



Public Comments re: WUTC Docket UE-112133

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Dave Danner, Executive Secretary
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We would like to thank the Commission for the opportunity to submit comments on the topic of interconnection and Docket UE-112133. Our comments aim to clarify the process for applicants and strengthen the approach for updating interconnection standards so that the Legislature and UTC can facilitate a thoughtful and useful set of rules to accelerate the development of distributed generation systems in Washington State.

Cascade Power Group (www.cascadepowergroup.com) is a clean energy project developer with recent and relevant experience with the state's interconnection process for projects of all sizes and types. Based on our experiences, we offer the following comments toward the docket.

Tiered approval process

The current interconnection rule (WAC 480-108) establishes interconnection requirements for generating facilities with a nameplate generating capacity of less than 300kW and for generating facilities greater than 300kW and less than 20MW. However, we believe that these categories are insufficient to fully promote the development of distributed energy systems. Instead we believe that a three-tiered approach that addresses systems with nameplate generating capacity less than 100kW, greater than 100kW but less than 2MW, and greater than 2MW will be more appropriate. These cutoffs are consistent with net metering cutoffs, simplifying the approval process for generators under 100kW. There are enough similarities among inverted-based residential and commercial systems under 100kW to warrant a simplified application procedure for the applicant. Other states, such as New York, California, and Oregon have a tiered application process to expedite the review of small facilities that meet IEEE standards and comply with UL 1741, while allowing greater review of larger or non-standard generating facilities. We propose the following tiers for interconnection application:

1. Generating facilities not greater than 25kW

- Rationale: Facilities less than 100kW are generally inverter-based, and inverters are a simple piece of equipment to tie into the existing electrical panel. The generation source is technically on the 'backside' of the inverter, and so the inverter becomes the equipment that is at the point of common coupling and not the generation source. The inverter will



resolve harmonics issues, voltage drops, and a number of other issues associated with electrical generation from a non-firm fuel source.

- Timeline: No more than 30 calendar days from time of application to applicant notification.
- Cost: The time spent on an inverter-based system should be minimal and so either a nominal fee of \$25 from the applicant or NO fee seems appropriate based on the actual amount of time a utility company would spend versus the benefits they receive from this service.

2. Generating facilities greater than 100kW but not greater than 2MW

- Rationale: Facilities in this size range will typically either be an inverter-based system or a direct-generator interconnection to an electrical panel. Synchronous and asynchronous generation should follow IEEE 1547 protocol and should be connected to a utility signal to monitor voltage, harmonics, and other information. Screening test should include feeder capacity and any facilities that need construction to accommodate interconnection. Customer should share in facility costs if generation is determined to be beneficial to utility company's customers.
- Timeline: No more than 75 calendar days from time of application to applicant notification.
- Cost: Utilities may charge an application fee up to \$100 to cover the cost of review and should only include actual costs incurred by the company to review the application.

3. Generating facilities greater than 2MW

- Rationale: Interconnected facilities greater than 2MW are generally not inverter-based, and instead involve a direct interconnect with a synchronous or asynchronous generator. Without an inverter, the generator must be connected directly to the electrical subpanel and has the ability to back-feed into the distribution system of the building and local area electric grid. Islanding capability, remote monitoring and control, and proper engineering and protocol compliant with IEEE 1547 should be in place to ensure a safe and workable interconnection.
- Timeline: No more than 120 calendar days from time of application to applicant notification.
- Cost: the generator applicant should assume all costs of the interconnection, unless there are proven benefits to the utility company's infrastructure or ability to deliver power more efficiently to their customers – in which case the costs should be shared amongst both parties.

Review

We commend the Commission for conducting this rulemaking to update state interconnection standards. However, we believe that review should not be dependent upon legislative action. The current interconnection rule was finalized in 2007 and has not been evaluated since. Instead, a regular review process every two years should be established to update the interconnection standards to reflect legislative and technological changes and address implementation challenges.

States that engage stakeholders in small working groups and steering committees have been more successful at developing workable interconnection rules that better satisfy stakeholders. The commission should engage project developers, installers, owners, manufacturers and community groups in addition to the utilities in a stakeholder group to discuss challenges and opportunities for improving the interconnection process. This stakeholder group should meet twice a year to identify priorities for updating the interconnection rules, address new technologies and come to agreement, or at least



compromise, on recommendations for the interconnection rule. Such stakeholder involvement would simultaneously relieve the Commission's burden of guessing the best ways to meet stakeholder needs and ensure that the interconnection rule remains modern and relevant.

Redundant Disconnect Switch for Inverter-based systems

Small systems that use inverters convert the generated DC power to AC power so that it is compatible with the grid. All UL-1741 approved inverters, including "utility-interactive" equipment, are required to have an automatic shut-off. They are designed to switch off and remain off during a local power outage. The safety concerns that a utility worker will encounter a live system or that the facility will feed incompatible current to the grid are outdated and do not reflect the safety levels of current technologies, relative to inverter-based systems. The requirement for an external disconnect is unnecessary for systems that meet UL-1741 standards, and adds extraneous cost and complexity to the project. At various solar arrays we have developed for our clients the external disconnect switches have been unintentionally tripped multiple times, causing the system to shut down unnecessarily. Not only are external disconnect switches redundant, but they can also be a detriment to the project. The interconnection process should exempt projects that meet UL-1741 from needing an external disconnect switch.

Additional comments

AC or DC power should be clarified in the rule, as it is currently not defined.

Conclusion

Despite the efforts of the Commission to update the interconnection rule, the current process is insufficient to keep the rule up to date. As demonstrated by the situation with UL-1741 approved inverters, grid technology is evolving faster than the rule can anticipate. Therefore, it behooves the Commission to establish a regular review schedule and stakeholder working groups to address emerging challenges to interconnection. Further, the Commission can encourage broader development of distributed generation facilities by simplifying the application procedure and provide clear timelines for the applicants. Evaluating tiers of projects with similar characteristics will save utilities time and provide greater clarity for project developers. For consistency - we suggest that the UTC develop a process that is similar to that of Oregon's, so that the local industry can create a common set of rules within the BPA service territory for DG applicants.

Sincerely,

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