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July 6th, 2020

Via E-filing

Mark L. Johnson
Executive Director Secretary
Washington Utilities and Transportation Commission
621 Woodland Square Loop S.E.
Lacey, WA 98504

Re: Puget Sound Energy Request for Proposals; 2020 All-Source RFP for Peak Capacity Resources
Docket No. UE-200414

To Mr. Johnson,

Please see the enclosed for comments from Plus Power, LLC, regarding Docket No. UE-200414. Plus Power is a US based developer of stand-alone energy storage projects (energy storage **not** specifically co-located with renewable generation sources). Energy storage enables a more renewable and flexible transmission grid by providing capacity, energy, and ancillary services at key intersections of the grid, and by balancing the increasing amounts of renewable generation available on the wholesale energy markets with firm capacity.

Plus Power is pleased to engage with Puget Sound Energy's efforts to meet the peak capacity needs of the Pacific Northwest region. Please feel free to reach out to me with any questions.

Sincerely,

Molly Emerson
Plus Power, LLC

BEFORE THE WASHINGTON UTILITIES

AND TRANSPORTATION COMMISSION

In the Matter of PUGET SOUND ENERGY COMPANY, 2020 All-Source Request for Proposals for Peak Capacity Resources	**DOCKET UE-200414** COMMENTS OF PLUS POWER, LLC

I. INTRODUCTION:

Pursuant to WAC 480-07-250, Plus Power, LLC ("Plus Power", "Plus") submits these comments to the Washington Utilities and Transportation Commission (the "Commission") regarding the draft of the 2020 All-Source RFP for Peak Capacity Resources (the "Draft RFP") filed by Puget Sound Energy ("PSE") on May 4th, 2020.

Plus Power is an independent developer of utility-scale short duration (2 – 8 hours of discharge) energy storage projects with sites currently under development across the Pacific Northwest and more broadly in the Western Electricity Coordinating Council ("WECC") territory.

Reviewing the Draft RFP that was made public this May, Plus Power noted the range of Effective Load Carrying Capability ("ELCC") values assigned to various resources (Section 1, Resource Need). ELCC is a key evaluation metric in the economic and reliability modeling of resource portfolios. The ELCC of a specific resource is known to be highly variable based on the assumed location of generator, anticipated load patterns and transmission constraint assumptions. Generic assumptions on ELCC taken straight from literature, "expert" recommendations, or other utility baselines and applied to individual projects could dilute and mask the assessed benefits from newer technologies such as energy storage. As such, Plus Power encourages the Commission and PSE to closely evaluate and apply an appropriate ELCC for each specific resource bidding into the future All-Source RFP.

II. COMMENTS:

In "Section 1: Resource Need – Evaluating the capacity contribution of resources" of the Draft RFP, PSE states that their internal analysis expresses a resource's contribution to capacity in terms of it's effective load carrying capability ("ELCC"). ELCC is commonly and broadly defined as a resource's contribution to meeting a utility's coincident peak capacity demand. PSE's Draft RFP recognizes that ELCC values are "highly dependent on the load characteristics and mix of resources owed by a utility, and that they are unique to each utility" and that "an

individual project's ELCC will vary based on a variety of factors, such as exact location, generation shape, characteristics of the resource (ability to dispatch, duration of output, etc.) and the availability of firm delivery to PSE's load center." The commenter agrees and applauds PSE's statements and intention to evaluate how each proposed resource individually aligns with PSE's capacity need.

However, Plus Power calls into question the summary results given in PSE's example calculations of ELCC values for Batteries (2-hr and 4-hr), given in "Figure 3. Generic ELCC Values by Resource Type and Location." Plus Power posits these values are overly conservative and implores the Commission and PSE to levy additional scrutiny on the ELCC metric during the RFP evaluation process. It is understood that PSE's unique seasonal (with a winter peak expected to span from November through March) and double-daily peak load profile will result in different resource-specific ELCCs than other balancing authorities dealing with large influxes of renewable intermittent power (i.e. the Southwest). However, there a lack of explanation why batteries not co-located with renewable generation ("stand-alone storage" resources) would be de-rated down to the ELCC levels presented in the Draft RFP.

i. ELCCs of Other Resources

Generally, modeling of the "Existing Wind" and "Solar" power resource categories could have understandably resulted in a low ELCC, as the nature of wind and solar generation is largely intermittent and cannot be considered a "firm" source of capacity under most circumstances. PSE's winter peaking load would assumedly make it difficult for solar to "match up" as an effective peaking resource, and Plus does not question the ability to model and assess existing wind resources on the PSE system.

Similarly, it was speculated that the "Montana Wind" (45% ELCC) and "Washington Wind" (6% ELCC) categories would have resulted in accurate ELCCs due to the assumption that PSE has access to current generation profiles and transmission constraint data applicable to these specific resources.

The "Pumped storage" (43% ELCC) category was surprising because pumped storage is typically evaluated as an especially reliable with a high capacity credit. However, PSE's winter peak may result in a necessary de-rate of the overall effectiveness of pumped storage serving the region, as spring melt water may power the hydroelectric resources whose capacity may then have to be de-rated during the winter months.

ii. ELCC of Batteries (Energy Storage)

In contrast to the general agreement with PSE's ELCCs presented for the other resources, Plus Power believes that the ELCCs assigned for "Batteries – 2-hr Duration" (19% ELCC) and "Batteries – 4-hr Duration" (38% ELCC) are overly conservative if it was assumed that the resources are "stand-alone" and charging and discharging schedules will not be constrained by a co-located renewable generation resource.

a) Stand-alone batteries are capable of flexible dispatch

Stand-alone batteries charged directly from the transmission grid and **not** co-located with renewable generators can charge and discharge fully unconstrained. Their charging schedules are not limited by the same restrictions levied against storage co-located with solar or wind generators, tied to the investment tax credit (ITC) for solar and the production tax credit (PTC) for wind. Therefore, dispatch can be driven directly from utility needs and scheduled to optimize utility benefits from the resource, including meeting peak demand hours.

To inform a recent round of resource solicitation, the Public Service Company of New Mexico ("PNM") hired the Brattle Group to study the benefits of energy storage additions to PNM's system and compare the advantages of a stand-alone energy storage project to a PPA contract structure for storage that is co-located with a solar photovoltaic (PV) facility[1]. The Brattle Study found that stand-alone energy storage could charge during any hour of the day, rather than being constrained to charging from the output of the solar PV facility[2].

Thus, constraints on the charging and discharging limitations of a stand-alone energy storage resource should be considered purely from a transmission and interconnection perspective, and not based on limitations of charging and discharging to meet minimum ITC / PTC thresholds. These constraints will be chiefly determined by the location of the point of interconnection on PSE's transmission system and should not result in a generic de-rate of ELCC across the board.

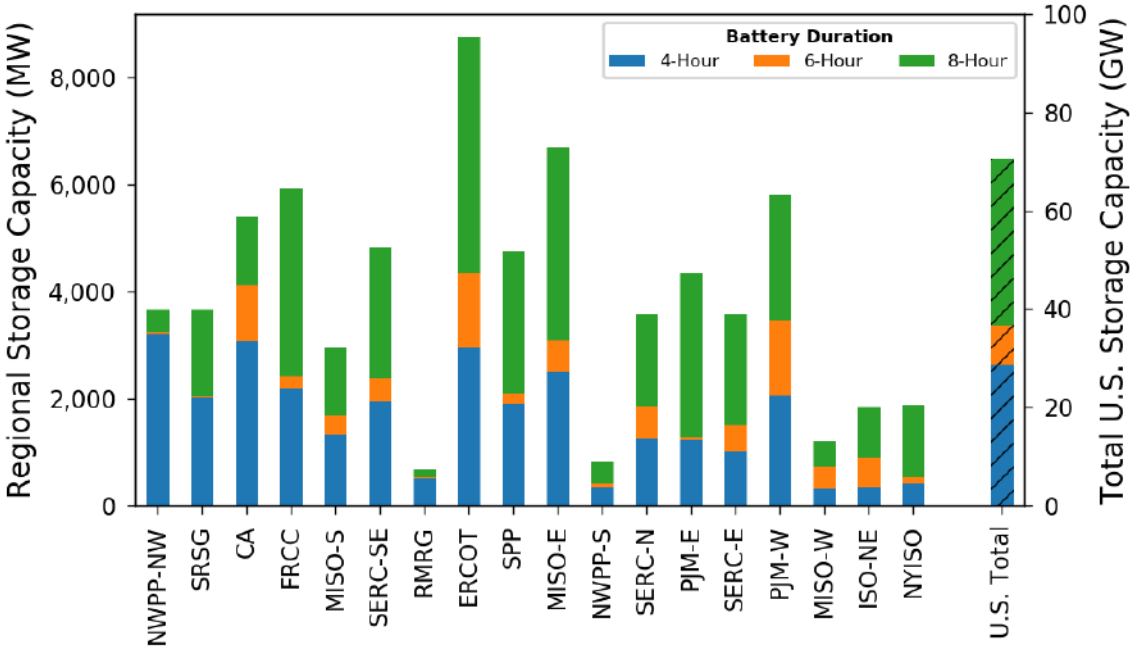
b) Storage's ability to address PNW Winter Peaking Load

There have been several independent studies assessing the ELCC of stand-alone energy storage systems on regional systems that have come up with a higher ELCC for 4-hr batteries than the 38% cited in PSE's Draft RFP[3]. A key study performed by the National Renewable Energy Laboratory (NREL) in June of 2019 evaluated the potential market for stationary storage for the provision of peak capacity across eighteen several discrete regional markets, including the winter-peaking system of the Pacific Northwest. The study calculated a "peak demand reduction credit (PDRC)" for storage by running simulations to identify how much 4-hr

[1] New Mexico Public Regulation Commission. *Recommended Decision on Replacement Resources, Part II (June 24, 2020*). Case No. 19-00195-UT.
[2] Fallgren Dir., Exh. TGF-3, The Value of Energy Storage to the PNM System, The Brattle Group (June 6, 2019), p. 2 of 45.
[3] Schlag, Nick. *Moving beyond 'rules of thumb' for smart, cost effective storage deployment.* https://www.utilitydive.com/news/moving-beyond-rules-of-thumb-for-smart-cost-effective-storage-deployment/553674/

storage capacity could be added to the regional transmission grid before additions would "no longer reduce the net peak demand of the system by the equivalent power capacity of the storage plant"[4]. Storage added to the regional system up to this threshold value would be considered to have a PDRC of 100%, and everything above it de-rated accordingly.

The study found that the threshold value for the PNW was over 3,000MW of regional storage capacity[5].



b) Measured by capacity (based on 2020 peak demand)

The results support a large potential for 4-hour battery storage to address the PNW's winter peaks. If up to 3GW of 4-hr stand-alone energy storage can be added to the PNW's regional grid with an effective 100% capacity credit, this calls into question the assignment of 38% ELCC for these same assumed batteries.

III. CONCLUSION:

In conclusion, Plus Power appreciates the opportunity to be a part of the public comment process made possible by the Washington Utilities and Transportation Commission. Plus urges the Commission and PSE to closely examine the ELCC metric(s) used in the upcoming All-

[4] Denholm, Paul, Jacob Nunemaker, Pieter Gagnon, and Wesley Cole. 2019. *The Potential for Battery Energy Storage to Provide Peaking Capacity in the United States*. Golden, CO: National Renewable Energy Laboratory. NREL/TP-6A20-74184.

[5] Denholm, Paul, et. al.

Source RFP, to ensure that the benefits of all, especially new, technologies such as stand-alone energy storage are accurately understood and counted.