Integrated Grid Planning
Stakeholder Council Meeting
November 8, 2018
Objective

Walk through the draft of the IGP Workplan and collect reactions and feedback.
Agenda

- Welcome & Introductions (8:30am-8:45am)
- Overview (8:45pm -9:15am)
- Draft Workplan Review (9:15am-10:15pm)
  **Break (10:15-10:30am)**
- Draft Workplan Review and Feedback (10:30-11:45am)
- Next Steps and Closing (11:45am-12noon)
### Invited Stakeholder Council Members

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<tr>
<td>1 HPUC</td>
<td>Dave Parsons</td>
<td>Chief of Policy &amp; Research</td>
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<td>2 Consumer Advocate</td>
<td>Dean Nishina</td>
<td>Executive Director, Division of Consumer Advocacy</td>
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<td>3 DBEDT</td>
<td>Carilyn Shon</td>
<td>Hawai‘i State Energy Office, Energy Administrator</td>
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<td>4 Office of State Planning</td>
<td>Leo Asuncion</td>
<td>Director, Office of Planning</td>
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<td>5 DOD</td>
<td>Keith Yamanaka</td>
<td>USAG-HI, Directorate of Public Works</td>
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<td>6 Large CI&amp;I Customer</td>
<td>Barry Usagawa</td>
<td>Board of Water Supply</td>
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<td>7 Community Delegate (Hawaii)</td>
<td>Jacqui Hoover</td>
<td>President of Hawai‘i Leeward Planning Conference and Executive Director &amp; COO of Hawai‘i Island Economic Development Board (HIEDB)</td>
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<td>8 Community Delegate (Maui)</td>
<td>Alex de Roode</td>
<td>County of Maui Dept. of Water Supply</td>
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<td>9 Community Delegate (Moloka‘i)</td>
<td>Barbara Haliniak</td>
<td>Owner, The Business Depot, Inc.</td>
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<td>10 Community Delegate (Lana‘i)</td>
<td>Alberta DeJetley</td>
<td>Publisher and editor of Lana‘i Today newspaper</td>
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<td>11 Community Delegate (O‘ahu)</td>
<td>Pono Shim</td>
<td>President &amp; CEO at O‘ahu Economic Development Board</td>
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<td>12 Local Gov’t (Hawaii)</td>
<td>Ron Whitmore</td>
<td>County of Hawai‘i Deputy Director, Dept. of R&amp;D</td>
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<td>13 Local Gov’t (Maui)</td>
<td>Fred Redell</td>
<td>County of Maui Energy Commissioner</td>
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<td>14 Local Gov’t (O’ahu)</td>
<td>Robert “Rocky” Mould</td>
<td>County of Honolulu, Energy Program Manager, Office of Climate Change, Sustainability and Resiliency</td>
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<td>15 Sustainability Advocate (Local)</td>
<td>Kyle Datta</td>
<td>Ulupono Initiative</td>
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<td>16 Sustainability Advocate (National)</td>
<td>Merrian Borgeson</td>
<td>Natural Resources Defense Council (NRDC)</td>
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<td>17 Small Solar &amp; Storage</td>
<td>Chris Debone</td>
<td>DERC</td>
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<td>18 Demand Response</td>
<td>Yvette Maskrey</td>
<td>Honeywell</td>
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<td>19 Energy Efficiency</td>
<td>Brian Kealoha</td>
<td>Hawaii Energy</td>
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<td>20 Electric Vehicles</td>
<td>Melissa Miyashiro</td>
<td>Blue Planet</td>
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<td>21 Environmental Advocate</td>
<td>Henry Curtis</td>
<td>Life of the Land</td>
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<td>22 IPP (utility-scale resource)</td>
<td>Gerald Sumida</td>
<td>Carlsmith Ball LLP</td>
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Docket No. 2018-0165 Integrated Grid Planning

- Hawaiian Electric Companies shall convene a public workshop by October 1, 2018 (Order No. 35569, page 25)
  - Held on September 25, 2018

- Public comments may be filed until October 15, 2018 (Order No. 35569, pages 25-26)
  - Comments filed by Consumer Advocate, County of Hawai‘i, DBEDT, Blue Planet, Energy Freedom Coalition, Hawai‘i PV Coalition, Life of the Land

- On or before December 14, 2018, the Hawaiian Electric Companies shall file an IGP Workplan providing additional details about the activities, timelines, and outcomes of the major components of the IGP process. (Order No. 35569, pages 27-28)

The IGP Workplan must include additional detail and description of the following:

1. The proposed Working Groups, including their specific objectives, composition, expected deliverables, and timelines for those deliverables;

2. A specific proposal for how forecasting assumptions, system data, modeling inputs, studies, analyses, meeting summaries, and other data will be shared with the commission and stakeholders throughout the IGP process;
Docket No. 2018-0165 Integrated Grid Planning

The IGP Workplan must include additional detail and description of the following: (continued)

3. The process and timeline for defining and quantifying grid needs (including generation, transmission, and distribution);
4. The process and timeline for sourcing and procuring solutions to meet identified grid needs;
5. The process and timeline for analysis for optimization of the grid solutions identified in the procurement phase;
Docket No. 2018-0165 Integrated Grid Planning

The IGP Workplan must include additional detail and description of the following: (continued)

6. Opportunities for midstream evaluation and potential course correction for the IGP process; and

7. When and how Stakeholder Engagement Facilitation will assist the IGP process.
Integrated Grid Planning
Overview of Draft Workplan
Overview of Draft IGP Workplan

1. Summary of Stakeholder Feedback
2. Stakeholder Engagement
   – Structure (PUC #1&7)
3. Development Workplan
   – Overview
   – Forecast & Assumptions (PUC #2)
   – Resource & Grid Needs (PUC #3)
   – Sourcing & Procuring Solutions (PUC #4)
   – Solution Evaluation and Optimization (PUC #5)
   – IGP Process Flexibility (PUC #6)
4. IGP Information Sharing (PUC #2)
Summary of Stakeholder Feedback

Comments filed by October 15, 2018

1. Consumer Advocate
2. County of Hawai‘i
3. DBEDT
4. Blue Planet
5. EFCA
6. HPVC
7. LOL
Summary of Stakeholder Feedback

Common Themes included:
1. IGP Process Scope and Suggested Improvements
2. Procurement Methodologies and Strategies
3. Solution Comparison and Evaluation
4. Information Sharing
5. Distribution Planning Process
6. Interaction Between Dockets
7. Interaction Between Various Stakeholder Groups
8. Working Group Recommendations
9. Environmental Impacts
Summary of Stakeholder Feedback

1. IGP Process Scope and Improvements

Many of the comments received provided suggested improvements to the overall IGP scope and process. Specific recommendations and requests are summarized as follows.

• Incorporating updated customer load studies into the IGP Workplan.
• Explicitly including sensitivities for aggressive energy efficiency targets and electric vehicle penetration by 2045.
• Providing a summary of risks and mitigation strategies for the IGP Process. For example, how HECO will mitigate the challenge of inaccurate net load forecasts?
• Guidance that the procurement process outlined in the IGP is not a substitute for comprehensive, long-term planning. As such, more clarity is needed on the relationship between the short and long term planning functions in the various stages of IGP.
  • The concern is that if the short-term becomes the foundation or driver for planning, it may result in an incrementalist approach that loses focus on long-term direction.
• Provide more clarity on how the planning steps and timeframes in IGP correspond to the steps and timeframes under the IRP Framework, with stakeholders specifically interested in how the IGP may effectively reduce the time for the planning process or truncate the planning analysis in comparison to the IRP Framework.
• A reminder that independent oversight and stakeholder participation requirements of the IRP Framework should be substantively maintained and not diminished or eliminated.

Summarized Companies’ Response:

Comments regarding forecasts will be addressed by the Forecast Assumptions Working Group in the IGP Workplan.

Similar to the PSIP process, the long-term system needs provide a pathway to achieving 100% renewable energy by 2045, from which the short-term, 5 year plan is developed. Hawaiian Electric believes that the stakeholder engagement model proposed as part of the IGP process provides meaningful outreach and transparency without the need for specific independent oversight and evaluation. Additional details on the process will be provided in the IGP Workplan in the discussions of the System Needs and the Market Working Group (Evaluation & Optimization Sub-Working Group).
2. Procurement Methodologies and Strategies

There were many comments and suggestions related to procurement of resources and establishment of new programs and tariffs, with specific concern given to the proper procurement method when selecting between large-scale and small-scale distributed resources and solutions.

- Competitive bidding may be appropriate for large-scale projects with long lead time and slow developing needs, but are impractical for smaller magnitude projects with shorter timeframes.
- Urge the development of standardized tariffs and programs for the procurement of customer-sited DERs.
  - It is unclear to what extent and how the IGP will integrate and optimize broader-scale pricing, programs, and tariffs for customer-side resources. This would include time-of-use rates, demand response, DER, and EV programs. Such customer-side solutions do not seem to be addressed in the procurement process and should be integrated into the overall planning analysis.
- The request to waive the Competitive Bidding Framework is lacking critical details required by the Framework itself. More evidence and details should be provided to support why Competitive Bidding should be waived for the IGP.
- Request for more definition around what is considered a market solution and urge Commission involvement in establishing and determining the success of an energy services marketplace.
- Request additional visibility into what is the right proportionality of utility-owned versus IPP-provided generation.
- Concern that the two-step procurement process, for utility-scale resources and T&D needs and non-wires alternatives, is top-down and will skew toward centralized, utility-scale resources rather than considering all resources, including distributed, customer-sited solutions, on a level playing field.
2. Procurement Methodologies and Strategies

*Summarized Companies’ Response:* As outlined in B.2.2 of the IGP Report, the IGP Process will use the full suite of options in sourcing resources and grid services, including RFI, RFP, and developing new tariffs and programs. There is a role for utility-build options to meet resource needs but do not have a predetermined “right proportionality of utility-owned versus IPP-provided generation”.

The Companies’ are not seeking a waiver from the competitive bidding process altogether, but seek to improve and streamline the process. The goal is to encourage robust competition in Hawaii, ensure a fair process for all, and provide the best outcomes for all customers. The Competitive Bidding Framework is ten years old and can benefit from updates to address current practice in the market and to speed the process to fit within the IGP Process. The Market Working Group (Competitive Procurement Sub-Working Group) will work together to develop a new process that is efficient, competitive, and fair for all.
Summary of Stakeholder Feedback

3. Solution Comparison and Evaluation

A handful of comments were received regarding the evaluation process following the procurement phase.

- Seeking further clarification regarding how the results of resource procurement will be used to inform the overall planning process.
- Note that the Value of Service (VOS) methodology should not be viewed as a “final” product and continued analysis and vetting of the methodology, underlying assumptions, and inputs should occur on a going-forward basis.
- Relying only on market information for price reasonableness could result in customers paying higher prices on an a la carte basis as compared to the price paid for an integrated service. The comparative evaluation conducted in the IGP process should consider services on an all-in basis to ensure that consumers are receiving the maximum benefits associated with any alternative.
- Suggest that analysis of long lead time infrastructure associated with interconnecting resources and solutions to be explicitly identified in the Workplan.
- Recommend that two additional principles be utilized when determining the value of grid services:
  - Value to Ratepayers, which will allow HECO and the Commission to approve services and solutions that carry the greatest ability to reduce energy costs across the islands and provide maximum value to all customers.
  - Metrics to quantify the contribution to the RPS targets and reduction of greenhouse gas emissions.

Summarized Companies’ Response: The proposed IGP Process intends for market participation to be technology agnostic with parameters that reflect the needs of the system. The Companies agree that long lead time infrastructure and resources should be identified in the IGP Process. As shown in Figure 6 and described in Section B.4.2 of the IGP Report, the IGP would still provide the long-term view and not just the five year action plan. This will be further elaborated on in the IGP Workplan.

The Market Working Group (Evaluation & Optimization Sub-Working Group) will work together to develop a new transparent evaluation and optimization method to fairly assess proposed solutions.

The Companies also agree that “value to ratepayers” and “contribution to the RPS targets and reductions in greenhouse gas emissions” are important principles to consider in determining the value of grid services.
4. Information Sharing

Comments around information sharing are generally concerned with open access to assumptions and data, as well as transparency on how confidential information from the procurement process will be used for planning analysis.

- It is critical that advisory groups be provided with complete information at all points in the planning process including planning assumptions, data underlying those assumptions, details of projects planned in response to system needs, and any parameters or operational requirements that may be established for RFOs or other tariffs and programs.

- Meaningful smart dialogue (two-way discussions with appropriate feedback mechanisms), open and timely access to public data, and early discussion of limited confidential data, will lead to a streamlined process. One of the keys is to make sure that all entities are aware of what data and what assumptions will be relied upon. It is important to identify these early, and to have a robust discussion around them. Even if all parties do not agree, having the dialogue is important.

- Develop a proposal for what, how, when, and to whom information will be shared, specifically with regards to the inputs and outputs from the IGP process diagram. Request that this information be summarized in a chart, table, or bulleted list and provided as a general reference to inform stakeholders on when and how to provide input during the IGP process.

- Further description of how competitively sensitive and confidential information derived from RFIs and RFPs will be used in the planning process.

**Summarized Companies’ Response:** The IGP Workplan will elaborate and provide more detail on how information would be shared among the different stakeholder groups. For example, having the various stakeholder meetings with two-way dialogue, providing meeting summaries, and providing access to the many forecast assumptions data that will be used in the IGP process (as was done in Appendix J of the PSIP Update: December 2016 Report).
5. **Distribution Planning Process**

A few comments were received concerning distribution planning.

- Suggest that the Commission establish a review body similar to the California DPAG, which functions as an advisory body to the utilities on distribution planning, and includes an independent engineer, and critically, also allows for participation from market participants.

- Urges the expedited expansion of SLACA analysis to all islands, such that the analysis coincides with the first IGP planning cycle.

- Request for transparency in the identification of needs for a resource choice like aggregated DER and its locational impacts.

*Summarized Companies’ Response:* *This will be addressed in the IGP Workplan through the Distribution Planning Working Group.*

6. **Interaction Between Dockets**

There were several comments pointing out the relationship between IGP and two open dockets, Distributed Energy Resources Docket 2014-0192 and Performance-Based Regulation Docket 2018-0088. These comments request that the IGP Workplan discuss how IGP relates to these dockets and what will be done to ensure consistency as each progress.

*Summarized Companies’ Response:* *The Companies will continue to coordinate the various docket proceedings as applicable.*

There is an overarching concern that the Stakeholder Council, Working Groups, Technical Advisory Panel will operate in siloes and will not conduct proper public outreach. More information is being requested detailing the interaction and scheduled communications between these groups.

Recommended solutions include having a facilitator or group act as a liaison between groups, scheduling regular meetings or calls between groups, scheduling additional public workshops in 2019 as the IGP process progresses, and developing an online forum for directly engaging with the public.

- Request for further description regarding the interactions between the Stakeholder Council, Technical Advisory Panel, Working Groups, and customer and public engagement efforts.
- Description to include how these groups will communicate and make available information, as well as the role of a potential facilitator in decision-making.
- Recommend that the Technical Advisory Panel, Council and Working Groups should include cross-pollination from one another to ensure communication and diverse input, or that the groups have a regularly scheduled meeting or call in which the activities of each are made transparent.
- Indicate how stakeholders fit into the IGP process and what inputs and outputs are expected from stakeholders.
- Suggest a follow-up public workshop in 2019 to allow the public to provide input as the IGP progresses.
- There is concern that the most important and defining issues will be resolved by the Technical Advisory Panel without input from key stakeholders or the public.
- Recommend that an online forum be developed with information on basic modeling or illustrations that more directly engages the public in understanding and examining alternatives.
Summary of Stakeholder Feedback


**Summarized Companies’ Response:** The IGP Workplan will provide more clarity on the interaction between the different stakeholder groups and how information will be shared. For example, meeting summaries will be shared and communicated between the groups as well as with the public. The Technical Advisory Panel (TAP) Chair will participate in the Stakeholder Council (SC) meetings and will be another venue for sharing information between those two groups. Similarly, the Working Groups would be able to present their work products to the SC and TAP. Public workshops will be conducted as the IGP process progresses.
Questions & Feedback
Overview of Draft IGP Workplan

1. Workplan will describe the specific aspects of the proposed IGP process that need development for the 1st planning/sourcing cycle beginning in 2020.
   • 2016 PSIP process, methods and tools is the baseline for improvements as described in IGP report.
   • Provide additional clarity on IGP process with a focus on identifying specific aspects for development and actions needed.
     • Address areas identified in IGP Report
     • Address PUC and stakeholder feedback

2. Workplan will also provide additional clarity on stakeholder engagement structure and the roles and interrelationships of the several groups.

3. Workplan will address information sharing throughout IGP process.
IGP Process Improvements
Overview of the IGP Process

1. Forecasts and Planning Inputs
2. Defining & Quantifying System Needs
   - Short- and long-term
3. Sourcing Solutions
4. Solution Evaluation & Optimization
5. Process Flexibility
   - Opportunities for midstream evaluation and potential course correction
Overview of the IGP Process

Reference: Integrated Grid Planning Report, Appendix B, Figure 6, page 2
Forecasts and Assumptions

Forecasts & Assumption Elements

1. Energy Sales & Peak Demand Forecasts
   • Energy Efficiency
   • Customer-sited DER
   • Electrification of Transportation Impacts
2. Fuel Price Forecasts
3. Resource Costs Assumptions
4. Other planning inputs
   • Resilience
   • Net-zero carbon economy
   • Consideration and coordination with other open dockets
Forecast Assumptions Action Items

• Provide input and guidance that will be used to develop forecast assumptions
• Review and provide feedback on the reasonableness of the assumptions
• Provide input & review on the methodologies used to develop the forecasts and addressing uncertainties
• Review and provide feedback on the forecasts
Purpose
The Forecast Assumptions Working Group ("FAWG") will provide strategic input and feedback on assumptions and methodologies used for load forecast development and results. The FAWG allows alignment of forecast efforts with experts in forecast methods and subject matter experts for key forecast inputs.

Composition
• Composed of planners with expertise spanning an array of big picture planning for the state and counties economic stability and development and utility load forecasters that must anticipate and be responsive to expanding behind the meter choices available to their customers
• Additional expertise will be brought in to assist in the discussions on areas such as distributed energy resources, energy efficiency and electrification of transportation.
• Look for opportunities to work with existing groups discussing key topics
  • EEPS TWG
  • Forecasting Economic Forum
  • Edison Electric Load Forecasting Group
  • Members of EPRI’s Understanding Electric Utility Customers Program
Forecast Assumptions Working Group

- DER Experts
- Experts on the Economy
- EoT Experts
- Energy Efficiency Experts
Proposed Timeline for Forecast Assumptions Working Group Meeting Schedule

Forecast Assumptions Working Group

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- Assemble Working Group
- Kick-off Meeting
- Panel Discussions on DER, EE, EoT

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- Assumptions Review
- Preliminary Forecast
- Finalize Forecast
Defining & Quantifying System Needs

- Resource planning process, methods and tools remain same as used for 2016 PSIP – using industry best practices
- Transmission planning process, methods and tools remain the same as used for 2016 PSIP – using industry best practices
- Gap exists for integration and iteration with distribution planning – will be addressed in Distribution planning working group
- Validated by Technical Advisory Panel peer review
Defining & Quantifying System Needs

- Forecasts & Planning Assumptions
- Identify System Needs (RESOLVE)
- Identify System Needs (PLEXOS)
- Identify System Needs (PSS/E)
- Identify Distribution Needs (SynerGI/LoadSEER)

Reference: PSIP Update Report: December 2016, Appendix C for description on models
Value of Service (VoS) Methodology

• Used to estimate the avoided cost per increment of grid service provided by a proxy resource

• Several increments of proxy resource will be evaluated for each grid service
  • As an example,
    • Capacity and Regulating Reserve
      • VoS for 1 MW, 20 MW, and 50 MW proxy resources
    • Energy
      • VoS for 10 GWh, 50 GWh, and 100 GWh for a 20 MW proxy resource

• Estimates will be used as a reference to assess cost-effectiveness of sourcing proposals

• Action items: What needs to be developed for IGP process if anything?
Defining & Quantifying Distribution System Needs

**Solution Identification**
- Traditional Solutions
- Seek Market-based Solutions
- Procurement, Programs, Pricing

**Grid Needs Identification**
- Hosting Capacity Analysis
- Area Capacity Review
- Contingency Analysis

**Forecasting**
- Load & DER Forecasting
- Load & DER Shapes
- Collection of Historical Data

**Solution Evaluation and Implementation**
- Evaluation of solution portfolios
- Implementation of cost-effective solution(s)
Defining & Quantifying Distribution System Needs
The objectives of the Distribution Planning working group (DPWG) are to inform and educate stakeholders on various aspects of distribution planning at the Companies, and to afford stakeholders opportunities to provide feedback and input into the Companies methodologies to identify distribution grid needs.
• Gain a sufficient level of understanding of the Companies distribution planning and operations,
• Bring forward best planning practices for incorporation into the Companies processes,
• Collaboratively work with all members of the working group, and to
• Advise the Companies on the distribution planning methodology to identify grid needs.

Working group participants should have technical knowledge of distribution systems, distribution planning, DER technologies and capabilities, or related knowledge.
Composition of the DPWG

- Members of The Companies, including, but not limited to: distribution planning, system operations, engineering, customer installations, demand response, and distribution energy resources.
- Public Utilities Commission Staff
- Division of Consumer Advocacy
- Department of Business, Economic Development & Tourism
- A Representative from each of the major DER Solution Providers
  - Hawaii Energy, Inverter Manufacturer, Electric Vehicle Supply Equipment, Solar, BESS
- Representative of the IPP Developer Community
- Representative from each County (Hawaii, Honolulu, and Maui)

The Companies or working group participants should not share non-public information as part of the DPWG activities
1. A review and exchange of information of the Companies’ current state of the distribution planning process, and improvements and enhancements the Companies are making.

2. What sensitivities and scenarios for DER and load capacity planning analyses are needed to appropriately identify distribution grid needs?

3. What are the Companies’ current process for capacity expansion of the distribution system, and the improvements the Companies are making in this area? What industry best practices can be incorporated?

4. What is the Companies current circuit hosting capacity methodology, and the improvements the Companies are making in this area? What industry best practices can be incorporated?

5. How should the Companies identify distribution grid needs? Where can the Companies leverage NWAs to benefit customers?

6. How should the distribution needs identification process be integrated with resource and transmission planning?

7. How can the Companies make the IGP soft launch successful?
### Proposed Timeline for DPWG

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Assemble WG
Questions & Feedback
Sourcing Solutions

• Sourcing will involve identification of various potential solutions from 2 basic methods:
  • Customer actions in response to pricing (via tariffs) or programs
  • Aggregator or Developer participation in competitive procurements

• IGP Sourcing requires new integrated and iterative process that has not been done before, anywhere.
  • Need to define steps for each sourcing method (3P’s: pricing, programs, procurement)
  • Need to identify the sequence and degree of coordination of each step for each of the 3P methods
  • Need to identify the interaction with Hawaii Energy for Energy Efficiency program solutions
  • Need to determine the best approach to ensure an overall fair process for solution developers

• Sourcing requires definition of additional services and related attributes.
• Sourcing will benefit from a standardized services contract(s).
• IGP requires a streamlined competitive procurement process.
Sourcing Solutions

- Define Structure
- Outline Terms
- Develop New Grid & Incorporate
- File Model & Contract(s)
- Develop Evaluation & Optimization Process
- Streamline Procurement Process
- Refine RFP Process
- Identify sequencing for R&D Needs Sourcing
Sourcing Solutions

- Standard contract(s) will be pursued as the mechanism through which competitive procurement will be executed.
  - Simplified contract(s) paired with market rules documentation
  - More heavily-loaded contract(s) embedding market rules
  - Explore whether a unified approach can be taken for all competitive procurement, or if multiple contract forms are required for different counterparties.
- Current Dispatchable and Firm Power Purchase Agreements (PPAs) and Grid Services Purchase Agreement (GSPA) will be examined, in addition to other contract forms in various jurisdictions.
- Simplified contract(s) with consistent market rules/service delivery requirements may make apples-to-apples selection achievable.
- Grid Services will serve as an input to the contract(s).
- Contract(s) will be multi-year.
  - Term may vary by service.
Sourcing Solutions

• Services will be expanded for all participants to include:
  • Energy
  • Capacity and ancillary services
  • Transmission non-wires alternatives
  • Distribution non-wires alternatives
    • Initial working group focus on services to support Soft Launch
      • Substation capacity deferral
      • Feeder hosting capacity increase deferral
    • Propose to leverage stakeholder work on distribution grid services in CA to facilitate working group discussions
Procurement Process Improvements

• Current Requests for Proposals process (for generation resources):
  • Follows Framework for Competitive Bidding, as established by the PUC in 2008, with approved modifications
  • Technology-agnostic energy procurement
  • Company-dispatchable power purchase agreement form

• Goals:
  • Define the fairest, most efficient and streamlined procurement process possible for the competitive procurement of resources in alignment with the grid plans as identified through the IGP process
  • Develop an improved process and accelerated timeframe for procurements that align with broader IGP objectives
  • Evaluation of different solutions (utility-scale, distributed, T&D, non-wires, etc.) on an apples-to-apples basis

• Needs:
  • Determination of the identified need and baseline grid infrastructure solution that proposals will be evaluated against
Solution Evaluation & Optimization

- Resource Solutions
- Traditional Transmission Solutions
- Traditional Distribution Solutions
- Non-traditional Solutions
  - DER
- Non-traditional Solutions
  - BESS

Evaluate all solutions for best value
Solution Evaluation & Optimization

- Solution evaluation will need to address 3 key aspects:
  - Assessing the technical fit of proposed solutions from the “3Ps“ (programs, pricing, procurement) to the identified resource/grid needs on a technology neutral basis
    - This will require the ability assess combinations of solutions to address an identified need if solutions meeting partial requirements are allowed.
  - Assessing the comparative values of the proposed solutions on an apples-to-apples basis
  - Assessing the synergistic value (“twofer”) for proposed solutions that potentially address more than one identified resource/grid need and in relation to other solutions addressing discrete needs identified
- Items 1 & 2 above have been discussed and addressed to some degree in New York and California and may be instructive for working group discussions.
- Item 3 hasn’t been done before and will require a new approach – expect to engage working group, TAP and other industry experts to develop methods.
Market Working Group will address 4 major topics

- Standardized Contract
- Identification and definition of additional Grid Services
- Solution sourcing process & evaluation/optimization
- Procurement streamlining

- Requires subgroups on the topics above with some concurrent activity
# Proposed Timeline for Market Working Group Meeting Schedule

<table>
<thead>
<tr>
<th>Sub-Working Group</th>
<th>2018</th>
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<td>Standardized Contract</td>
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<td>Sub-Working Group</td>
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Hawaiian Electric
Maui Electric
Hawai‘i Electric Light
Market Working Group: Standardized Contract

Investigate & Discuss specific contract and market elements:
- Market Rules
- Service Delivery requirement
- Settlement
- Measurement & Verification
- Service Level Agreements
- System Integrations and Data Requirements
- Cybersecurity
- Contract Term
- Liabilities and Securities Obligations
Market Working Group: Standardized Contract

Objective: Determine what the optimal approach is to contracting for energy, capacity and ancillary services

Explore (via literature review and market expertise) various approaches including:

- Single contract
- Multiple contracts (tailored to specific counterparties)
- Streamlined, simplified contract supported by corresponding, comprehensive market participation rules
- Embed market/participation rules into contract as exhibits or attachments

Consider Non-aggregator and non-IPP sourcing options:

- Tariffs
- Programs
- Pricing
Market Working Group: Standardized Contract

Role and Responsibilities
Engage in active and open dialogue around considerations and options for a standard contract vehicle (or vehicles) to be used for the competitive procurement of energy, capacity and ancillary services.

- Provide insights
- Share ideas
- Offer feedback

- Goal is not for this group to define the solution or that but instead to inform the process to ensure that a robust, comprehensive approach is taken.

- The group will be asked to bring observations and learnings from market experience, subject themselves to facilitation by an independent facilitator and provide thoughtful feedback and constructive observations as the Company assimilates the input and evolves the contract vehicle and supporting documentation.
Proposed Timeline for Standardized Contract Sub-Working Group

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<thead>
<tr>
<th>Standardized Contract Working Group</th>
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<tr>
<td><strong>2018</strong></td>
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<tr>
<td>Consultant engagement kickoff</td>
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</table>
Objective: Identify and define additional energy, capacity, ancillary and T&D non-wires alternative services (collectively “Grid Services”) in support of IGP Solution Sourcing.

Leverage other states’ and ISO’s efforts that defined relevant services including:

- CA IDER working group
- NY Joint Utilities working groups
- CAISO
- ERCOT

Prioritize activity to address services with system needs and stakeholder value, including services for IGP Soft Launch in 2019.
Role and Responsibilities
Engage in active and open dialogue to support identification, definition and prioritization of additional energy, capacity, ancillary and T&D non-wires alternatives services to support IGP solution sourcing.

- Provide insights
- Share ideas
- Offer feedback

- Expect that participants will provide expertise in the discussion topics as well as potentially relevant examples for consideration and/or lessons learned from other states.
- Expect participants to provide thoughtful and respectful input and feedback with all participants.
Nine meetings with information shared between meetings. Expected that stakeholder presentations and guest presenters from other states’ efforts will be invited.
Market Working Group: Evaluation & Optimization

Purpose:
To develop a transparent evaluation and optimization method to fairly assess proposed solutions from the solution sourcing procurement process.

Objectives:
• Develop a transparent evaluation method of assessing the technical fit of proposed solutions from the “3Ps” on a comparative apples-to-apples basis.
  • This will require the ability assess combinations of solutions to address an identified need if solutions meeting partial requirements are allowed.
  • Review current practices in NY and CA and in other jurisdictions.
• Develop a transparent optimization method to assess any combined value for proposed solutions that potentially address more than one identified resource/grid need and in relation to other solutions addressing discrete needs identified.
• Methods to be informed by Soft Launch and provide learnings to other Market WG activities.
• Foster collegial, balanced discussion to achieve shared understanding of the competitive procurement process, and to build common ground through iterative discussion and feedback.
Market Working Group: Evaluation & Optimization

Role and Responsibilities:

• Engage in active and open dialogue to support the development of a transparent evaluation and optimization process for the IGP process.
  • Provide insights
  • Share ideas
  • Offer feedback
• Expect that participants will provide expertise in the discussion topics as well as potentially relevant examples for consideration and/or lessons learned from other states.
• Expect participants to provide thoughtful and respectful input and feedback with all participants.
Proposed Evaluation & Optimization Sub-Working Group Meeting Schedule

Expected that stakeholder presentations and guest presenters from other states’ efforts will be invited as well as discussion with IGP TAP.

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Market Working Group: Competitive Procurement

The IGP Competitive Procurement Working Group, in coordination with the Standardized Contract and Grid Services Working Groups, seeks to define the most fair, efficient and streamlined procurement process possible for the competitive procurement of resources in alignment with Hawaiian Electric’s grid plans as identified through the IGP process.

The working group is a key element of and one of several stakeholder groups in the overall stakeholder engagement process essential for IGP success.
**Competitive Procurement Working Group Purpose & Objectives**

**Purpose:**
The Competitive Procurement Working Group will establish a fair, efficient, streamlined procurement process that will facilitate the procurement of resources in alignment with Hawaiian Electric’s grid plans as identified through the IGP process.

**Objectives:**
- Provide strategic input and feedback on competitive procurement process development, activities and results, and aspects for improvement.
- Review current procurement practices in Hawai‘i and in other jurisdictions.
- Develop competitive procurement best practices for application in Hawai‘i.
- Develop an improved process and accelerated timeframe for procurements that align with broader IGP objectives.
- Foster collegial, balanced discussion to achieve shared understanding of the competitive procurement process, and to build common ground through iterative discussion and feedback.
Responsibility

- Working Group members are expected to be *ambassadors* for their respective stakeholder communities representing their interests by providing input and disseminating information.

- Working Group members must be willing to *commit* to in-person participation (online participation by limited exception) on the Working Group for the duration of the Working Group.

- Working Group members should be prepared to *contribute* to achieving the meeting goals by sharing ideas, asking questions, and contributing to discussions.

- Working Group members should *respect* others’ thinking and *value* everyone’s contributions.

- Working Group members must *recognize* and *agree* that the goal of the Working Group is to develop a process that provides for the facilitation of a robust competitive market and is fair to all stakeholders.

- Follow Chatham House Rule: *Participants are free to use the information received, but neither the identity nor the affiliation of the speaker(s), nor that of any other participant, may be revealed.*
  
  - Summary notes of meetings will be provided by facilitator and posted publicly.
### Proposed Timeline for Competitive Procurement Sub-Working Group Meeting Schedule

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~14 hours quarterly (i.e., in-person meeting, meeting preparations, stakeholder engagement, etc.)
IGP Soft Launch

- IGP Soft Launch is intended to demonstrate the Sourcing processes and evaluation methods for distribution non-wires alternatives in 2019.
- This Soft Launch will help inform development of the full scale IGP planning and sourcing effort beginning in 2020.
- Soft Launch is focused on distribution substation capacity deferral need required by 2023 to meet new housing/commercial development.
- Soft Launch will commence with sourcing and evaluation in 2019 and continue with anticipated solution deployment in 2020-21 and operational testing by 2022.
- Soft Launch will be informed by and provide learnings to Market WG activities.
IGP Soft Launch

- Ho’opili Substation Load Growth
  - Need to address peak overload of up to 4 MVA for 6 hours duration under normal conditions
  - Need to address peak overload of up to 5.4 MVA for 11 hours duration under contingency conditions
  - There are multiple contingency and normal scenarios that must be mitigated in this area
- Additional substation capacity or offsetting NWA services must be operational by 2023
### Proposed Soft Launch Sourcing Schedule

#### 2019

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- **Kick-off Meeting**  
  (Introduction to Soft Launch Purpose, Scope & Schedule)
- **Survey of Other States’ Relevant Efforts**  
  (Stakeholder & Guest Presentations)
- **Bidder’s Conference**  
  (Aligned with Standardized Contract & Grid Services WGs)
- **Competitive Procurement For Services**
- **Solutions Evaluation**
- **Solutions Decision**
Questions & Feedback
Stakeholder Engagement

Hawaiian Electric Companies IGP Process

Education & Information

- Broad Public Engagement
- Stakeholder Council
- Technical Advisory Panel

Input & Feedback

- Individual Stakeholder Engagement
- Working Groups

Reference: Integrated Grid Planning Report, Figure 4, page 16
IGP Stakeholder Council Meeting on August 30, 2018, slide 27
Stakeholder Engagement Structure & Information Sharing

**Stakeholder Council**
- Rick Rocheleau, Participant
- SC Questions/Issues
- TAP Chair briefings
- HECO Takeaways
- Stakeholder Council
- Council
- WG Charters
- SC Questions/Issues for WGs

**Technical Advisory Panel**
- Rick Rocheleau, Chair
- TAP Meeting Notes
- TAP Chair briefings
- HECO Takeaways
- Industry Expert Peer Review of Planning Process, Methods & Tools (does not include sourcing evaluation)

**Working Groups**
- SC Members Participating
- WG Meeting Notes/Presentations/Questions
- WG Progress Briefings
- HECO Takeaways & IGP Dev. Updates
- Technical Input & Review in support of IGP Process Development

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Hawaiian Electric
Maui Electric
Hawai‘i Electric Light

Slide 73
Stakeholder Engagement Facilitation

- Stakeholder Council is facilitated by Donalyn Dela Cruz, Strategies 360 (S360)
- Technical Advisory Panel is chaired by Rick Rocheleau, Hawaii Natural Energy Institute
- Working Groups will be facilitated by consultants with subject matter expertise and relevant experience facilitating the issues in other states
  - Laura Manz, Navigant will facilitate Standardized Contract WG (experience in CA & NY)
  - Paul De Martini, Newport will facilitate Distribution Planning & Grid Services (experience in CA, NY, MN, MI, VT)
  - Other facilitators to be determined
## Proposed Timeline for SC Meeting Schedule

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~14 hours quarterly (i.e., in-person meeting, meeting preparations, stakeholder engagement, etc.)
## Technical Advisory Panel Members

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<tr>
<th>Role</th>
<th>Name</th>
<th>Title</th>
<th>Organization</th>
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<tbody>
<tr>
<td>Chair</td>
<td>Rick Rocheleau</td>
<td>Executive Director</td>
<td>Hawai‘i Natural Energy Institute (HNEI)</td>
</tr>
<tr>
<td>Member</td>
<td>Jeff Smith</td>
<td>Program Manager, Distribution Planning, Operations &amp; Studies</td>
<td>Electric Power Research Institute (EPRI)</td>
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<tr>
<td>Member</td>
<td>Elijah Pack</td>
<td>Manager, National Planning</td>
<td>Australia Energy Market Operator (AEMO)</td>
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<tr>
<td>Member</td>
<td>Julia Matevosjana</td>
<td>Lead Planning Engineer</td>
<td>Electric Reliability Council of Texas (ERCOT)</td>
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<tr>
<td>Member</td>
<td>Anderson Hoke</td>
<td>Senior Electrical Engineer</td>
<td>National Renewable Energy Laboratory (NREL)</td>
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<tr>
<td>Member</td>
<td>Jeff Burke</td>
<td>Director, Resource Planning</td>
<td>Arizona Public Service (aps)</td>
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<tr>
<td>Participant</td>
<td>Lisa Giang</td>
<td>Director, Advanced Planning</td>
<td>Hawaiian Electric</td>
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<td>Participant</td>
<td>Paul De Martini</td>
<td>Consultant to Hawaiian Electric</td>
<td>Newport Consulting</td>
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<tr>
<td>Participant</td>
<td>John Cole</td>
<td>Senior Policy Manager</td>
<td>Hawai‘i Natural Energy Institute (HNEI)</td>
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<tr>
<td>Participant</td>
<td>Terry Surles</td>
<td>Lead, Clean Energy Solutions</td>
<td>Hawai‘i Natural Energy Institute (HNEI)</td>
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<td>Participant</td>
<td>Derek Stenclick</td>
<td>Consultant to HNEI, Manager, Power Systems Strategy</td>
<td>Ge Energy Consulting</td>
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Technical Advisory Panel Purpose & Objectives

Purpose
Technical Advisory Panel (“TAP”) will leverage global insights and relevant experience drawn from research, market operators and utilities to provide independent technical input and guidance in support of IGP’s first of its kind integrated planning development and analysis. (Note: TAP is not involved in the development or evaluation of any solutions.)

Objectives
• An independent standing peer group consisting of representatives from organizations with internationally recognized competence in IGP related processes, methodologies and technologies.
• Provide an independent peer assessment, including input and feedback, of the IGP development process, methodologies, tools, and planning analysis results (not solutions).
• Foster collegial, balanced discussion in order to achieve greater shared understanding of technical issues to address in IGP for Hawai`i and that may be applicable elsewhere.
Technical Advisory Panel Role & Responsibility

**Role**

IGP Technical Advisory Panel is a standing group that provides independent subject matter expert input, feedback and review of IGP process development, methods and results. TAP is an independent advisory group, not a decision making body.

**Responsibility**

- Members will provide relevant global insights and experience to discuss technical planning related issues and provide guidance on possible resolutions and emerging best practices.
- Members must be willing to commit to participation on the Council for a full IGP planning cycle (2 years).
- Members should be prepared to contribute to achieving the meeting goals by sharing ideas, asking questions, and contributing to discussions.
- Members should respect others’ thinking and value everyone’s contributions.
- Follow Chatham House Rule: *Participants are free to use the information received, but neither the identity nor the affiliation of the speaker(s), nor that of any other participant, may be revealed.*
The TAP held a kick-off meeting webinar on June 6, 2018 to discuss an overview of the IGP process and the charter for the TAP.

The TAP members attended the public workshop that was held during the morning of September 25, 2018 then held the first in-person TAP meeting in the afternoon of September 25 and all day on September 26, 2018. Topics that were discussed during the TAP meeting included:
- IGP Process & Critical Planning Issues
- IGP Stakeholder Engagement
- Distribution Planning Review
- Transmission Planning Review
- Forecasts, Assumptions & Sensitivities
- IGP Workplan

The next TAP meeting will be a webinar on November 29, 2018 to discuss the draft IGP Workplan.
**Proposed Timeline for TAP Meeting Schedule**

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~14 hours quarterly (i.e., in-person meeting, meeting preparations, stakeholder engagement, etc.)
Questions & Feedback
Next Steps

- Provide any additional comments by November 16
- Next meeting February 20, 2019, 8:30am-12noon
  - Discussion of the filed IGP Workplan
  - Any other topics?
- Any follow-up questions
  - Email: IGP@hawaiianelectric.com
  - Colton Ching @ 543-7986 or Lisa Giang @ 543-7982
Mahalo!