

Invenergy Comments on Puget Sound Energy (PSE) 2021 Integrated Resource Plan (IRP) Webinar #12 Comments Submitted February 17, 2021

General Comments on Webinar #12

Invenergy is concerned that PSE is not providing clear and detailed information about its assumptions, analyses and results for the 2021 IRP. These concerns were reinforced during Webinar #12. The vague and insufficiently detailed information being provided by PSE makes it difficult to assess whether the Flexibility Analysis and Portfolio Draft Results presented on February 12, 2021 are sound and reasonable. While this has been an ongoing concern, PSE's willingness to share meaningful information and constructively respond to stakeholder questions and comments appears to be degrading further.

Specific Comments on Webinar #12

Flexibility Analysis

1. *Social Cost of Greenhouse Gas (SCGHG)*: It was not clear from PSE's presentation whether or how it has included the SCGHG flexibility analysis it performed using the PLEXOS model. In response to stakeholder questions, PSE initially stated that the SCGHG was included "in the portfolio model". However, the portfolio model is separate from PLEXOS. When prompted, PSE admitted that it did not include the SCGHG in the flexibility analysis. Invenergy continues to urge PSE to include the SCGHG as a variable cost of dispatch for GHG-emitting generation, including in the flexibility analysis. Not including the SCGHG in the flexibility analysis ignores the environmental externality costs of dispatching GHG-emitting resources. It also biases PSE's results in favor of more GHG-intensive peaking generation relative to less GHG-intensive combined-cycle combustion turbine (CCCT) generation.
2. *Flexibility Cost Savings*: Slide 32 of PSE's presentation shows flexibility cost savings of \$23.45-\$25.39/kilowatt-year for peaking generation and \$5.27 per kilowatt-year for CCCT generation. If PSE's analysis only addressed intra-hour (e.g., 15-minute) Flex Up and Flex Down violations, the results appear quite high, especially for peaking generation. Alternatively, if the flexibility analysis also addressed flexibility benefits across longer time increments (e.g., hourly, diurnal) – as it should – PSE's assumptions about the flexibility capabilities of CCCTs are unrealistically restrictive. In addition, if PSE's flexibility analysis treats all CCCTs as being dispatched on a concurrent basis, this would further under-value the flexibility benefits of CCCTs compared to a more realistic operational approach that allows CCCTs to be dispatched on a sequential basis (i.e., not necessarily at the same time). Under a sequential dispatch approach, a group of CCCTs could provide flexibility cost savings because only one or a few CCCTs would need to be operated at partial-loading at any given point in time.

Portfolio Analysis Results

3. *Social Cost of Greenhouse Gas (SCGHG)*: From PSE's presentation, it is not clear whether it has performed meaningful portfolio analyses that include the SCGHG as an incremental cost of dispatch for GHG-emitting generation. Instead, PSE continues to treat the SCGHG as a fixed cost, calculated

after-the-fact, based on generation dispatch costs that exclude the SCGHG. Invenenergy has previously submitted extensive comments, including in PSE's 2021 IRP process and in the Clean Energy Transformation Act (CETA) rulemakings that explain why the SCGHG must be included as an incremental cost of dispatch. Invenenergy continues to encourage PSE to include the SCGHG as an incremental cost of dispatch for GHG-emitting generating resources, including in its portfolio analyses.

4. *Timing of Resource Additions:* PSE's presentation of the results from its updated portfolio analysis provides a startling lack of detail about the timing of new resource additions. The only place where new resource additions are presented for PSE's updated portfolio analysis is on Slide 54, entitled "Portfolio costs and resource additions". This slide only provides total additions for each type of resource over the entire period from 2022-2045. No information is provided for the timing of resource additions within the 24-year planning horizon. As a result, this makes it very difficult to assess the validity of PSE's portfolio analysis and results. In particular, it obscures results for resource additions during the critical upcoming period, including the next five years. That is the most important timeframe for the 2021 IRP, in part because PSE will be able to use its 2025 IRP to update its resource strategy for the latter half of the coming decade. Invenenergy considers it highly unusual for PSE to obscure the results of its portfolio analysis in this way, and at such a late stage in the 2021 IRP process. Invenenergy requests that PSE provide more detailed information as soon as possible about the timing of the resource additions in its portfolio analysis, including annual resource additions, by type of resource, during 2022-2029.