



Jim Wilcox, Manager,  
Government & Regulatory Affairs  
500 West Russell Street  
P.O. Box 988  
Sioux Falls, SD 57101-0988  
Telephone (605) 339-8350 fax 612/573-9083  
internet - james.c.wilcox@xcelenergy.com

Oct 9, 2008

Ms. Patricia Van Gerpen, Executive Director  
South Dakota Public Utilities Commission  
State Capitol Building  
500 East Capitol Avenue  
Pierre, South Dakota 57501-5070

Re: RM08-002 - In the Matter of the Adoption of Rules Regarding PURPA  
Interconnection.

Dear Ms. Van Gerpen:

Xcel Energy appreciates the coordination and leadership provided by Commission Staff throughout this rule making process. These proposed rules are a significant addition to the existing volume of administrative rules. The proposed small generator facility interconnection rules will add about 65 pages of rules to the existing 85 pages of accumulated South Dakota Public Utility Administrative Rules. It will take some attention to detail on the part of Companies and the Commission to administer all of these new requirements going forward.

Xcel Energy is particularly grateful with the decision by Staff to not propose that an annual report be required.

Following are Xcel Energy comments and suggestions for improving the proposed small generator interconnection standards being considered in Docket EL06-018 now known as RM08-002 and in the new South Dakota Administrative Rules Section 20:10:36.

We look forward to a dialog on our comments as well as engaging in a discussion regarding any comments provided by others.

If anyone has any questions, please call me at 339-8350

Sincerely,

A handwritten signature in black ink that reads 'Jim Wilcox'.

Jim Wilcox

c. Judy Poferl

**BEFORE THE PUBLIC UTILITIES COMMISSION  
OF THE STATE OF SOUTH DAKOTA**

IN THE MATTER OF THE	)	RM08-002
ADOPTION OF RULES REGARDING	)	
PURPA INTERCONNECTION	)	<b>COMMENTS OF</b>
	)	<b>XCEL ENERGY</b>

Following are the comments by Northern States Power Company, a Minnesota corporation (“Xcel Energy” or “the Company”) operating in South Dakota in the matter of the proposed rules filed by Commission Staff, as follows:

Comment #1 – Suggestion and question under section 20:10:36:01. We suggest three text changes – possibly typos – creating the word “an” and striking the preface “re”. Then, regarding the scope intended for this document. Xcel Energy is not clear that the first section (following copied and pasted below for information) adequately separates the jurisdiction between SD and the FERC. We would propose that the phrase “in South Dakota” be inserted as shown below in order to clarify the scope of this rules document.

**20:10:36:01 Scope and Applicability**

The rules in this chapter may be cited as the South Dakota Small Generation Interconnection Rules and govern the interconnection of small generator facilities, in South Dakota, with an electric nameplate capacity of 10 MW or less to the electric transmission and distribution system of an Electric Utility. These rules do not apply if the small generator facility is producing electricity for ~~re~~sale to a person other than the interconnecting Electric Utility.

These rules are also intended to be used as the basis for the interconnection process and technical framework for facilities greater than 10 MW that may be subject to South Dakota Public Utilities Commission interconnection jurisdiction. These rules apply to state jurisdiction Small Generator Facilities interconnecting with the electric distribution system.

Comment #2 – Question - Under 20:10:36:03 (6) Definitions Xcel Energy does not understand what is meant by “the Electric Utility’s standard form.” Our understanding is that these rules provide the forms that will become the standard and any previous forms we might have on file in our tariffs will become obsolete. This question also applies to definition numbers 16, 21, 23, and 26.

**20:10:36:03 Definitions**

(6) “Certificate of completion” means a certificate signed by the Applicant and attesting that the Small Generator Facility is complete, meets the requirements contained in these rules, and has been inspected, tested and certified as physically ready for operation. The Certificate of Completion shall follow the Electric Utility’s standard form on file with the Commission.

Comment #3 – Suggestion - Under 20:10:36:03 (14) and (15) Definitions we believe that the IEEE Standard reference should be qualified with the words “and as revised by IEEE from time to time.” We think this is necessary to clarify a standard that does change periodically rather than leave these rules tied to standards published in a certain year.

#### **20:10:36:03 Definitions**

(14) “IEEE 1547” means the Standard 1547 published in 2003 and as revised from time to time by the Institute of Electrical and Electronics Engineers (IEEE) entitled “Interconnecting Distributed Resources with Electric Power Systems.”

(15) “IEEE 1547.1” means the Standard 1547.1 published in 2005 and as revised from time to time by the Institute of Electrical and Electronics Engineers (IEEE) entitled “Conformance Test Procedures for Equipment Interconnecting Distributed Resources with Electric Power Systems.”

Comment #4 – Suggestion - Under 20:10:36:03 Definitions of voltage under (34) and (37) the breakpoint between primary and secondary voltages is normally thought to be 600 Volts. The National Electric Code (NEC) (Fire protection wiring guidelines) and the National Electric Safety Code (NESC) (Utility safety guidelines maintained by IEEE) prescribe safety standards. The NEC covers secondary facilities up to 600 Volts and the NESC covers primary voltages exceeding 600 Volts. That is the national codes are separated at 600 Volts and we believe that would seem to be a more appropriate voltage for these definitions than 480 Volts.

#### **20:10:36:03 Definitions**

(34) “Primary Line” is a term that describes a distribution line with an operating voltage greater than ~~480~~ 600 ~~V~~Volts.

(37) “Secondary Line” is a term used to describe a service line subsequent to the Electric Utility’s primary line that has an operating voltage of ~~480~~ 600 ~~V~~Volts or less.

#### **Comment #5 – Suggestion - Under 20:10:36:08 Isolation Device**

Notwithstanding the discussion provided in Staff’s memo of Sep 11, 2008 and the NREL Technical Report of January 2008, Xcel Energy still strongly believes that a disconnect switch for all small generator interconnection facility interconnections is necessary. We understand that the expense of an isolation device is significant to the small DG facility, however Xcel Energy feels a duty to err on the side of safety for our field personnel and for the DG owner. Use of the meter as an isolation device poses “flash” risks that a true disconnection switch would not and despite the assurance in the NREL document that the NEC “requires that an inverter de-energize its output upon loss of utility voltage and remain in that state until utility voltage has been restored,” this does not ensure that the inverter will perform as required where a disconnect switch better ensures that isolation is maintained. Xcel

Energy field personnel have an excellent safety record because they strictly follow several basic rules and procedures. One of our most basic rules is that an automatic device cannot be relied for isolation. The only way to know that equipment has been isolated, and is safe to work on, is if a safety switch or other manual device has disconnected it. If we ask our personnel to rely on an inverter for isolation, we are subverting our own safety rules. Further, Xcel Energy believes that this issue has a customer satisfaction component to it as when the DG is “behind the house” meter and the customer’s house meter is used as a disconnect device, all power to the customer’s home is interrupted when the DG is disconnected bringing outage dissatisfaction concerns to the customer as well.

#### **20:10:36:08 Isolation Device**

Small Generator Facilities qualifying for interconnection ~~under Tier 2, Tier 3 or Tier 4 interconnection review procedures~~ must be capable of being isolated from the Electric Utility. ~~The meter base may serve as the required isolation device, provided it is readily accessible to the Electric Utility for those Small Generator Facilities qualifying for Tier 1 interconnection review procedures.~~

Comment #6 – Correction – Typo Under 20:10:36:10 (2) Cost Responsibility  
The word “bare” should be replaced with the word “bear” or alternatively the phrase “provide for” might work?

#### **20:10:36:10 Cost Responsibility**

- (2) Minor EDS Modifications: Modifications to the existing EDS identified by the Electric Utility under a Tier 2 or Tier 3 review; such as changing meters, fuses, or relay settings; are deemed Minor EDS Modifications. It is at the Electric Utility’s sole discretion to decide what constitutes a Minor EDS Modification. The Applicant must ~~bare~~ bear the costs of making such Minor EDS Modifications as may be necessary to gain approval from the Electric Utility.

Comment #7 – Suggestion – Under 20:10:36:10 (6) Cost Responsibility  
We believe that the phrase “other Electric Utility’s, or other Interconnection Customers” should read “other Electric Utility’s Customers, or other Interconnection Customers”

#### **20:10:36:10 Cost Responsibility**

- (6) Adverse System Impact: The Electric Utility is responsible for identifying Adverse System Impacts on any Affected Systems and for determining what mitigation activities or upgrades may be required to accommodate a Small Generator Facility. The actual cost of any actions taken to address the Adverse System Impacts, including overheads, is the responsibility of the Applicant who may be entitled to financial compensation from other Electric Utility’s Customers, or other Interconnection Customers who, in the future, utilize the upgrades paid for by the Applicant, only to the extent as may be provided for by the Commission.

Comment #8 – Concern – Under 20:10:36:10 (8) Cost Responsibility

Xcel Energy believes that the numbers 25% and \$10,000 are too low for larger DGs. For large DGs, Xcel Energy does not believe that our customers ought to bear the burden of risk for the up front costs. We are willing to distinguish between smaller DGs and the larger installations and we are willing to accept some of the risk for the smaller DGs, but we are not as willing to accept a majority of the risk for multi million dollar installations.

**20:10:36:10 Cost Responsibility**

- (8) Interconnection Facilities Deposit: The Electric Utility may require a deposit of no more than 25% of the estimated costs for Interconnection Facilities necessary to complete an interconnection to the EDS. The deposit shall not, however, exceed \$10,000 for Small Generator Facilities proposing to interconnect 2MW or less. The deposit shall be paid in advance by the Applicant for facilities necessary to complete an interconnection to the EDS.

Comment #9 – Correction – typo - Under 20:10:36:20 (10) – the section number should be corrected to be section number (8).

Comment #10 – Suggestion – Under 20:10:36:23 Tier 3 Interconnection

Xcel Energy believes that the 10MW threshold is too high. That 2 MW would be a better level. We believe that generation levels greater than 2 MW constitute a “major” installation that distribution feeders will often not be able to tolerate.

**20:10:36:23 Tier 3 Interconnection**

The Electric Utility must use the Tier 3 interconnection review procedures for an Application that does not qualify for Tier 1 or Tier 2 review and meets all the requirements set forth below:

- (1) The Small Generator Facility has an Electric Nameplate Capacity rating of ~~10~~ 2 MW or less; and
- (2) The proposed Point of Interconnection is not to a Transmission Line; and
- (3) The Small Generator Facility does not export power beyond the point of interconnection and utilizes low forward power relays or other protection functions that prevent power flow onto the EDS;

Comment #11 – Correction – typo - Under 20:10:36:23 (3) and 20:10:36:24 (3)(c) the phrase “low forward power relays” should be rephrased as follows: “sensitive power relays.” Sensitive is an industry term appropriate to modify the phrase power relays etc.

**20:10:36:23 Tier 3 Interconnection**

- (3) The Small Generator Facility does not export power beyond the point of interconnection and utilizes ~~low forward~~ sensitive power relays or other protection functions that prevent power flow onto the EDS;

**20:10:36:24 Tier 3 Interconnection Screening Criteria**

- (3) For a Small Generator Facility to interconnect to the load side of an Area Network distribution circuit, the following criteria must be met:
  - (c) The Small Generator Facility utilizes ~~low forward~~ sensitive power relays or other protection functions that prevent power flow on to the Area Network;

Comment #12 – Suggestion – Under 20:10:36:25 Xcel Energy suggests the entire section be stricken. We believe that this section is duplicative and that the previous section 20:10:36:24 is adequate to describe the Tier 3 Screening criteria.

~~**20:10:36:25—Tier 3 Interconnection Alternate Evaluation and Screening Criteria**~~

~~For a Small Generator Facility to interconnect to a distribution circuit that is not networked, the following criteria must be met:~~

- ~~(1) —The Small Generator Facility has an Electric Nameplate Capacity of 10 MW or less and;~~
- ~~(2) —The aggregated total of the Electric Nameplate Capacity of all of the generators on the circuit including existing FERC wholesale generators and FERC wholesale generators with a higher Queue Position, and the proposed Small Generator Facility, is 10 MW or less and;~~
- ~~(3) —The Small Generator Facility does not export power beyond the point of interconnection and employs reverse power relays or other protection functions that prevent power flow onto the EDS and;~~
- ~~(4) —The Small Generator Facility’s proposed interconnection must be to a radial distribution circuit and;~~
- ~~(5) —The Small Generator Facility is not served by a shared transformer and;~~

- ~~(6) —The interconnection must use only existing Electric Utility facilities and the Applicant’s proposed facilities and;~~
- ~~(7) —If the Electric Utility’s distribution circuit utilizes high speed reclosing with less than 2 seconds of interruption the proposed generator must not be a synchronous machine.~~

Comment #13 – Suggestion – Under 20:10:36:35 Xcel Energy believes that the phrase “no cost” is troublesome. That there will likely be costs incurred by the company particularly in the area of reproduction of relevant information and specifications. That a nominal charge or the ability to recover something for the “reproduction of documents” would help to discourage frivolous or excessive requests for information.

**20:10:36:35 Tier 4 Interconnection - Interconnection Facilities Study Agreement**

Within 15 business days from the Applicant’s receipt of the Interconnection Systems Impact Study results the Electric Utility shall provide the Applicant with an Interconnection Facilities Study Agreement if applicable. The Facilities Study agreement shall specify the study scope, a good faith, non-binding estimate of the cost to perform the study and any required study deposit. The Applicant shall return an executed copy of the Interconnection Facilities Study Agreement along with the required study deposit within 60 calendar days of receipt of the Agreement, or as mutually agreed to by the Parties, or the Application shall be deemed withdrawn.. An Interconnection Facilities Study Agreement is on file with the Commission.

The Electric Utility must commence the Interconnection Facilities Study upon receipt of an executed Interconnection Facilities Study Agreement and study deposit. The study shall be completed within timeline agreed to between the parties at the Scoping Meeting, or Interconnection System Impact Study results meeting.

The Interconnection Facilities Study shall evaluate the cost of equipment, engineering, procurement and construction work (including overheads) needed to implement the interconnection of the proposed Small Generator Facility as identified in the Scoping Meeting and any completed studies.

The Interconnection Facilities Study shall specify:

- (1) The electrical switching configuration of the equipment, including, without limitation, transformer, switchgear, meters, and other station equipment;
- (2) The nature and estimated cost of the Electric Utility's Interconnection Facilities;
- (3) The nature and estimated cost of System Upgrades; and

- (4) A detailed estimate of the time required to procure materials and equipment and complete the construction and installation of such facilities.

Parties may agree to permit the Applicant to separately arrange for a third party to design and estimate the construction costs for the required Interconnection Facilities. In such a case, the Electric Utility must review the design and cost estimates of the facilities, under the provisions of the Interconnection Facilities Study Agreement. If the Parties agree to separately arrange for design and construction estimates, and comply with any security and confidentiality requirements, the Electric Utility must make all relevant information and required specifications available to the Applicant at ~~no cost~~ reproduction costs in order to permit the Applicant to obtain an independent design and cost estimate for the facilities, to be built in accordance with such specifications.

Comment #14 – Concern – Under 20:10:36:41 Temporary Disconnection  
Xcel Energy believes that notification for larger DGs is possible, but that notification for small DGs is problematic, will be difficult to comply with and is likely to lead to dissatisfaction.

#### **20:10:36:41 Temporary Disconnection**

The Electric Utility or Interconnection Customer may temporarily disconnect the Small Generator Facility from its EDS at any time and for as long as reasonably necessary in the event one or more of the following conditions or events occurs:

- (1) Emergency Conditions
  - (b) **The Electric Utility must notify the Interconnection Customer** as soon as possible when it becomes aware of an emergency condition that may reasonably be expected to affect the Small Generator Facility operation. The Interconnection Customer must notify the Electric Utility promptly when it becomes aware of an emergency condition that may reasonably be expected to affect the Electric Utility's EDS.



## XCEL ENERGY COMMENTS ON THE PROPOSED FORMS

Following are Xcel Energy comments and suggestions for improving the proposed small generator interconnection forms document being considered in RM08-002. Our comments below for the forms document do not include proposed markups interspersed with the original text of the forms, because the forms documents do not copy and paste as readily as the text from the rules document did above.

1. Page 1; 3<sup>rd</sup> line from bottom – there should be a fill-in-the-blank line after the check box “Other.”
2. Page 2; Energy Source – check box is missing after the words “Natural Gas.”
3. Page 3; Regarding the line beginning with the words “Indicate whether Electric Utility plans to perform Witness test.” We believe that the acknowledgment of receipt form should not address witness testing as that decision is dependent on the initial analysis of the full application, which occurs after this acknowledgment is sent, to determine if any complications exist that would prompt a need for this test. We propose that this line on this form be deleted.
4. Page 3; The bottom section beginning with the word “Note.” We believe that we are allowed to acknowledge receipt of an application by email, but the ‘Note’ requires us to sign and send a paper form acknowledgement to the applicant? We think this needs to be discussed.
5. Page 5; The section beginning with the check box and the words “Lab Tested.” We suggest replacing the words “tested to IEEE” with the words “tested in conformance with IEEE.” The IEEE 1547 standard is not a testing document but a standard stating what must be tested. Other documents, such as UL 1741, lay out the testing methodology that must be followed to demonstrate compliance with the IEEE standard.
6. Page 5; The section beginning with the checkbox and the words “Tier 3.” In Admin Rule 20:10:36:23, Xcel Energy suggests a Tier 3 limit of 2 MW. Should that modification be accepted, the reference in the form will also need to be changed.
7. Page 6; Under the section beginning “Energy Production Equipment/Inverter Information.” Xcel Energy believes that checkboxes allowing for the identification of single phase or three phase should be added to this section.
8. Page 6; Under the section beginning “For Synchronous Machines.” We believe that this is probably not needed for small installations. Most of this

information is not known until an application rises to over one MW or so. A possibility would be to mark various items as not needed below a threshold size, such as 1 MW. Probably not a big deal, and the downside of changing this is that it might lead to confusion for larger installations?

9. Page 6 over to page 7; Again under the section beginning “For Synchronous Machines.” Xcel Energy believes that checkboxes allowing for the identification of single phase or three phase should be added to this section.
10. Page 7; All sections – machine impedances are rarely stated in ohms. Instead, per unit or percent are used. Xcel Energy suggests that the technical unit “Ohms” be replaced with percent “%” or per-unit “pu.”
11. Page 7; Under the section beginning “For Induction Machines.” Similarly to the previous page for Synchronous Machines, we believe that this is probably not needed for small installations. Most of this information is not known until an application rises to over one MW or so. A possibility would be to mark various items as not needed below a threshold size, such as 1 MW. Probably not a big deal, and the downside of changing this is that it might lead to confusion for larger installations?
12. Page 7; Also under the section beginning “For Induction Machines.” The requested information is appropriate for “squirrel cage” induction generators but would not apply to “double fed” induction generators such as is common with larger wind turbines. Xcel Energy suggests a separate section for “double fed” induction generators.
13. Page 7; Under the section beginning “Reverse Power Relay Information.” The form requests data for “Electric Nameplate Capacity rating.” Xcel Energy believes that a capacity rating has no meaning for a reverse power relay device. The Company suggests that in its place a “Sensitivity range” data item would be useful.
14. Page 7; Under the section beginning “Additional Information for Inverter Based Facilities.” Xcel Energy believes that checkboxes allowing for the identification of single phase or three phase should be added to this section.
15. Page 7; Under the section beginning “Additional Information for Inverter Based Facilities.” Xcel Energy believes that a data item relating to the maximum output current under fault conditions would be useful.
16. Page 8; Under the section beginning “Other Facility Information.” The various information that is specified with check boxes is all very important and necessary for the reviewing utility to make a complete assessment. We would think that the application would not be complete until all of these data

are gathered up and provided. The Company believes that a statement to this effect would be useful in this section.

17. Page 14, Section 2 – This section appears to be straight out of the FERC SGIA. That document is designed for transmission interconnections. Most of it is not appropriate for distribution-connected generation as it requests aspects that have no applicability or use for distribution connections. Xcel Energy believes that a simplification is needed.
18. Pages 19 & 20; - The first two pages of this section are duplicates of the Tier 2, 3, and 4 application information beginning on page 4. It seems burdensome to have to also fill this form out?
19. Page 23; The Interconnection Agreement form. This form applies to all four tiers. It is much more complete and complex than is needed for smaller interconnections, especially those in Tier 1. We think that a simplified agreement for Tier 1 might be created and included?
20. Page 24; Under section 1.4 “Responsibilities of the Parties,” Second paragraph, refers to IEEE standard 1547. Xcel Energy proposes modifying that language by adding the phrase “and as revised from time to time” as we have suggested be incorporated into Admin Rule 20:10:36:03.
21. Page 24; Under section 1.5 “Parallel Operation and Maintenance Obligations.” This section requires the facility to follow all utility operating provisions. Xcel Energy proposes to end this paragraph with the qualifier, “and as allowed under SD PUC Administrative Rules’. We believe that this would be a clarifying statement that would lend more strength to the argument.
22. Page 25; Under section 2.1 “Testing and Inspection.” The conclusion of the first paragraph states that a power purchase agreement is needed. The workshop discussion had identified that it should be a PPA or a tariffed purchase schedule. Xcel Energy believes that there should not be a need to individually create and sign a PPA for Tier 1 installations.
23. Page 25; Under section 2.1 “Testing and Inspection.” The conclusion of the second paragraph limits the utility from collecting charges for interim witness testing or witness testing. Xcel Energy believes that it should be allowed to recover these costs for larger facilities.
24. Page 26; Under section 4.1 “Minor EDS Modifications.” Xcel Energy believes that the word ‘bare’ on the fourth line should be replaced with the word “bear.”
25. Page 27; Under section 4.6 “Billings.” Section 4.6 suggests a deposit of 50%. This is inconsistent with proposed Admin Rules Section 20:10:36:10 (8) Cost

Responsibility, which states that 25% of the estimated costs should be provided as a deposit up to a cap of \$10,000. In our comment #8 above regarding proposed rule 20:10:36:10 (8), Xcel Energy has suggested that 25% is not high enough. Xcel Energy prefers a deposit level of 50% or higher with no cap for the larger installations, and we believe that is a reasonable position necessary to protect our ratepayers from unnecessary risk.

26. Page 28; Under section 5.1.2 – This says that upon property transfer, this interconnection agreement transfers to the new owners with no requirement that they sign a new interconnection agreement. Xcel Energy believes that it would be better to require the new owners to sign a new interconnection agreement. Xcel Energy believes that there would be no need to upgrade or re-review the installation, just provide a current acknowledgement of the requirements.

Respectfully submitted this 9<sup>th</sup> day of October, 2008

Northern States Power Company d/b/a  
Xcel Energy

A handwritten signature in cursive script, appearing to read "J Wilcox".

By: \_\_\_\_\_  
Jim Wilcox, Manager Governmental Affairs