PSE IRP Consultation Update
Webinar 3: Transmission Constraints
June 30, 2020

7/21/2020

The following consultation update is the result of stakeholder suggestions gathered through an online Feedback Form, collected between June 23 through July 7, 2020 and summarized in the July 14 Feedback Report. The report themes have been summarized and along with a response to the suggestions that have been implemented. If a suggestion was not implemented, the reason is provided.

PSE also thanks Fred Huette and Joni Bosh of Northwest Energy Coalition (NWEC for meeting with PSE staff to help further clarify their questions and suggestions in follow-up meetings. A meeting with WUTC staff is scheduled for later in the month.

Battery interconnection cost

PSE received feedback from James Adcock, Don March (CENSE) and Fred Heutte (NWEC) concerning the proposed interconnection cost for batteries. PSE has consistently applied the interconnection cost described in the 2019 HDR Report (linked below) for all generic resources. For all battery types, the assessment assumes a 115 kV, 5-mile tie line to the point of interconnection and a breaker and one half interconnection arrangement at the point of interconnection. These are fixed capital costs, regardless of resource nameplate capacity. The capital cost adder in dollars per kilowatt may appear inflated for smaller nameplate resources such as battery resources (25 MW nameplate) and biomass facilities (15 MW nameplate).

Given the expectation for significant quantities of battery energy storage systems in the 2021 IRP, PSE will include a 100 MW nameplate battery. The interconnection for a 100 MW nameplate battery would be $91.80/kW in real 2016 US dollars.

HDR Report: https://www.pse.com/-/media/PDFs/001-Energy-Supply/001-Resource-Planning/10111615-0ZR-P0001_PSE_IRP.pdf

Dual purposed transmission

PSE received feedback from Willard Westre (Union of Concerned Scientists), Bill Pascoe, Katie Ware (Renewable Northwest) and Kyle Frankiewich (WUTC) supporting the inclusion of dual purposed transmission in the 2021 IRP. PSE will incorporate dual-purposed transmission where possible in the 2021 IRP models, in particular, transmission from the Mid-C hub, Goldendale Generating Station and Mint Farm Generating Station.

Colstrip Unit 4 transmission

PSE received feedback from Willard Westre, Bill Pascoe, Katie Ware (Renewable Northwest) and Kyle Frankiewich (WUTC) concerning the inclusion of 185 MW of transmission associated with Colstrip Unit 4. However, the pending sale of Colstrip Unit 4 includes the sale of 185 MW of transmission on the Colstrip Transmission System soit will not be modeled as part of the 2021 IRP process.

Firm transmission as a fraction of nameplate capacity

PSE received feedback from Willard Westre, Bill Pascoe, Katie Ware (Renewable Northwest), Fred Heutte (NWEC) and Kyle Frankiewich (WUTC) suggesting the inclusion of a sensitivity which models firm transmission as a fraction of full nameplate capacity for renewable resources. PSE will be modeling this as a sensitivity.

Pumped storage hydro in Montana

PSE received feedback from Bill Pascoe, Katie Ware (Renewable Northwest) and Fred Heutte (NWEC) supporting inclusion of pumped storage hydro as a resource in the Montana region. PSE reviewed available literature concerning the siting of pumped storage hydro and concluded that Montana does have significant potential for a pumped storage hydro resource. Therefore PSE will include pumped storage hydro as a resource in the Montana transmission region.

Modeling transmission uncertainty

On slide 35, PSE requested stakeholder feedback on methods to model transmission uncertainty. PSE proposed two possible methods: Option 1, modeling confidence level tiers as discrete sensitivities and Option 2, modeling confidence level tiers as time-dependent factors.

PSE received feedback from Katie Ware (Renewable Northwest), Fred Heutte (NWEC) and Kyle Frankiewich (WUTC) concering this topic. Stakeholders suggested that both methods provide value to the IRP modeling process. PSE has elected to model method Option 1, modeling confidence level tiers as discrete sensitivities.

Regional Transmission Organization (RTO) sensitivity

PSE received feedback from Katie Ware (Renewable Northwest) suggesting inclusion of a sensitivity to model the adoption of a Regional Transmission Organization (RTO) in the Pacific Northwest. PSE is still evaluating how modeling an RTO as a sensitivity could be successfully accomplished. A decision on whether this sensitivity will be included is dependent on PSE’s models to accurately evaluate an RTO and will be made later in the IRP process.

Expanded cross-Cascade transmission

PSE received feedback from Fred Heutte (NWEC) inquiring about the possibility of modeling expanded cross-Cascade transmission alternatives. PSE is considering modeling expanding our cross-Cascade transmission as an option, but will not have sufficient cost information to model that alternative in the 2021 IRP.

Detailed PSE transmission assumptions

PSE received feedback from Kyle Frankiewich (WUTC) requesting a detailed breakdown to PSE's transmission wheels considered for the 2021 IRP. PSE will be following up with Kyle Frankiewich on July 27, 2020 to further understand his request.

California transmission region

PSE received feedback from Kathi Scanlan (WUTC), Kyle Frankiewich (WUTC) and Fred Heutte (NWEC) concerning transmission capacity and potential modeling of California-based resources. During the Energy Delivery team's review of plausible available transmission, it was found that transmission out of California is significantly constrained. Therefore, no California-based resources will be modeling for the 2021 IRP. However, PSE's existing activity in the Califorina ISO Energy Imbalance Market (EIM) will continue to be modeled.

Transmission from Boardman to Hemingway Project to PSE

PSE received feedback from Bill Pascoe, Katie Ware (Renewable Northwest) and Kyle Frankiewich (WUTC) concerning delivery of power from the Boardman to Hemingway (B2H) projectto PSE's system. This feedback concerns the possible acquisition of transmission on the B2H and Gateway West transmission projects to access Wyoming and Idaho-based resources. Stakeholders noted that an additional BPA transmission wheel is necessary to bring the power home to PSE territory from the northern terminus of the B2H project.

PSE will include Bonneville Power Authority (BPA) provided transmission from B2H to PSE using standard BPA rates. These rates are: $22.20/kW-year for firm transmission plus $11.16/kW-year for wind integration or $8.20/kW-year for solar integration. These costs are in addition to capital costs discussed during the webinar.

Summary of all updates

PSE appreciates the feedback provided by stakeholders. In summary, the following changes will be implemented into the portfolio model:

- Include a sensitivity to model firm transmission as a fraction of nameplate.
- Add pumped storage hydro to the Montana resource region.
- PSE has elected to model method Option 1, modeling confidence level tiers as discrete sensitivities.
- PSE is still evaluating how modeling an RTO as a sensitivity could be successfully accomplished. A decision on whether this sensitivity will be included is dependent on PSE's models to accurately evaluate an RTO and will be made later in the process.
- PSE does not have sufficient cost information to model the cross Cascade transmission in the 2021 IRP.
- PSE will include Bonneville Power Authority (BPA) provided transmission from Hemmingway to PSE using standard BPA rates.

PSE is committed to keeping our stakeholders informed of our progress toward incorportating feedback into the IRP process. PSE will review the list of proposed portfolio sensitivities with stakeholders at the August 11, 2020 webinar and will seek feedback around the details of these sensitivities and additional sensitivities.