

IGP Distribution Planning Working Group Meeting
Wednesday, December 4, 2019
10:00am – 1:00pm
American Savings Bank Building, Training Room 1

Attendees

In-Person

Marc Asano, HE
Paul De Martini, Newport
Consulting
Alan Hirayama, HE
Blaine Hironaga, HE
Alan Lee, HE
Yoh Kawanami, HE

Nohea Hirahara, HE
Jennifer Baker, HE
Ken Aramaki, HE
Amanda Yano, HE
Sorapong Khongnawang,
HE
Jay-Paul Lenker, HPUC

Mike Wallerstein, HPUC
Marcey Chang, DCA
Kylie Wagner, Earthjustice
Robert Harris, Sunrun
Wren Wescoatt,
Progression Energy

WebEx

Al Takle, Steffes
Andre Bisquera,
Honeywell
Andres Ovalle, EPRI
Brian Horii, E3
Bryant Komo, HELCO
Caroline Carl, Hawai'i
Energy
Clarice Schafer, HPUC
Corinne Chang, HE
Dale Murdock, Newport
Consulting
Damon Schmidt, HE
Enrique Che, HE
Eric Kunisaki, HE

Frankie Wong, HE
Gary Nieborsky, HE
HNEI GridSTART
Isaac Kawahara, HE
Jennifer Baker, HE
Jessie Ciulla,
Jon Sakata, HE
Kandice Kubojiri, HELCO
Kathy Yonamine, HE
Kayla Kawamata, HE
Li Yu, Quanta Technology
Liza Jang-Che, HE
Marc Matsuura, HNEI
Michael Lum, HE
Miguel Hernandez, EPRI

Millie Knowlton, Tesla
Energy Operations
Paul De Martini, Newport
Consulting
Phil Gerwien, HE
Rich Barone, HE
Sean Morash, EnerNex
Sehun Nakama, Hawai'i
Energy
Susan Chow, HE
William Chang, HE
Will Giese, HSEA

Objective

- Clarify DPWG deliverables and where they fit within the IGP process
 - Seek stakeholder feedback
- Present hosting capacity improvements

Agenda

- Soft Launch Update
- Introduction & Objectives – Where we are in the DPWG process
- DPWG Deliverables
- Where the DPWG deliverables fit within the overall IGP Process
- Start discussion on forecasts and inputs
- Stakeholder Feedback
- Hosting Capacity Methodology Improvements

Key Takeaways

- Review and discussion on the updated IGP sourcing diagram.
- Review and discussion on the DPWG deliverables and the timeline.
- Discussion with stakeholders about feedback loop iteration for DER in the IGP.
- EPRI presentation on circuit level hosting capacity analysis and methodologies.

Discussion

I. Soft Launch Update

- a. Soft Launch NWA RFP issued on November 8, 2019 and is open for proposals until January 7, 2020 HST through Power Advocate.
- b. Questions regarding the RFP maybe be submitted to response@hawaiianelectric.com, with the Independent Observer cc'd
- c. Stakeholder asked, how many bids were submitted?
 - i. HECO: We are not sure at this time.

II. DPWG Deliverables

- a. NWA Framework
 - i. Documentation of NWA opportunity evaluation process, criteria and rationale.
 - ii. Incorporation of stakeholder feedback on the NWA process.
- b. Distribution Planning Methodology
 - i. Includes hosting capacity analysis and any new changes based on stakeholder discussion and comparative assessment of industry best practice.
 - ii. Distribution level forecast.
- c. Integration of Distribution Planning with Resource and Transmission Planning.
 - i. Joint deliverables with SEOWG

III. Revised IGP Process

- a. Stakeholder recommendation to have a feedback loop in the revised IGP process, to incorporate the resulting solutions back into the forecast. Suggestion to not wait 5-years to refresh the long-term plan and use a shorter timeframe so that DER programs may participate sooner.
 - i. Stakeholder asks, wouldn't the results of the procurement inform how the forecast is affected?
 - 1. HECO: Yes.
 - ii. Stakeholder concern that procurements will take up all the available capacity for DER programs. Additional concern that customers with PV wouldn't want to participate in any NWA services if they are satisfied serving their own loads.
 - iii. There is stakeholder desire to expand grid services opportunities to the transmission level to include customer load-shaping at the transmission and system level. How can DER best utilize pricing and programs to their full extent?
 - iv. Stakeholder asks, would there then be a line out of Distribution Needs step in the diagram to include the DER?
 - 1. HECO: As we get a better idea as to what the feedback loop would look like and how it would work, we could certainly use the Distribution Needs assessment to inform the DER docket, to get the best pricing. We are not suggesting that IGP wait for the ARDS, but they will be moving in parallel.
 - v. Stakeholder suggests opening the Distribution Needs to DERs.
 - 1. HECO: Yes, the distribution needs will identify circuits where DER services are needed.
 - vi. Stakeholder seeking more opportunities for DER at the transmission level, to not limit DERs only to the distribution level needs.
 - vii. Stakeholder asks, how will the TAP be involved?
 - 1. HECO: The TAP will provide independent evaluation of the IGP process, consistent with the Commission's guidance. Please feel free to submit feedback to us about what you would like the TAP to accomplish.
 - viii. Stakeholder would like to know, what are the Review Points at the RFP step?
 - 1. HECO: We are now considering an IO for the procurement step, so we may not have a Review Point here as was indicated in earlier versions of the sourcing diagram.

IV. Integration of DPWG Deliverables in IGP

- a. Stakeholder asks, would you have a procurement specific for DERs to create a list of technologies and vendors who could provide them, like a price sheet?

- i. HECO: The distribution needs assessment will occur on an annual basis, and the plan is to capture all needs into a single RFP and have the developer decide which grid services they wish to provide.

V. Forecast Inputs and Scenarios

- a. HECO: Are there other scenarios we should look at? How should we treat those scenarios in the distribution needs assessment?
 - i. Stakeholder: Seems like this would be a Solution Evaluation and Optimization Working Group issue, to understand the inputs and outputs of the modeling.
 - 1. HECO: Sure, we can have that discussion at next week's SEOWG meeting.

VI. EPRI Presentation – Time-Based Probabilistic Hosting Capacity

- a. Forecasting Hosting Capacity (HC) with Load and DER Growth
- b. Speakers: Matt Rylander, Miguel Hernandez, Andres Ovalle
- c. Stakeholder asks, when you say time-based, is that a day-profile of rooftop solar? Which time-based analysis are you talking about?
 - i. EPRI: Both, it's being completed at the hourly resolution in a day over a year, then over multiple years. To show how hosting capacity would change over time. Hosting capacity would fluctuate over time, depending on what is happening on the system. There are a lot of variables that are associated with the DER forecast, but when we talk about Hosting Capacity, we're talking about the capacity to accommodate additional, future, unknown generation at different times of the day. The analysis is agnostic of what PV would do. This becomes the 24-hour profile.
- d. Stakeholder asks, is this circuit or system level hosting capacity?
 - i. EPRI: It is looked at from a substation, where there are multiple feeders coming out of a substation. This is performed at each substation, so that you cover the entire system in the analysis. One of the key things we focus on, is identifying the ability of the circuit to handle customer DERs in increasing amounts. This would affect planning to ensure there is enough hosting capacity on a feeder to accommodate these changes.
- e. Stakeholder asks, would this mean you don't analyze at the secondary level?
 - i. EPRI: We don't want to restrict the feeder's ability to provide hosting capacity, where there may be violations at the secondary level. It would be the feeder that would need to be upgraded.
- f. Stakeholder asks, would you mind sharing the data you used for non-export profiles and customers?
 - i. EPRI: We are reliant on existing data, using non-export customer profiles. Are you curious about how the future customers would behave?
 - ii. Stakeholder: There are several types of DER tariffs that influence how DER profiles look/ behave. How do you capture those factors?

1. EPRI: We use the existing HECO programs. For example, participants in the Smart Export program have a window of when they can export, so we are able to capture that generation during that timeframe.
 2. EPRI: From a technology agnostic perspective, we assume that the DER resource is generating all day. Therefore, using a known quantity as a baseline, we can tailor how much DER uptake is increased and where.
 3. HECO: As we receive more customer data from the DER aggregators, we can refine the analysis. In LoadSEER, we can use actual load shapes once we have them.
- iii. Stakeholder wants to know, is the model able to tell how many customers can be added to the circuit? How would controllable DER be counted?
1. EPRI: Controllable DER would directly impact the system's response.
 2. EPRI: We don't have the visibility to fully detail and capture the DER customer's daily output, nor predict how their system would respond on any given day.
 3. EPRI: The analysis and methodology are meant to be a flexible approach to create an immediate hosting capacity result.
- iv. Stakeholder asks, what is meant by DER agnostic? How could it output 24-hours a day, wouldn't you select a more realistic profile?
1. EPRI: It is based on a forecasted amount of DER and the agnostic or unknown type of DER which can produce power at any time of the day. It is more that it could come on at any time of the day, rather than looking at it as being on at all times of the day. When we analyze it, it appears to be on, however, it's more so an on/off capability of the resource.
 2. HECO: By performing it this way, you're able to see where the actual needs are at different hours of the day. This can help shape a future program design.
 3. EPRI: We wouldn't use only a PV profile for the analysis, because we would miss out on the feeder capacity at the hours of the day when PV isn't generating. Specifically, during the nighttime, when you may have batteries or EV charging.
- v. Stakeholder asks, would this be a worst-case scenario, when everything is exporting at the same time?
1. EPRI: Correct.
 2. Stakeholder: What would the best-case scenario look like?
 - a. EPRI: Best case would be there is a lot of generation available, but not exporting. Therefore you could dispatch the available generation at any time of the day.
 3. Stakeholder: What about customers who can't produce all day?

- a. EPRI: They would be constrained by their output.
 - 4. Stakeholder: So it appears then that it would be a load capacity issue? For example, if you had a customer with a 10kW battery, in the morning, the customer is using 1kW of load and not charging the battery, so they wouldn't have additional power to send to the grid. How would you capture that?
- vi. Stakeholder asks, is this a tool to identify DER program opportunities? Can the tool iterate and look backwards to find problematic challenges on the circuit? What will be done with the results?
 - 1. HECO: We can talk further about specific use cases. Fundamentally, we would be modeling the forecasted DER and depending on how that may impact the various circuits, we will then look deeper into those trouble spots and identify potential needs opportunities.
 - 2. Stakeholder: Would you say this model has additional hosting capacity analysis capabilities?
 - a. HECO: The models are flexible, and the results include all the data needed to identify the circuit hosting capacity needs.
 - b. EPRI: Results would include voltage and thermal impacts, forecast scenarios.
- vii. Stakeholder asks, is there any load inputs for EV deployment?
 - 1. HECO: The inputs into the models come from LoadSEER, which includes the forecasts, and those are inputs.
 - 2. Stakeholder: Is there a method to true-up the forecasted inputs on an annual basis, in order to run an actual EV deployment case?
 - a. HECO: The starting year is based on actual loads from the year before, using SCADA data. For example, customers installing air conditioning on a circuit will show load growth over time.
- viii. Open Comments and Questions
 - 1. Results will be dependent on the applied load and existing/forecasted PV profiles
 - 2. Suggestions on volt-var control applied
 - 3. Model detail vs. analysis efficiency
- g. Stakeholder would like to know how does the utility envision using the results of this hosting capacity analysis?
 - i. HECO: We would use the information to better inform our grid needs assessment.
- h. Stakeholder asks, regarding the daily minimum hosting capacity values, does the graph show that there's no hosting capacity available during several hours of the year?
 - i. EPRI: We assume one hour of the year where there is a minimum hosting capacity.

- ii. Stakeholder: It seems weird to have voltage issues in the evening peak when you have the highest load?
 - 1. EPRI: Don't read into it too much, as these are preliminary results.
- i. Stakeholder request for more clarification on what is meant by DER agnostic resources. It appears to be a one-dimensional straight line that is not time based.

DPWG - Meeting Topics & Schedule

January 2020	<ul style="list-style-type: none"> • Distribution Planning load scenarios and sensitivities methodology • Distribution planning integration with Resource & Transmission planning process • Soft Launch RFP Proposals Due
February 2020	<ul style="list-style-type: none"> • Revisit Topics/ Review Deliverables • Finalize Deliverables

Next Steps

- Next meeting, January 2020, Time TBD
 - Topics: Discussion on Forecasts and Scenarios
- Draft of DPWG deliverables to be circulated within the next few weeks for review. Notification to be sent via email.
- Please note:
 - A full discussion around forecasts and scenarios will be added to the deliverable following additional stakeholder discussion in January.
 - When submitting comments, please note in your comments whether we should capture your comments with attribution (person or organization) or anonymously. We'd like to document the feedback in the final deliverable.
- Questions and comments may be submitted to Marc Asano at, marc.asano@hawaiianelectric.com or igp@hawaiianelectric.com