce and Consumer Affairs.
- Proposer must provide federal and state tax clearance certificates for the Proposer.
- Proposal must not be contingent upon changes to existing county, state, or federal laws or regulations.
- The Proposed Solution must conform to the technical requirements as stated in Section 2.1 and in the applicable Agreement.
- The Proposal must have a COD commensurate with the need being addressed.
- (IFTM Only) Proposed Solution infrastructure and point of interconnection must be located outside the 3.2 feet sea level rise exposure area (SLR-XA) as described in the Hawai'i Sea Level Rise Vulnerability and Adaptation Report (2017), and are not located within a Tsunami Evacuation Zone while being situated in East Kapolei.

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 Proposal meets each of the Threshold Requirements. Proposals that fail to provide this information or meet a Threshold Requirement will be eliminated from further consideration. The Threshold Requirements for this RFP are the following:

- **Performance Standards:** The Proposed Solution must be able to meet the performance attributes identified in the RFP, the Performance Standards identified in the applicable Agreement and the technical requirements identified in Appendix I of Rule 14H. Proposals should include sufficient documentation to support the stated claim that the 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 at the scale being proposed. Proposals should include any supporting information for the Company to assess the commercial and financial maturity of the technology being proposed.

- **Viability of Proposer's Financial Plan:** Proposers must provide a basic financial plan for the project with details on the sources of debt and equity, capital structure, etc. Evidence must be provided of general support for project financing.
- **Credit/Collateral Requirements:** Proposers shall agree to post a Letter of Credit as described in Section 3.13 of this RFP.
- **Financial Compliance:** The proposed Project must not cause the Company to be subject to consolidation, as set forth in Financial Accounting Standards Board ("FASB") Accounting Standards Codification Topic 810, Consolidation ("ASC 810"), as issued and amended from time to time by FASB. Proposers are required to state to the best of their knowledge, with supporting information to allow the Company to verify such conclusion, that the Proposal will not result in the Seller under the Agreement being a "Variable Interest Entity" and result in the Company being the primary beneficiary of the Seller that would trigger consolidation of the Seller's finances on to the Company's financial statements under FASB ASC 810. The Company will perform a preliminary consolidation assessment based on the Proposals received. The Company reserves the right to allow a Proposal to proceed through the evaluation process through selection of the Priority List and work with the Proposer on this issue prior to or during Agreement negotiations.
- **Experience of the Proposer:** The Proposer, its affiliated companies, partners, and/or contractors and consultants on the Proposer's team must have experience in the delivery of Reliability (tie-back) Services through at least (1) project that is 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 in its Proposal's RFP Appendix B Section 2.13 tables demonstrating that at least one member of the Proposer's team, whose experience is being identified to meet this threshold criterion, has a firm commitment to provide services to the Proposer related to the Proposed Solution.
 - (IFTM Only) In addition to the above, at least one team member must have experience in financing, designing, constructing, interconnecting, owning, operating, and maintaining at least one (1) project similar to the Proposed Solution.
- **(IFTM Only) Community Outreach:** Gaining community support is an important part of a Project's viability and success. A comprehensive community outreach and communications plan ("Community Outreach Plan") is an essential roadmap that guides a developer as it works with various communities and stakeholders to gain their support for a Project. Proposers must include a Community Outreach Plan that describes the Proposer's commitment to work with the neighboring community and stakeholders and to provide them timely Project information during all phases of the Project. The Community Outreach Plan shall include but not be limited to the following information: Project description, community scoping (including stakeholders and community concerns), Project benefits, government approvals, development process (including project schedule), and a comprehensive communications plan.

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

- **(IFTM Only) Site Control:** The Proposal must demonstrate that the Proposer has Site Control for all real property required for the successful implementation of a specific Proposal at a Site , including any Interconnection Facilities for which the Proposer is responsible. The need for a firm commitment is necessary to ensure that Proposals are indeed realistic and can be relied upon as the Company moves through the remainder of the RFP process. In addition, developmental requirements and restrictions such as zoning of the Site and the status of easements must be identified and will be considered in determining whether the Proposal meets the Site Control threshold. To meet this Site Control requirement, Proposers must do one of the following:
 - Provide documentation confirming (1) that the Proposer has an existing legally enforceable right to use and control the Site, either in fee simple or under leasehold for a term at least equal to the term of the SCCPA or ESPPA ("Site Control") as specified in the Proposer's Proposal (taking into account the timelines set forth in this RFP for selection, negotiation, and execution of a SCCPA or ESPPA and PUC approval), and (2) the applicable zoning for the Site and that such zoning does not prohibit the development of the Site consistent with the Proposal; or
 - Provide documentation confirming, at a minimum: (1) that the Proposer has an executed binding letter of intent, memorandum of understanding, option agreement, or similar document with the land owner (a "binding commitment") which sets forth the general terms of a transaction that would grant the Proposer the required Site Control, and (2) the applicable zoning for the Site and that such zoning does not prohibit the development of the Site consistent with the Proposal. The binding commitment does not need to be exclusive to the Proposer at the time the Proposal is submitted and may be contingent upon selection of the Proposal to the Final Award Group. If multiple Projects are provided a binding commitment for the same Site, the documents granting the binding commitments must not prevent the Company from choosing the Proposal that otherwise would have been selected.
 - Government/Public Lands Only: The above two bullet points may not be feasible where government or publicly-owned lands are part of the Site or are required for the successful implementation of the Proposal. In such a case, at a minimum, the Proposer must provide a credible and viable plan, including evidence of any steps taken to date, to secure all necessary Site Control for the Proposal, including but not limited to evidence of sufficient progress toward approval by the government agency or other

body vested with the authority to grant such approval (as demonstrated by records of the agency). The Proposer will still be required, however, to demonstrate Site Control as required in the applicable SCCPA or ESPPA should the Proposal be selected to the Final Award Group.

4.4 Initial Evaluation – Price and Non-Price Analysis

Proposals that meet both the Eligibility and Threshold Requirements are eligible Proposals which will then be subject to a price and non-price assessment. Two teams have been established to undertake the bid evaluation process: 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 where the price and non-price evaluation models to be used will not be provided to Proposers. The evaluation models will be finalized prior to the receipt of Proposals, and filed confidentially in the IGP docket for review by the PUC and Consumer Advocate.

4.4.1 Initial Evaluation of the Price Related Criteria

For the initial evaluation price analysis, eligible Proposals will be grouped by the specific need they are intending to address, Kapolei 4 Circuit Extension or Ho‘opili Substation Transformer #1 and #2 (“Ho‘opili Need”).

The Company will use the costs provided in the Proposal to create a normalized net present value (“NNPV”) per kW to rank the Proposals in the initial evaluation. For IFTM Proposed Solutions, the NNPV will utilize the Lump Sum Payment (\$/year) and the Offer Size (MW). For BTM Proposed Solutions, NNPV will utilize the Management Fee (\$/kW/month), Enablement Fee (\$/kW), Incentive Adder (\$/kW/month), Incentive (\$/kW/month),¹³ and Offer Size (MW). The NNPV will be brought to the same year dollars as the COD year. The eligible Proposals for each evaluation category will be ranked by NNPV.

4.4.2 Initial Evaluation of the Non-Price Related Criteria

The non-price evaluation will be separated into two categories: (1) Specific to BTM Proposed Solutions and (2) Specific to IFTM Proposed Solutions. Each category will be evaluated based on its own evaluation criteria.

All 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. The total non-price criteria score will be the sum of the scores for each of the individual non-price criteria. The Company will then award non-price

¹³ BTM Aggregators can start their contract at the time they start their enrollment to receive Enablement and Management Fees or wait for the COD to receive fees. The participants can receive incentives at the start of enablement or wait for the COD. The NNPV will increase if the contract has a longer period.

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

During the non-price criteria evaluation, a fatal flaws analysis will also be conducted such that any Proposal that is deemed not to meet the minimum standards level¹⁴ (for BTM Proposed Solutions, five (5) or more non-price criteria; and for IFTM Proposed Solutions, four (4) or more non-price criteria) will be disqualified given that the Proposal has failed to meet a majority of non-price factors that are indicative as to the general feasibility and operational viability of a Proposed Solution.

4.4.2.1 Specific to BTM Resources

For the non-price analysis, each Proposal will be evaluated on each of the seven (7) non-price criteria categories set forth below to assess their merit in the general areas of Proposed Solution development feasibility and operational viability. These are presented below with their corresponding weights.

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

The non-price criteria are:

- **Experience and Qualifications** – Proposer 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 Reliability (back-tie) 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 Proposer in recruiting, enrolling, enabling and aggregating customer assets (similar to those being proposed) and managing these assets so as to successfully deliver Reliability (back-tie) 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.
- **Financial Strength and Financing Plan** – This criterion addresses the comprehensiveness and reasonableness of the financial plan for the Reliability (back-tie) Services delivery commitment.

¹⁴ A score of 3 is the "meets minimum standards" level that a Proposal must achieve in at least five (5) criteria.

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

- **GSPA Contract Exceptions** – In general, Proposers are encouraged to accept the contract terms identified in the GSPA where possible in order to expedite the overall RFP process and potential GSPA negotiations. Proposers who elect to propose modifications to the GSPA shall provide a MS Word red-line version of the GSPA identifying specific modifications as a component of their Proposal and shall also provide a detailed explanation and supporting rationale for each of the proposed modifications to the GSPA in order to enable the Company to evaluate the impact that the proposed modifications will have on the overall risk assessment associated with the evaluation of each Proposal. With respect to the foregoing, Proposers are encouraged to avoid using drafting notes and comments without making red-line changes directly to the GSPA, or otherwise reserving the right to make additional modifications to the GSPA at a later time, as this will make it difficult for the Company to determine the impact any such unspecified modifications will have on the overall risk assessment associated with the evaluation of each Proposal. General comments, such as “parties to discuss” are unacceptable and will not be considered as a modification.
- **Participants Acquisition Strategy** – In tandem with the bid size, the Company will be extremely attentive to the customer recruitment strategy. The Company will assess this in terms of the credibility of the approach and seek to determine how much knowledge or experience the Proposer has with the Hawai'i market. The Company sees customer or participant acquisition as one of the largest areas of uncertainty or risk in the 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 resources. A plan that utilizes local installers, technicians or contractors will be rated more favorably than those that do not have a similar consideration.
- **Participant Service Agreement** – The Company has specified that while the Proposer must develop a Participant Service Agreement for engagements directly with customers, the Company would need to review the form of agreement for completeness relative to the Company guidelines.
- **Conformance with Hawaiian Electric's Code of Conduct Standards** – The Company has specified that a Proposer must conform to, at a minimum, the Company Code of Conduct. This is of particular importance given that Suppliers will be interactive with customers, typically on customer premises and otherwise indirectly acting as a certified partner with the Company. As

such, the Company will be interested in reviewing the Proposers' Code of Conduct standards to ensure adequate conformity to Company standards.

- **Conformance with Information Assurance Policies** – Customer data will be exchanged as part of the enrollment and enablement process. Furthermore, Supplier event performance data and Company system data will also be shared across Supplier-Company systems. As a result, conformity to Company's Information Assurance standards is a key part of this engagement, especially in areas such as secure data transfer, data protection and encryption.

Specific to IFTM Proposed Solutions

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 Proposal development feasibility and operational viability. These are presented below, with their corresponding weights.

- Community Engagement and Cultural Resource Impacts (20%)
- State of Project Development and Schedule (20%)
- Performance Standards (20%)
- Environmental Compliance and Permitting Plan (10%)
- Experience and Qualifications (10%)
- Financial Strength and Financing Plan (10%)
- SCCPA or ESPPA Contract Exceptions (10%)

The non-price criteria are:

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

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

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

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

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

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

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

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

At a minimum, Proposed Solutions should be expected to have minimal environmental impact for most areas and Proposals should provide a comprehensive plan to mitigate the identified potential or actual significant environmental impacts to remain in environmental compliance. The proposed mitigation plans should be included in the Proposed Solution timeline. Preference

will be given to Proposals that provide a more detailed plan as well as those that have proactively taken steps to mitigate potential environmental impacts.

Also, this criterion requires that, at a minimum, Proposers should have identified, and disclosed in their Proposal, all major permits, approvals, appurtenances and entitlements (including applicable access, rights of way and/or easements) (collectively, the “permits”) required and have a preliminary plan for securing such permits. Preference will be given to Proposals that are able to provide a greater degree of certainty that its plan to secure the required permits is realistic and achievable or have already received all or a majority of the required permits. The Proposer should disclose all identified (a) discretionary permits required, i.e., those requiring public or contested case hearings and/or review and discretionary approval by an appropriate government agency and (b) ministerial conditions without discretionary approval conditions. In all cases, the Proposer must provide a credible and viable plan to secure all necessary and appropriate permits necessary for the project. For example, if the project is located within an agricultural district, the Proposer shall provide evidence of Proposer’s verification with the appropriate government agency that the project complies with HRS Section 205-2 and Section 205-4.5, relating to solar energy facilities placed on agricultural land, provided, however that where a special use permit (under Section 205-6), exemption (under Section 205-6), or amendment to land use district boundary lines (under Section 205-4) is required to secure such compliance, Proposer shall identify the need for such permit, exemption or amendment and provide a list of required prerequisites and/or conditions and a realistic timeline necessary to obtain such permit, exemption or amendment satisfactory for Proposer to still meet its designated COD.

- **Experience and Qualifications:** Proposals will be evaluated based on the experience of the Proposer in financing, designing, constructing, interconnecting, owning, operating, and maintaining projects (including all components of the project) of similar size, scope and technology. At a minimum, Proposals must show via the table format specified in RFP Appendix B Section 2.13 that at least one (1) team member has specific experience in each of the following categories: financing, designing, constructing, interconnecting, owning, operating, and maintaining at least one electricity generation project including all components of the project similar to the Proposed Solution being proposed. Preference will be given to Proposers with experience in successfully developing multiple projects that are similar to the one being proposed and/or that have prior experience successfully developing and interconnecting a utility scale project to the Company’s System.
- **Financial Strength and Financing Plan:** This criterion addresses the comprehensiveness and reasonableness of the financial plan for the Proposed Solution as well as assesses the financial strength and capability of the Proposer to develop the Proposed Solution. A complete financial plan addresses the following issues: Proposed Solution ownership, capital cost and capital structure, sources of debt and equity, and evidence that credit-worthy entities are interested in financing the Proposed Solution. The financial strength of Proposers or their credit support providers will be considered, including their credit ratings. The financing participants are

expected to be reasonably strong financially. Developers and their sources of capital that have investment grade credit ratings from a reputable credit rating agency (S&P, Moody's, Fitch) will also be given preference, with those that have higher credit ratings ranked higher.

- **Contract Proposed Modifications:** Proposers are encouraged to accept the contract terms identified in the SCCPA or ESPPA in their entirety in order to expedite the overall RFP process and potential contract negotiations. Proposers who accept the agreements without proposed modifications will receive a higher score and will be the only proposals that can achieve the highest scoring for this non-price evaluation. Technology-specific or operating characteristic-required modifications, with adequate explanation as to the necessity of such modifications, will not jeopardize a project's ability to achieve the highest score. Proposers who elect to propose modifications to the agreements shall provide a Microsoft Word red-line version of the applicable document identifying specific proposed modifications to the agreement language, as well as a detailed explanation and supporting rationale for each modification. General comments without proposed alternate language, drafting notes without explanation or alternate language, footnotes such as "parties to discuss," or a reservation of rights to make additional modifications to the agreements at a later time are unacceptable, will be considered unresponsive, and will result in a lower score. The Company will evaluate the impact that the proposed modifications will have on the overall risk assessment associated with the evaluation of each Proposal.

4.5 Selection of a Priority List

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

The Company will select a Priority List from the highest-scoring Proposals. The Company's objective for the Priority List selection process is to identify and select Proposals from the evaluation categories that are low cost and viable Proposed Solutions, as defined by the price and non-price weights at this stage in the process, that can be grouped in combinations to meet the Reliability (back-tie) Services targets. Selection to the Priority List does not assure an eligible Proposed Solution's inclusion in the selection of the Final Award Group.

4.6 Detailed Evaluation

The Company intends to use a production simulation computer model to perform the Detailed Evaluation. The Detailed Evaluation will seek to determine a portfolio of non-wire alternatives that is lower cost than the Company traditional wired solution. It will be based on the Total Net Cost to the Company of integrating the combination of Priority List Proposals onto the Company's System which includes:

1. The cost to dispatch the combination of Proposed Solutions; and
2. The cost of imputed debt, if applicable.

The Detailed Evaluation will compare the cost of a portfolio of the highest ranked solutions, identified by the Priority List, against the cost of the Company traditional wired solution. If the portfolio is determined to be lower cost, it will then be input into the model to confirm that it can also meet the 8760 profile of the equipment overload. If a Proposal or set of Proposals in the portfolio cannot meet the need in the production simulation, the next highest ranked Proposal in the same evaluation category will be substituted into the portfolio. The cost of the new portfolio will again be compared against the cost of the Company traditional wired solution to ensure that the portfolio of Proposals is still lower cost prior to proceeding to the next round of production simulation. This process will continue until a cost-effective Reliability (back-tie) Service portfolio can be determined or the wires solution is determined to be a lower cost than the least cost portfolio of Proposals that can meet the NWA need.

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

During the Detailed Evaluation and before the Proposals advance to the Final Award Group, the Company will perform load flow analyses to determine if certain Proposal combinations introduce distribution circuit constraints that will factor into the selection process. Proposals selected must not have any additional constraints imposed based on the load flow analysis to advance to the Final Award Group. However, the Company reserves the right to allow minor modifications to a Proposal to avoid such additional constraints. If such modification resulted in a modification of the Proposed Solution, the pricing proposed would also need to be revised. Under no circumstances would a Proposer be allowed to increase their price as a result of such minor modification.

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

The Company may assess additional combinations of Proposals if the time and capability exist to perform such analyses.

4.7 Selection of the Final Award Group

Based on the results of the Detailed Evaluation, including the load flow analysis and review of circuits, and review of other factors, the Company will select a Final Award Group from which to begin contract negotiations. All Proposers will be notified at this stage of the evaluation process whether their

Proposal is included in the Final Award Group. Proposal evaluation results and rankings will not be disclosed to the Proposers.

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

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

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

Chapter 5: Post Evaluation Process

5.1 Interconnection Requirements Study (IRS) Process

Appendix III of Rule 14H shall determine the need for an IRS. If determined necessary, a complete package of IRS Data Request worksheets, project single line diagram(s), models for equipment and controls, list(s) to clearly identify the components and respective files (for inverters and power plant controller), and complete documentation with instructions, shall be requested once the Final Award Group is announced. See Section 2.11.1 of Appendix B. PSSE Generic models, PSSE User models, and ASPEN models shall be configured to represent all of the functional equipment with settings in place to comply with the Company's performance requirements. These must be checked for functionality by the bidder or its vendors and consultants prior to submission to the Company. Similar and fully accurate PSCAD models shall be submitted in a condition that complies with the PSCAD modeling guidelines provided by the Company. Overlaid validation plots of PSSE Generic models, PSSE User models, and PSCAD models shall be submitted as described in the IRS Data Request worksheets to ensure compatible responses from each model. Complete data packages shall be submitted 15 Days following announcement of the Final Award Group.

After proposals are submitted, the Company will inspect the data packages for general completeness. For any incomplete submissions, a list of missing or non-functional items will be provided. Proposers will be given 15 Days to resolve data and modeling deficiencies. The Company may withdraw Proposed

Solutions if their submission requirements are deemed incomplete for the lack of requested models and validation plots. Proposals that are complete will be able to move to an IRS.

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

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

Proposers shall be responsible for the cost of the IRS under separate agreements for the System Impact Study and the Facilities Study. The overall IRS will provide information including, but not limited to, an estimated cost and schedule for the required Interconnection Facilities for a particular Proposed Solution and any required mitigation measures. Proposers will be responsible for the actual final costs of all Seller-Owned Interconnection Facilities and Company-Owned Interconnection Facilities. Upon reviewing the results of the IRS Technical Review process, if required, pursuant to Rule 14H, Appendix III, Proposers will have the opportunity to declare the Agreement null and void in the event that the estimated interconnection costs and schedule for the Proposed Solution are higher than what was estimated in the Proposal.

5.2 Contract Negotiation Process

Within five (5) business days of being notified by the Company of its intent to enter into contract negotiations, Proposers selected for the Final Award Group will be required to indicate, in writing to the Company's primary contact for this RFP, whether they intend to proceed with their Proposals. Proposers who elect to remain in the Final Award Group will be required to keep their Proposal valid through the award period. Contract negotiations will take place in parallel with the IRS process, if required. The Company's goal is to complete contract negotiations and submit executed Agreement(s) for PUC approval within six (6) months of notification of intent to enter contract negotiations. The IRS may not be completed at such time. The Company intends to execute and file the Agreement(s) with the PUC for approval and later amend the Agreement(s) to include the results of the IRS.

5.3 Community Outreach and Engagement (IFTM only)

The public meeting and comment solicitation process described in this Section and Section 29.21 of the SCCPA or Section 27.17 of the ESPPA (Community Outreach Plan) do not represent the only community outreach and engagement activities that can or should be performed by a Proposer. Within 30 Days of the start of contract negotiations, Proposers shall have provided the Company with an updated comprehensive Community Outreach Plan to work with and inform neighboring communities and stakeholders and to provide them timely information during all phases of the Project. The Community Outreach Plan shall include but not be limited to the following information: Project description, Project stakeholders, community concerns and Proposer's efforts to address such concerns, Project benefits, government approvals, Project schedule, and a comprehensive communications plan. Upon selection to the Final Award Group, a Proposer's Community Outreach Plan shall be a public document available to the public on the Proposer's website and upon request. The Proposer shall also provide the Company with links to their Project website and Community Outreach Plan, which the Company will post on the Company's website. Prior to the execution date of the SCCPA or the ESPPA, Proposers shall also host a public meeting in the community where the proposed Project is to be located for community and neighborhood groups in and around the vicinity of the Project Site that provided the neighboring community, stakeholders and the general public with: (i) a reasonable opportunity to learn about the proposed Project; (ii) an opportunity to engage in a dialogue about concerns, mitigation measures, and potential community benefits of the proposed Project; and (iii) information concerning the process and/or intent for the public's input and engagement, including advising attendees that they will have thirty (30) calendar days from the date of said public meeting to submit written comments to Company and/or Proposer for inclusion in the Company's submission to the PUC of its application for a satisfactory PUC Approval Order. The Proposer shall collect all public comments, and then provide the Company copies of all comments received in their original, unedited form, along with copies of all comments with personal information redacted and ready for filing. If a SCCPA or ESPPA is executed by the Proposer and the Company, the Company may submit any and all public comments (presented in its original, unedited form) as part of its PUC application for this Project. Proposers shall notify the public at least three weeks in advance of the meeting. The Company shall be informed of the meeting. The Company will provide Proposers with detailed instructions regarding the community meeting requirement after the selection of the Final Award Group. (For example, notice will be published in county or regional newspapers/media, as well as media with statewide distribution. The Proposer will be directed to notify certain individuals and organizations. The Proposer will be provided templates to use for the public meeting notices, agenda, and presentation.) Proposers must also comply with any other requirement set forth in the SCCPA or ESPPA relating to Community Outreach.

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

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

5.4 Greenhouse Gas Emissions Analysis (IFTM only)

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

5.5 PUC Approval of Agreement

Any signed Agreement(s) resulting from this RFP is subject to PUC approval as described in the SCCPA, including Article 12 and Section 29.20 thereof, Article 24 of the ESPPA, or Article 16 of the GSPA.

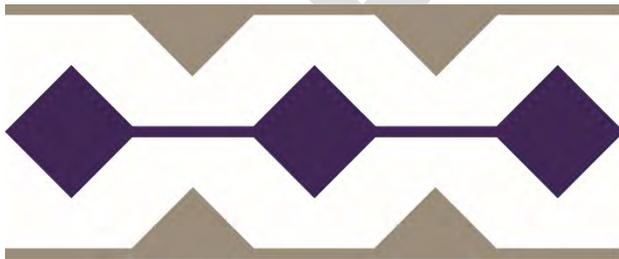
DRAFT REQUEST FOR PROPOSALS
FOR
NON-WIRES ALTERNATIVES TO PROVIDE RELIABILITY (BACK-TIE)
SERVICES

ISLAND OF O‘AHU – EAST KAPOLEI AREA

SEPTEMBER 3, 2019

Docket No. 2018-0165

Appendix A – Definitions



**Hawaiian
Electric**

Placeholder

DRAFT

DRAFT REQUEST FOR PROPOSALS
FOR
NON-WIRES ALTERNATIVES TO PROVIDE RELIABILITY (BACK-TIE)
SERVICES

ISLAND OF O‘AHU - EAST KAPOLEI AREA

SEPTEMBER 3, 2019

Docket No. 2018-0165

*Appendix B – Proposer’s Response Package /
IRS Data Sheet*



**Hawaiian
Electric**

Placeholder

DRAFT

DRAFT REQUEST FOR PROPOSALS
FOR
NON-WIRES ALTERNATIVES TO PROVIDE RELIABILITY (BACK-TIE)
SERVICES

ISLAND OF O‘AHU – EAST KAPOLEI AREA

SEPTEMBER 3, 2019

Docket No. 2018-0165

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

DRAFT

I. INTRODUCTION

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 Reliability (back-tie) Services. This Code of Conduct Procedures Manual has been developed for the Companies’ Reliability (back-tie) Services, Island of O’ahu - East Kapolei Distribution System Request for Proposals (“RFP”) to manage the (1) the protocols for communicating with proposers, and others; (2) the documentation forms, including logs for any communications with proposers; and (3) other information consistent with the requirements of the solicitation process.

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.

II. DEFINITIONS

- Affiliate – An “affiliated interest” of the Company as defined in Hawaii Revised Statutes Section 269-19.5(a),
- 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 – 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 B 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.
- Company Executive in Charge – A Company’s executive responsible for ensuring compliance with this Code of Conduct and reporting any violations by the Company of the Code of Conduct. For any RFP of the Companies, the Company Executive in Charge shall be the Senior Vice President of Business Development & 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 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 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.
- Director of Renewable Acquisition Division – The supervisor of the Division within the Company responsible for the implementation of the competitive bidding

process. The Director of Renewables Acquisition Division shall be a member of the Company RFP Team.

- Eligible Proposer – A Proposer who has met the minimum requirements and threshold requirements in the RFP necessary to remain eligible to compete in the process.
- Energy Contract Manager – The staff position(s) within the Company's Demand Response Division responsible for managing the RFP.
- Manager of Energy Procurement – The manager of the Division within the Renewable Acquisition Department responsible for directing the resources responsible for the implementation of the competitive bidding process. The Manager of Energy Procurement shall be a member of the Company RFP Team. The Manager of Energy Procurement will report to the Director of Renewable Acquisition on the status of the competitive bidding process.
- 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 – A written request for proposals issued by one of the Companies to publicly solicit bids for the Reliability (back-tie) Services for the Company's use pursuant to the competitive bidding process.
- 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 Reliability (back-tie) Services that best meet the needs of the respective Company's distribution system. 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 Proposers 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 reliability services, 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 seeking to mitigate growth and challenges at the various distribution system on each island.

The needs for each island's distribution 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. The Companies also intend that the evaluation process will be well-documented so that the results of the evaluation can be fully reviewed 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 and 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 Proposer.

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

B. Communications Protocols

1. Overview and General Requirements.

The Company has developed policies and procedures governing communication between the Company RFP Team, the Proposers, 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.

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 Energy Contract Manager shall serve as the primary contact person for all RFP communications with Proposers. This is important from the standpoint of maintaining consistency and confidentiality of information between Proposers and the Company. For documentation and oversight purposes, all communications from Proposers must be submitted to an established website link provided by the Company (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.

- 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 1.4. Questions and responses that do not contain Confidential Information and which are deemed relevant to all Proposers will be published without identifying information via the Company RFP website.

- f. Once bids are received, the Company may submit information requests to Proposers to clarify their proposals or request additional information. All contacts with Proposers will be through the Company RFP website.

- g. A single exception to the communication process outlined above shall be instituted for the purpose of facilitating the verification of proposed project models and documentation required to perform the IRS. For this limited scope, the Company's Manager of Interconnection Services will serve as the primary contact person for all such interconnection communications with the Proposers on the Priority List, provided that all necessary confidentiality and non-disclosure agreements are in place. The Manager of

Interconnection Services and personnel in the Interconnection Services Department shall be members of the Company RFP Team. Interconnection communications will be limited to a Proposer's bid and no more information other than as necessary to facilitate such communications will be permitted. Discussion of locations of proposed projects shall be limited to that necessary only to determine the interconnection requirements of such project.

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 any Company personnel or consultants not on the Company RFP Team

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 Energy Contract Manager to include the assisting Company personnel.

d. A written record of the time, date and substance of all conversations, data and written material directly or indirectly exchanged with the Company RFP Team, that pertain to the RFP shall be maintained on the Communications Log. A SharePoint-based interface will be set up and managed by the Energy Contract Manager to provide an easy to use and understand mechanism to log and memorialize these conversations.

V. WHEN THE CODE OF CONDUCT BECOMES EFFECTIVE

A. No later than 30 days after the RFP is issued, 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 Energy Contract Manager 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 RFP issuance, a Roster listing employee (with their title) and consultants in their Company RFP Team designated role; Company RFP Team. 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 Energy Contract Manager shall verify that all employees (whether full-time, part-time, temporary, or contract) and consultants involved in the competitive bidding process, such as members of the Company RFP Team, 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 Energy Procurement shall also

verify that such employee or consultant has submitted an "Acknowledgment of Code of Conduct".

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

D. No later than 30 days after RFP issuance, 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 with the successful Proposer(s) is/are executed, or when written notice of termination of the RFPs to be conducted is provided by the Manager of Energy Procurement or his/her designee to 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

IX. APPLICABILITY OF THE ATRs

Except as specifically made applicable under Section V.C.1.i of the ATRs with respect to wholesale power procurement from Affiliates, the ATRs shall not apply to RFP

matters covered in the RFP, the Code of Conduct and this Procedures Manual as it relates to the Companies' interactions between the Company RFP Teams and Affiliate Teams. Reference to the ATRs in the Code of Conduct and/or this Manual are specifically for matters outside the Companies' administration of the RFP; provided, however, that such applicability may be revised as necessary and as may be directed by the Commission for any RFP.¹

¹ See Decision and Order No. 35962, filed on December 19, 2018, in Docket 2018-0065, at 56-57.

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Appendix D – PowerAdvocate User Information



**Hawaiian
Electric**

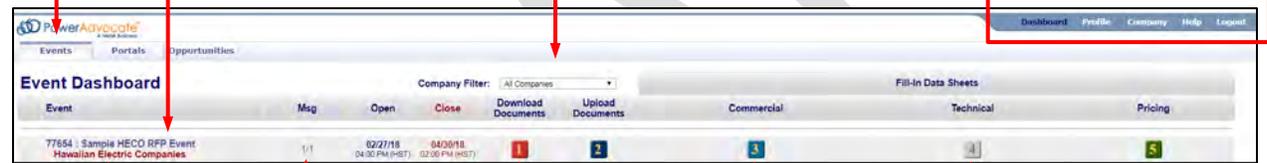
Sourcing Intelligence Quick Start for Suppliers

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

Click numbers to view event tabs

No datasheet available

Number of unread/total messages

Click to view the event's Messaging tab

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.



Document Description	Issue Date	Ref ID	File Name	File Size	Download
Pre Bid Test Doc	01/15/18		Pre_Bid_Test_Doc.docx	11.63 KB	Download

- 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

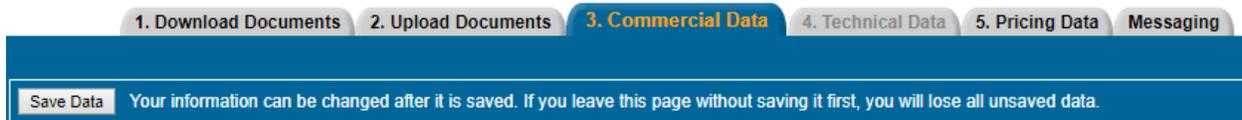
To upload your documents, click "2" on your Dashboard, or on the **2. Upload Documents** tab from within the event.



- 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.

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*Appendix E – Mutual Confidentiality and
Non-Disclosure Agreement*



**Hawaiian
Electric**

APPENDIX E
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 Proposer], a [State of incorporation/organization] [type of entity] ("Proposer") and Hawaiian Electric Company, Inc., a Hawai'i corporation ("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 or intends to issue a request for proposals for non-wires alternatives to provide reliability (back-tie) services for the East Kapolei area on the island of O'ahu, State of Hawai'i ("RFP"). The Proposer has or intends to submit one or more proposals 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 Proposer 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.

In connection with the Proposer's proposed project, the Company may conduct an interconnection requirements study ("IRS") to establish the requirements for interconnection of the Proposer's proposed project to the Company's electric grid. The RFP process may also result in final selection of the proposal for contract negotiations ("Agreement Negotiations"). For the purposes of this Agreement, the term "Project" collectively refers to the RFP, Proposal, potential IRS and Agreement Negotiations.

In order to evaluate the Project, either party may from time to time provide to the other party certain Confidential Information. The parties are willing to provide such Confidential Information to each other upon the terms and conditions of this Agreement.

2. Confidential Information

Except as set forth in Section 3 (Exclusions from Confidential Information) below, "Confidential Information" means all non-public, 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) information concerning the Company's generation, transmission, and distribution systems (e.g., engineering and operating characteristics of the Company's transmission lines and substations) ("Critical Infrastructure Confidential Information").

(c) 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;

(d) all designs, specifications, documentation, 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;

(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.

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 Proposer 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 (defined as personally identifiable information of individuals, and any information that may be used to track, locate or identify such 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 the Recipient or its subcontractors in connection with this Agreement by the Provider, which products and services are used or intended to be used for personal, family or household purposes),

such methods shall be consistent with Hawai'i Revised Statutes 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.

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 Proposer 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 Proposer 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.

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: Manager of Procurement, Renewable Acquisition Division

Delivered By Hand or Overnight Delivery:

Hawaiian Electric Company, Inc.
Central Pacific Plaza
220 South King St., 21st Floor
Honolulu, HI 96813
Attn: Manager of Procurement, Renewable Acquisition Division

By E-mail:

Hawaiian Electric Company, Inc.
Attn: Manager of Procurement, Renewable Acquisition Division
Email: renewableacquisition@hawaiianelectric.com

With a copy to:

By Mail:

Hawaiian Electric Company, Inc.
Legal Department
P.O. Box 2750
Honolulu, 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) **[Proposer]**

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, 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 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.

22. Term and Survival

This Agreement shall remain in full force and effect for a period of two (2) years from the Effective Date. All confidentiality obligations within this Agreement shall survive following expiration or termination of this Agreement.

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. 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]

DRAFT

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 Proposer]

("Proposer")

By: _____
Print Name: _____
Its: _____

DRAFT REQUEST FOR PROPOSALS
FOR
NON-WIRES ALTERNATIVES TO PROVIDE RELIABILITY (BACK-TIE)
SERVICES

ISLAND OF O‘AHU – EAST KAPOLEI AREA

SEPTEMBER 3, 2019

Docket No. 2018-0165

*Appendix F – Interconnection Facilities and Cost
Information*



**Hawaiian
Electric**

To assist Bidders in assessing the impacts of location on potential projects, the per unit cost figures provided in the sections and tables below are to be used to provide an approximate estimated cost for interconnecting, including communications and distribution line cost to the existing Hawaiian Electric System. The per-unit cost figures below should not be used to create a detailed project estimate. A detailed project estimate typically requires a certain level of engineering to assess project site conditions and to factor in other parameters specific to the project.

The Bidder should identify the components assumed for their project and the quantity assumed for each. Each table below provides notes on the assumptions for each of the unit cost estimates. If a Bidder's proposed project requirements are different than what is assumed in the notes, the Bidder should identify each difference and provide an estimated additional cost or savings resulting from those different requirements.

1 Distribution Line Interconnection Costs

Figure 1 shows a simple overhead interconnection diagram for generation only proposals or generation coupled with energy storage connecting to a 12 kV circuit.

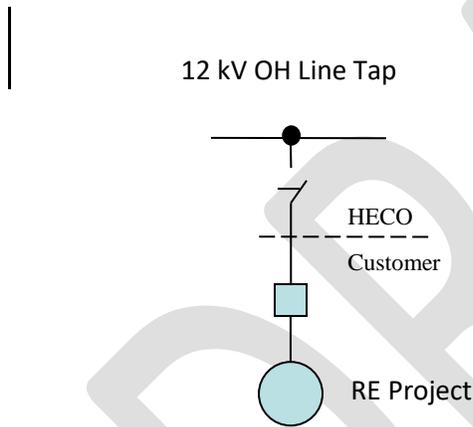


Figure 1

Figure 2 shows a simple underground interconnection diagram for generation only proposals or generation coupled with energy storage connecting to a 12 kV circuit.



Hawaiian Electric Company
 NWA APPENDIX F - INTERCONNECTION FACILITIES AND COST INFORMATION 2019

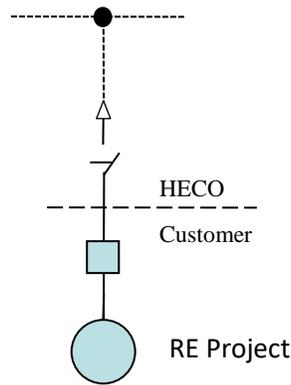


Figure 2

Component	Description	Cost per mile
1	New 12 kV Overhead line (accessible 150' spans)	\$1,176,000
2	New 12 kV Overhead line (inaccessible 250' spans)	\$1,655,000
3	12kV underbuild on existing 46kV line (accessible 150' spans)	\$808,000
4	12kV underbuild on existing 46kV line (inaccessible 250' spans)	\$1,137,000
5	New 12kV Underground line (1 feeder)	\$1,118,000
6	New 12kV Overhead line tap	\$56,000
7	New 12kV Underground line tap (1 feeder)	\$128,000

Notes:

1. Easement and/or land costs are NOT included with these estimates.
2. EA/EIS costs are NOT included with these estimates.
3. Costs are in 2022 dollars.
4. Components 1, 2 and 6 assume wood poles.
5. Components 3 and 4 assume no pole replacements needed.
6. All estimates are single respective circuits (i.e. single 12kV circuit or single 46kV circuit with single 12kV circuit underbuild).
7. Component 5 does NOT include duct bank and MH construction.
8. Component 6 assumes one wood pole install, one OH switch, and 100ft span.
9. Component 7 assumes a 150ft run and installation of a PMH-3 switchgear to terminate the cables and does NOT include duct bank, MH and pad construction.

2 Telecommunication Interconnection Costs

Hawaiian Electric Company
 NWA APPENDIX F - INTERCONNECTION FACILITIES AND COST INFORMATION 2019

1. Point-to-point microwave: \$1,125,196 with the following assumptions:
 - a. There is radio line-of-sight clearance between the communications endpoints.
 - b. FCC licensed Microwave Frequencies are available.
 - c. There are existing structures/buildings with space available on both ends to house the radio equipment.
 - d. Telecommunications grounding standards are up-to-date at both sites.
 - e. 48 V DC power with 12 hour battery backup is available.
 - f. This estimate does not include any special site-specific permit/approval activities that may be required including, but not limited to, Neighborhood Board (s), Conservation District Use Application, Environmental Assessment, Shoreline Management Area approval, biological (endangered species or habitat) surveys, and/or cultural (archeological) surveys or the cost of any migration required for approvals to be granted.
 - g. Space is available at both ends to construct antenna towers or structures that are rated to survive a Saffir-Simpson category 4 hurricane. Cost includes 1 each 50 foot tower.
 - h. Cost to interconnect to Hawaiian Electric’s existing communications network is not included.
 - i. Costs are in 2019 dollars.

2. Fiber with overbuild and new construction with the following assumptions:

Component	Description	Cost per mile
1	Fiber underbuild on existing poles (accessible 500’ spans)	\$367,000
2	Fiber underbuild on existing poles (accessible 150’ spans)	\$542,000

- a. No pole replacements or reframing.
 - b. Costs are in 2022 dollars.
 - c. 48-strand Singlemode Fiber optic cable, All Dielectric Self-Supporting (ADSS) Cable
3. Supervisory Control and Data Acquisition (SCADA) Communications: \$90,179 with the following assumptions:
 - a. 1.5 Mbps leased communications circuit is typically used for SCADA (Supervisory Control and Data Acquisition) applications via Fiber optics, or Ground Potential Rise (GPR) equipment where required. Hawaiian Telcom leased line costs are not included in this estimate.
 - b. Existing leased communications network is in close proximity to the substation.
 - c. Space and power will be provided in control house or cabinet.
 - d. Costs are in 2019 dollars.
4. Direct Transfer Trip equipment: \$273,369 per link with the following assumptions:
 - a. Space is provided in control house or cabinet with power, GPS timing, and grounding.

Hawaiian Electric Company
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- b. Point-to-point communication (Hawaiian Electric Fiber or Microwave) is available between the developer substation and Hawaiian Electric substation
- c. If Hawaiian Electric communications links are unavailable, Hawaiian Telecom leased T1 is required, costs are not included in this estimate.
- d. Costs are in 2019 dollars.

For interconnections to the Hawaiian Electric System at 12 kV or lower, data lines may be used to maintain the stability of the electric grid as specified in applicable Interconnection Requirements Studies.

3 Station Service Costs

Component	Description	Cost per mile
1	Padmount service 500KVA transformer	\$87,000
2	PME9 and PME3 switches for 1-ph and 3-ph transformers	\$282,000

Notes

- 1. See Section 1 - Distribution Line Interconnection Costs for overhead and underground unit cost estimates.
- 2. Easement and/or land costs are NOT included with these estimates.
- 3. EA/EIS cost are NOT included with these estimates.
- 4. Cost will vary depending on the transformer size
- 5. Cost may vary depending on site condition.
- 6. Costs are in 2022 dollars.

The customer shall be responsible to confirm with Hawaiian Electric Project Management to determine if independent station power is required. Meter requirements and location(s) should also be discussed with Hawaiian Electric's Customer Installation Division (CID) during the customer's design stage. The customer shall submit an Electrical Service Request/Customer Installation Form via www.hawaiianelectric.com. Please refer to the Large Customer New Service Request brochure for milestones and estimated timelines:

https://www.hawaiianelectric.com/documents/for_business/large_customer_NSC_brochure_web.pdf

Station power shall emanate from an existing 12kV distribution line to the customer's point of connection, either by overhead utility poles installed by Hawaiian Electric, or underground line extension. For underground line extensions, the customer will be responsible to install and maintain the

Hawaiian Electric Company
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infrastructure consisting of, but not limited to, concrete encased ducts, manholes/handholes, transformer and switchgear pads, and meter equipment.

All cost associated with this line extension shall be the responsibility of the customer/developer and shall be provided to the customer in a proposal letter from Customer Installation Division.

The customer shall also be responsible for obtaining easements for line extensions thru properties in which Hawaiian Electric does not have rights. Please note that easements must be recorded with the Hawaii Bureau of Conveyances prior to energizing service.

It is recommended that the services of a consultant be used by the customer as early as possible in this process for guidance and help in preparation of scope and cost related to station power.

DRAFT

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.

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) System as proposed does not meet standard, (6) Other

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	<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
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	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
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	Ideal	Core	Mandatory	Vendors may add any hyperlink to right:	http://coolproduct.com				
				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.	In the next product 4.3 release, our product will include the meta data layer that adheres to a standard object model.				
				Standard: System should 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.					
		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.*

- (1) Use the large open beige box area to insert extended comments.
- (2) Use the "Hyperlink" space above the beige box to link to other MS Office documents, URL sites or parts of your proposal materials.

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 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: 1.0 as of 09/23/2014								
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				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	
				Insert '1' for Non Applicable	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.									

Data and Database Architecture

Data Architecture (or Data Object Architecture)

				Meets	Will	3rd P	Cust	No	Other
1			Data Object Model						
<p>Vendors may add any hyperlink to right:</p> <p>Standard: System shall access data through a data object rather than directly from the DB.</p> <p>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).</p> <p>Preference: No products specifically preferred.</p> <p>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.</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			Logical Data Model						
<p>Vendors may add any hyperlink to right:</p> <p>Standard: Logical data model(s) shall be available and aligned with project and enterprise requirements.</p> <p>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.</p> <p>Preference: No products specifically preferred.</p> <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>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			Physical Data Model						
<p>Vendors may add any hyperlink to right:</p> <p>Standard: Physical data model(s) shall be available and aligned with project and enterprise requirements.</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			Data Access Utility						
<p>Vendors may add any hyperlink to right:</p> <p>Standard: System shall include a data access utility that can be used to directly manage the data (business) object.</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			Data Import/Export Support						

Information Only	Ideal	Core	Mandatory		Vendors may add any hyperlink to right:											
				Standard: System shall include built-in data import/export utilities.	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.											
				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. Preference: No products specifically preferred. 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.												
		1		Extract/Transfer/Load (ETL) Capability												
Information Only	Ideal	Core	Mandatory		Vendors may add any hyperlink to right:											
				Standard: System shall support ETL capabilities directly or via close integration with other common ETL tools.	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.											
				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. Preference: MS SQL Server SSIS or SAP Data Services 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.												
Web Content Management Architecture											Meets	Will	3rd P	Cust	No	Other
		1		Web Data Management Utility												
Information Only	Ideal	Core	Mandatory		Vendors may add any hyperlink to right:											
				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.	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.											
				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. Preference: No products specifically preferred. Desired Feedback: System provider shall describe out of box capabilities regarding data management services.												
		1		Web Content Management Utility												
Information Only	Ideal	Core	Mandatory		Vendors may add any hyperlink to right:											
				Standard: System dealing with web content shall either have or integrate with a utility to easily manage or update the web content.	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.											
				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. Preference: Integration with Ingeniux externally, SharePoint 2013 internally. Desired Feedback: System provider shall provide capabilities regarding out of box web content management tools or integration with other standard tools.												
Database Architecture											Meets	Will	3rd P	Cust	No	Other
		1		ODBC Compliance												
Information Only	Ideal	Core	Mandatory		Vendors may add any hyperlink to right:											
				Standard: System Database shall be ODBC compliant.	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.											
				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. Preference: No products specifically preferred. Desired Feedback: System provider shall certify ODBC compliance.												
		1		JDBC Compliance												
Information Only	Ideal	Core	Mandatory		Vendors may add any hyperlink to right:											
				Standard: System Database shall be JDBC compliant.	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.											
				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. Preference: No products specifically preferred.												

Application Architecture						Meets	Will	3rd P	Cust	No	Other
Development Environment											
Information Only	Ideal	Core	Mandatory	1	Mainstream Integrated Development Environment						
					Vendors may add any hyperlink to right:						
					Standard: Systems developed or maintained within HE shall allow development or maintenance work to be performed using a mainstream Integrated Development Environment (IDE). Comment: Many software packages can be customized using an industry mainstream IDE such as MS Visual Studio, Eclipse, WebSphere Visual Studio, etc. HE prefers applications that can be maintained using a mainstream, industry standard IDE with MS Visual Studio or Eclipse. 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. Desired Feedback: System provider shall indicate whether the system can be maintained using one of the industry standard development environments.						
					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.						
					Vendors may add any hyperlink to right:						
					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. 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. Preference: Product shall provide a native SDK. Desired Feedback: System provider shall indicate whether system can be configured and maintained using pre-packaged screens with modern interfaces.						
					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						
					Vendors may add any hyperlink to right:						
					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. 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. Preference: Preference is .Net, Java, ABAP. Desired Feedback: System provider shall indicate whether system can be programmed and maintained in one of the above designated mainstream languages.						
					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	Programming Model						
					Vendors may add any hyperlink to right:						
					Standard: System/application shall be based on a modern development technology framework such as .Net, ASP.Net, Java EE, or Java Server pages (JSP). 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. Preference: Preference is .Net, Java, ABAP. Desired Feedback: System provider shall indicate what, if any, programming model the system is based upon.						
					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	Use of Plain Text Configuration or GUI Configuration						
					Vendors may add any hyperlink to right:						
					Standard: System customization and other configuration files available to HE developers should make source content available as plain text or through a GUI interface. Comment: Manipulation of configurable system data by HE programmers should not require that the HE programmers have to interpret the formatting of configuration files. Preference: No products specifically preferred.						
					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						

				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.		in text at right to highlight other relevant sections of proposal materials.										
		1		Preservation of Customization												
Information Only	Ideal	Core	Mandatory			Vendors may add any hyperlink to right:										
				Standard: System shall allow for the preservation of prior customizations during product upgrades.		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.										
				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. Preference: No products specifically preferred. 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.												
Training and Progression of Environment											Meets	Will	3rd P	Cust	No	Other
		1		Testing Cycles												
Information Only	Ideal	Core	Mandatory			Vendors may add any hyperlink to right:										
				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.		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.										
				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. Preference: No products specifically preferred. Desired Feedback: System provider shall describe any testing cycle provisions and shall further address whether those provisions can be supported by the product.												
		1		Developer Testing Framework												
Information Only	Ideal	Core	Mandatory			Vendors may add any hyperlink to right:										
				Standard: System shall allow for the use of a Testing tool for development and defect fix test management.		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.										
				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. Preference: Preference is to leverage IDE identified above. Desired Feedback: System provider shall describe Unit Testing provisions and shall further address whether those provisions can be managed by the preferred IDE.												
		1		User & Performance Testing Framework												
Information Only	Ideal	Core	Mandatory			Vendors may add any hyperlink to right:										
				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.		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.										
				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. Preference: Preference is HPQC (test tracking/automation) and LoadRunner (performance testing). Jmeter for lighter performance testing. Team Foundation Server for .Net applications. Desired Feedback: System provider shall describe Unit Testing provisions and shall further address whether those provisions can be managed by preferred tools.												
		1		Change and Defect Management												
Information Only	Ideal	Core	Mandatory			Vendors may add any hyperlink to right:										
				Standard: System shall allow for the use of automated change management and defect tracking.		At right, enter any expanded explanation. Typically, a positive response above to the 'Proposal Meets Standard' is sufficient, but										

Information Only	Ideal	Core	Mandatory	<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>	<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	<p>Enablement and Use of Event Logs for Error Tracking and Debugging</p>							
				Information Only	Ideal	Core	Mandatory	<p>Standard: System shall provide for easy use of log files to track events during testing or debugging operations.</p> <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 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>Multiple Separate but Consistent Environments</p>											
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	<p>Use of Virtual Server Environment for Multiple Environments</p>											
Information Only	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	<p>Straightforward Production Deployment</p>											
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>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>Version Consistency among Environments</p>											
					<p>Vendors may add any hyperlink to right:</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>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>										
				Componentization and Service Oriented Architecture (SOA) Support						Meets	Will	3rd P	Cust	No	Other
				1	N-Tier Application Architecture										
				Information Only	Ideal	Core	Mandatory	<p>Vendors may add any hyperlink to right:</p> <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>Desired Feedback: System provider shall describe the tier architecture of the system and describe the separation and integration methods for defining tiers.</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	Data Tier Separation														
Information Only	Ideal	Core	Mandatory	<p>Vendors may add any hyperlink to right:</p> <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>	<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	No Storage/ Maintenance of Data on Web Servers														
Information Only	Ideal	Core	Mandatory	<p>Vendors may add any hyperlink to right:</p> <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>	<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	Segregation of Reporting Services														
Information Only	Ideal	Core	Mandatory	<p>Vendors may add any hyperlink to right:</p> <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> <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>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	Substantial to Full Separation of the Presentation Layer														
				Vendors may add any hyperlink to right:											

Information Only	Ideal	Core	Mandatory	<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>	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	Application Function Componentization	Vendors may add any hyperlink to right:						
Information Only	Ideal	Core	Mandatory	<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>	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	WSDL or WADL Enabled	Vendors may add any hyperlink to right:						
Information Only	Ideal	Core	Mandatory	<p>Standard: System should allow business functions/processes to be defined in WSDL or WADL.</p> <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>	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	SOAP or REST Enabled	Vendors may add any hyperlink to right:						
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>	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	UDDI Enabled	Vendors may add any hyperlink to right:						
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>	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	UDDI Enabled	Vendors may add any hyperlink to right:						
Scores for Application Architecture				Avg Scores			Mandatory Compliance	Vendor Responses include:				Avg. HE Rating
				Ideal	Core	Joint						
				0	0	0						

Integration Architecture							Meets	Will	3rd P	Cust	No	Other
Integration Capabilities												
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>							
Information 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. 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: 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> <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>							
Information Only	Ideal	Core	Mandatory	1	Integration at the Web Services Layer							
					<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 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>							
Information Only	Ideal	Core	Mandatory	1	Integration with OData							
					<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 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>							
Interoperability with Key Services Important to HE												
Information Only	Ideal	Core	Mandatory	1	Interoperability with MS Exchange							

			<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>	in text at right to highlight other relevant sections of proposal materials.						
User Interface (UI) Standards – Cross Platform					Meets	Will	3rd P	Cust	No	Other
	1		Windows based Web Browser Compatibility – Internal Use							
Information Only	Ideal	Core	Mandatory	Vendors may add any hyperlink to right:						
				<p>Standard: Browser based potions of system shall work with MS Explorer 10.0.</p> <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 Internet Explorer.</p> <p>Desired Feedback: System provider shall state clearly what their browser compatibilities include and/or what their requirements are.</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		General Web Browser Compatibility – External Use							
Information Only	Ideal	Core	Mandatory	Vendors may add any hyperlink to right:						
				<p>Standard: Browser based potions of system exposed to public facing internet shall work with currently supported version of the following browsers: MS Explorer, 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 Explorer, Firefox & Safari, Chrome.</p> <p>Desired Feedback: System provider shall state clearly what their browser compatibilities include and/or what their requirements are.</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		Full Enablement of UI via Browser (without Terminal Services)							
Information Only	Ideal	Core	Mandatory	Vendors may add any hyperlink to right:						
				<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>	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		Web Portal Enablement for External Use							
Information Only	Ideal	Core	Mandatory	Vendors may add any hyperlink to right:						
				<p>Standard: Information and functionality in the system UI can be segmented and presented as components within a web portal.</p> <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-deteremined</p> <p>Desired Feedback: System provider should outline the system capabilities for expressing its parts as portal components.</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.					
User Interface (UI) Standards - Windows					Meets	Will	3rd P	Cust	No	Other
	1		Use of Windows 7 Browsers for Presentation							
Information Only	Ideal	Core	Mandatory	Vendors may add any hyperlink to right:						
				<p>Standard: Even if system will not install as a native client on Windows 7 devices, system can use MS Explorer 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 Explorer) features of Windows 7.</p> <p>Preference: MS Explorer 10.</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					

 Desired Feedback: System provider should indicate how system can be assessed and utilized via Windows 7 workstations.	in text at right to highlight other relevant sections of proposal materials.					
Scores for Integration Architecture	Avg Scores			Mandatory Compliance	Vendor Responses include:	Avg. HE Rating 10.0
	Ideal 0	Core 0	Joint 0	Not Applicable		

Technology Architecture							Meets	Will	3rd P	Cust	No	Other
Server Platforms												
Information Only	Ideal	Core	Mandatory	1	Application Server Platform							
					<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 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 2012 and AIX. Lesser preference for Redhat.</p> <p>Desired Feedback: System provider should specify supported application server platforms.</p>							
Information Only	Ideal	Core	Mandatory	1	Use of MS IIS as Web Server Platform							
					<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: 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												
Information Only	Ideal	Core	Mandatory	1	Vertical Scalability							
					<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 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>							
Information Only	Ideal	Core	Mandatory	1	Horizontal Scalability							
					<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 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>							
Information Only	Ideal	Core	Mandatory	1	Cluster Awareness							
					<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 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>							
Information Only	Ideal	Core	Mandatory	1	Manual Failover Procedures							
					<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 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>							

				Desired Feedback: System provider should estimate system architecture requirements to achieve HE response as stated.							
Network/Communication Architecture					Meets	Will	3rd P	Cust	No	Other	
	1			TCP/IP Network Transport Protocol							
Information Only	Ideal	Core	Mandatory	<p>Vendors may add any hyperlink to right:</p> <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>	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			HTTP and HTTPS Data Transport Protocols							
Information Only	Ideal	Core	Mandatory	<p>Vendors may add any hyperlink to right:</p> <p>Standard: HTTP and HTTPS are 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	Vendor Responses include:		Avg. HE Rating
					Ideal	Core	Joint				
					0	0	0				

System Operation, Management and Support Architecture							Meets	Will	3rd P	Cust	No	Other
System Operation and Management												
Information Only	Ideal	Core	Mandatory	1	Compatibility with Storage Area Network (SAN)							
					Vendors may add any hyperlink to right: Standard: System implementer shall deploy storage services within HE Storage Area Network (SAN) based on 3PAR. Comment: System shall be deployed to operate using a SAN for all system data storage needs other than server based logs or configuration files. Preference: 3PAR preferred. 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.							
Information Only	Ideal	Core	Mandatory	1	Compatibility with Native Fiber Channel for SAN Management							
					Vendors may add any hyperlink to right: Standard: System is compatible with the native fiber channel used with Storage Area Network (SAN) management. Comment: System will operate using native fiber channel standards for transmitting hardware commands used to manage remote services on SAN servers and devices. Preference: EMC SAN services using native fiber channel Desired Feedback: System provider shall indicate compatibility with native fiber channel.							
Information Only	Ideal	Core	Mandatory	1	Compatibility with On-Line Back-up and Restore Functions							
					Vendors may add any hyperlink to right: Standard: System is capable of effective operation in concert with On-Line data back up procedures including awareness of open transactions and files. 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. Preference: Preference is eVault i365. Desired Feedback: System provider shall indicate compatibility with eVault i365 and related procedures.							
Information Only	Ideal	Core	Mandatory	1	Compatibility with System Configuration Management software							
					Vendors may add any hyperlink to right: Standard: System is capable of effective operation in conjunction with system configuration software. Comment: System software change and configuration management services can be managed using SCCM (for windows) and Uptime (for AIX and Linux). Preference: SCCM management services for Windows, Uptime for AIX & Redhat. Desired Feedback: System provider shall indicate compatibility configuration software.							
Information Only	Ideal	Core	Mandatory	1	Patch Level Compatibility							
					Vendors may add any hyperlink to right: Standard: Applications must be consistent with current HE upgrade and fixpack levels for the HE Operating Environment. 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. Preference: Product must maintain compatibility with current platform versions. Desired Feedback: System provider shall state policy to maintain software compatibility with underlying system patches.							
Information Only	Ideal	Core	Mandatory	1	System Management Utilities							
					Vendors may add any hyperlink to right: Standard: Systems and applications shall be supported by system management utilities commensurate with the management needs of the product.							

Information On	Ideal	Core	Mandatory	<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>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>Compatibility with Application Performance Management (APM)</p> <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>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>Low Intervention Maintenance Requirements</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>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>Service Lifecycle and Upgrade Schedules</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>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>						
System Support						Meets	Will	3rd P	Cust	No	Other
Information Only	Ideal	Core	Mandatory	<p>Remote Support Capability and Access</p> <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>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>Service Level Agreements</p> <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>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>						

Information Only Ideal Core Mandatory	<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>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 Operation, Management & Support		<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>Not Applicable</td> </tr> <tr> <td>0</td> <td>0</td> <td>0</td> <td></td> </tr> </table>	Avg Scores			Mandatory Compliance	Ideal	Core	Joint	Not Applicable	0	0	0		Vendor Responses include:
Avg Scores			Mandatory Compliance													
Ideal	Core	Joint	Not Applicable													
0	0	0														

Security and Privacy Architecture							Meets	Will	3rd P	Cust	No	Other	
User Access Management													
Information Only	Ideal	Core	Mandatory	1	LDAP Integration								
				<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: The system operates in conjunction with standard LDAP services.</p> <p>Comment: LDAP is the most widely accepted protocol for maintaining a directory of authenticated users and while a software package may provide its own authentication service, the capability of using 3rd party authentication using LDAP information is critical for raising security services to an enterprise level and using services such as single sign-on (SSO).</p> <p>Preference: MS Active Directory preferred. LDAP where Active Directory not supported.</p> <p>Desired Feedback: System provider shall describe the extent of LDAP integration.</p>													
Information Only	Ideal	Core	Mandatory	1	Single Sign-On (SSO) Enabled								
				<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: Product supports Single Sign-On (SSO).</p> <p>Comment: SSO can make security management easier, and provides an improved user experience. In the real world, when users have too many IDs and passwords to remember, the system may be less secure.</p> <p>Preference: MS Active Directory preferred for internal and SAML for external.</p> <p>Desired Feedback: System provider shall verify that system is compatible with SSO.</p>													
Information Only	Ideal	Core	Mandatory	1	Removal of Generic Accounts								
				<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: 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>													
Information Only	Ideal	Core	Mandatory	1	Multi-level Access Control								
				<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: 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>													
Information Only	Ideal	Core	Mandatory	1	Task or Role Based Access Control								
				<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: 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>													
Information Only	Ideal	Core	Mandatory	1	Task or Role Based Data Import/Export Control								
				<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>									
<p>Standard: Product provides task or role based data import/export control tied to user profiles and group definitions.</p>													

Information On	Ideal	Core	Mandatory	<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>	<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>						
Software and Services						Meets	Will	3rd P	Cust	No	Other
Information Only	Ideal	Core	Mandatory	1	Removal of Unnecessary Software						
				<p>Vendors may add any hyperlink to right:</p> <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>	<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	Disable non-required services and ports						
				<p>Vendors may add any hyperlink to right:</p> <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>	<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	Version/Patch utility						
				<p>Vendors may add any hyperlink to right:</p> <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>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>						
System Integrity Assurance						Meets	Will	3rd P	Cust	No	Other
Information Only	Ideal	Core	Mandatory	1	Resistance to Denial of Service						
				<p>Vendors may add any hyperlink to right:</p> <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>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	Protection via Security Devices						
				<p>Vendors may add any hyperlink to right:</p>							

Information Only	Ideal	Core	Mandatory	<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>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>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 Malware and Virus Protection</p> <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>						
Information Only	Ideal	Core	Mandatory	<p>1 System Heartbeat Monitoring</p> <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
Information Only	Ideal	Core	Mandatory	<p>1 System Backup</p> <p>Standard: The system shall implement a rigorous data backup practice.</p> <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>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 Employee Mobile Device Applications</p> <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: Afaia 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 sections of proposal materials.</p>						
Process Requirements						Meets	Will	3rd P	Cust	No	Other
Information Only	Ideal	Core	Mandatory	<p>1 Internet Domain Name Registration</p> <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>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>Desired Feedback: System provider must verify that they comply with Internet Domain name registration best practices.</p>	<p>may also use hyperlinks above or references in text at right to highlight other relevant sections of proposal materials.</p>						
		1		<p>System Interfaces</p>							
Information Only	Ideal	Core	Mandatory	<p>Standard: System Interfaces must be fully documented.</p>	<p>Vendors may add any hyperlink to right:</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: WebSphere 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>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 Security and Privacy Architecture</p>				<p>Avg Scores</p>			<p>Mandatory Compliance</p>		<p>Vendor Responses include:</p>		<p>Avg. HE Rating</p>
				<p>Ideal</p> <p>0</p>	<p>Core</p> <p>0</p>	<p>Joint</p> <p>0</p>	<p>Failed</p>				<p>10.0</p>

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

Remote Security		Meets	Will	3rd P	Cust	No	Other
Information Only	1	Data Preservation Provisions					
		<p>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>				
Information Only	1	System Access & Performance Requirements					
		<p>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:	Avg. HE Rating
		Ideal	Core	Joint			

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.		
Vendor Name:		XYZ, Inc.		Spreadsheet Template Version is: 2.1 as of 11/1/2015		
Project:		Project name				
Date Questionnaire Released:		01/01/15				
Date Questionnaire Due:		01/01/15				
Date of Last Assessment Ratings Added by HE:						
Information Only	Ideal	Core	Mandatory	Hawaiian Electric Technology Standards	Insert '1' for Non Applicable	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.

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.</p> <p>Desired Feedback: System provider shall describe authentication and ID 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	Use of Integrated Windows Authentication for Web Services									
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.</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.</p> <p>Preference: MS Active Directory preferred.</p> <p>Desired Feedback: System provider shall describe the extent of IWA 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	Internal and External Password Management									
Information Only	Ideal	Core	Mandatory				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.</p> <ul style="list-style-type: none"> - Must have capability to have passwords expire on a configurable timeline based on account/user role, with 90-days being the default for internal system users and no expiration date for customers. - Must have configurable complexity requirements based on account/user role, including the ability to require: <ul style="list-style-type: none"> - passwords for internal system accounts must contain three or more of the following groups: <ul style="list-style-type: none"> --- Upper case letters; --- Lower case letters; --- Numbers; --- Special characters (ex: \$, @, #, %, etc.); - At least eight (8) characters long; - Must not be common words or combinations of common words; - Must not be the same as the user ID, nor an anagram or variation of the user ID. - Cannot reuse the last (configurable number) passwords by user type, with 10 being the default for internal system users and no re-use restriction for customers. <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>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	Customer Privacy Settings- Web									
Information Only	Ideal	Core	Mandatory				Vendors may add any hyperlink to right:					
				<p>Standard: System must not store cookies containing personally identifiable information and use the standard privacy settings of the browser.</p> <p>Comment: The system must also not employ SuperCookies, EverCookies, PermaCookies or any other mechanism that circumvents a user's browser privacy settings.</p> <p>Preference: No products specifically preferred.</p> <p>Desired Feedback: System provider must verify that cookies containing customer privacy information are not stored. System provider must verify that browser privacy settings are not overridden.</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	Customer Privacy Settings-Mobile									

Information Only	Ideal	Core	Mandatory		Vendors may add any hyperlink to right:						
				<p>Standard: System must not override a customer's mobile privacy settings.</p> <p>Comment: If the solution contains a mobile application (smart phone, tablet, etc.) The mobile application must obey the customer's mobile privacy settings for sharing or collection of customer data, such as contacts, geo-location data, or any other information not explicitly entered by the customer into the application.</p> <p>Preference: No products specifically preferred.</p> <p>Desired Feedback: System provider must verify that mobile application privacy settings are not overridden.</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	Confirmation of Customer Privacy Settings-Mobile						
Information Only	Ideal	Core	Mandatory		Vendors may add any hyperlink to right:						
				<p>Standard: System shall prompt for permission to access customer data.</p> <p>Comment: If the solution contains a mobile application (smart phone, tablet, etc.) The mobile application must prompt before accessing customer data, such as contacts, geo-location data, or any other information not explicitly entered by the customer into the application.</p> <p>Preference: No products specifically preferred.</p> <p>Desired Feedback: System provider must verify that mobile application requires customer action to approve.</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.						
Connection and Data Transport Security						Meets	Will	3rd P	Cust	No	Other
Information Only	Ideal	Core	Mandatory	1	Web browser session protection						
				<p>Standard: For web based components, the system supports the Transport Layer Security (TLS) protocol for internet session security.</p> <p>Comment:</p> <p>1) For web browser based components, the system must support the Transport Layer Security (TLS) protocol for internet browser session security, but the vendor is free to recommend alternative encryption methods as well.</p> <p>2) Unless otherwise agreed to during system implementation, set a default of using TLS for all web browser pages handling non-public data.</p> <p>3) Use HTTP Strict Transport Security (HSTS) and the Secure Cookie flag for all browser sessions handling non-public data.</p> <p>4) Do not include Hawaiian Electric Company non-public data as part of any URL.</p> <p>Preference: TLS v1.2.</p> <p>Desired Feedback: System provider shall verify that system uses TLS where appropriate.</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	SSH File Transfer Protocol						
				<p>Standard: System shall support large file transfer utilizing a SSH (Secure Shell) File Transfer Protocol (SFTP) Server.</p> <p>Comment: SFTP is the current industry standard for secure file transfer and is a HE mandate for open transfer of HE information.</p> <p>Preference: See "Cryptographic System" requirement for algorithm.</p> <p>Desired Feedback: System provider shall verify system uses SFTP where appropriate.</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	Inter-process Communication						
				<p>Standard: The system shall enforce security policies from the critical side when interprocess communication is initiated from a less privileged application.</p> <p>Comment: Separation of privileges between different applications is critical for minimizing the extent of system vulnerability if a particular application is compromised.</p> <p>Preference: No products specifically preferred.</p> <p>Desired Feedback: System provider shall verify its ability to configure interprocess communication and privilege separation.</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	Secure Transport of Company non-Public Data						
					Vendors may add any hyperlink to right:						

Information Only	Ideal	Core	Mandatory	<p>Standard: System shall support secure transmission of all non-public data.</p> <p>Comment: All non-public data must be encrypted in accordance with the standard depicted in the "Cryptographic System" requirement .</p> <p>Preference: See "Cryptographic System" requirement for algorithm.</p> <p>Desired Feedback: System provider shall specify the algorithms used for secure transports.</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>						
Information Only	Ideal	Core	Mandatory	<p>1</p> <p>Multi-Tier System Architecture</p>	<p>Vendors may add any hyperlink to right:</p>						
				<p>Standard: The system must be implemented using a minimum of three-tier client-server system architecture consistent with NIST Interagency Report 6926 "The NIST Design Repository Project"</p> <p>Comment: Outlined in NISTIR 6926, Section 2.2 Figure 2, is the standard three-tier client/application/database system architecture. For Hawaiian Electric, each of these tiers will be in its own network security zone. Use of specific vendor products mentioned in NISTIR 6926 is not required – this requirement is just about the high-level multi-tier architecture.</p> <p>See the "Network Security Zones" requirement for additional information about controls to be implemented between these security zones.</p> <p>Preference: No products specifically preferred.</p> <p>Desired Feedback: System provider shall identify and explain how their system and its implementation fulfills this requirement.</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</p> <p>Network Security Zones</p>	<p>Vendors may add any hyperlink to right:</p>						
				<p>Standard: Vendor must document all data flows required to traverse any electronic security perimeter (ESP), whether between multiple internal ESPs or between internal and external ESPs. Requirements for Medium Impact BES Cyber Systems found in NERC CIP-005-5 Electronic Security Perimeters shall be followed.</p> <p>Comment: The network shall be segmented into multiple network security zones, and methods shall be in place to restrict communication between zones. Also see the "System Interfaces" requirement.</p> <p>Preference: No products specifically preferred.</p> <p>Desired Feedback: System provider shall describe its proposed network architecture and methods for controlling communication between network security zones. Vendor must provide this information regardless of whether the security zone interface devices are provided or maintained by the vendor.</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</p> <p>Wireless Technology</p>	<p>Vendors may add any hyperlink to right:</p>						
				<p>Standard: Where wireless links are used in the implemented system, the system shall support wireless technologies while remaining compliant with security standards. System shall support link or end-to-end encryption independent of data transmission carrier.</p> <p>Comment: The system shall be compatible with other wireless equipment and shall minimize the potential for signal interception. The system shall be resilient to high-level threats including denial of service, eavesdropping, man-in-the-middle, masquerading, message modification, message replay, and traffic analysis. The system provider shall provide documentation regarding capabilities, requirements, limitations, and security of the system's wireless communication devices.</p> <p>Preference: See "Cryptographic System" requirement for algorithm. WPA-2 Enterprise for 802.11 for authentication.</p> <p>Desired Feedback: System provider shall describe the wireless protocols that are compatible with the provider's devices and demonstrate that known attacks do not compromise receiving devices. Describe their link or end-to-end encryption method and how it is independent of a data provider encryption (e.g. cellular data or microwave).</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</p> <p>Network Intrusion Detection</p>	<p>Vendors may add any hyperlink to right:</p>						
				<p>Standard: The system shall allow for means to document that network traffic is monitored, filtered, and alarmed (e.g., alarms for unexpected traffic through network security zones) and provide filtering and monitoring rules on a 24x7x365 basis.</p> <p>Comment: The system shall be configured with an intrusion detection system (IDS), which may be either host-based or network-based. The system provider shall provide recommendations for optimal IDS configuration which will enable HE to monitor traffic.</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>						

Information On	Ideal	Core	Mandatory	<p>Comment: In particular, the system shall allow for configuration and rule definition of either the period of time after which purging or archiving is desired or the definition of individual customers or groups of customers for purging or archiving.</p> <p>Preference: No products specifically preferred.</p> <p>Desired Feedback: System provider shall verify that the system has the capabilities to allow for this flexibility.</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	Ideal	Core	Mandatory	<p>1</p> <p>Customer Communications Preference</p> <p>Standard: System shall allow customers to define their preferred means of communications with HE.</p> <p>Comment: Customers shall be able to configure methods of communication including telephone, email, or text.</p> <p>Preference: No products specifically preferred.</p> <p>Desired Feedback: System provider shall verify that multiple communications channels are enabled throughout the system and that customers can be afforded the option as to which communication channel is 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>						
Information Only	Ideal	Core	Mandatory	<p>1</p> <p>Customer Opt-out</p> <p>Standard: The system shall manage and track customer Opt-outs. (Applies only to systems with which customers directly interact.)</p> <p>Comment: In particular, customer Opt-Out shall store an effective date to provide an audit trail and clarity of the customer's choice at any given period of time.</p> <p>Preference: No products specifically preferred.</p> <p>Desired Feedback: The system provider shall verify that customer opt-out, at a minimum, stores an effective date of opt-out. The system provider shall describe how the opt-out works.</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</p> <p>Customer Data Control</p> <p>Standard: The system shall allow for customers to exercise meaningful control over their data.</p> <p>Comment: Specifically, customers shall be permitted to opt-out of providing secondary data use; and, customers shall be permitted to retrieve and update their data as desired.</p> <p>Preference: No products specifically preferred.</p> <p>Desired Feedback: System provider shall describe how the system provides for ad hoc data retrieval and updating as well as use of secondary data opt-out.</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</p> <p>Customer Authentication</p> <p>Standard: The system should allow flexibility and choice with respect to customer authentication.</p> <p>Comment: Customers should be able to use 2 factor authentication for their accounts if they desire.</p> <p>Preference: SAML support.</p> <p>Desired Feedback: System provider should describe how the system affords multiple authentication optionality for customers.</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
Information Only	Ideal	Core	Mandatory	<p>1</p> <p>Encryption Key Exchange</p> <p>Standard: The system should employ Ephemeral Key Exchange.</p> <p>Comment: Describe how your system can be used with ephemeral key exchanges for all key exchanges protecting transmission of highly sensitive data (Hawaiian Electric Confidential, Confidential-Restricted data, and control data) which traverses both an electronic and a physical security perimeter. Describe any performance or support implications of the use of Ephemeral Key Exchanges for your implementation.</p> <p>Preference: No products specifically preferred.</p> <p>Desired Feedback: System provider should describe its cryptographic methods, how these support ephemeral key exchange.</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>Cryptographic System</p>							

Information Only	Ideal	Core	Mandatory		Vendors may add any hyperlink to right:	
				<p>Standard: The system shall employ cryptographic system with Validated and Acceptable encryption and key management features.</p> <p>Comment:</p> <ol style="list-style-type: none"> 1. Encryption must be "Validated" per FIPS 140-2 and currently "Acceptable" per NIST SP800-131(series). 2. Product must provide a method to remotely update encryption certificates on an acquirer-defined and configurable frequency without disrupting normal system operation. 3. Product must provide a method of updating the encryption method (algorithm/primitive) to maintain a NIST SP800-131(series) "Acceptable" encryption method throughout the service life of the device, without replacing the entire device. Vendor support must include provision for delivering these updates when needed. <p>Preference: No products specifically preferred.</p> <p>Desired Feedback: Vendor shall describe its cryptographic methods, how these support the availability, integrity, confidentiality, authentication and non-repudiation of information processed by their system, and describe the process for key management throughout the system life cycle.</p> <p>Vendor shall provide information on commercial Cryptographic Key Management Systems (CKMS) their product is already integrated with, and provide information about their recommended CKMS.</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		Interactive Remote Access	Vendors may add any hyperlink to right:	
Information Only	Ideal	Core	Mandatory		Vendors may add any hyperlink to right:	
				<p>Standard: The system must adhere to remote access standards found in NERC "Guidance for Secure Interactive Remote Access" and NERC CIP-005-5 R2 as if these systems were Medium Impact BES Cyber Systems.</p> <p>Comment: System shall comply with HE remote access policies and NERC recommendations. While NERC CIP compliance is not a regulatory requirement, its provisions are good practice and are used as guidance at HE.</p> <p>Preference: No products specifically preferred.</p> <p>Desired Feedback: System provider must describe how remote access standards are defined and followed.</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		OWASP Top Ten	Vendors may add any hyperlink to right:	
Information Only	Ideal	Core	Mandatory		Vendors may add any hyperlink to right:	
				<p>Standard: Vendor must document its design and testing regimen with respect to how each of the issues on the current version of the Open Web Application Security Project (OWASP) Top Ten vulnerabilities are addressed.</p> <p>Comment: OWASP Top Ten is a known and respected level of testing to ensure applications and application implementations are free from well known vulnerabilities. In addition, OWASP provides many configuration guides and 'cheat sheets' for various implementations. Vendor shall describe its utilization of these tools.</p> <p>Preference: No products specifically preferred.</p> <p>Desired Feedback: System provider must verify that OWASP Top Ten vulnerabilities are tested for and designed out of their systems and system implementations.</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		Cyber Asset Reuse and Disposal	Vendors may add any hyperlink to right:	
Information Only	Ideal	Core	Mandatory		Vendors may add any hyperlink to right:	
				<p>Standard: Vendor shall ensure that any cyber asset containing HE information which is re-used or disposed of during or at the end of the project shall ensure compliance with NERC CIP-011-5 R2.</p> <p>Comment: Cyber assets containing HE non-public information shall be protected and information deleted by strong methods before being disposed of or re-used. While NERC CIP compliance is not a regulatory requirement, its provisions are good practice and are used as guidance at HE.</p> <p>Preference: No products specifically preferred.</p> <p>Desired Feedback: Describe how vendor systems and processes ensure compliance with NERC CIP-011-5 R2.</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		Configuration Change Management	Vendors may add any hyperlink to right:	
					Vendors may add any hyperlink to right:	

Information Only	Ideal Core Mandatory	1	<p>Company Compliance Program</p> <p>Standard: The system provider has programs in place to ensure that its systems are compliant with all relevant US Federal and state privacy laws.</p> <p>Comment: In addition to other privacy laws explicitly addressed in these requirements, the system provider must ensure that its systems are compliant with all other applicable US Federal and state laws.</p> <p>Preference: No products specifically preferred.</p> <p>Desired Feedback: System provider shall verify that it is compliant with US Federal and state privacy laws. In addition, the provider shall describe the internal policies and programs that it has in place to ensure that it identifies and complies with all relevant privacy regulations.</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>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>Comment: All HE data shall be considered confidential. If the system provider wishes to collect, share, or sell any HE data, it may only do so after receiving expressed consent through the appropriate, authorized HE personnel.</p> <p>Preference: No products specifically preferred.</p> <p>Desired Feedback: System provider shall verify that it will not collect, share, or sell any HE with prior written consent from authorized HE personnel. The provider shall also describe its company's privacy policy, particularly regarding data collection, storage, and sale.</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>Scores for Security and Privacy Architecture</p>			<table border="1"> <tr> <th colspan="3">Avg Scores</th> <th rowspan="2">Mandatory Compliance</th> </tr> <tr> <td>Ideal</td> <td>Core</td> <td>Joint</td> </tr> <tr> <td>0</td> <td>0</td> <td>0</td> <td>Failed</td> </tr> </table>	Avg Scores			Mandatory Compliance	Ideal	Core	Joint	0	0	0	Failed	<p>Vendor Responses include:</p>	<p>Avg. HE Rating</p> <p>10.0</p>
Avg Scores			Mandatory Compliance													
Ideal	Core	Joint														
0	0	0	Failed													

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

Remote Security				Meets	Will	3rd P	Cust	No	Other		
Information Only	Ideal	Core	Mandatory	1 Determination of Security Trust Level							
				<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: The remote host or ASP system shall be covered by a SSAE 16 SOC Type II SysTrust/WebTrust or else the host/ASP can provide an independent security assessment (attestation) report by a reputable reporting agency that covers the ASP's application and infrastructure.</p> <p>Comment: Some independent evidence or report shall be provided to HE showing that the provider's security meets professional standards or has otherwise been evaluated. Attestation reports by a qualified professional assessment firm are preferred.</p> <p>Preference: No products specifically preferred.</p> <p>Desired Feedback: System provider shall provide copies or links to attestation reports if available.</p>											

Certification Requirements				Meets	Will	3rd P	Cust	No	Other		
Information Only	Ideal	Core	Mandatory	1 Sarbanes Oxley's (SOX) IT General Controls							
				<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: Vendor must follow SOX IT General Controls</p> <p>Comment: Compliance report must report on the following ITGC's</p> <ul style="list-style-type: none"> <input type="checkbox"/> Security Standards <input type="checkbox"/> Access and Authentication <input type="checkbox"/> Network Security <input type="checkbox"/> Monitoring <input type="checkbox"/> Segregation of Duties <input type="checkbox"/> Physical Security <p>Preference: No products specifically preferred</p> <p>Desired Feedback: System provider must provide proof of compliance to SOX IT General Controls.</p>											

Information Only	Ideal	Core	Mandatory	1 Current Statement on Standards for Attestation Engagements (SSAE) No. 16 Service Organization Control (SOC) Type II report							
				<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: Vendor must provide current SSAE 16 SOC Type II report</p> <p>Comment: Report must include the following contents:</p> <ol style="list-style-type: none"> 1. Independent service auditor's report 2. Service organization's description of its system (including controls) 3. Information provided by the independent service auditor; includes a description of the service auditor's tests of operating effectiveness and the results of those tests 4. Other information provided by the service organization (i.e. glossary of terms) <p>Preference: No products specifically preferred</p> <p>Desired Feedback: System provider must provide SSAE 16 documentation</p>											

Scores for Remote Host				Avg Scores			Mandatory Compliance	Vendor Responses include:	Avg. HE Rating
				Ideal	Core	Joint			

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

DRAFT REQUEST FOR PROPOSALS
FOR
NON-WIRES ALTERNATIVES TO PROVIDE RELIABILITY (BACK-TIE)
SERVICES

ISLAND OF O‘AHU – EAST KAPOLEI AREA

SEPTEMBER 3, 2019

Docket No. 2018-0165

Appendix H – Aggregator Handbook



**Hawaiian
Electric**

Aggregator Handbook

August 21, 2018

This handbook describes processes required to implement and maintain data exchange and control functionality between the aggregator/supplier and the Companies. Aggregators must comply with the data exchange, control functionality, and testing requirements specified in this handbook.

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 SFTP location is unique to each aggregator and as such will be provided in advance of integration testing.

Participant Enablement Status

Aggregator will provide the Participant Enablement File in XML that contains data describing Participants that have been enabled and enrolled, i.e. are ready to be included in the dispatch or scheduling of Supplier's Grid Services Capability.¹ A new 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 window, 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-MM-dd_HH-mm-ss_SSS}_enrollment.xml, for example, 100001_HECO_2018-07-13_16-59-03_089_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.

The file details, including the XML Schema Definition (XSD) are specified in Exhibit A. Grid Service Program Names are specified in Exhibit B.

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. For example, if a Participant has two meters at a single location and both meters will be impacted

¹ An enrollment (or un-enrollment) is an "EnrollmentDetailsType" as specified in Attachment A.

(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.

Table 1: Conceptual enrollment for single participant with two meters, enrolled in two Grid Services

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

The total minimum and adder incentive for the Participant should be split appropriately between the two Grid Service enrollments. While each meter is a separate enrollment, both enrollments must have the same enrollment date. 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 Un-Enrollment

If a Participant will no longer be participating a 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 be prorated from the un-enrollment date. If a Participant changes address, but wishes to continue participating, a un-enrollment and new enrollment (with Participant’s new address) must be submitted.

Updates to Participant Information

The following Participant information may only be updated during windows which will be specified by the Company:

- Incentive update: Incentive Name, Incentive Value, Incentive Start Date
- Enrolled kW: Participant Resource Capability, Participant Resource Capability Effective Start Date. Enrolled kW updates must be aligned to the start of month.

The following Participant information may be updated at any time:

- W4 Email
- Customer Name

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.

- 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 Participant’s Resource Capability to be included in Aggregator’s Operational Forecast. Aggregator will submit an Operational Forecast file in CSV format as specified herein. The Operational Forecast represents Supplier’s Total individual Grid Service Capability for the given period. An Operational Forecast submitted in a separate file is required for each Grid Service that Supplier is contracted to provide. The Operational Forecast shall be submitted 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

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}_{GridServiceProgramName}_{Date:yyyy-MM-dd_HH-mm-ss_SSS.csv, for example, 100001_Capacity Build_2018-07-13_16-59-03_089.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 2 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. The values/columns shall be in the order specified in Table 2.

Table 2: Operational Forecast Format

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.
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.

Error Handling

The import of the aggregator 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.

Forecast Assumptions

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.

A single granularity for the Operational Forecast is required, i.e. aggregators may not provide both 5 minute forecast and 15 minute forecast for a single Grid Service.

Participant Energy Reduction Incentive Data

For Participants receiving an Energy Reduction Incentive (ERI), Aggregator Supplier 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 7th day of the month for Participant energy reduction in the previous month.

File naming convention for enrollment data is as follows: {EnrollerId}_HECO_{Date:yyyy-MM-dd_HH-mm-ss_SSS}.csv, for example, 100001_HECO_2018-07-13_16-59-03_089.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.

Table 3: Participant Incentives File Format

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. Contact 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.

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 No. provided is not enrolled.
- Participant Account and 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.

Operational Communications, Control, and Telemetry

The Hawaiian Electric Companies rely on Open Automated Demand Response (OpenADR) to support demand response (DR) communications and controls. OpenADR provides a non-proprietary, open standardized DR interface that allows the Companies to communicate DR signals directly to customers or aggregators using a common language and existing communications such as the Internet. The Figure 1 depicts the exchange of data and controls via OpenADR between the Companies' Virtual Top Node (VTN)² and customer Virtual End Nodes

² The VTN is an information exchange server. This server can be located at the highest infrastructure level (e.g. Utility Company), at an aggregator level, or at the managed facility. Each VTN can have 1-N VENs. Commonly VTNs are reasonably powerful computer systems.

(VEN),³ as well as to other DR resources that may be aggregated by a third party (VEN/VTN). There is no peer-to-peer communication in OpenADR 2.0, i.e. VTNs do not communicate directly other VTNs and VENs do not communicate directly with other VENs.

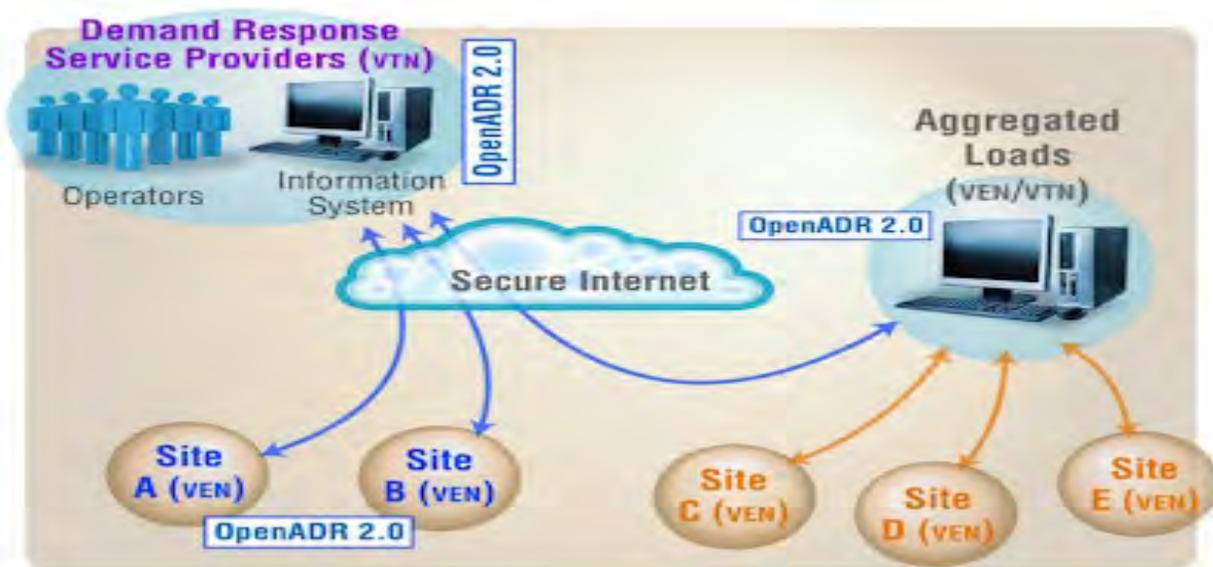


Figure 1: VTN/VEN Communications

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 process⁴ and the OpenADR 2.0 (A and B) Profile Specification (OpenADR Specification).⁵ 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.

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).⁶ 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.

³ The VENs are clients to one or more VTN and can be located one level below any of the suitable VTN locations. VENs can be simple devices like load controllers, thermostats or more powerful implementations like energy management systems or aggregator level control servers.

⁴ <https://www.openadr.org/certification-process>

⁵ <https://www.openadr.org/specification>

⁶ <https://www.openadr.org/cyber-security>

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 Capability. The OpenADR SignalPayload will be SIMPLE, specific SignalPayload value will depend on the finalization of the design and implementation of the DERMS. Table 4 presents OpenADR parameters/configuration is required:

Configuration/ Parameter	Description	Value
SignalType	Describes type of signal	Level
marketContext	Provided by Companies	Name of Grid Service program
Priority	Priority of current even in relation to other events	1
Resource ID	Common name for VEN; provided by Companies	Client Id
Poll rate for event signal		1 minute
Poll rate for report		5 minutes
Telemetry_Usage: Report type	Report for data that is periodically reported	Usage
Telemetry_Usage: Units		powerReal

Table 4: OpenADR Parameters

Provisioning Process

The Companies will create a participant username for login to the VTN. From the VTN, connectivity between the VTN and VEN can be monitored as well as status of the event and telemetry by the Aggregator and the Company.

During the initial connection attempt to the Companies' VTN, a VEN_ID will be assigned to the VEN. The VEN should be left online and connected during this time. The VEN_ID assigned to the VEN must be emailed to the Companies, to allow the Companies to link the VEN_ID to the client in the VTN.

FFR Certification and Testing

Supplier must demonstrate to the Company compliance with FFR response timing and accuracy requirements. Demonstration may be performed through observed testing using appropriate testing equipment, or a report documenting operation that resources are activated within the specified period.

A monthly FFR manual dispatch test event will be performed by the Companies. 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. At the end of the test event, the aggregated resource must ramp out of the event as required for FFR.

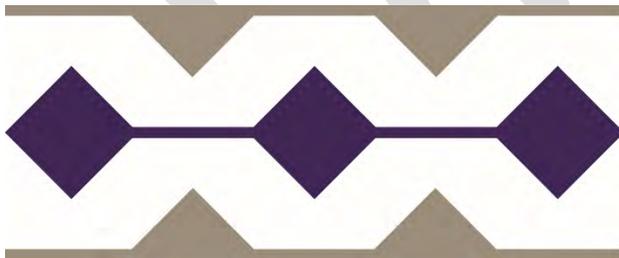
DRAFT REQUEST FOR PROPOSALS
FOR
NON-WIRES ALTERNATIVES TO PROVIDE RELIABILITY (BACK-TIE)
SERVICES

ISLAND OF O‘AHU – EAST KAPOLEI AREA

SEPTEMBER 3, 2019

Docket No. 2018-0165

Appendix I – 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	

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SEPTEMBER 3, 2019

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Appendix J – Distribution Needs



**Hawaiian
Electric**

Overview of the Ho'opili and East Kapolei Area NWA Opportunities

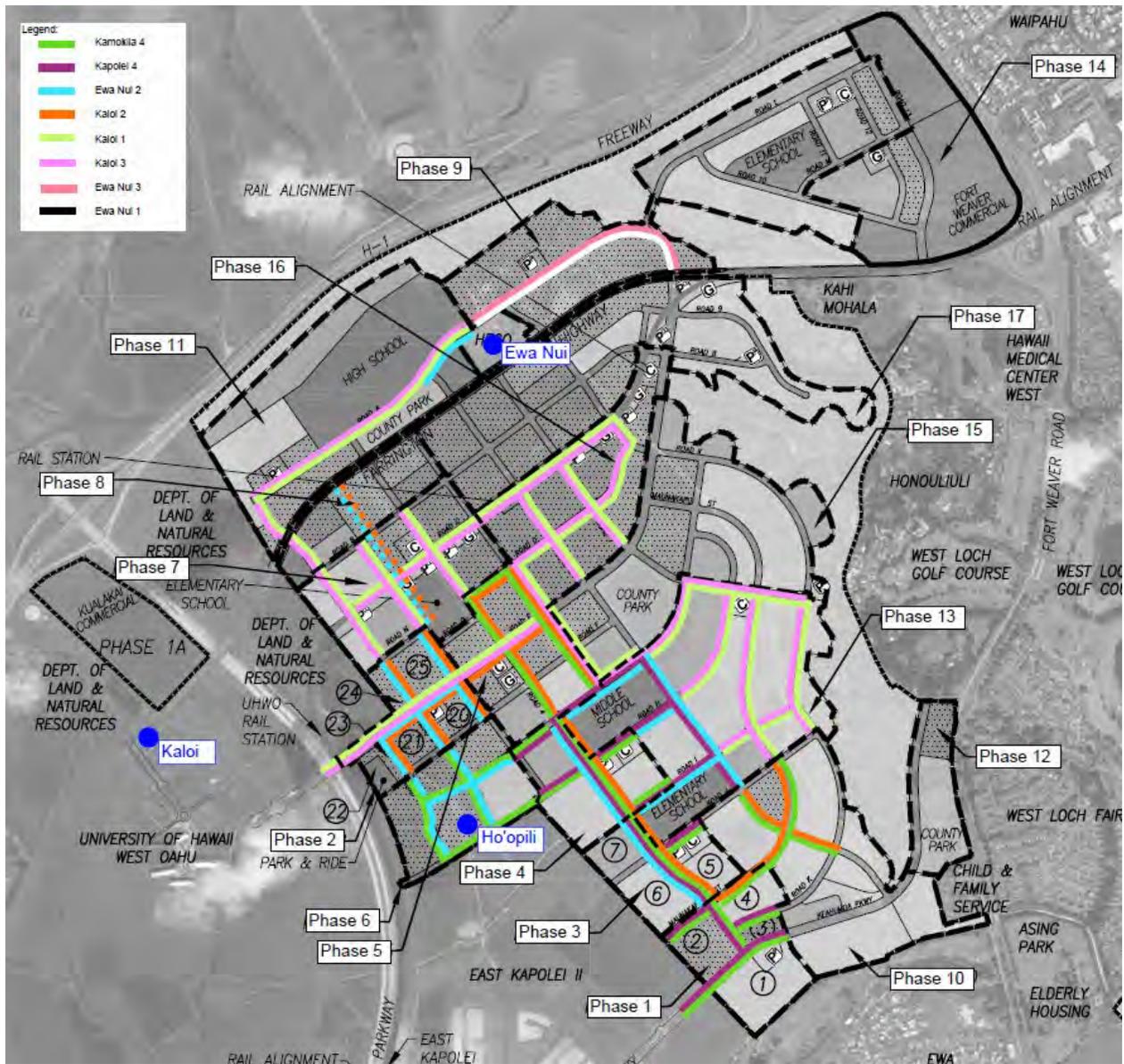


Figure 1: Planned Ho'opili Development

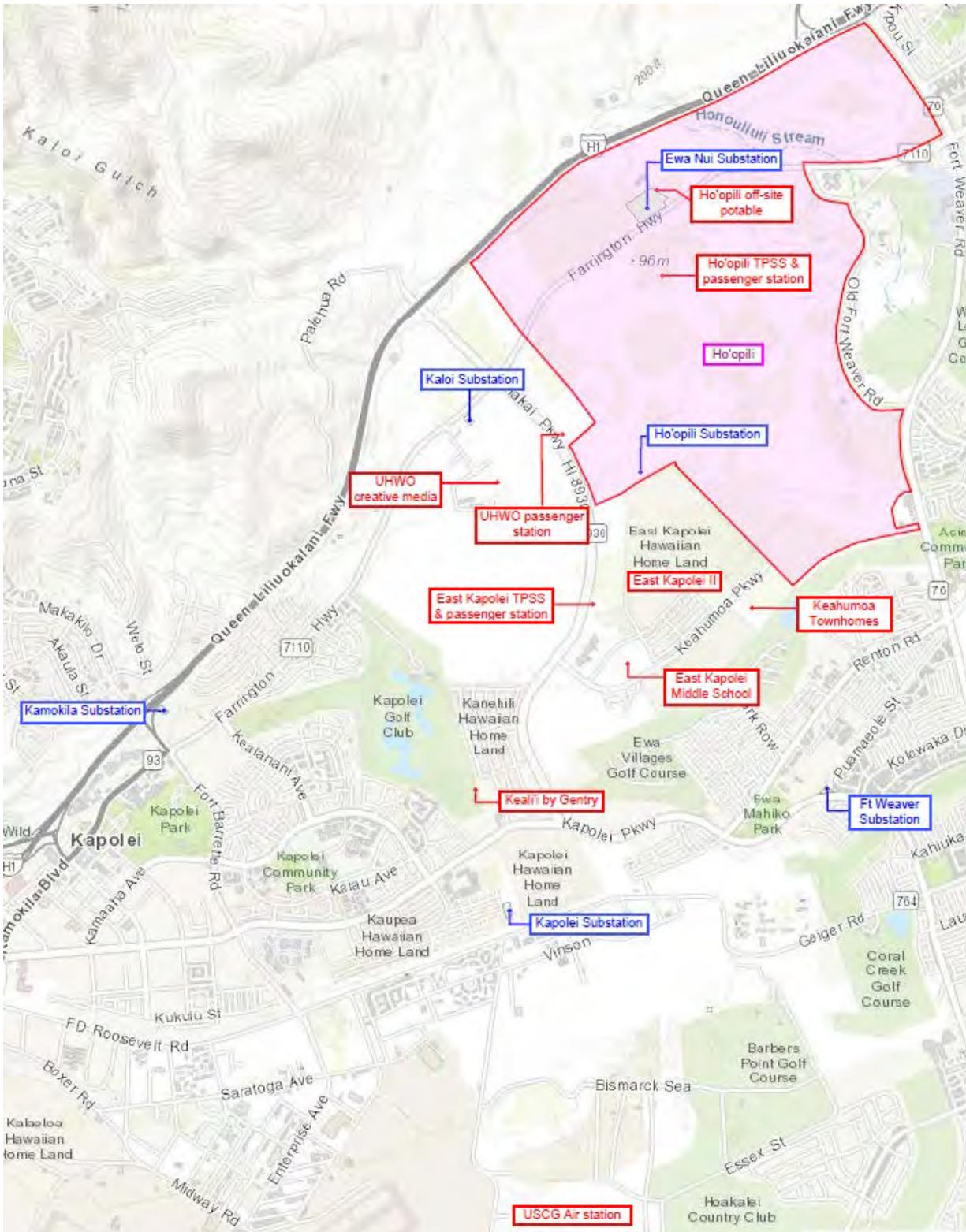


Figure 2: Overall Area Map

Ho’opili and East Kapolei Customer Composition

Existing Customer Composition

Table 1 provides the existing meter counts on the circuits and transformers causing the contingency overloads. These meter counts also include the initial phases of Ho’opili that have been energized.

The Kamokila 4 circuit customer counts only represent the meters that will transfer to Kapolei 4 circuit when the Kamokila 4 circuit or transformer is out of service.

While the remaining circuits and transformers affected by the Ho’opili development have existing customers, the loads will be transferred to other circuits to maximize the available capacity to serve load growth in the East Kapolei area.

Table 1: Existing Customer Counts

Equipment	Residential Customer Count	Commercial and Industrial Customer Count	Existing PV (MW)
Ewa Nui 2 Ckt	0	0	0
Ewa Nui 3 Ckt	0	0	0
Kaloι 1 Ckt	0	10	0.6
Kaloι 2 Ckt	0	0	0
Kaloι 3 Ckt	0	0	0
Portion of Kamokila 4 Ckt	744	236	1.2
Kapolei 4 Ckt	435	101	6.2

Forecasted Customer Composition

Table 2 and Table 3 provide forecasted residential customer counts by circuit and forecasted customer square footage. In the current forecast, each single family home (“SF”) is assumed to produce a peak load of 3 kVA, and the multifamily and apartment unit (“MF/A”) is assumed to produce a peak load of 2.5 kVA. The projected load for commercial loads are .0045 kVA/sq ft unless otherwise noted. Table 4 contains the other loads forecasted to be in-service in the near-term in the East Kapolei Area. Table 5 contains the Ho’opili loads.

Table 2: Projected Ho’opili Single Family (SF) and Multi-Family and Apartment (MF/A) Customer Counts

Circuit	2022		2023		2024	
	SF	MF/A	SF	MF/A	SF	MF/A
Ewa Nui 2	580	1,234	580	1,234	580	1,234
Ewa Nui 3	0	0	0	0	0	0
Kaloι 1	92	493	184	1,151	184	1,151
Kaloι 2	651	1,251	651	1,251	651	1,671
Kaloι 3	407	328	407	1,882	407	1,882
Kapolei 4	0	0	0	0	0	0
Kamokila 4	396	366	396	366	396	366

Table 3: Ho'opili for Commercial (C), Industrial (I), and School (S) Square Footage

Circuit	2022			2023			2024		
	C	I	S	C	I	S	C	I	S
Ewa Nui 2	371,698	0	0	371,698	0	0	371,698	0	666,468
Ewa Nui 3	0	797,039	0	0	797,039	0	0	797,039	0
Kalo i 1	620,730	0	0	1,110,548	0	2,064,744	1,110,548	0	2,064,744
Kalo i 2	703,102	0	0	703,102	0	0	1,107,296	0	0
Kalo i 3	60,984	0	0	551,252	0	0	551,252	0	509,652
Kapolei 4	0	0	0	0	0		0	0	
Kamokila 4	570,331	0	0	570,331	0	0	570,331	0	0

Table 4: Other New Loads (Non-Ho'opili driven)

Customer	Year	Load Type	Customer Count	Load MVA	Primary Circuit	Backup Circuit
East Kapolei TPSS Initial Load	2019	Constant	1	1.5	Kamokila 4	Kapolei 4
East Kapolei Passenger Station	2019	Constant	1	0.5	Kamokila 4	Kapolei 4
UHWO Passenger Station	2019	Constant	1	0.6	Kalo i 1	Kalo i 3
UHWO Creative Media	2019	Commercial	1	0.6	Kalo i 1	Kalo i 3
East Kapolei II	2019–2022	Residential	387 SF 322 MF	2.0	Kapolei 4	Kamokila 4
East Kapolei II Middle School	2019	Commercial	1	1.5	Kapolei 4	Kamokila 4
Keali'i by Gentry	2019	Residential	66 SF	0.3	Kamokila 4	Kapolei 4
US Coast Guard Air Station	2022	Commercial	1	2.9	Kapolei 4	Kapolei 2
East Kapolei TPSS Testing	2023	Constant	1	1.2	Kamokila 4	Kapolei 4

Table 5: Ho'opili loads by phase

Ho'opili Phase	Year	Load Type	Load KVA	Primary Circuit	Backup Circuit
1	Existing	Single Family	465	Kamokila 4	Kapolei 4
	Existing	Apartment MU	380	Kamokila 4	Kapolei 4
	2019	Commercial	687	Kamokila 4	Kapolei 4
2	2020	Multi Family	1350	Kaloi 1	Ewa Nui 2
	2020	Commercial	743	Kaloi 1	Ewa Nui 2
3	Existing	Single Family	345	Kamokila 4	Kapolei 4
	Existing	Multi Family	265	Kamokila 4	Kapolei 4
	2019	Commercial	39	Kamokila 4	Kapolei 4
4	2020	Single Family	378	Kamokila 4	Kapolei 4
	2020	Multi Family	270	Kamokila 4	Kapolei 4
	2020	Commercial	33	Kamokila 4	Kapolei 4
6	2020	Single Family	174	Ewa Nui 2	Kamokila 4
	2020	Apartment MU	2000	Ewa Nui 2	Kamokila 4
	2020	Commercial	673	Ewa Nui 2	Kamokila 4
5	2021	Single Family	153	Kaloi 2	Kamokila 4
	2021	Multi Family	1137.5	Kaloi 2	Kamokila 4
	2021	Commercial	603	Kaloi 2	Kamokila 4
10A	2021	Single Family	1422	Kaloi 2	Kamokila 4
	2021	Multi Family	370	Kaloi 2	Kamokila 4
	2021	Commercial	130	Kaloi 2	Kamokila 4
13A	2022	Single Family	1221	Ewa Nui 2	Kapolei 4
	2022	Multi Family	820	Ewa Nui 2	Kapolei 4
	2022	Commercial	24	Ewa Nui 2	Kapolei 4
	2024	School	1500	Ewa Nui 2	Kapolei 4
9	2020	Industrial	3606	Ewa Nui 3	Ewa Nui 2 SB
11	2022	Single Family	276	Kaloi 1	Ewa Nui 2
	2022	Multi Family	1232.5	Kaloi 1	Ewa Nui 2
	2022	Commercial	437	Kaloi 1	Ewa Nui 2
	2023	School	4000	Kaloi 1	Ewa Nui 2
13B	2022	Single Family	1221	Kaloi 3	Kaloi 1
	2022	Multi Family	820	Kaloi 3	Kaloi 1
	2022	Commercial	24	Kaloi 3	Kaloi 1
	2024	School	1500	Kaloi 3	Kaloi 1
7	2023	Single Family	276	Kaloi 1	Kaloi 3
	2023	Multi Family	1645	Kaloi 1	Kaloi 3
	2023	Commercial	644	Kaloi 1	Kaloi 3
16	2023	Multi Family	3885	Kaloi 3	Kaloi 1
	2023	Commercial	1252	Kaloi 3	Kaloi 1

Ho'opili Phase	Year	Load Type	Load KVA	Primary Circuit	Backup Circuit
8	2024	Multi Family	1050	Kaloi 2	Ewa Nui 2
	2024	Commercial	1146	Kaloi 2	Ewa Nui 2
10B	2025	Single Family	1422	Kamokila 4	Kapolei 4
	2025	Multi Family	370	Kamokila 4	Kapolei 4
	2025	Commercial	130	Kamokila 4	Kapolei 4
12	2026	Commercial	679	Kamokila 4	Kapolei 4
17	2027	Single Family	834	Ewa Nui 2	Kaloi 1
	2027	Multi Family	4525	Ewa Nui 2	Kaloi 1
	2027	Commercial	1442	Ewa Nui 2	Kaloi 1
14	2029	Single Family	609	Ewa Nui 2	Ewa Nui 1
	2029	Apartment MU	1700	Ewa Nui 2	Ewa Nui 1
	2029	Commercial	6999	Ewa Nui 2	Ewa Nui 1
	2029	School	1500	Ewa Nui 2	Ewa Nui 1
15	2030	Single Family	645	Kaloi 2	Kaloi 3
	2030	Multi Family	1830	Kaloi 2	Kaloi 3
	2030	Commercial	561	Kaloi 2	Kaloi 3
1A	TBD	Commercial	2239	TBD	TBD

Ho'opili Area NWA

Ho'opili and East Kapolei Distribution System Overview

Figure 3 illustrates the expected configuration of the distribution system to serve projected Ho'opili and East Kapolei loads.

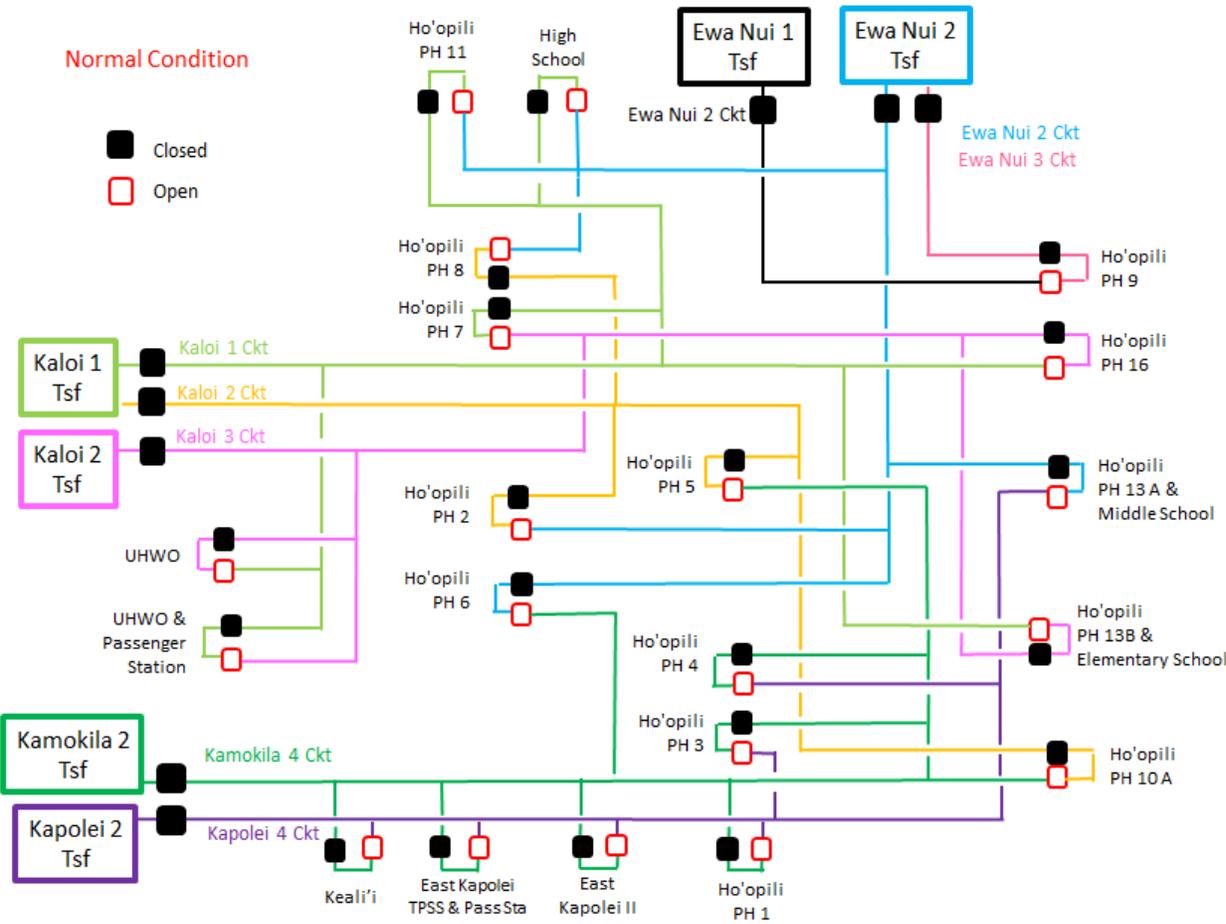


Figure 3: Simplified Distribution System Map of Projected Service of Ho’opili Loads

6 provides the contingency scenarios that are forecasted to have overloads by 2024. For example, in Figure 3, when the Ewa Nui 2 circuit is out of service, a portion of its loads (Ho’opili Phase 3) transfers to Kaloi 2 circuit, another portion (Ho’opili Phase 6) transfers to Kamokila 4, and the remaining portion (Ho’opili 13A and Middle School) transfers to Kapolei 4.

Table 6: Contingency Scenarios for Ho’opili and East Kapolei in 2024

Circuit	Backed Up By							
	Ewa Nui 2 SB	Ewa Nui 2	Ewa Nui 3	Kaloi 1	Kaloi 2	Kaloi 3	Kamokila 4	Kapolei 4
Ewa Nui 2					X		X	X
Ewa Nui 3	X			X				
Kaloi 1		X				X		
Kaloi 2		X					X	
Kaloi 3				X				
Kamokila 4								X
Kapolei 4							X	

7 provides the allowable supply and demand reduction solutions for each distribution circuit. Supply solutions include inverter-based resources such as PV or battery systems. Demand reduction solutions include energy efficiency and demand response.

Table 7: Allowable Supply and Demand Reduction Solutions per Distribution Circuit

Location of Resource	Supply (Inverter-Based)		Demand Reduction	
	BTM ¹	IFTM ²	BTM	IFTM
Ewa Nui 2 Ckt	Yes	Yes	Yes	Yes
Kalo 1 Ckt	Depends	Depends	Yes	Yes
Kalo 2 Ckt	Depends	Depends	Yes	Yes
Kalo 3 Ckt	Depends	Depends	Yes	Yes
Portion of Kamokila 4 Ckt	Depends	Depends	Yes	Yes
Kapolei 4 Ckt	Yes	Yes	Yes	Yes

¹ Behind the meter

² In front of the meter

During a contingency event, inverter-based resources will trip and remain offline until voltage and frequency are restored and remain stable for five minutes. Under a contingency event where a circuit trips and its loads transfer to a backup circuit, the transferred loads will momentarily lose power and the inverter-based resources connected to those loads will trip on under-voltage until voltage is restored and remains stable for five minutes. In other words, if inverter-based resources are being transferred to the back-up circuit the back-up circuit will experience unacceptable overloading for at least a 5-minute duration. For the loads on the circuit(s) that experience the momentary outage, only demand reduction solutions are capable of maintaining load reduction during the contingency event. Both demand reduction solutions and supply (inverter-based) solutions are capable of maintaining load reduction for the backup circuit(s) that accept the loads from the circuit(s) that experience the outage during the contingency event.

Depending on the overload to be solved and the location of the resource an inverter-based resource may or may not be acceptable. The Company will consider solutions to mitigate the anti-islanding, 5-minute reconnection time; however, the solution cannot include modifying the anti-islanding settings. For instance, the company may consider solutions such as interrupting proportional amount of load until the inverter-based resource is restored to full output as to not overload the circuit.

Ho’opili and East Kapolei Distribution System Forecasted Service Needs through 2024

Overview of Reliability (Back-Tie) Service Needs

Table 8 and Table 9 summarize the normal and contingency overloads for which Reliability (back-tie) Services are needed. There are other overloads in other contingency scenarios studied. However, the tables below and in subsequent sections, represent the scenarios which, if solved, will also solve the other identified overloads, therefore deferring the planned distribution investment.

All identified overloads listed for each deferral opportunity must be met through the Reliability Service in order to defer the distribution investment. Only meeting a portion of the need will not defer the need. For example, to defer the Ho’opili Substation Transformer 1 and 2, the overloads on Ewa Nui 2 circuit, Kaloi 1 transformer, Kaloi 3 circuit, and Kamokila 4 circuit must be fully met.

Table 8: Summary of Normal Overloads

Deferral Opportunity	Equipment	MVA Peak	Operational Date	Delivery Months	Delivery Hours	Duration (Hr)	Max # of Days	MVAH
Ho’opili Substation Tsf 1 and 2	Kaloi 1 Tsf	5.1	Jan 2023	Jan - Dec	1PM – 11AM	10	365	23.3
	Kaloi 3 Ckt	0.3	Aug 2023	Aug - Oct	7PM - 9PM	2	69	0.4

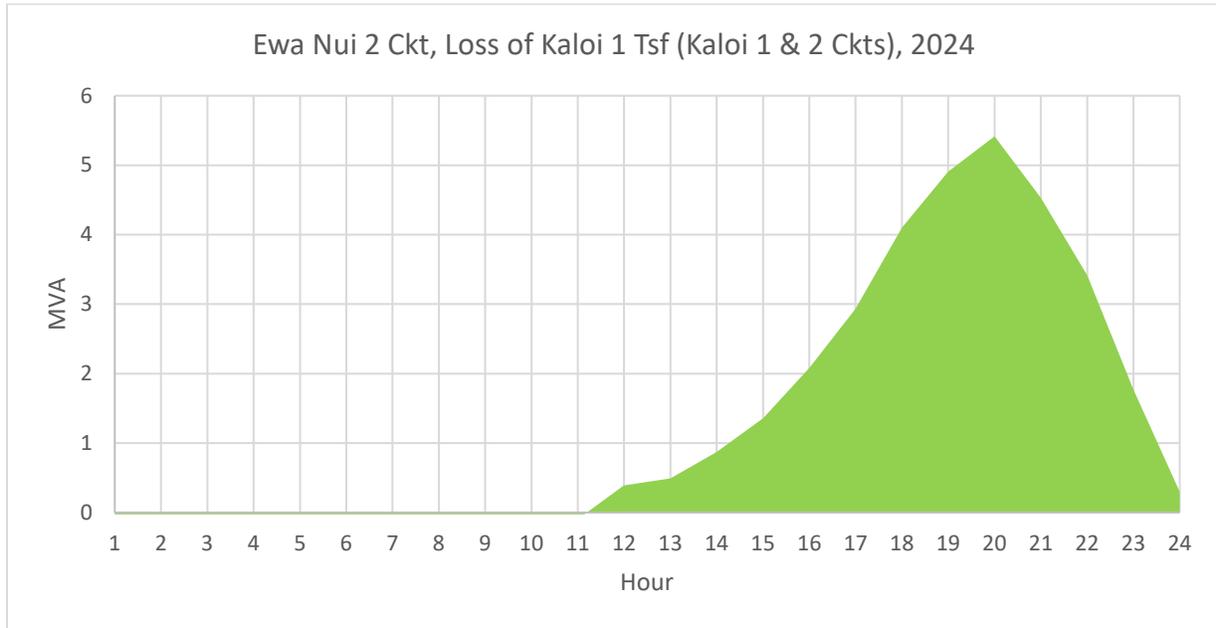
Table 9: Summary of Contingency Overloads

Deferral Opportunity	Equipment	MVA Peak	Operational Date	Delivery Months	Delivery Hours	Duration (Hr)	Max # of Days	MVAH
Kapolei 4 Circuit Extension	Kapolei 2 Tsf	3.8	Feb 2022	Jan - Dec	5PM - 11PM	6	365	12.4
Ho’opili Substation Tsf 1 and 2	Ewa Nui 2 Ckt	5.4	Jan 2023	Jan - Dec	11AM - 12AM	13	365	32.6
	Kaloi 1 Tsf ¹	10.6	Jan 2023	Jan - Dec	6AM - 8AM, 9AM - 12AM	17	365	68.2
	Kaloi 3 Ckt ¹	2.7	Jan 2023	Jan - Dec	5PM - 11PM	6	365	8.9
	Kamokila 4 Ckt	1.0	May 2023	Jan - Dec	5PM - 10PM	5	226	3.2

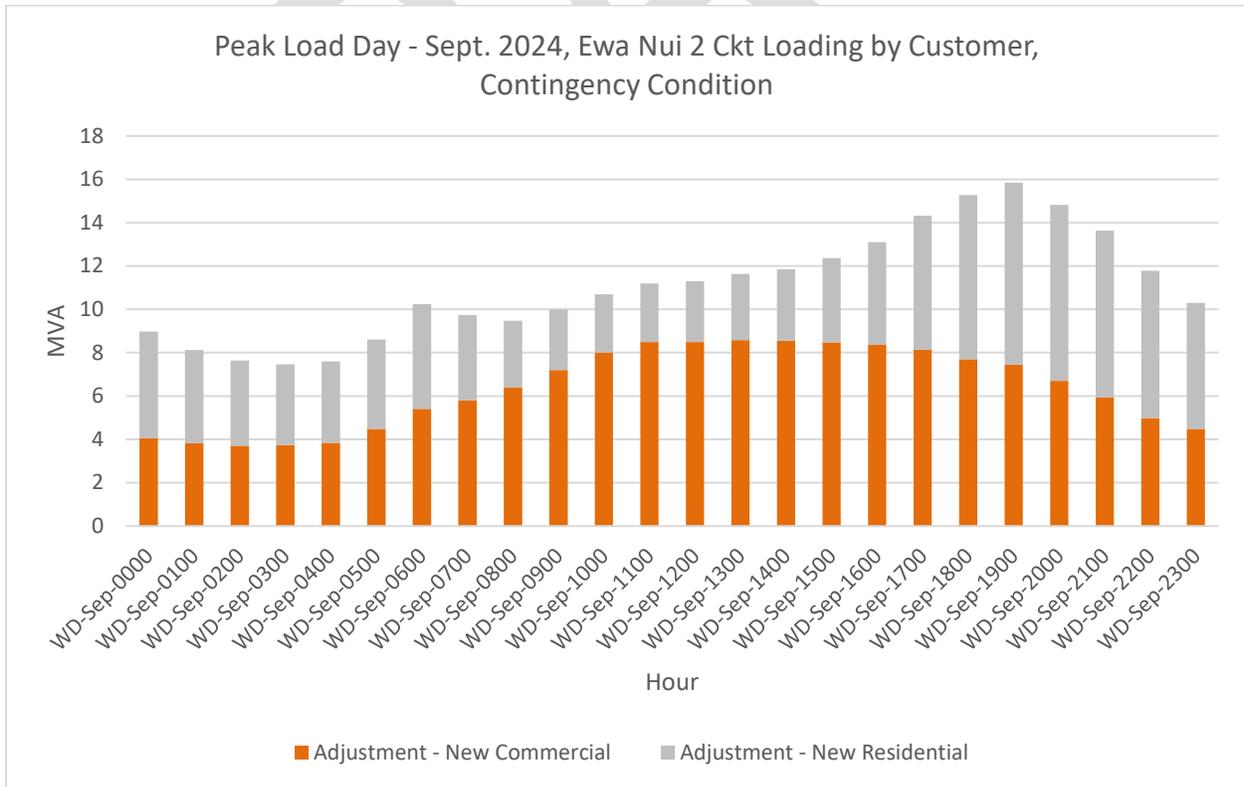
¹ If the Reliability (back-tie) Service is scheduled dispatch (i.e., dispatched each day specified in the “Max # of Days” column) then the normal overload need will also be met.

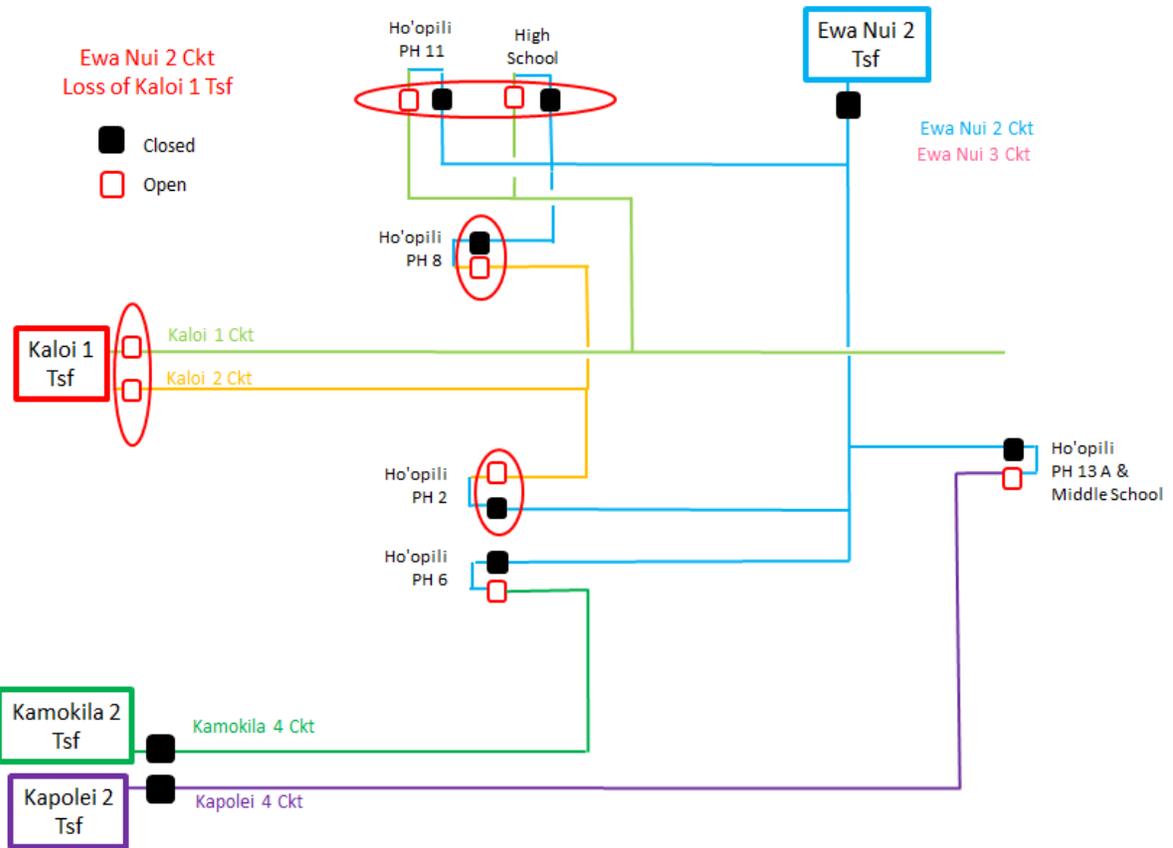
The following sections provide additional details for each identified need in Table 7 and Table 8.

Projected Ho'opili and East Kapolei Reliability (Back-Tie) Service Needs

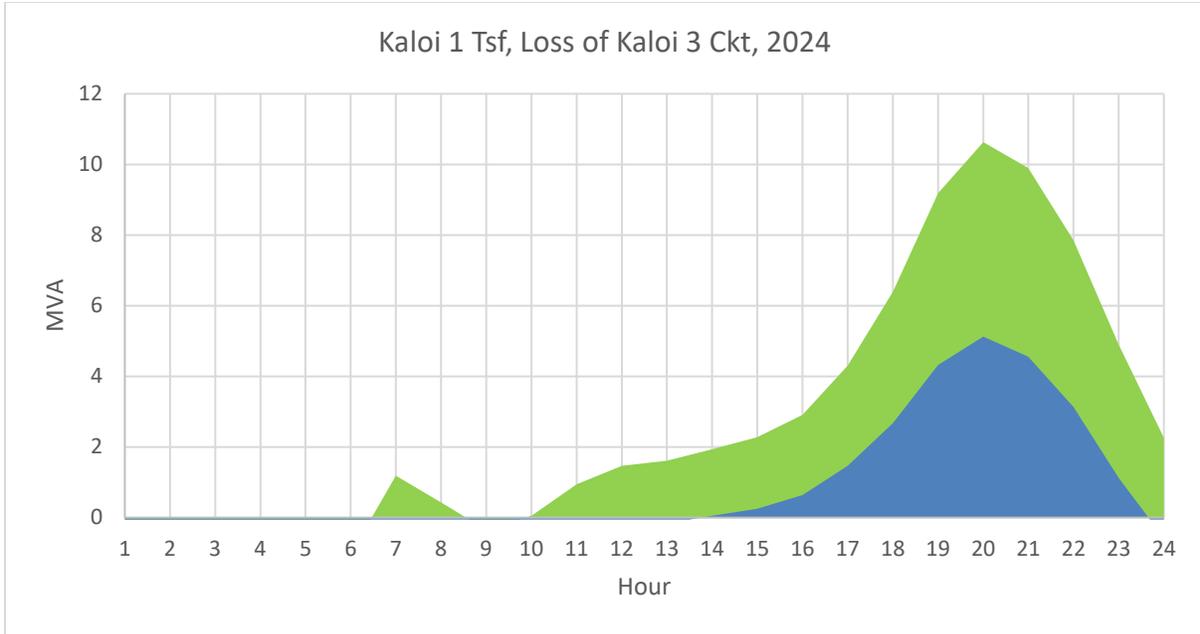


Equipment	MVA Peak	Delivery Months	Delivery Hours	Duration (Hr)	Max # of Days	MVAH
Ewa Nui 2 Ckt	5.4	Jan - Dec	11AM - 12AM	13	365	32.6



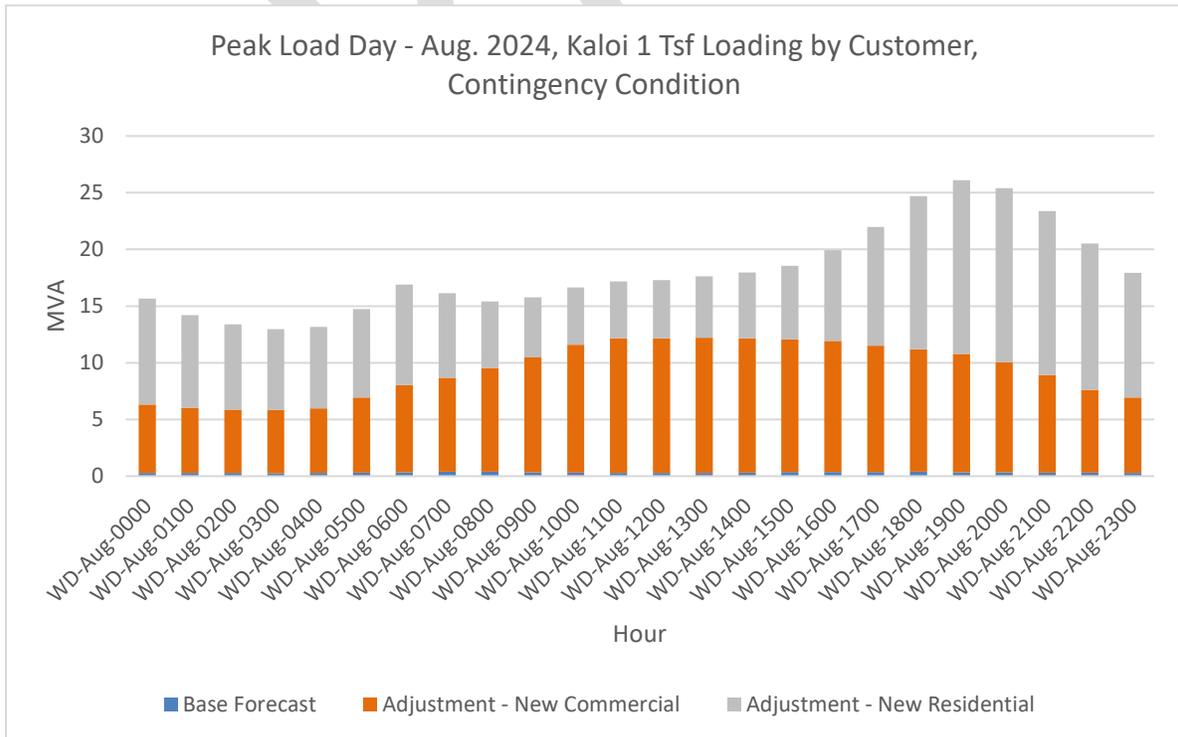


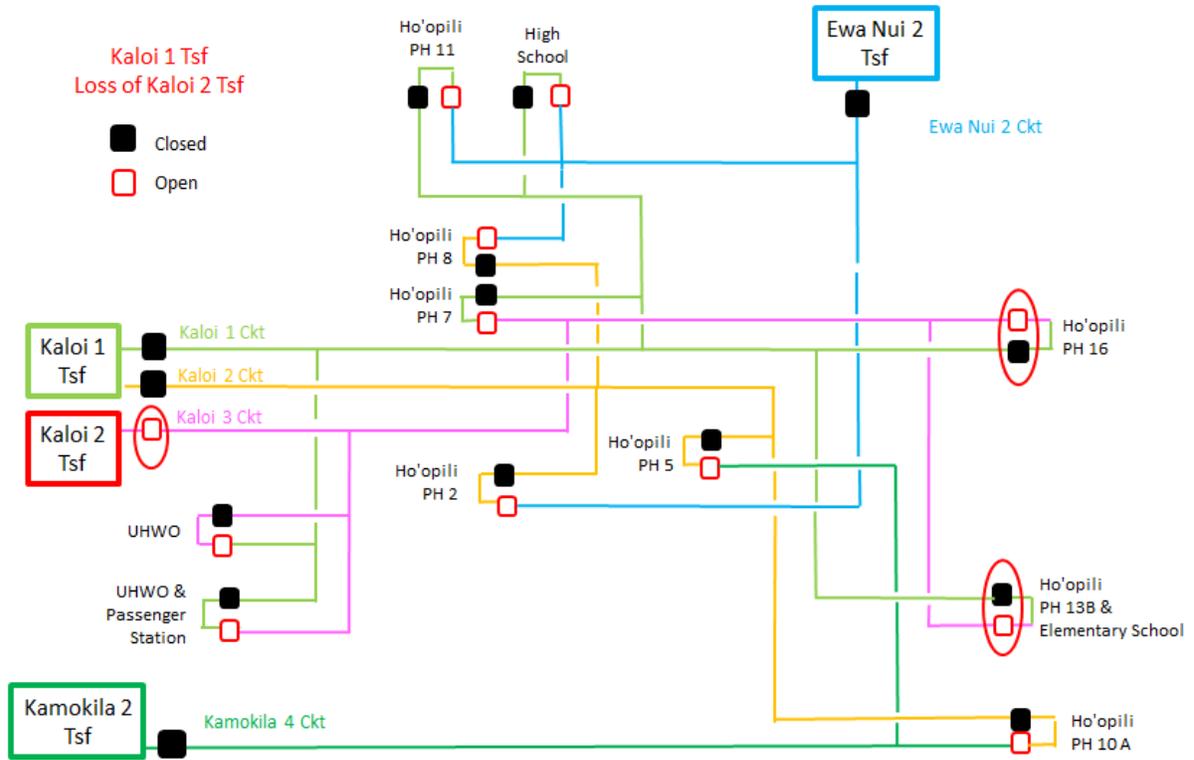
Supply and Demand Reduction NWA: Ewa Nui 2 Circuit
 Demand Reduction NWA: Kaloi 1 Circuit, Kaloi 2 Circuit



Equipment	MVA Peak	Delivery Months	Delivery Hours	Duration (Hr)	Max # of Days	MVAH
Kalo 1 Tsf Normal¹	5.1	Jan - Dec	1PM - 11AM	10	365	23.3
Kalo 1 Tsf Contingency	10.6	Jan - Dec	6AM - 8AM, 9AM - 12AM	17	365	68.2

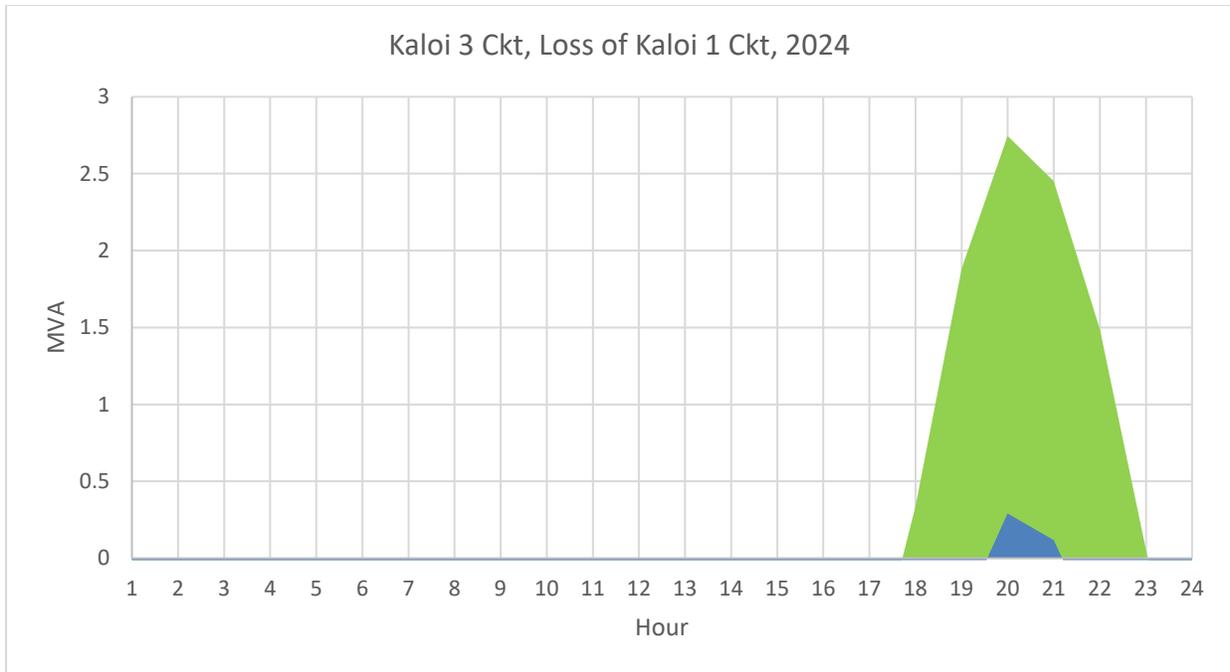
¹ If the Reliability (back-tie) Service is scheduled dispatch (i.e., dispatched each day specified in the “Max # of Days” column) then the normal overload need will also be met.





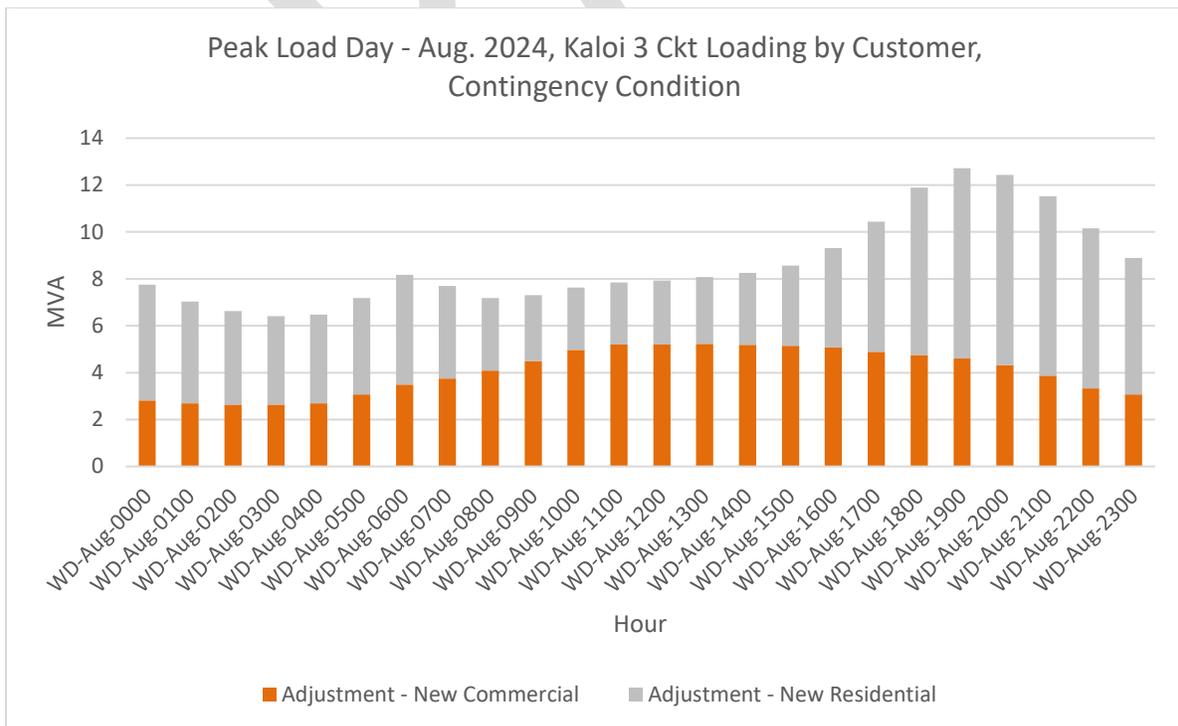
Supply and Demand Reduction NWA: Kaloi 1 Circuit, Kaloi 2 Circuit
Demand Reduction NWA: Kaloi 3 Circuit

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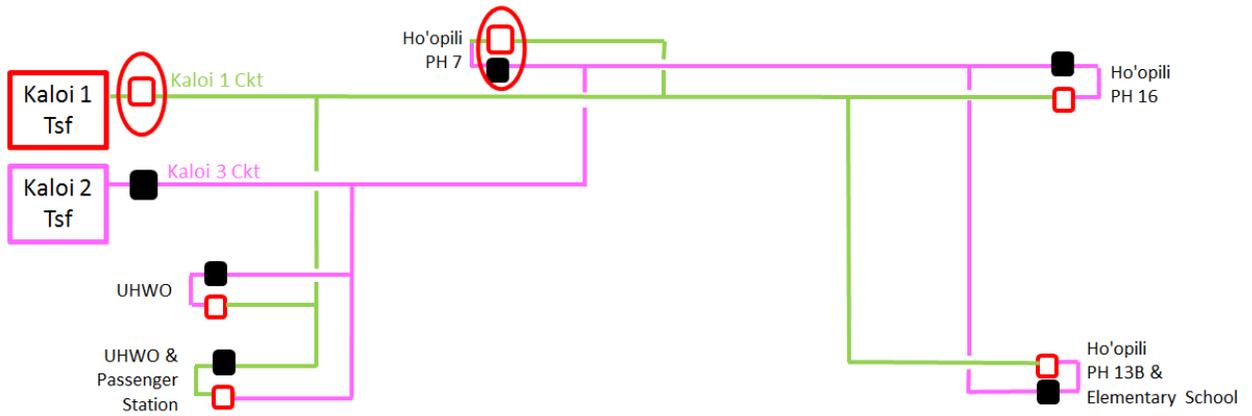
Equipment	MVA Peak	Delivery Months	Delivery Hours	Duration (Hr)	Max # of Days	MVAH
Kaloi 3 Ckt Normal¹	0.3	Aug - Oct	7PM - 9PM	2	69	0.4
Kaloi 3 Ckt Contingency	2.7	Jan - Dec	5PM - 11PM	6	365	8.9

¹ If the Reliability (back-tie) Service is scheduled dispatch (i.e., dispatched each day specified in the “Max # of Days” column) then the normal overload need will also be met.



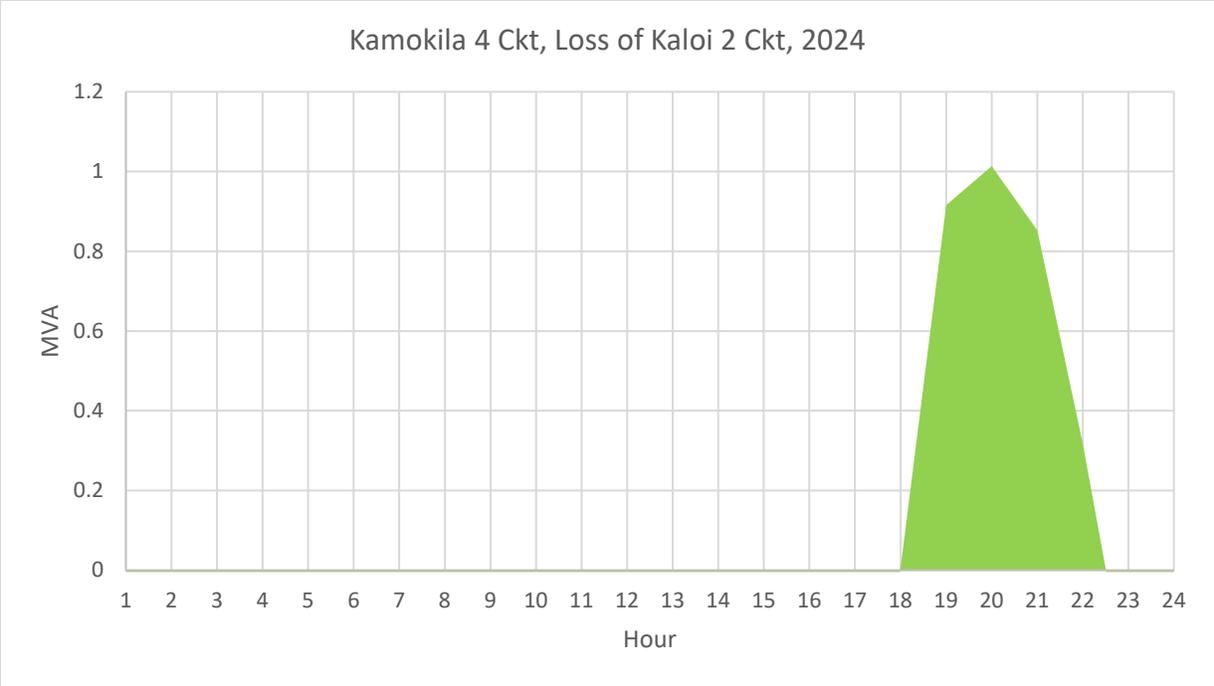
Kaloi 3 Ckt
Loss of Kaloi 1 Tsf

- Closed
- Open

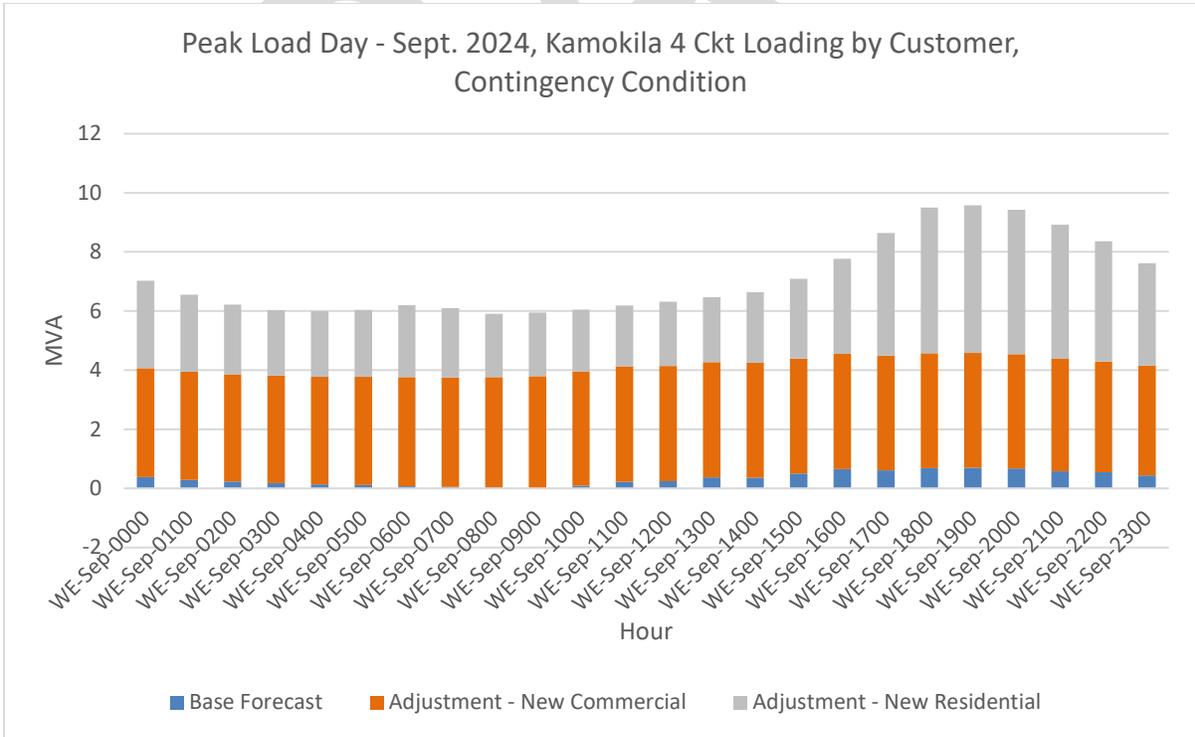


Supply and Demand Reduction NWA: Kaloi 3 Circuit
Demand Reduction NWA: Kaloi 1 Circuit

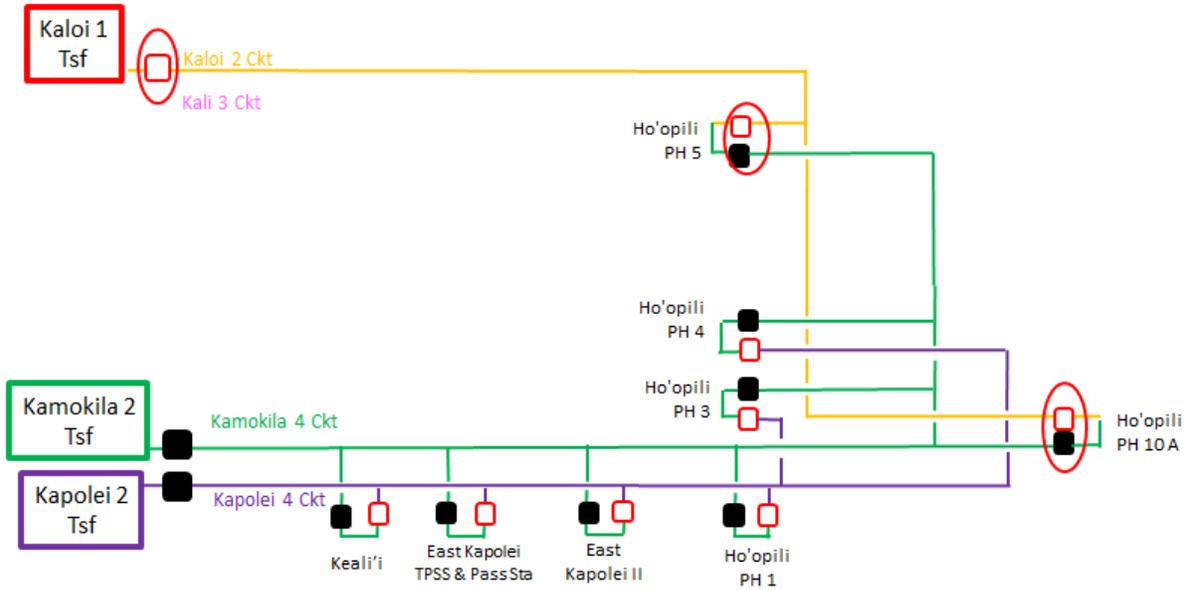
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Equipment	MVA Peak	Delivery Months	Delivery Hours	Duration (Hr)	Max # of Days	MVAH
Kamokila 4 Ckt	1	May - Dec	5PM - 10PM	5	226	3.2

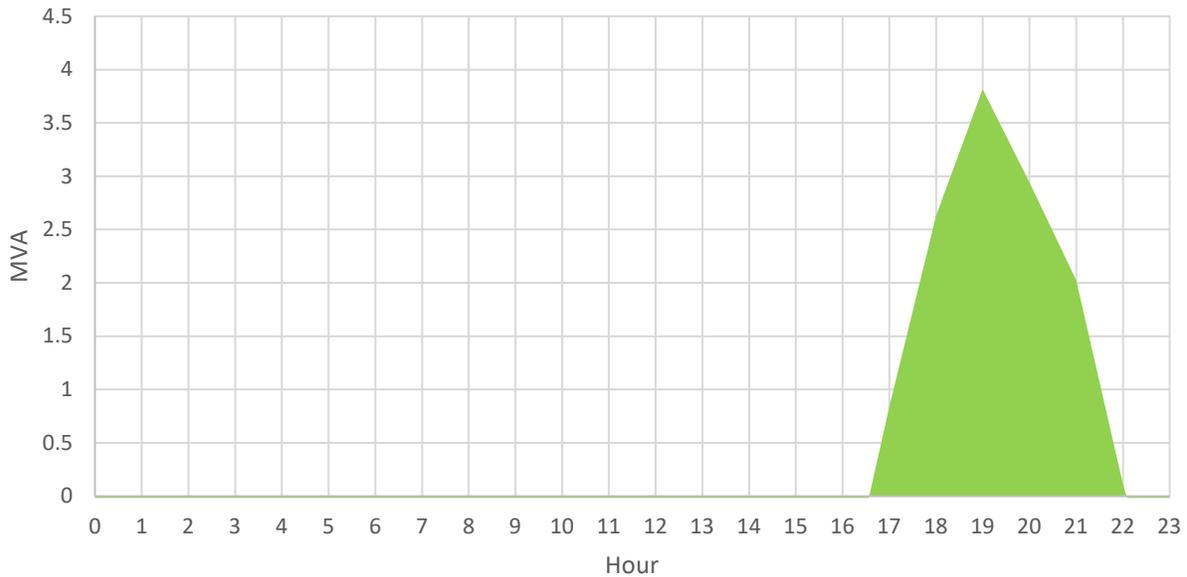


Kamokila 4 Ckt
 Loss of Kaloi 1 tsf
 ■ Closed
 □ Open



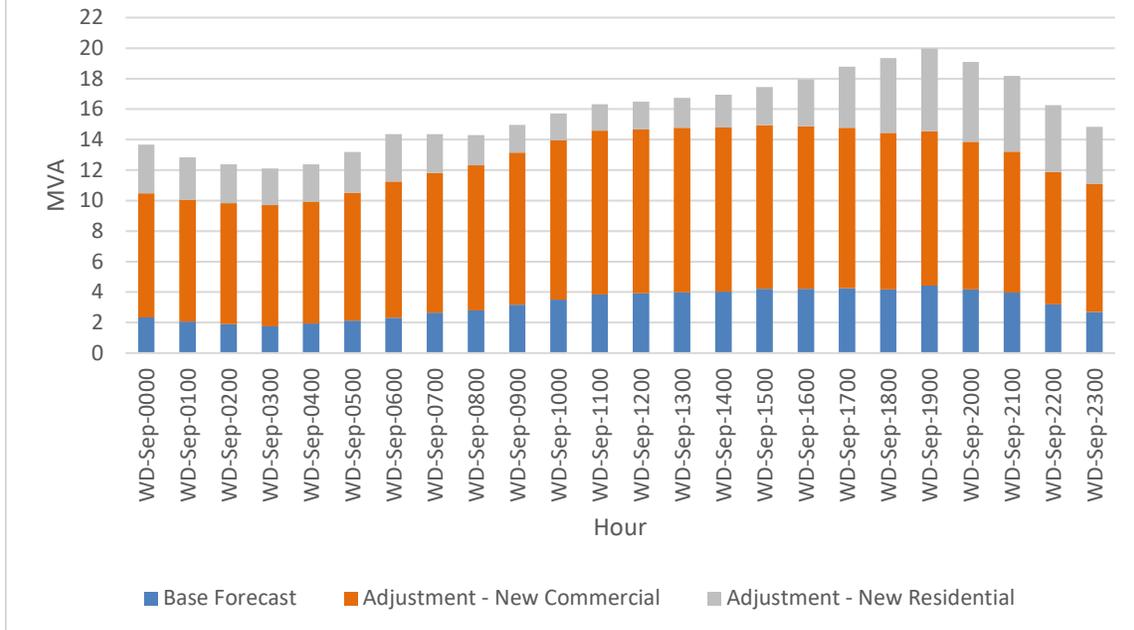
Supply and Demand Reduction NWA: Kamokila 4 Circuit
 Demand Reduction NWA: Kaloi 2 Circuit

Kapolei 2 Tsf, Loss of Kamokila 4 Ckt, 2024

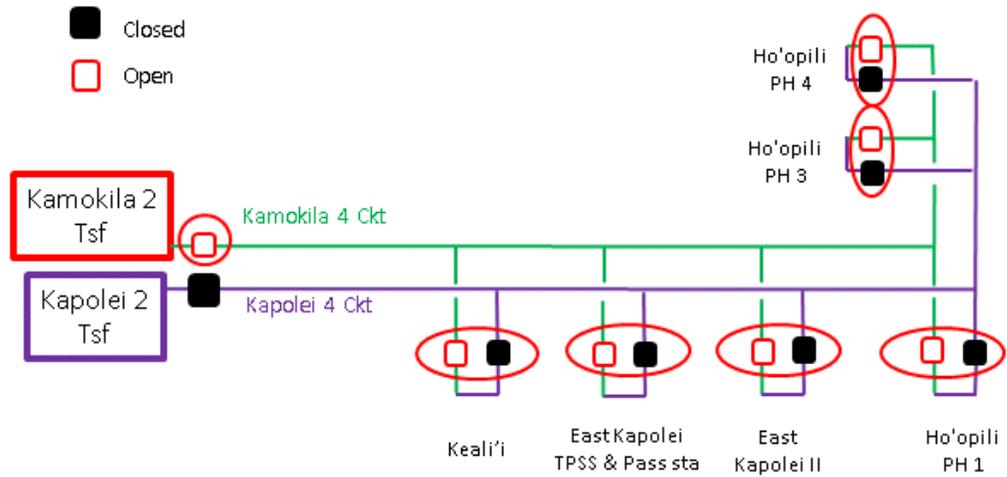


Equipment	MVA Peak	Delivery Months	Delivery Hours	Duration (Hr)	Max # of Days	MVAH
Kapolei 2 Tsf	3.8	Jan - Dec	5PM - 11PM	6	365	12.4

Peak Load Day - Sep. 2024, Kapolei 2 Tsf Loading by Customer, Contingency Condition



Kapolei 4 Ckt
Loss of Kamokila 2 Tsf



Supply and Demand Reduction NWA: Kapolei 4 Circuit
Demand Reduction NWA: Kamokila 4 Circuit

DRAFT

East Kapolei Area NWA

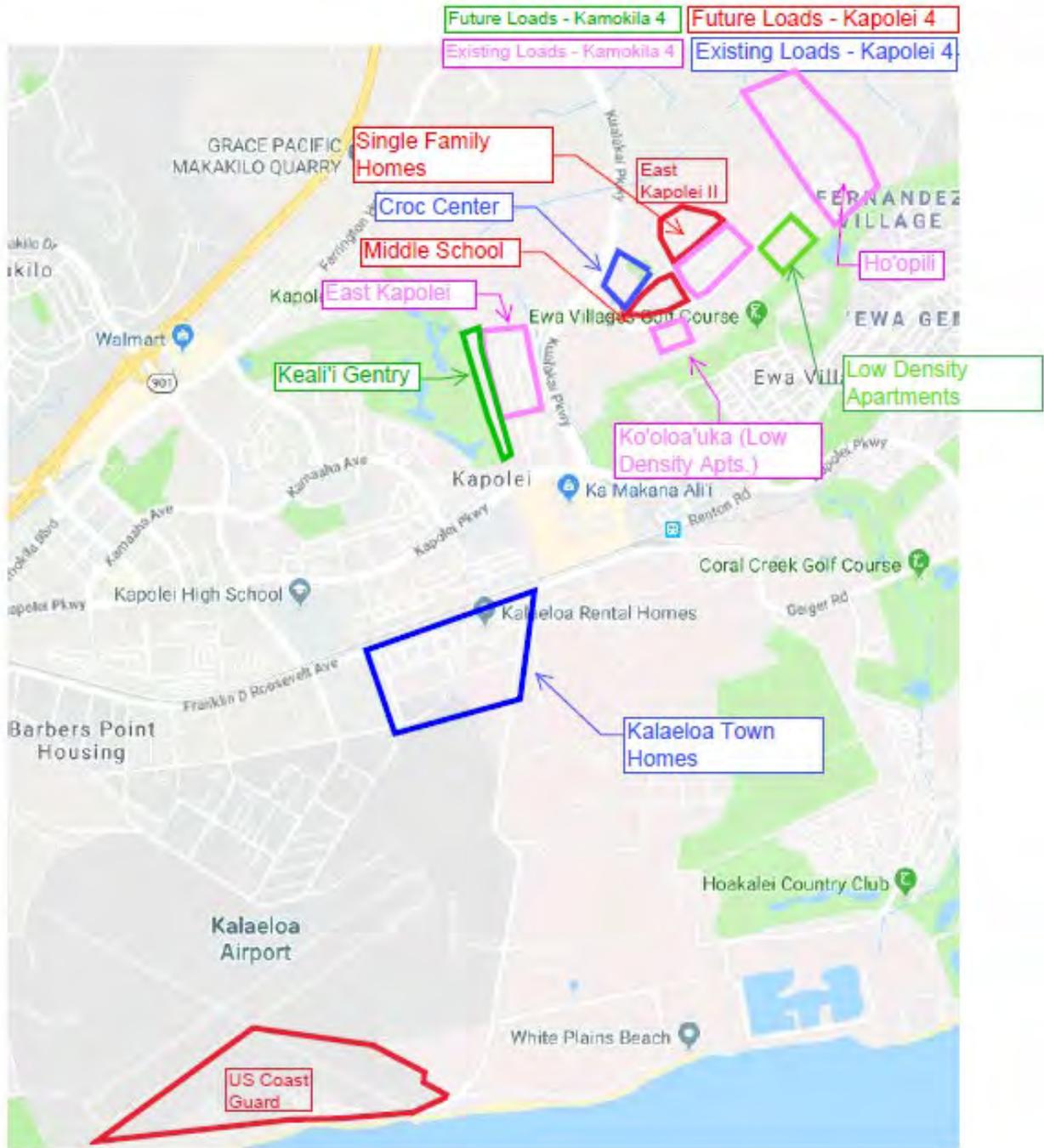


Figure 4: East Kapolei Existing and Forecasted Loads

East Kapolei Distribution System Overview

Figure 5 illustrates the expected configuration of the distribution system to serve East Kapolei loads. Table 10 provides the allowable supply and demand reduction solutions for each distribution circuit.

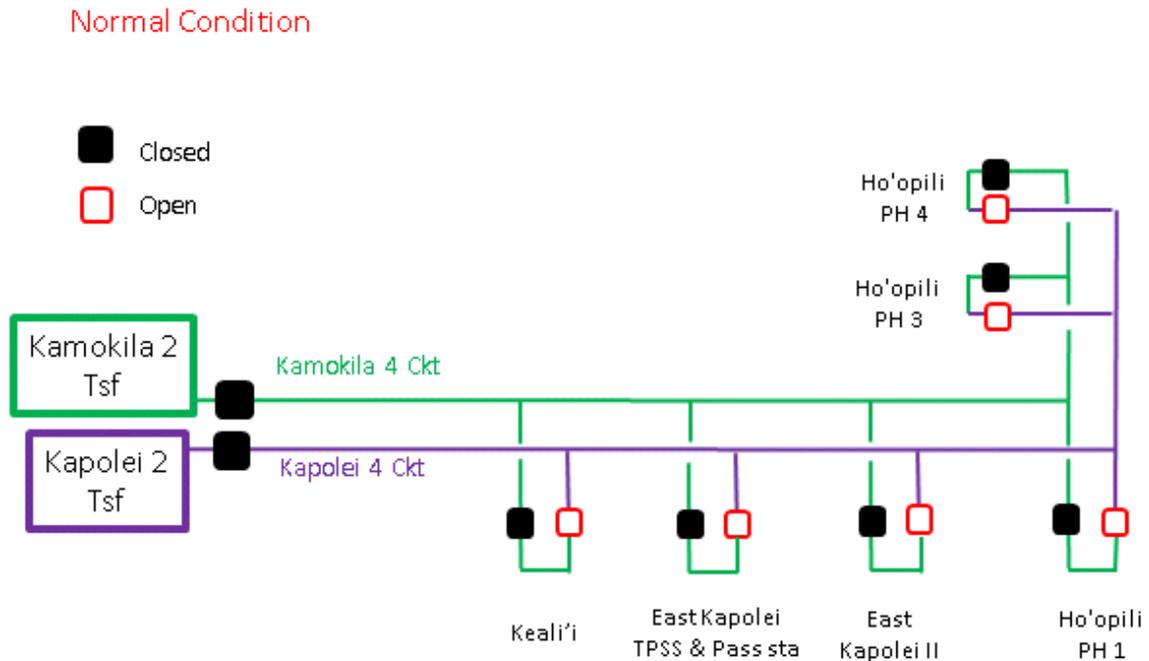


Figure 5: Simplified Distribution System Map of Projected Service of East Kapolei Loads

Table 10: Allowable Supply and Demand Reduction Solutions per Distribution Circuit

Location of Resource	Supply (Inverter-Based)		Demand Reduction	
	BTM	IFTM	BTM	IFTM
Portion of Kamokila 4 Ckt	No	No	Yes	Yes
Kapolei 4 Ckt	Yes	Yes	Yes	Yes

East Kapolei Distribution System Forecasted Service Needs through 2024

Overview of Reliability (Back-Tie) Service Needs

Table 11 summarizes the contingency overload for which Reliability (back-tie) Services are needed.

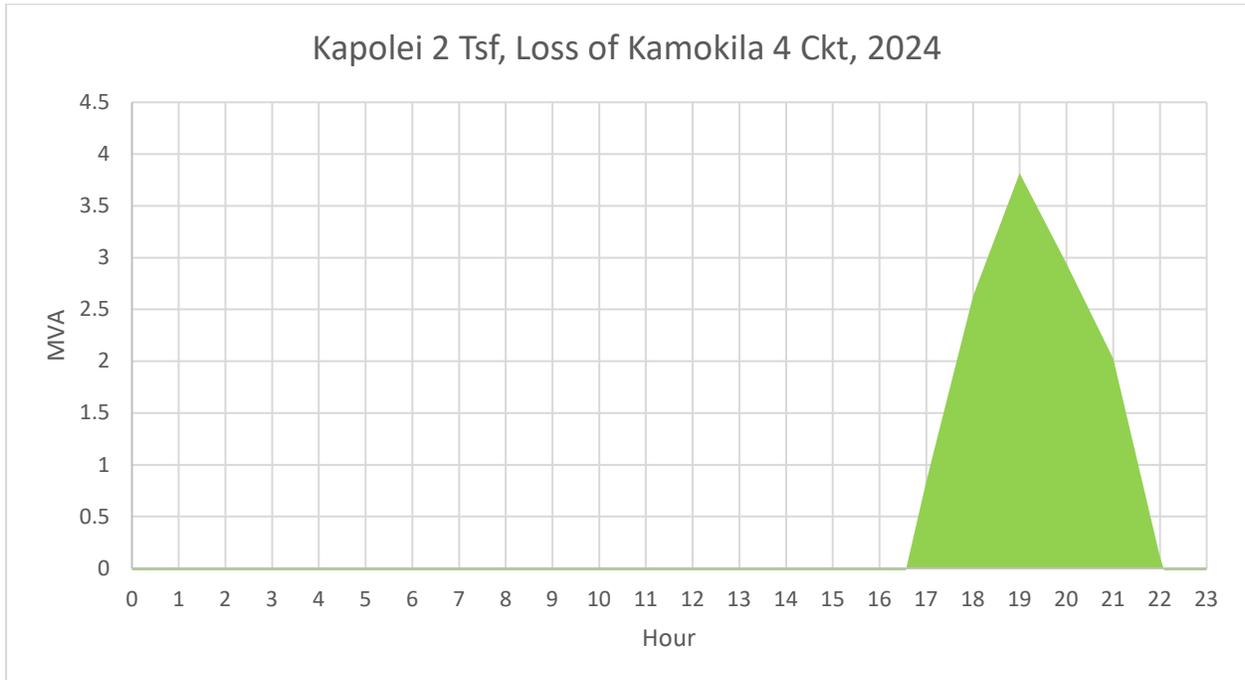
All identified overloads listed for each deferral opportunity must be met through the Reliability Service in order to defer the distribution investment.

Table 11: Summary of Contingency Overloads

Deferral Opportunity	Equipment	MVA Peak	Operational Date	Delivery Months	Delivery Hours	Duration (Hr)	Max # of Days	MW H
Kapolei 4 Ckt Extension	Kapolei 2 Tsf	3.8	Jan 2022	Jan - Dec	5PM - 11PM	6	365	12.4

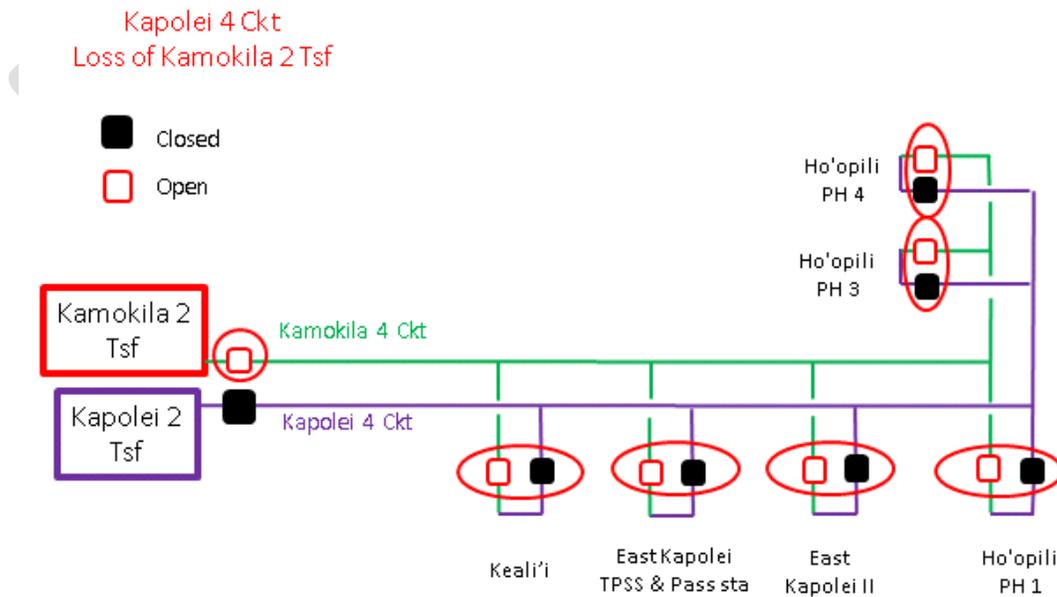
The following section provide additional details for each identified need in Table 11.

Projected East Kapolei Reliability (Back-Tie) Service Needs in 2024



Equipment	MVA Peak	Delivery Months	Delivery Hours	Duration (Hr)	Max # of Days	MVAH
Kapolei 2 Tsf	3.8	Jan - Dec	5PM - 11PM	6	365	12.4

Supply and Demand Reduction NWA: Kapolei 4 Circuit
 Demand Reduction NWA: Kamokila 4 Circuit



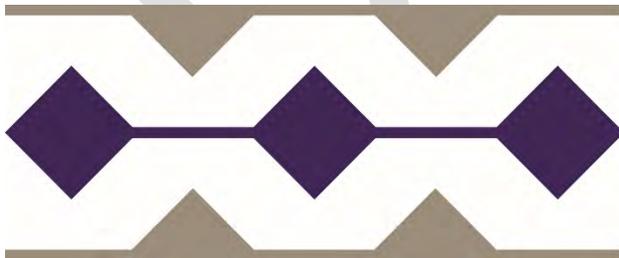
DRAFT REQUEST FOR PROPOSALS
FOR
NON-WIRES ALTERNATIVES TO PROVIDE RELIABILITY (BACK-TIE)
SERVICES

ISLAND OF O‘AHU – EAST KAPOLEI AREA

SEPTEMBER 3, 2019

Docket No. 2018-0165

Appendix K – Grid Services Purchase Agreement
(GSPA) (3/28/19)



**Hawaiian
Electric**

GRID SERVICES PURCHASE AGREEMENT BY AND BETWEEN

[NAME OF SUPPLIER]

AND

[HAWAIIAN ELECTRIC COMPANY, INC. OR HAWAII ELECTRIC LIGHT COMPANY,
INC. OR MAUI ELECTRIC COMPANY, LIMITED]

THIS GRID SERVICES PURCHASE AGREEMENT (“Agreement”) is made this _____ day of _____, _____ (“Execution Date”), by and between [insert one of the following: Hawaiian Electric Company, Inc., Hawai‘i Electric Light Company, Inc., 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 Island of _____, 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.

“Automatic Generation Control” or “AGC” – Equipment that automatically adjusts generation and demand resources in the Company System from a central location to maintain the System’s frequency bias.

“Business Continuity Plans” – Shall have the meaning set forth in Section 27.1(g) (Business Continuity Plan).

“Business Day” – Any day other than a Saturday, Sunday or legal holiday of either the United States or the State of Hawai‘i.

“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 Exhibit A-3 (Capacity Grid Service Description and Requirements).

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

“Collateral” – Shall have the meaning set forth in Exhibit Q (Security Agreement).

“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 Exhibit K (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 Exhibit H (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” – 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 Exhibit G (Data, Integration, and Testing Requirements) and Exhibit F (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 per 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, which is identified in Exhibit K (Settlement).

“Enabled Capability Projection” – The Grid Service Capability 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 27.1(c) (Information Security Requirements/Malware).

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

“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 Exhibit 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, Regulating Reserve Grid Service, Capacity Grid Service, and Replacement Reserve Grid Service, which are described in Exhibit A-1 (Fast Frequency Response Grid Service), Exhibit A-2 (Regulating Reserve Grid Service), Exhibit A-3 (Capacity Grid Service, and Exhibit A-4 (Replacement Reserve 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, Resource 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 Exhibit K (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 Exhibit K (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(a) (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 21.3 (Letter of Credit).

“Liquidated Damages” – Any of the damages provided for in Article 7 (Liquidated Damages; Other Remedies) 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 performs either a destructive or harmful function, or perform no useful function other than 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).

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

“Operational Forecast” – The information shown in the approved Exhibit F (Operational Forecast).

“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 Exhibit J (Reporting).

“Participant Incentive Credit” – Shall have the meaning set forth in Exhibit K (Settlement).

“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 Exhibit K (Settlement).

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

“Personally Identifiable Information” – The personally identifiable information of individuals, and any information that may be used to track, locate or identify such 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.

“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.

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

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

“Replacement Reserve” or “Replacement Reserve Grid Service” – Shall have the meaning set forth in Exhibit A-4 (Replacement Reserve Grid Service Description and Requirements).

“Residential Customer” – A member of the Customer Class that receives electric service under Schedule R (Residential Service) as set forth in Exhibit K (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 Agreement” – The Security Agreement to be executed by Supplier in the form of Exhibit Q (Security Agreement) in favor of Company in accordance with Section 21.2 (Security Agreement).

“Settlement Month” – Shall have the meaning set forth in Exhibit K (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 Exhibit K (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.

“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).

“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 Exhibit G (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 PUC Approval Date.

“Tariff” – The tariff applicable to Electric Service of Hawaiian Electric Company, Inc.

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

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 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, the 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 Exhibit G (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 might be specified. The 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, execute the Security Agreement.
- (c) By the Execution Date, deliver the Letter of Credit to Company.

- (d) 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).
- (e) 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).
- (f) 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).
- (g) 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.
- (h) No later than thirty (30) days prior to the System Integration Date Deadline, deliver all Business Continuity Plans to Company.
- (i) No later than thirty (30) days prior to the System Integration Date Deadline, establish a Source Code Escrow.
- (j) Satisfy all requirements set forth in Exhibit A-1 (Fast Frequency Response Grid Service Description and Requirements), Exhibit A-2 (Regulating Reserve Grid Service Description and Requirements), Exhibit A-3 (Capacity Grid Service Description and Requirements) and Exhibit A-4 (Replacement Reserve Grid Service Description and Requirements) relevant to each of the Grid Services being provided.
- (k) Satisfy the requirements of Exhibit E (Advanced Metering).
- (l) Complete and obtain Company's approval of Exhibit F (Operational Forecast).
- (m) Satisfy the requirements of Exhibit G (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. If Supplier fails to achieve the System Integration Date by the System Integration Date Deadline, 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 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 in 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(a) (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 (the “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, 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 is 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 periods 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 Exhibit R (Form of Letter of Credit) from a bank or other financial institution located 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 5.2(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 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 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 Exhibit I (GSDS Service Level Agreement), taking into account any time allowed in Exhibit I (GSDS Service Level Agreement) for cure;
- (5) Without the prior written consent of Company, such consent not to be unreasonably withheld, *[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) The Security provided by Supplier pursuant to the Security Agreement described in Section 21.2 (Security Agreement) becomes substantially impaired and Supplier fails to cure such impairment promptly upon becoming aware of its existence;
- (10) Supplier shall fail to maintain in full force and effect throughout the Term a Letter of Credit in accordance with the provisions of Section 21.3 (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;

- (11) 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;
 - (12) 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
 - (13) Supplier modifies its GSDS control schema in a manner that adversely affects its obligations to Company under this Agreement.
- (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.

6.2 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 6.2 (Rights and Obligations of the Parties Upon Default). Accordingly, the remedies set forth in Section 6.2 (Rights and Obligations of the Parties Upon Default) 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) and Contract Year 2 (beginning of month 25), Company will evaluate Supplier's compliance with Contract Capability for the Contract Year. If Supplier falls short of the stated Contract 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:

- (1) 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
- (2) 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.

O'ahu				
GS	Fast Frequency Response	Regulating Reserve	Capacity	Replacement Reserve
Amount per kW	\$58	\$58	\$31	\$4

Maui				
GS	Fast Frequency Response	Regulating Reserve	Capacity	Replacement Reserve
Amount per kW	\$163	\$163	\$80	\$3

Hawai'i Island				
GS	Fast Frequency Response	Regulating Reserve	Capacity	Replacement Reserve
Amount per kW	\$229	\$229	\$29	\$3

- (a) Conditional Contract Capability. 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 Exhibit H (Contract Capability) and so notifies Company within ninety (90) Days following the date of the PUC Approval Order.

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.

O'ahu				
GS	Fast Frequency Response	Regulating Reserve	Capacity	Replacement Reserve
Amount per kW	\$58	\$58	\$31	\$4

Maui				
GS	Fast Frequency Response	Regulating Reserve	Capacity	Replacement Reserve
Amount per kW	\$163	\$163	\$80	\$3

Hawai'i Island				
GS	Fast Frequency Response	Regulating Reserve	Capacity	Replacement Reserve
Amount per kW	\$229	\$229	\$29	\$3

7.5 Failure to Meet Service Level Agreement. If Supplier fails to meet the Service Level Agreement set forth in Exhibit I (GSDS Service Level Agreement), then Supplier shall be liable for Liquidated Damages as stated in said Exhibit I (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 secured interests in Collateral as provided in this Agreement, including, but not limited to, Company's rights as provided in Article 21 (Security) and Exhibit Q (Security Agreement).

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 6.2(b)(1) (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 and 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 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 of the foregoing 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) 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 Against Third Party Claims Compliance 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.
- (e) Indemnification Procedures.
 - (1) Notice. In case any Claim subject to Section 11.1(a) (Indemnification Against Third Party Claims) or Section 11.1(b) (Indemnification Against Third Party Claims Compliance with Laws) or otherwise under this Agreement, shall be 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(e)(1) (Indemnification of Company), Supplier shall be entitled, at its own expense, acting through counsel 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) No Right to Assume. 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 Against Third Party Claims Compliance 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(e)(2) (No Right to Assume). 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 Supplier hereunder is held to constitute, or in Company'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 the 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. In case any action, suit or proceeding subject to Section 11.2(a) (Indemnification Against Third Party Claims), or otherwise under this Agreement, shall be 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 acceptable to Supplier, to participate in and, to the extent that Company desires, to assume and control the defense thereof, provided, however, 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 (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 settlement of the Dispute(s) is not reached within sixty (60) Days after commencement of the mediation, either Party may initiate formal action.

- (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. If the Parties cannot agree upon such matters within sixty (60) Days (or as the Parties may subsequently agree), either Party may withdraw from the mediation process and proceed to initiate formal action.

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. Provider 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 Cyber/Network Security/Privacy Liability insurance, with minimum limits of FIVE MILLION DOLLARS (\$5,000,000) per occurrence and per policy aggregate. 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 the insurance policy shall be no later than the Effective Date of this Agreement. 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, storm, hurricane, tornado, volcano, other natural disaster or unusual or extreme adverse weather related events;
- (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) the duration of the Force Majeure plus any additional time reasonably necessary to remedy the effects of the Force Majeure 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 Disabled Veterans, Recently Separated Veterans, Other Protected Veterans and Armed Forces Service Medal Veterans. (Applicable to (i) contracts of \$25,000 or more entered into before December 31, 2003 (41 CFR 60-250.4) or (ii) each federal government contract of \$100,000 or more, entered into or modified on or after December 31, 2003 (41 CFR 60 300.4) for the purchase, sale or use of personal property or nonpersonal services (including construction)). If applicable to Supplier under this Agreement, 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) (for orders/contracts entered into before December 31, 2003) and 41

CFR 60-300.5(a) (for orders/contracts entered into or modified on or after December 31, 2003) which are incorporated into this Agreement by reference.

ARTICLE 16 REGULATORY APPROVALS

- 16.1 PUC Approval for Use of Model Contract. At the time of execution of this Agreement, Company intends to apply to the PUC for an order (i) approving the form of this Agreement as a model contract for all Grid Services Purchase Agreements and (ii) confirming that no approval need be sought from the PUC for each ensuing new Grid Services Purchase Agreement so long as the new agreement is substantially in the form of this Agreement (“PUC Model Order”).
- (a) If (v) Company decides in its sole discretion not to apply for the PUC Model Order, or (x) the PUC declines to issue the PUC Model Order, or (y) the PUC Model Order is not issued for any reason or within such reasonable time as Company shall decide in its sole, but nonarbitrary, discretion, or (z) the PUC issues the PUC Model Order but the said order contains terms and conditions deemed to be unacceptable to Company and is in a form deemed to be reasonable by Company, in its sole, but nonarbitrary, discretion, then the terms of Appendix 1 (PUC Approval of Grid Services Purchase Agreement) attached to this Agreement are incorporated into the Agreement as if fully set forth herein, and the issuance of a Non-Appealable PUC Approval Order (as described in Appendix 1) shall be a Condition Precedent. In addition, this Agreement shall not become effective until the PUC Approval Date (as described in Appendix 1), and the System Integration Date Deadline shall be adjusted as determined by Company to accommodate the addition of the new Condition Precedent.
- (b) If the PUC Model Order is issued, then Appendix 1 is of no further force or effect.

ARTICLE 17 ASSIGNMENT

- 17.1 Assignment. Neither Party shall assign this Agreement or its rights 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 (and without relieving itself from liability hereunder), (i) transfer, sell, pledge, encumber or assign 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 the assets whose creditworthiness is equal to or higher than that of such Party; provided, however, that in each such case, 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. [or HELCO or MECO as appropriate] P.O. Box 2750 Honolulu, Hawai'i 96840 Attn: Director, Demand Response Program
Delivered By Hand or Overnight Delivery:	Hawaiian Electric Company, Inc. [or HELCO or MECO as appropriate] American Savings Bank Tower 1001 Bishop Street, Suite 1050 Honolulu, Hawai'i 96813 Attn: Director, Demand Response Programs
By Email to:	
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 Exhibit A-1 (Fast Frequency Response Grid Service Description and Requirements), Exhibit A-2 (Regulating Reserve Grid Service Description and Requirements), Exhibit A-3 (Capacity Grid Service Description and Requirements), and Exhibit A-4 (Replacement Reserve 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 Exhibit O (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 Exhibit J (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 Exhibit F (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 Exhibit G (Data, Integration, and Testing Requirements).
 - (2) Compensation. Unless otherwise stated in Exhibit G (Data, Integration, and Testing Requirements), Company shall compensate Supplier as provided in Article 20 (Invoicing and Payment) 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.

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.
 - (1) If a Participant’s Resource is managed by a third party not retained by Supplier, Supplier shall have no responsibility for said third party’s compliance with the Supplier Policies in its management of the Resource.
- (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 Exhibit M (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 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 of the requirements set forth in Exhibit N (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 Exhibit N (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 Exhibit N (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 EMS or AGC, in each case 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) (Company Right to Defer the System Integration Date) 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 Supplier has

commenced development activity on the GSDS for this Agreement, 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 Supplier has commenced development activity on the GSDS for this Agreement, 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 incentives to be paid by Supplier to Participants (through credit on Participant's electricity bill from Company) for each type of Grid Service is set forth in Exhibit K (Settlement).
- 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 Exhibit J (Reporting) and any other data required under Exhibit K (Settlement) to compute the payment due as set forth in said Exhibit K (Settlement).

20.3 Taxes.

- (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 (Invoicing and Payment) 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, 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.

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 Exhibit K (Settlement), Company shall pay, in immediately available funds, the payment owed computed as set forth in said Exhibit K (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 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 Exhibit K (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 Security Agreement described below and the Letter of Credit described below.

- 21.2 Security Agreement. As required in Section 2.2(b) (Conditions Precedent to Company’s Obligations), Supplier shall execute and deliver to Company a Security Agreement substantially in the form of Exhibit Q (Security Agreement) attached hereto. The Security Agreement shall grant Company a lien on and security interest in, all of Supplier’s right, title and interest in and to all accounts established pursuant to this Agreement, and any agreements between Supplier and Participants, all insurance proceeds in respect of the GSDS, and all proceeds of the foregoing, as the same may be modified or amended from time to time in accordance with the terms thereof. The Security Agreement shall be subordinate only to the mortgage and security interest of Supplier’s primary financier (if any) and only in an amount and to the extent that such security interest and mortgage secure such amounts financed by Supplier’s lender to Supplier and shall be required to finance the actual development price of Supplier’s GSDS. Notwithstanding the immediately preceding sentence, Company’s right to receive or set off any un subordinate claims against payments it otherwise is obligated to make under this Agreement shall in no respect be subordinate to the interest of Supplier’s financier (if any) under its Financing Documents (if any). No part of this section shall be construed to require Company to assume the obligations of Supplier under any agreement or account related to the GSDS.
- 21.3 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) __ () percent of the total value of this Agreement as calculated at the rate set by Company for the Contract Capability amounts set forth in Exhibit H (Contract Capability), or [INSERT AMOUNT] \$_____, substantially in the form of Exhibit R (Form of Letter of Credit) attached hereto from a bank or other financial institution 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 or financial institution 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 or financial institution 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.

- 21.4 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.
- 21.5 Company's Right to Draw From Letter of Credit or Enforce Security Agreement. In addition to any other remedy available to it, Company may, before or after termination of this Agreement, in its sole discretion, exercise any right or remedy under the Security Agreement and/or 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 enforce the Security Agreement or 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.
- 21.6 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 and Effectiveness of Certain Obligations. 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.
- (a) Term. The initial term of this Agreement shall commence upon the Execution Date and shall remain in effect for sixty (60) 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).

- (b) 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 this Section 21.1(b) (Term and Effectiveness of Certain Obligations), Section 2.2 (Conditions Precedent to Company's 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 21.1(b) (Term and 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 _____, State of Hawai'i during normal business hours. Company shall pay Supplier's reasonable actual, verifiable costs for such audits, including allocated overhead.
- 23.2 Rights of Supplier. Supplier 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 related records of Company to the limited extent necessary to verify the basis for charges invoiced by Company to Supplier under this Agreement. Supplier shall not have the right to audit other records of Company. Company shall make such information available during normal business hours at its offices in _____, State of Hawai'i. Supplier shall pay Company's reasonable actual, verifiable costs for such audits, including allocated overheads.

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 Exhibit A-1 (Fast Frequency Response Grid Service Description and Requirements), Exhibit A-2

(Regulating Reserve Grid Service Description and Requirements), Exhibit A-3 (Capacity Grid Service Description and Requirements), and Exhibit A-4 (Replacement Reserve 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 Exhibit E (Advanced Metering) for each Resource. Notwithstanding Company's obligation to install meters as stated in said Exhibit E (Advanced Metering), Supplier shall ensure that each Participant shall have an installed and operational meter compliant with Exhibit E (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 Exhibit E (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 Service Data.

ARTICLE 25 TESTING

- 25.1 Data, Integration, and Testing. Supplier shall perform all testing and comply with all requirements set forth in Exhibit G (Data, Integration, and Testing Requirements) and Exhibit I (GSDS Service Level Agreement). Supplier and Company shall coordinate all GSDS testing.

25.2 Compensation for Testing. Unless otherwise stated in Exhibit G (Data, Integration, and Testing Requirements), Company shall compensate Supplier as provided in Article 20 (Invoicing and Payment) 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 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 physical security and precautionary measures 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. 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.
- (b) 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 current ISO27001 reports, SSAE 16 SOC2 Type 2 reports and 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.

- (c) 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 27.1 (c) (Malware). If Malware 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 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.
- (d) 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.
- (e) Security Breach. In the event that Supplier discovers or is notified of a breach or potential breach of security related to Company Data, Participant Data or Company's Confidential Information, Supplier shall immediately (i) notify Company of such potential, suspected or actual security breach, whether or not such breach has compromised any of Company's Confidential Information, (ii) investigate and promptly remediate the effects of the breach, whether or not the breach was caused by Supplier, (iii) cooperate with Company with respect to any such breach or unauthorized access or use; (iv) comply with all applicable privacy

and data protection laws governing Company's or any other individual's or entity's data; and (v) to the extent such breach was caused by Supplier, provide Company with reasonable assurances satisfactory to Company that such breach or potential breach shall not reoccur. Supplier shall preserve and provide to Company any forensic evidence obtained as a result of its investigation and remediation of such breach. Any remediation of any such breach 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.

- (f) 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 Hawaii 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.
- (g) Business Continuity Plan. Supplier agrees to implement and maintain during the Term of this Agreement, a business continuity plan, a disaster recovery plan, and an incident response plan (collectively the "Business Continuity Plans") consistent with the level of risk associated with the work under this Agreement. The Business Continuity Plans shall be provided to Company on or before the System Integration Date. Supplier shall update the Business Continuity Plans during the Term to reflect lessons learned from real recovery events and as required due to significant changes in risk or business or regulatory environment. The Company shall have the right to review the Business Continuity Plans at any

time during the Term and Supplier shall make such Business Continuity Plans available to Company immediately upon request.

- (h) 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 Exhibit I (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 Exhibit G (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 Exhibit E (Advanced Metering) and Exhibit G (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 Exhibit A-1 (Fast Frequency Response Grid Service Description and Requirements), Exhibit A-2 (Regulating Reserve Grid Service Description and Requirements), Exhibit A-3 (Capacity Grid Service Description and Requirements), Exhibit A-4

(Replacement Reserve Grid Service Description and Requirements) and Exhibit G (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 Exhibit I (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.

MISCELLANEOUS

ARTICLE 28 MISCELLANEOUS

- 28.1 Entire Agreement. This Agreement, including all Exhibits, (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 constitute either Party hereto as 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 on paper and signed via manual signature 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 exhibits 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 Exhibits. Each exhibit to this Agreement (collectively, “Exhibits”) 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) Supplier’s obligations under Section 9.2(b) (Termination by Company);
 - (b) The requirements of Article 23 (Audit);
 - (c) The indemnity obligations to the extent provided in Article 11 (Indemnification), Section 28.12 (Proprietary Rights) and Exhibit N (Participant Service Agreement Requirements);
 - (d) The requirements of Article 12 (Governing Law; Dispute Resolution); and
 - (e) The limitation of damages under Article 8 (Consequential Damages).
- 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 “Exhibit” is capitalized in this Agreement, it refers to an article, section or exhibit 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 Exhibit 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: _____

APPENDIX 1

PUC APPROVAL OF GRID SERVICES PURCHASE AGREEMENT

- (a) 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, but nonarbitrary, discretion, ordering that:
- (i) This Agreement is approved; and order (i) approving the form of this Agreement as a template for all Grid Services Purchase Agreements and (ii) confirming that no approval need be sought from the PUC for each ensuing new Grid Service Purchase Agreement so long as the new agreement is substantially in the form of this Agreement.
 - (ii) The purchased cost 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.
- (b) 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.

- (c) 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 (a) (PUC Approval Order) and Section (b) (Non-appealable PUC Approval Order) have been satisfied.
- (d) PUC Approval Date. As used in this Agreement, the term "PUC Approval Date" shall be defined as follows:
 - (i) If Company provides the written statement referred to in Section (c) (Company's Written Statement) to the effect that the conditions referred to in Section (a) (PUC Approval Order) and Section (b) (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
 - (ii) If Company provides the written statement referred to in Section (c) (Company's Written Statement) to the effect that only the conditions referred to in Section (a) (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 became 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 (b) (Non-appealable PUC Approval Order).

- (e) 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 (a) (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 (a) (PUC Approval Order) and Section (b) (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.

End of Appendix 1

DRAFT REQUEST FOR PROPOSALS
FOR
NON-WIRES ALTERNATIVES TO PROVIDE RELIABILITY (BACK-TIE)
SERVICES

ISLAND OF O‘AHU – EAST KAPOLEI AREA

SEPTEMBER 3, 2019

Docket No. 2018-0165

*Appendix L – Scheduled and Contingency Capacity
Purchase Agreement (SCCPA)*



**Hawaiian
Electric**

Placeholder

DRAFT

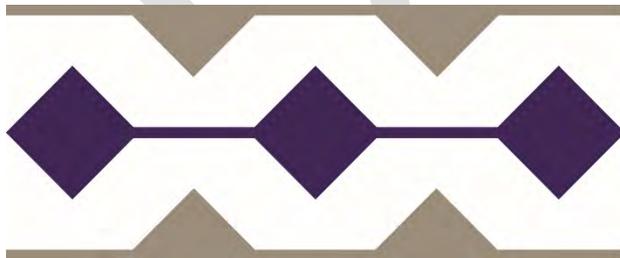
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Placeholder

DRAFT

DRAFT REQUEST FOR PROPOSALS
FOR
NON-WIRES ALTERNATIVES TO PROVIDE RELIABILITY (BACK-TIE)
SERVICES

ISLAND OF O‘AHU – EAST KAPOLEI AREA

SEPTEMBER 3, 2019

Docket No. 2018-0165

Reliability (Back-tie) Services Code of Conduct



Hawaiian Electric
Maui Electric
Hawai'i Electric Light

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 Reliability (back-tie) Services

Purpose

This Code of Conduct Pertaining to the Implementation of a Competitive Bidding Process for Reliability (back-tie) Services ("Code of Conduct") outlines the policies and general procedures that will be undertaken by the Company to ensure that the competitive bidding process is undertaken in a fair and unbiased manner, that all Proposers have access to the same information to ensure no Proposers has an unfair advantage, 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 of the Company who prepare a proposal to be submitted to the Company in response to a Company RFP.
- Code of Conduct Procedures Manual – The Company-prepared manual which implements procedures for communications between the Company and Proposers into an RFP, including an Affiliate Team.
- Company Executive in Charge – A Company’s executive responsible for ensuring compliance with this Code of Conduct and reporting any violations by the Company of the Code of Conduct. For any RFP of the Companies, the Company Executive in Charge shall be the Senior Vice President of Business Development & 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 – A written request for proposal issued by the electric utility to solicit bids from interested third-parties, and where applicable from the utility or its affiliate, to supply a future generation resource or a block of generation resources to the utility pursuant to the competitive bidding process.
- Company RFP Team – The Company personnel and outside consultants responsible for the development of the Company’s RFPs 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 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 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 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).
- 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.
- Director of Renewables Acquisition Division – The supervisor of the Division within the Company responsible for the implementation of the competitive bidding process. The Director of Renewables Acquisition Division shall be a member of the Company RFP Team.
- Energy 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.

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 Proposer(s). The Code of Conduct addresses: (1) communication requirements and procedures associated with the relationship between Company RFP personnel and Proposers; (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 Proposer; 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 utility employees 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 Proposer. Affiliate Teams shall be considered and treated as a separate third-party Proposer for all purposes within any Reliability (back-tie) Service RFP. There shall be no communication or interaction between the Company RFP Team and any Affiliate Team except as may be permitted under this Code of Conduct or the Code of Conduct Procedures Manual 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 with Company personnel for the purpose of completing a proposal in response to any Reliability (back-tie) Service 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,¹ including the conflict of interest rules applicable to transfers of employees between the Company and any Affiliate.
3. Access to Information During Bidding Period. It is the objective of the Company that all Proposers, including Affiliate Teams, receive access to the same RFP information at the same time. All communications regarding the RFP will be provided to all Proposers through the Company's RFP website or other specialized means of access established for purposes of administering the RFP. No members of the Affiliate Teams will have access to such information before it is distributed to all potential Proposers.
4. 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) any Affiliates except in accordance with the procedures outlined in this Code of Conduct and the RFP, or (ii) any other Company employee, individual or entity without a business need to know. No transfer of an employee of the Company, including to an Affiliate, shall be used to circumvent this prohibition to create a conduit for the prohibited transfer of Confidential Information.
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 Proposers (if necessary), and shall not be discussed or exchanged by the Company RFP Team with any party except the proposer providing the information, Company management personnel responsible for resource decisions, Company RFP Team members, and the Commission and the Consumer Advocate, and their respective staffs and consultants. Dissemination of

¹ See Order No. 36112, issued January 24, 2019, in Docket No. 2018-0065, establishing those certain Affiliate Transaction Requirements for the Company and its Affiliates.

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 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 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 Proposer;
 - c. The evaluator must hold in confidence all Confidential Information obtained through the bidding process;
 - d. Should the evaluator be directly contacted by any Proposer, he/she must promptly relate such contact to the Grid Services Contract Manager, and, 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 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 with the successful Proposer(s) is/are executed or when written notice of termination of the RFPs is provided by the Director of Renewables Acquisition Division or his/her designee to 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.