

# MEMORANDUM

December 15, 2005

To: Docket No. UE-051106

From: Commission Staff

Re: First Summary of Rulemaking Inquiry Comments and Staff Analysis

On August 12, 2005, the Washington Utilities and Transportation Commission (Commission) filed with the Code Reviser a Preproposal Statement of Inquiry (CR-101) to consider establishing regulations to govern the interconnection of customer-owned generation facilities to electric utility delivery systems. This memorandum summarizes the status of the Commission's Inquiry.

The Commission initiated this Inquiry to examine what, if any, regulations are appropriate and necessary to standardize interconnection of customer-owned generating facilities to the delivery facilities of the utilities it regulates. Issues relevant to the Commission's inquiry include, but are not limited to:

- Content of customer applications for interconnection
- Utility processing of interconnection requests (including any standard fees)
- Technical standards for customer-owned generating equipment and interconnection equipment
- Operational standards for customer-owned generation equipment
- Liability and insurance issues

The Commission's Inquiry is focused on interconnection of customer-owned generation facilities that do not exceed 20 MW of capacity to utility delivery systems.

## BACKGROUND

New small-scale technologies, particularly technologies using renewable sources of energy, make local generation (so-called distributed generation) of electricity by utility customers increasingly feasible. Customers may wish to interconnect these generation facilities with their local electric distribution utility. However, utilities must provide reliable and safe service to all customers, so the interconnection of customer-owned power generation equipment must not impede the ability of utilities to manage the safe and reliable operation of their distribution systems.

The context for the Commission’s Inquiry in this matter is influenced by three recent developments.

On May 6, 2005, Governor Gregoire approved a new law that provides tax incentives to promote certain forms of small-scale distributed generation. Senate Substitute Bill (SSB) 5101, Chapter 300, Laws of 2005, establishes utility incentive payments for consumer-owned electricity generation facilities that meet the definition of renewable energy. However, SSB 5101 provides that those payments and related tax credits will not be available until electric utilities serving at least 80 percent of the state’s electric customer load have in effect uniform interconnection standards.

On May 12, 2005, the Federal Energy Regulatory Commission (FERC) issued its Order No. 2006 “Standardization of Small Generator Interconnection Agreements and Procedures.” *18 CFR Part 35*. Order No. 2006 establishes regulations under the Federal Power Act “to require utilities that own, control, or operate facilities for transmitting electric energy in interstate commerce . . . to include standard interconnection procedures and an agreement . . . to provide interconnection services to devices used for the production of electricity having a capacity of no more than 20 megawatts.” FERC notes that the regulations apply only to utilities that fall under its jurisdiction and only to those utility facilities that are subject to a FERC-approved Open Access Transmission Tariff (“OATT”). FERC observed:

Because of the limited applicability of the Final Rule, and because the majority of small generators interconnect with facilities that are not subject to an OATT, this Final Rule will not apply to most generator interconnections. Nonetheless, our hope is that states may find this rule helpful in formulating their own interconnection rules.

*18 CFR Part 35 ¶ 8.*

On August 8, 2005, the President signed the Energy Policy Act of 2005 (“Energy Policy Act”). Section 1254 of the Energy Policy Act amends Section 111(d) of the Public Utility Regulatory Policies Act of 1978 (16 U.S.C. 2621(d)) (“PURPA”) to add a new standard for interconnection as follows:

(15) INTERCONNECTION.—Each electric utility shall make available, upon request, interconnection service to any electric consumer that the electric utility serves. For purposes of this paragraph, the term “interconnection service” means service to an electric consumer under which an on-site

generating facility on the consumer's premises shall be connected to the local distribution facilities. Inter-connection services shall be offered based upon the standards developed by the Institute of Electrical and Electronics Engineers: IEEE Standard 1547 for Interconnecting Distributed Resources with Electric Power Systems, as they may be amended from time to time. In addition, agreements and procedures shall be established whereby the services offered shall promote current best practices of interconnection for distributed generation, including but not limited to practices stipulated in model codes adopted by associations of state regulatory agencies. All such agreements and procedures shall be just and reasonable, and not unduly discriminatory or preferential.

Section 1254 of the Energy Policy Act requires further that:

(5)(A) Not later than one year after the enactment of this paragraph, each State regulatory authority (with respect to each electric utility for which it has ratemaking authority) and each nonregulated utility shall commence the consideration referred to in section 111, or set a hearing date for consideration, with respect to the standard established by paragraph (15) of section 111(d).

(B) Not later than two years after the date of the enactment of this paragraph, each State regulatory authority (with respect to each electric utility for which it has ratemaking authority), and each nonregulated electric utility, shall complete the consideration, and shall make the determination, referred to in section 111 with respect to each standard established by paragraph (15) of section 111(d).

## **COMMISSION PROCESS**

The Commission initiated its Rulemaking Inquiry on August 12, 2005, by posing two questions and inviting interested persons to respond and make proposals addressing electrical interconnection. The two questions were:

- 1) If the Commission establishes regulations governing interconnection to utility distribution or transmission facilities that are not FERC-jurisdictional, should it strive for consistency with the FERC standards?
- 2) Do the FERC regulations in Order No. 2006 (particularly Appendices "E" and "F") represent a good technical framework for Commission regulations to

govern interconnection? What modifications and adjustments would be necessary if the Commission were to use the FERC rules as a model?

The Commission also welcomed any comprehensive recommendations or proposals that stakeholders or utilities might propose for state-wide standards for interconnection as an alternative to the FERC model.

Three interested persons submitted written comments on October 14, 2005: Industrial Customers of Northwest Utilities (“ICNU”), the Renewable Northwest Project (“RNP”)<sup>1</sup>, and the Washington Load-Serving Utilities (“Utilities”)<sup>2</sup>.

ICNU recommended that the Commission consider how any new regulations governing interconnection would affect any existing interconnection agreements with industrial customers.

RNP encouraged technical standards that are consistent with those in place in other states and, with regard to procedural standards, recommended clarity regarding insurance requirements, fees, and dispute resolution.

The Utilities proposed a set of standards that they jointly developed and recommended as a framework for establishing interconnection standards to be used by both Commission-jurisdictional utilities and public utilities that are not jurisdictional to the Commission.

The Commission convened a workshop on December 2, 2005, to discuss interconnection issues and the Utilities’ proposal. More than 40 interested persons attended, including Commissioners Oshie and Jones, and members of the Commission’s advisory and regulatory staff participated.

The Commission heard several clear messages expressed during the workshop, including:

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<sup>1</sup> The Renewable Northwest Project submitted joint comments along with the American Wind Energy Association and the Northwest Energy Coalition.

<sup>2</sup> The Load-Serving Utilities is a group consisting of Puget Sound Energy, Avista Corporation, PacifiCorp, Benton REA, Big Bend Rural Electric Cooperative, Chelan County PUD, City of Port Angeles, Clark Public Utilities, Elmhurst Mutual, Grant County PUD, Kittitas County PUD, Lewis County PUD, Seattle City Light, Snohomish County PUD, Tacoma Power, the Washington PUD Association, Western Rural Electric Cooperative Association, and the Association of Washington Cities.

- 1) Interconnection stakeholders, specifically owners (and potential owners) of small-scale solar generating projects, manufacturers of such equipment and installers of such equipment, want the Commission to quickly establish standards for projects up to 25 kW.
- 2) Investor-owned utilities and public utilities also support early adoption of interconnection standards for projects up to 25 kW of capacity.
- 3) Interconnection stakeholders need clarity about whom to contact at the utility and what information the utility will require when they apply for interconnection. These stakeholders want the application process to be simple, straightforward, and expeditious.
- 4) Equipment manufacturers need clarity about what technical requirements a customer must meet to interconnect generating facilities to a utility's distribution facilities.
- 5) None of the interests represented at the workshop oppose any of the details of the Utilities' joint proposal for establishing interconnection standards.
- 6) If the Commission quickly establishes rules governing small-scale interconnections based on what it has learned so far, it should continue to work expeditiously to establish standards for larger-scale interconnections up to 20 MW.

The Commission received seven additional written comments after the workshop, as follows:

Mr. Jeff Collum. Mr. Collum is an installer of small-scale solar systems. He urges rapid implementation of SSB 5101.

Mr. Richard G. Hinkle. Mr. Hinkle owns and operates a 2 kW solar system. He urges immediate action to implement SSB 5101. He points out that all the small scale generators of renewable energy will certainly fall under the "the 25 kW limit specified in SB5101."<sup>3</sup>

David and Karen Purtee. Mr. and Mrs. Purtee own and operate a 2.7 kW photovoltaic system. The Purtee's system was inspected by the State Electrical

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<sup>3</sup> Note: SSB does not specify any limits for interconnections

Inspector. Mr. and Mrs. Purtee urge the immediate implementation of the “customer interconnection to the utilities part of the bill [SSB 5101] since standards already exist for residential solar systems.”

David Trione, Sound Power Inc. Sound Power is an electrical contractor specializing in the installation of photovoltaic systems. Mr. Trione contends that existing net-metering standards are all that is needed for implementation of SB 5101. He urges implementation of the legislation as soon as possible.

Parker Holden. Mr. Holden has 35 years experience as an electrical engineer responsible for 10 to 28 megawatt generation systems. He is a consultant currently focused on alternative energy systems. Mr. Holden states that while cogeneration is “under-utilized” across the country, the importance of distributed generation is growing. He raises concerns about adverse effects on “power factor” associated with inverter and induction-based equipment interconnected to distribution systems.<sup>4</sup> Mr. Holden also recommends that all inverter-based interconnections should require a dedicated transformer to prevent power quality problems. He recommends that power sales from interconnected systems be based on time-of-day or real-time pricing schedules. Mr. Holden recommends that an Underwriters Laboratory (UL) approval not be required for custom equipment greater than 11 kW because such equipment is not standardized. In subsequent written comments Mr. Holden clarifies that his concerns apply chiefly to interconnections greater than 25 kW.

David Van Holde. Mr. Van Holde is a Professional Engineer employed by Seattle City Light. Mr. Van Holde clarifies that the Utilities’ joint proposal is to not allow interconnections to “area (grid) networks.”

Brian Ugi. Mr. Ugi works for Peak Electrical Services, a company with 5 years experience working with photovoltaic systems. He states that safe installation of interconnected photovoltaic systems requires specialized training. Mr. Ugi recommends that the utility interconnection application require proof that the designated installer is specially trained.

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<sup>4</sup> Power factor is a technical term meaning the phase relationship between voltage and current in an alternating current system.

## DISCUSSION-DRAFT INTERCONNECTION RULE

Based on the Utilities' proposal and the interested persons' oral and written comments, Commission Staff prepared for discussion a draft rule to govern interconnections of facilities up to 25 kW in nameplate capacity. Staff supplemented the Utilities' proposal to include:

- 1) A requirement that the utility identify a single point of contact at the company for customers interested in interconnection.
- 2) A requirement that the utility provide the applicant a written explanation of its reasons, if it rejects the application.

The Commission posted the discussion draft on its web site [[www.wutc.wa.gov/051106](http://www.wutc.wa.gov/051106)] on December 19, 2005, and issued a notice inviting interested persons to submit written comments on the discussion draft by January 9, 2006.

## RESPONSE TO COMMENTS

**Comment: Implementation of SSB 5101 should not be delayed and the Commission should act immediately to implement the legislation.**

The Commission is not the implementing agency for the tax credits authorized by SSB 5101. The Department of Revenue is the implementing agency. The Commission can establish uniform regulations to govern interconnection for the investor-owned utilities that provide service in Washington. But these three utilities serve only 40 percent of the state's customer load. Commission rules governing interconnection are insufficient, by themselves, to meet the threshold requirements of SSB 5101.

The Administrative Procedures Act, chapter 34.05 RCW, requires the Commission to meet certain minimum notice, scheduling, and process requirements prior to adopting new rules. Once new rules are proposed and published by Code Reviser, a minimum of 20 days must pass to allow for public review and comment before the Commission can hold an adoption hearing. Once the Commission adopts new rules, they do not become effective until 30 days after publication in the Washington State Register.

The Commission continues to act expeditiously to collect the information and comments necessary to formulate and issue proposed rules that will be circulated for

final comments, as required by statute. We have provided an abbreviated opportunity for the interested public to comment on the Commission's draft rule covering interconnection of facilities up to 25 kW capacity to ensure that any rules proposed take all interests into account. In light of the level of cooperation and support received in this process so far, the Commission anticipates that it will be able to file proposed rules with the Code Reviser in mid-January. The Code Reviser will publish the proposed rules in the Washington State Register. Assuming twenty days for comment following publication, as required by statute, ten days for the Commission to process any comments received and conduct an adoption hearing, and accounting for the 30 day statutory delay between adoption and effective date, new rules could become effective by approximately the end of March 2006.

**Comment: To prevent adverse effects for power factor and power quality, any interconnection of a facility using an inverter should receive separate metering and billing for reactive power and should have a dedicated transformer. Power sales from interconnected systems should be based on time-of-day or real-time rates.**

The terms required for contracts or tariffs that will govern metering and billing for interconnected customers or the compensation for power supplied to the utility by interconnected customers will not be addressed by these rules. *See draft 480.108.040(14)*. These regulations govern only the technical and procedural standards for customer interconnections.

Discussion during the workshop included whether inverter-based interconnections introduce harmonic problems that adversely affect power quality on neighboring segments of the distribution system. The participating utility engineers and inverter manufacturers commented that such problems do not arise with the current vintage of inverters.

**Comment: To prevent delay in processing interconnections of non-standard equipment not yet examined or rated by Underwriters Laboratory ("UL"), a UL listing should not be made a requirement.**

The draft rule requires compliance with all "applicable" codes and standards. *See draft 480.108.020(1)(d)(i)*. UL listing is included in the list of such codes and standards. UL listing is made a requirement for inverter-based systems, but not for non-inverter-based systems. *See draft 480.108.020(3) and (4)*. If an application is non-standard and non-inverter-based and has not been considered by UL, there will be no UL listing. Therefore the UL requirement would not be applicable. Without



further evidence, Staff does not find that including UL approval in the list of codes and standards will be an impediment to interconnection.

**Comment: The utility application process should require proof that the installer has received specialized training for installation and interconnection of inverter-based photovoltaic equipment.**

Staff believes that sound training for grid-connected photovoltaic systems is certainly desirable. However, the Commission is not responsible for establishing training requirements or minimum qualifications for firms or individuals that may install electrical equipment on a property owner's premises. Such matters are governed by state licensing requirements, and local ordinances and inspection requirements. The draft discussion rule addresses this comment at section 480.108.050:

**Certificate of completion.** All generating facilities must obtain an electrical permit and pass electrical inspection before they can be connected or operated in parallel with the electrical company's electric system. Generator shall provide to electrical company written certification that the generating facility has been installed and inspected in compliance with the local building and/or electrical codes.

**Comment: Any new rule should clarify insurance requirements, application fees, interconnection to spot networks and dispute resolution.**

The draft discussion rule provides that application fees will not exceed \$100 (*see draft 480.108.030(2)*) and that interconnections are not allowed on secondary area (grid) networks (*see draft 480.108.020(2)(e)*). The net-metering statute in Washington, chapter 80.60 RCW, prohibits utilities from requiring additional insurance for solar, wind, hydroelectric or fuel cell facilities. Existing Commission rules in chapter 480-07 WAC provide both informal and formal means by which the Commission resolves disputes that arise under the Commission's rules.