

**Sustainable Solutions Unlimited, LLC, Comments on Proposed Net Metering Rules  
April 11, 2007**

The following are initial comments on the proposed rules under Docket AR 515, Net Metering.

As a participant in the collaborative process that led to the drafting of these rules, I want the commission to know that this has been a very effective process, resulting in a proposal that will greatly enhance the environment for the installation of net-metered renewable energy systems in Oregon. Raising the size limit to two megawatts, annualizing the netting of generation against use, allowing the aggregation of meters, and adapting an established interconnection model will all make onsite renewable generation a much more attractive and competitive option for homeowners and businesses.

The value of one of the improvements provided in the proposed rules deserves additional explanation. Many commercial sites where owners want to install net-metered systems, such as solar arrays, receive their power through multiple physical meters, often as a matter of simple practical convenience. These meters may be supplying power at different voltages, or may have been installed at different times as facilities expanded or site energy use grew. When installing a solar PV system, the most practical site of physical interconnection may not correspond to a meter that serves the bulk of the load. An example of this is the campus of the Portland Habilitation Center, where a new building under construction has been designed to support a large PV array, while the major known load is in the existing main building on the campus. Since the two buildings are separated by a parking lot, providing power through two meters will save \$50,000 in physical interconnection costs. The provision for the aggregation of meters in 860-039-0065 as proposed allows this savings to be realized, while still supporting the installation of the PV system with the full benefits of net metering.

While the major provisions of the proposed rules are highly beneficial to the adoption of renewable generation, there are still several provisions that act in opposition to meeting the goals net metering, especially for larger installations.

The most significant problem in the proposed rules is with the treatment of excess generation under 860-039-0060. The granting of excess annual generation to the utility presents a particular problem for the financing of commercial installations, since the loads at a commercial site may vary widely over time, while the consistent accumulation of benefits from the generation of power is required to pay back the cost of installation. For example, due to changing circumstances in the economy or a company's business, a facility may become vacant or dormant for a period of months or even years, before being revived or put to a new use. A new facility may also not be put to full use when it first opens. These normal business fluctuations should not act unduly to discourage the adoption of onsite renewable generation, or to make financing these systems more difficult. Furthermore, the rule as drafted may discourage many future potential investments in energy efficiency, since a customer-generator with a generation capability well matched to their load will not be motivated to reduce that load to a point where they are giving power away.

A potential barrier for many systems exists within the disconnect requirements in 860-039-0015. Renewable energy systems may not be sited in close proximity to the meter, or even in a location readily accessible to utility workers. For example, a solar array may be located on the roof of a multi-story building, across a campus from the meter. The rational point of connection for the generation would most likely be on the roof or in an upper floor utility room of the building hosting the generation. Running wires down and out to an accessible location for purposes of an independent external disconnect adds substantial costs potentially comparable to the costs of interconnecting buildings as mentioned in the aggregation example above. Fortunately, this is a problem that is relatively easy to address in the rules without sidestepping the intent of the rule. Striking the phrase "and the customer-generator's electric service" would allow the intent of the rule to be met with the installation of a whole service disconnect at or near the meter. This would still enable the utility to isolate the generation from their system, while the customer-generator still has the ability to isolate the generator from their service by utilizing a disconnect at the inverter. While the proven safety of inverter technology could allow for the elimination of most requirements for an external disconnect, the whole service disconnect should be an option for cases where a disconnect will be mandated.

Two additional provisions of the proposed rules would place unnecessary limits on installation sizes beyond the overall intent of the rules. The following reiterates prior comments to staff on these provisions:

The definition of generation capacity in 860-039-0005(3)(h) does not allow for the consideration of the whole system being connected when that system consists of more than one component. "Inefficiencies of power conversion or plant parasitic loads" are fundamental to the design of the whole system, and must be considered when determining the system's generation capacity. The AC output of a photovoltaic system is substantially less than the sum of the DC STC ratings of the modules, just as the capacity of a diesel generator is substantially less than either the energy content of the fuel consumed or the horsepower rating of the engine. For example, a PV system with a set of modules totaling 864kW DC using the STC ratings has an AC capacity of just over 665kW. While this may commonly be referred to as an 864kW PV system, only the 665kW rating has any relevance for net metering purposes. The generating capacity should be defined as the maximum AC output to be expected under ordinary operating conditions, as delivered to the point of interconnection, to avoid creating a disadvantage for technologies, such as solar, that are composed of multiple components.

The full purpose of section 860-039-0010(3) as written is unclear, but the potential effect could be somewhat more limiting than is needed to serve the purpose of these rules. As written, this section aggregates all contiguous sites operated by a single customer, and applies the two-megawatt limit to the total of all installations at these sites. If, for example, the customer generator is the State of Oregon, this rule could constrain the total capacity of such facilities as the Capitol and the State Library to a two-megawatt combined limit. I can see no reason why the State Library should be constrained in the size of system it may install, beyond the limits otherwise contained in the rules, simply because the system on the roof of the Capitol belongs to the same customer generator. For that matter, what purpose is served by restricting the installation of systems on two adjacent industrial properties under the same ownership more than they would be constrained for different owners? Even more limiting, multiple adjacent homes

under common ownership would be subject to a single 25 kW limit due to this section. Striking the phrase "so long as the net metering facilities in aggregate on the customer-generator's contiguous property do not exceed the applicable kilowatt/megawatt limit" would eliminate this limitation.

My thanks to staff and to the commission for the effort put forth to make a major step forward for distributed renewable generation in Oregon. I look forward to the adoption of final rules!

Steven McGrath  
Sustainable Solutions Unlimited, LLC  
PO Box 22946  
Portland, OR 97269  
503.706.1624 cell  
503.786.7340 fax  
[steve@solutions21st.com](mailto:steve@solutions21st.com)  
[www.solutions21st.com](http://www.solutions21st.com)

Thank you,

Steven McGrath

Sustainable Solutions Unlimited, LLC

503.706.1624 cell

503.786.3899 office

On Apr 12, 2007, at 8:04 AM, DAVIS Diane wrote:

In order for these comments to be part of the official record for docketed rulemaking AR 515, please submit them electronically to the PUC filing center and follow-up with the signed original hard copy and an additional copy. PUC's filing center information can be found at: <http://apps.puc.state.or.us/edockets/docs.htm>.

Thank you.

Diane Davis  
Regulatory Operations  
Oregon Public Utility Commission  
[diane.davis@state.or.us](mailto:diane.davis@state.or.us)  
(503) 378-4372

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**From:** Steven McGrath [ <mailto:steve@solutions21st.com> ]  
**Sent:** Thursday, April 12, 2007 12:22 AM  
**To:** DAVIS Diane  
**Cc:** Jon Miller  
**Subject:** Re: Net Metering Proposed Rules Formal Rulemaking Opened, Docket AR 515

Ms. Davis,

The following are initial comments on the proposed rules under Docket AR 515, Net Metering.

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