

November 4, 2019

To: Irena Netik – Puget Sound Energy (PSE) Director of Energy Supply Planning and Analytics

Cc: Jay Balasbas – UTC Commissioner  
Rachel Brombaugh – King County Executive Energy Policy & Partnerships Specialist  
Brad Cebulko – UTC Staff  
Carla Colamonici – Regulatory Analyst, Public Counsel Division  
David Danner – Utilities and Transportation (UTC) Commission Chair  
Lisa Gafken – Assistant Attorney General, Public Counsel Unit Chief  
Steve Johnson – UTC Staff  
Ann Rendahl – UTC Commissioner  
Deborah Reynolds – UTC Staff  
Kathi Scanlan - UTC Staff

Subject: 2019 IRP Technical Input – Capacity Factors in Resource Adequacy Analysis

Note: The TAG acknowledges the WUTC Staff petition for an IRP schedule exemption. This technical input is submitted in response to PSE’s commitment to “continue to ... maintain and respond to public input”. This technical input should be considered an integral part of the collection of 2019 PSE IRP documents. We appreciate PSE’s commitment to also include these technical inputs in the 2021 PSE IRP.

It is my understanding after several years of IRP and TAG meetings that PSE uses the capacity factors (CF) listed in the IRP Electric Supply-Side Resources charts, developed by HDR and others in previous years, as the input data for resource adequacy analyses. This CF data is annual average data and does not accurately reflect data related to peak load requirements which are seasonal and hourly in nature. For example, HDR lists Montana wind CF as 42.2% but data from DNV indicates it is nearly 60% in winter which is PSE peak load season. Solar-plus-storage has a greater CF than the average CF in summer, corresponding to the PSE summer peak. CFs vary by season, time, geography and weather. CFs have great influence on overall resource performance and can lead to unfortunate resource selection.

This is even more important in the Clean Energy Transformation Act (CETA) era. The “rollercoaster” performance of most renewables can be combined creatively to create a “quasi-base” approach to simulate the consistent base performance of fossil fuels if the analysis is sensitive to the real performance of renewable options. In other words, figure out how to combine summer and daytime peaking solar, summer and daytime peaking WA wind, winter and nighttime peaking MT wind, and short and long-time storage effectively. This cannot be done without accurate and time-variable capacity factor data.

As a member of PSE’s Technical Advisory Group, I formally request that PSE post this letter on their 2019 IRP website and provide a written response to this question:

- Will PSE update its Resource Adequacy analysis methods to develop and accommodate time-variable capacity factor data for renewables and use that in the 2021 IRP?

Thank you,  
Willard (Bill) Westre  
Mechanical Engineer  
PSE IRP TAG