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## SOUTH DAKOTA PUBLIC UTILITIES COMMISSION

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September 11, 2008

Patricia Van Gerpen  
SD Public Utilities Commission  
500 E. Capitol Ave  
Pierre, SD 57501

Re: PURPA Interconnection Rule Making

Ms. Van Gerpen:

Please accept this filing in support of Staff's proposed small generator interconnection rules. We resubmit the rules as filed in EL06-018 with the following modifications:

- 1) In proposed section 20:10:36:07 (2) a typographical error was made. The word "commiserate" should be "commensurate."
- 2) In proposed section 20:10:36:03 (37) a typographical error was made. The definition should read "480 volts or less."
- 3) Section 20:10:36:40 Metering and Monitoring should be edited to remove the Tier 1 exception in the first paragraph. The first paragraph of that section should instead read:

*Metering: The Interconnection Customer is responsible for the cost of the purchase, installation, operation, maintenance, testing, repair, and replacement of any special metering and data acquisition equipment deemed necessary by the terms of the (separate) Power Purchase Agreement. The Electric Utility must install, maintain and operate the metering equipment. Parties must be granted unrestricted access to such equipment as may be necessary for the purposes of conducting routine business.*

As Commission Staff stated at the September 9, 2008 Commission meeting, we believe the proposed rules accurately represent not only the workshop process, but also protect

consumers and the industry alike. Based on the workshop discussions, Staff believes it understands the areas of potential conflict and will explain how and why staff arrived at the rule as submitted to the Commission.

1) Proposed section 20:10:36:08 Isolation Device

Tier 1 applications are not included in the isolation device requirements. Several utilities believe for safety purposes all interconnection applications, regardless of size or tier level should be included in the isolation device requirements. Staff appreciates the safety concern and too believes it is a priority. Staff understands electric line workers must consider the electric supply equipment and lines to be energized unless they are positively known to be de-energized.<sup>1</sup> However, after significant research and expert assistance Staff does not believe the safety hazard exists at the Tier 1 level to the extent stated by the utility companies.

Michael Coddington of the National Renewable Energy Laboratory assisted Staff in its research of this topic. A paper authored by him is attached to more fully explain his research. As Mr. Coddington writes, “the purpose of the utility-accessible external disconnect switch (or isolation device) is to enable line workers to lock out a customer source of power that could feed back onto the grid while utility line workers are working.” In the era of modern inverter-based interconnection, however, an external disconnect switch is arguably unnecessary. In an attempt to create balance and make those small (10 KW) or less applications as accessible as possible Staff excluded Tier 1 applications from the isolation device requirement. It is worth noting, however, Staff lowered Tier 1 applications from 20 KW to 10 KW in the drafting process in an attempt to further restrict those small projects that may fall into this exception. Aside from the output limitation, it is also important to note that Tier 1 applications, by definition, are inverter based, lab tested equipment applications.<sup>2</sup>

An inverter is the device that converts the direct current electricity produced by the small generation equipment, like a photovoltaic cell, to alternating current, then used by the consumer. Inverters, like other types of electric equipment, must meet particular standards. The combination of IEEE 1547, the technical standard for these rules, and the lab test standard requires inverters to automatically disconnect from the grid. Additionally, the National Electric Code requires that an inverter de-energize its output upon loss of utility voltage and remain in that state until utility voltage has been restored. “Modern electronic inverters are reliable, intelligent, and comprehensively tested to ensure they do not backfeed to the grid during an outage.”<sup>3</sup> Based on all the research available, Staff does not recommend the Commission require Tier 1 applications have a separate isolation device. The interconnection equipment itself is designed with the safety concerns in mind. Installation of a separate isolation device is costly and could be a barrier to consumer interconnection.

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<sup>1</sup> NECS Section 42 420.D “Energized Unknown Conditions.”

<sup>2</sup> Proposed rule 20:10:36:13.

<sup>3</sup> Utility-Interconnected Photovoltaic Systems: Evaluating the Rational for the Utility-Accessible External Disconnect Switch page 6.

2) Proposed section 20:10:36:11 Insurance

The proposed rules require the interconnection customer to obtain some level of insurance. The proposed insurance level increases with the project tier, or size. Although Staff believes utility companies will prefer as much insurance coverage as possible, they seemed satisfied with Staff's proposal. The insurance proposed by Staff in its suggested rules is higher than what we found in Oregon's rules. Regardless of the Tier level, Commission Staff believes it is prudent for the interconnection customer to have insurance. Commission staff contacted several insurance companies to further research this topic to obtain a real world understanding. Staff's research indicates the suggested insurance levels are not cost restrictive given the potential risk. Interconnection advocates such as the Environmental Law and Policy Center, suggested lower insurance requirements. Although staff appreciates 'barrier to entry' concerns expressed by the Center, our research does not show the proposed levels will pose such a barrier.

3) Proposed section 20:10:36:39 Recordkeeping Requirements

The Commission may wish to inspect a utility's records for internal research purposes or due to a consumer complaint. The Commission has such authority without any additional rules or statutory language. Staff does not believe, however, it is necessary to require the utility to make an annual filing. Oregon requires its utilities file annually with the Commission. The Environmental Law and Policy Center believes such an annual filing is beneficial and may advocate for such a change as the rule making process proceeds. Although Staff acknowledges the annual filing may be beneficial in other states, Staff does not think it is necessary in South Dakota at this time. As interconnection applications evolve and grow in South Dakota the Commission may wish to modify this requirement along with other technical and administrative requirements.

4) Proposed section 20:10:36:10 Cost Responsibility – (1) General Study Costs

Commission Staff understands and believes in the "cost causer pay" theory, yet wants to encourage the utility to operate as efficiently as possible. One goal in writing our proposed rules and in our research was to identify the small "plug and play" type applications and to provide a rules scheme that is as easy to navigate as possible. Small applications will not necessarily require an extensive time commitment from the utility. Alternatively, we understand larger applications may not only require a larger time commitment in evaluation but may also require the utility utilize experts in the field.

Several of the utility representatives remain concerned about what interconnection applications may cost their company. For example, one concern expressed by a utility was lack of in-house expertise. The company representative believes expert consulting help may be necessary for some of the larger applications. Although staff understands

the concern, we believe most applications will be small and manageable for the company staff. Based on the various arguments, staff conducted research as referenced in our July 29, 2008 report to better understand where the costs may lie. Attached please find a spreadsheet reflecting Nathan Solem's research. The spreadsheet, in the first column "Base Case" reflects Staff's best estimate of what will actually happen. After calculating overhead and consulting costs (with an estimate that outside consults are required only 35% of the time) the average hourly rate justifies Staff's proposal. The table also illustrates a very high and very low example of the same analysis. We believe much of the utilities' fears are a result of the unknown. They don't know how many applications will be received, how large they will be, or how complete they will be. Based, however, on the experience in other states Staff believes many of the applications will be simple small projects intended to supplement the property owners current source. These types of applications are well within the scope and ability of in-house employees.

In conclusion, we started the workshop process with a set of rules to provide structure. The chosen Oregon rule starting point reflected current best practices in interconnection rules including incorporation of the IEEE 1547 technical standard, a tiered approach to application evaluation and concise readable language. Such structure is still reflected in Staff's proposed rules and sets the framework for the technical standards. The content, however, thanks to the workshop participants, now reflects the South Dakota landscape and our regulatory scheme. Staff is confident the use of IEEE 1547 and the tiered application method appropriately establishes safety and reliability as a priority while framing a user friendly approach.

Staff looks forward to additional rule making discussion.

A handwritten signature in black ink, appearing to read "Kara Semmler". The signature is fluid and cursive, with the first name "Kara" being more prominent than the last name "Semmler".

Kara Semmler