

IGP Stakeholder Technical Working Group Meeting

Wednesday, June 2, 2021

12:00pm - 3:00pm

WebEx

Attendees

WebEx

Colton Ching, HE
Marc Asano, HE
Christopher Lau, HE
Aidan Tuohy, EPRI
Alex de Roode, Maui County
Cara Goldenberg, RMI
Chris DeBone, HPVC
Christopher Yunker, HSEO
Clarice Schafer, HPUC
Dan WilsonIA
David Parsons, HPUC
Dean Nishina, DCA
Derek Stenclik, Telos Energy
Genevieve Lillis, RMI
Gerald Sumida, Carlsmith Ball
Gina Yi, HPUC
Grace Relf, HPUC
Henry Curtis, LOL
Jacqui Hoover, HIEDB
Jeffrey Burke, APS
Jeremy Laundergan, EnerNex
Kat Hofland ASU
Kevin Schneider, PNNL
Kylie Cruz, Blue Planet Foundation
Marcey Chang, DCA
Matthew Richwine, Telos Energy
Michael Schwing, HSEO
Nikki Matsumura, HPUC
Noelani Kalipi, PHOW
Paul De Martini, Newport Consulting
Pete Polonsky, HPUC
Rene Kamita, DCA
Rick Rocheleau, HNEI
Robert Harris, Sunrun
Rocky Mould, HSEA
Rod Aoki, Rod S. Aoki Law
Stephen Mariani, HPUC
Steven Rymsha, Sunrun
Terry Surles, HNEI
Ken Aramaki, HE
Earlynn Maile, HE
Li Yu, HE
Alan Hirayama, HE
Meredith Chee, HE
Christopher Kinoshita, HE
Collin Au, HE
Amanda Yano, HE
Sorapong Khongnawang, HE
Brian Lam, HE
Robert Uyeunten, HE
Dean Oshiro, HE
Daniel Lum, HE
Kenton Suzuki, HE
Isaac Lum, HE
Talin Sokugawa, HE
Therese Klaty, HE
Anne Fuller, HE
Kolter Kalberg, HE
Alyssa Nada, HE
Kent Kurashima, HE
Shuk Han Chan, HE
Henry Lee, HE
Lisa Dangelmaier, HE
Leland Cockcroft, HE
Jack Hershey, HE

Discussion

- I. Modeling Tools and Framework
 - a. Stakeholder: Where are the different levels of DER determined?
 - i. HECO: This will be addressed in the bookend analysis.
 - ii. Stakeholder: DER is driven by a different set of criteria than what is used in these models. You could make assumptions on different levels of DER and see what the utility would need to have a stable grid. Want to clarify that it is not an output of these models.
 - iii. Stakeholder: Is the DER assumed to be a load modifier or is it dispatchable?
 1. HECO: First pass has DER as a layer in the load. Will be modeled later as a resource. Incremental DER is being considered as an aggregator. If the model does decide to build that resource, the process will still be followed to ensure the portfolio is reliable and there are no violations.
 - b. Stakeholder: If the reliability criteria is being violated, are manual adjustments made or how are those remedies decided?
 - i. HECO: There are two routes. We can go back to the capacity expansion model and change the ERM requirement to optimally select more resources. The other is to manually adjust using engineering judgement. We are discussing the appropriate threshold for a large vs small threshold, which may lead to different ways to resolve them.
 - ii. Stakeholder: One term that came up is engineering judgement. If the problem is very specific, engineering judgement may be better than using a hammer like adjusting ERM.
 - c. Stakeholder: Reminder to consider DERs as programs and pricing that can be used as solutions, and not just a forecast. Concern that utility scale projects will be viewed as free and price out potential DER.
 - i. HECO: Utility scale projects are currently modeled as a fixed cost resource on a \$/kW basis, not free.
 - ii. HECO: The modeling will show us what the system needs are e.g., energy, fast-frequency response, inertia, etc. The types of projects and programs can be modeled as providing grid services. Then the incremental needs and services after considering pricing and programs will be acquired through competitive procurement.
 - iii. Stakeholder: The comparison of identifying the value of DERs to provide grid services, might be the analysis we should focus on.
 - iv. Stakeholder: For example, can a comparison be made between 15-cent/kW fixed cost IPP versus a 13-cent/kW fixed cost DER that provides 2 hours of services?
- II. Grid Service Modeling

- a. Stakeholder: Where can I find the details of the grid services?
 - i. HECO: On the IGP website, the Grid Needs Assessment document (March 30th) and in the Inputs and Assumptions workbook.
 - b. Stakeholder: Where do the PSSE, LoadSEER/Synergi models come into play?
 - i. HECO: LoadSEER and Synergi modeling involves the distribution level needs, and PSS\E modeling looks at the transmission level needs. [This modeling tools overview diagram was updated in the June 4 Technical Conference Materials to show LoadSeer/Synergi]
- III. RESOLVE Day Sampling
- a. Stakeholder: For Oahu’s system, are hydro resources included in the day sampling calculation?
 - i. HECO: Not at the moment, because the day sampling uses historical data for existing systems on Oahu.
 - b. Stakeholder: Does RESOLVE consider extreme weather days?
 - i. Stakeholder: We can expect RESOLVE to select a broad range of sampled days to cover normal and extreme production and weather conditions.
 - ii. Stakeholder: A broad day sampling will result in a generally “good” resource plan. Even if the worst day is included in the day sampling, RESOLVE does not necessarily look at consecutive bad days. That’s why other models are needed such as PLEXOS.
- IV. Stakeholder: Synchronous condensers are identified as a near-term bridge. Are long-term costs considered? The concern is synchronous condensers would reduce the value of or eliminate the need for future inverter based inertia.
- a. HECO: Right now, we don’t have a cost to convert older units to synchronous condenser, only new additions, but it generally would be cheaper to convert a unit than build a new condenser.
 - b. Stakeholders: Inverter capability is showing a lot of promise, but there is still a lot needed to be reliable.
 - c. HECO: Synchronous condensers and quick response from inverters try to accomplish the same goal but from different perspectives. Condensers try to maintain inertia physically while inverters try to get the same result by providing a rapid response of energy.
- V. TAP’s Independent Review of Planning Criteria
- a. Stakeholder: Did the TAP review the other planning criteria, other than ERM?
 - i. HECO: The TAP did look at inertia in response to Ulupono’s comments. In previous meetings, they did review regulating reserve criteria.
 - b. Stakeholder: Wanted to confirm you are intending to look at removing the inertia constraint to see how that affects the model.
 - i. HECO: Yes, we are planning to do that in RESOLVE.
- VI. Proposed Bookend Analysis
- a. Stakeholder: Are the changes interrelated where one assumption affects another?
 - i. HECO: For the bookends, we could assume that a certain policy would be in place by a certain year that drives a certain type of adoption.

- ii. Stakeholder: When you look at the bookends, you want to look at what gives the potential maximum and minimum to see what the portfolio looks like under these different extremes. If they are radically different, then maybe drill into it a little more but if it's just a slightly different resource plan, then maybe it's not as big of a deal.
- b. Stakeholder: What is the rationale for not including the managed EV load in the High Load scenario?
 - i. HECO: We want to analyze the impacts to load when customers do not charge their EVs on a TOU or managed fashion. When customers can charge their EVs at any time of the day we can see that impact to the system in combination with the other assumptions.
- c. Stakeholder: Is the managed charging load for EV something developed with E3?
 - i. HECO: Yes, we are using the managed charging profiles that tie to pilot rates filed in the EoT docket.
 - ii. Stakeholder: Wasn't that for only commercial rates and buses? What about residential EV charging?
 - 1. HECO: Right now, our assumptions are based on the filings we've made.
- d. Stakeholder: Technology costs may limit customer adoption of EVs, EE, and DERs. Is it possible to model a range of costs or adoption forecasts? Another suggestion would be to use the terminology of encouraging participation rather than incentives since the customer is not promised incentives beyond the technology or program incentives.
- e. Stakeholder: Suggestion to consider EV charging sites. The more granular the modeling is, the better the results.
 - i. HECO: We can have more discussion on this in future meetings.
- f. Stakeholder: Regarding Sensitivity 2 – are you considering managed retreat or resilience?
 - i. HECO: We are not.
 - ii. Stakeholder: Are you trying to calculate the value of energy efficiency?
- g. Stakeholder: Regarding Sensitivity 6 – are you saying you wouldn't build offshore resources if it's cheaper?
 - i. HECO: Offshore wind is a candidate resource in the model. We would be looking at the quantity of offshore wind built by RESOLVE if that is the only choice.
- h. Stakeholder: What is the reason for not modeling energy efficiency as a standalone sensitivity as well?
 - i. HECO: We could look into it. What are the objectives of modeling it separately?
 - ii. Stakeholder: Want to isolate the effect of one change.
 - iii. HECO: Looking at energy efficiency or any of the other layers in isolation may be helpful in designing programs. But the purpose of the grid needs step and the scenarios and sensitivities like the bookends is to identify

the needs for a range of load forecasts that consider multiple customer technologies among other factors.

- i. Stakeholder: Is there a fuel price sensitivity?
 - i. HECO: Yes, we can discuss this at a future meeting.
 - j. Stakeholder: Is there a forecast for a sudden increase in EV load? For example, multiple EVs charging at the same time.
- VII. DER Forecasting
- a. Stakeholder: Do you have a correlation for customer's behavior to select DERs based on the economics?
 - i. HECO: That is the output of the model.
 - ii. Stakeholder: What percentage will adopt DERs regardless of the economics, due to other drivers such as reducing greenhouse gases or resilience?
 - iii. HECO: For example, if a customer purchases a DER system for the purposes of having battery backup during an outage, that is not covered in the model. The model produces results purely on an economic basis. We can take into consideration other drivers.

Next Steps

- Stakeholders may provide feedback on today's discussion to IGP@hawaiianelectric.com