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September 7, 2012

Washington Utilities and Transportation Commission
Attn: Mr. David Danner, Executive Director and Secretary
1300 S. Evergreen Park Drive S.W.
P.O. Box 47250
Olympia, WA 98504-7250

RE: Docket # UE-112133
Review Standards for Interconnection with Electric Generators in WAC-480-108

The Evergreen State Solar Partnership (ESSP), under the leadership of the Washington Department of Commerce and the US DOE SunShot initiative, is working to make rooftop solar energy cost-competitive with other forms of electricity by reducing the "soft costs" of installing solar generation. The ESSP includes a coalition of four jurisdictions – Bellevue, Edmonds, Ellensburg and Seattle - and their load serving utilities – Puget Sound Energy, Snohomish Public Utility District, City of Ellensburg, and Seattle City Light.[1] The ESSP is working closely with solar industry and community advocates, including Northwest SEED, Solar Washington, and Sustainable Connections, to ensure that the interconnection and permitting processes across our four jurisdictions and utilities are standardized in a manner consistent with industry best practices. Our aim is to produce standard practices that can be adopted across Washington State, to reduce the cost of installing solar generation and accelerate the deployment of distributed generation.

We are responding to the Washington Utilities and Transportation Commission's Notice of Opportunity to Submit Comments on the report from the interconnection standards workgroup. We appreciate the UTC's timely review of interconnection standards. By establishing a model for a streamlined process, the UTC can help reduce the cost of interconnecting small renewable energy systems across the state.

Currently, Washington earns a "D" in the Network for New Energy Choices' *Freeing the Grid* report, which evaluates state interconnection and net metering standards according to industry best practices. The DOE SunShot initiative uses *Freeing the Grid* grades to evaluate ESSP

[1] Puget Sound Energy will submit separate comments during the rulemaking.

progress toward the goal of streamlined, standardized interconnection. The proposed model rules are a step in the right direction:

> **Allowing utility discretion for the AC external disconnect switch provides utility flexibility to adapt interconnection processes to changing technology.** Inverter technology has changed significantly in the past ten years, as electronics and safety systems have gotten more sophisticated. Requiring a specific piece of equipment (which is not required in the NEC or by FERC) is overly restrictive and focuses on a particular technology when the focus should be on holistic system safety. By allowing for utility discretion, the UTC allows for utility processes to change as technology changes.
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> **Creating three tiers for interconnection relieves complexity for small systems while preserving thorough studies for large systems.** The model rules propose three tiers for interconnection, with each tier corresponding to a set of technical screens that drive the interconnection review process. We endorse creating multiple tiers and corresponding technical screens that align as much as possible with the FERC Small Generator Interconnection Procedure (SGIP), while acknowledging that the NEC and local practice may warrant some nuances. The long-term goal should be to converge on a national standard set of tiers.

While we applaud the effort to update our interconnection procedures, the ESSP would like to urge the UTC to move even more decisively toward alignment with industry best practices. Based on our experience working with solar installers, electricians, utilities, and other solar industry stakeholders, we make the following recommendations.

Recommendation #1: Raise the bar for requiring the AC Disconnect Switch from 5 to 10 kW
The current proposal allows utility discretion in requiring the external AC disconnect switch for inverter-based systems less than 5 kW in nameplate rating. (Chapter 5, Tier 1 Technical Requirements, Section c.) We propose that the rule should allow utility discretion for systems 10 kW or less. We offer the following observations:

- **The 5 kW bar does not increase safety; Inverter-based systems are inherently safe from "islanding."** Today's technical guidelines for inverters make potential safety hazards highly improbable; and nearly impossible. Inverter-based systems with UL 1741 certification shut down automatically when the grid shuts down; and therefore present minimal potential to damage a utility's property or create a safety hazard. According to the Network for New Energy Choices 2011 *Freeing the Grid* report there has never been a documented case of a small, net-metered system creating potential personal injury or property damage for a utility. Raising the bar from 5 kW to 10 kW will not compromise the safety features of UL Listed inverters, but it will allow customers to install systems at lower cost.

- **The external disconnect switch is redundant for small systems.** There are multiple ways to disconnect a customer sited solar generator. To meet the requirements for a visible lockable disconnect, line workers can be trained to interrupt the system at one of multiple locations, including the transformer. In practice, one of our partners, Snohomish PUD, has already adopted this policy for systems under 10 kW.

- **The requirement for an external AC disconnect switch puts Washington on the wrong side of industry best practices.** In the United States, only 18 states require an external disconnect switch for all systems. In California, which leads the nation in rooftop solar, PG&E and Sacramento Municipal Utility District both do not require the switch. In Oregon, there is no requirement for an AC disconnect switch for systems 10 kW and under. By adopting a rule similar to Oregon's, we could create consistency for utilities (such as PacifiCorp) as well as for installers who work across state lines and move toward accepted best practice.

- **The 5 kW system threshold excludes many new systems.** The average size of solar systems installed in 2011 in Washington State was 4.74 kW[2]. As the cost of solar falls, the size of installations is rising, and 5 kW will soon be a small system. A rule applying to systems less than 5 kW will have little relevance.

- **Every additional piece of equipment comes with a set of hidden costs.** While the hardware itself is only a few hundred dollars, the process of ordering, inventorying, transporting, installing and inspecting the switch is not insignificant. The switch takes up space, requiring extra workarounds on a crowded wall. Requiring a switch for systems under 10 kW imposes needless financial burden on interconnection customers.

- **No equipment can ensure operator safety like proper training and procedures.** Operators are trained to assume that the grid is live. If they were to rely on equipment to make the system safe, they would be jeopardizing their safety.

  In sum, requiring an external AC disconnect switch for systems between 5 kW and 10 kW adds cost to small systems without adding safety. Although *Freeing the Grid* recommends that the UTC should actively ***prohibit*** utilities from requiring the disconnect switch, the ESSP recommends as a first step, a rule that allows utility discretion up to 10 kW.

Recommendation #2: Consider adopting a fast track for solar inverter-based interconnection. The current proposal sets the first interconnection tier at 25 kW. We suggest that within the first tier, there could be a "fast track" ("Tier 1 EZ") for a solar inverter-based system that would require minimal screening, such as UL listed equipment and verification of adequate line

[2] Per Phil Lou, WSU Energy Program, Solar Energy Specialist

section capacity to accommodate the distributed generation. The system would still have to pass electrical inspection before interconnection to the grid.

- **FERC has a 10 kW inverter process.** It could be modeled on the FERC 10 kW inverter process, cover most residential systems, and reduce costs for both the utility and the customer by reducing the time to review applications.

- **In practice, some utilities already approach this.** PSE, Snohomish PUD and Seattle City Light currently allow for quicker approval of interconnection for inverter-based systems under a certain size. A fast track solar inverter process, with minimal technical screens could make this expedited process a standard.

In general, the ESSP recognizes that it is difficult to align interconnection tiers with the multiple rules and practices governing interconnection. For example, two of our ESSP members, Puget Sound Energy and Seattle City Light, currently use a 100 kW cutoff for determining interconnection procedures. This aligns with two existing breakpoints: The Washington State Net Metering size limit (which may change in the future) and the National Electrical Code, which classifies small generation facilities as equal to or less than 100 kW.[3] The ESSP is more eager to see a standard for all, than to argue about the exact level. For example, although the proposed Tier 2 cutoff at 500 kW is not in alignment with FERC's 2 MW cutoff, it is progress from the current 300 kW cutoff. We anticipate that as utilities get more experience with systems in the 500 kW size range, they will eventually be comfortable raising the bar to 2 MW for Tier 2. We endorse the UTC effort to find common ground wherever practical and we commend the model rules for proposing standard tiers that move Washington toward alignment with the FERC SGIP Tiers.

Figure 1: Interconnection Tiers Compared

	Proposed Model Rules	FERC SGIP	ESSP Recommended	Note
Tier 1 EZ		10 kW Inverter Process	≤ 25 kW Solar Inverter Process	Minimal screening
Tier 1	≤ 25 kW		≤ 100 kW	Many utilities currently use 100 kW (net metering limit).
Tier 2	≤ 500 kW	≤ 2 MW	At least ≤500 kW	*Freeing the Grid* recommends ≤ 2 MW
Tier 3	≤ 20 MW	≤20 MW	≤20 MW	

[3] According to Ron Fuller, L&I, the proposal for a 25 kW Level 1 cutoff "creates confusion for installers and designers. In most cases, all systems over 100kW are classified as Independent Power Producers in the Electrical WAC 296-46B and do not have to comply with the Electrical Law – RCW 19.28."

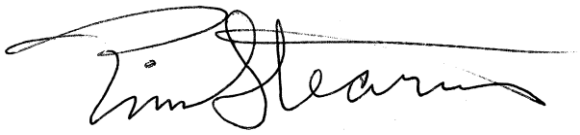
The Evergreen State Solar Partnership appreciates the Commission's efforts to reduce regulatory barriers to the deployment of distributed generation in Washington. By creating streamlined, standardized interconnection procedures, we reduce the soft costs for utilities and for generation customers. We urge the UTC to regularly review these interconnection standards so that they can be kept up to date with new technology developments and actual field experience. Washington State updates it building and electrical codes on a three-year cycle and the UTC should consider a similar timing. We look forward to contributing further to these efforts.

Thank you for your consideration. Please contact us if you need further information.

Respectfully,

Washington Department of Commerce, on behalf of members of the ESSP Interconnection Work Group

- Seattle City Light
- Snohomish Public Utility District
- City of Ellensburg
- Northwest SEED
- Solar Washington



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