

STATE OF MINNESOTA  
BEFORE THE  
MINNESOTA PUBLIC UTILITIES COMMISSION

LeRoy Koppendraye  
Marshall Johnson  
Phyllis Reha  
Gregory Scott

Chair  
Commissioner  
Commissioner  
Commissioner

In the Matter of ALL ELECTRIC  
COMPANIES Establishing Generic  
Standards for Utility Tariffs for  
Interconnection and Operation of  
Distributed Generation Facilities  
Under MN Law 2001, Chapter 212

MPUC Docket No. E999/CI-01-1023

**XCEL ENERGY'S REPLY  
COMMENTS**

**INTRODUCTION**

Northern States Power Company d/b/a Xcel Energy ("Xcel Energy") respectfully submits the following in response to the Minnesota Public Utilities Commission's ("Commission") July 1, 2003 Request for Additional Round of Comments. Xcel Energy was an active participant in the Technical Standards Workgroup and as stated in our June 27, 2003 Comments, we appreciate the efforts of all participants. A wide range of issues were productively and constructively addressed under the leadership of the Minnesota Department of Commerce ("Department") and while there remained a handful of issues that were unresolved, it can be counted as a significant success to have support for the bulk of the technical and process issues raised.

**DISCUSSION**

The June 27, 2003 round of Reply Comments produced a response from a party, Cummins Power Generation ("CPG") that has not previously been present in

any aspect of the Technical Standards Workgroup. Specifically, CPG has raised question about the appropriateness of many of the technical requirements and the interaction with the newly created IEEE 1547 standard. This appears to be the primary driver for soliciting additional comments and we appreciate the opportunity to respond to the suggestions made by CPG.

In general, there seems to be a basic assertion that the Minnesota Distributed Generation (“DG”) technical document should exactly parallel or mirror IEEE 1547. This is a flawed assumption. The Commission and legislature directed that the document include DG interconnection process, planning, operation, maintenance, contracts, public safety, schedules, and review fees in addition to the technical criteria. IEEE 1547 focuses only on certain technical aspects of interconnecting a DG unit. Many of the aspects of interconnecting a DG unit were purposely avoided or placed in the companion standards and guidelines that are presently under development. Certain aspects, such as automatic transfer schemes and Secondary Networks, are not addressed in the initial version. These limitations are identified in the NRECA 1547 “Application Guide for Distributed Generation Interconnection: 2003 Update”. For any IEEE standard, it is equally important to be aware of what is *not* specified or stated as it is to understand what is stated in the standard. The DG documents included in the Department’s Phase II Report provided usable guidance and requirements for those areas that are not yet addressed by the IEEE standards and guidelines.

Due to the intentionally narrow focus of IEEE 1547, it is not a substitute for the DG documents provided in the Phase II Report. IEEE 1547 gives no guidance as to its use or application. In this sense, it is not “user-friendly”. Much of the mixture of technical requirements and non-technical aspects to which CPG has objected was necessary to make this document more understandable by the intended users. The IEEE 1547 application guide that is under development will bridge much of this gap

when complete. The Phase II Report documents provide the necessary interim information to make it workable. The developers of the Department's DG document fully expect that parts of this document will be deleted or modified in the future as the various UL and IEEE DG standards and guideline are completed or updated.

From CPG's participation in the writing group for IEEE 1547, they are aware that there were numerous areas where the IEEE group 'agreed to disagree'. One result was the removal of those aspects in disagreement from IEEE 1547. These items were either dropped or moved into the application guideline or the additional standards that are presently under development.

#### A. IEEE 1547

CPG has stated their belief that the requirements found in the Phase II Report contain different requirements than the IEEE 1547 standard. We disagree and believe this is simply not true. The parts of IEEE 1547 that set specific technical requirements were included as provided. The parts that indicated that the utility is to address the issue were simply expanded to give more detail about the Minnesota requirements. Considerable attention was given to ensuring that these details were consistent with the intention of the standard.

An example of a piece of equipment specifically excluded from IEEE 1547 is given by CPG. Closed transition transfer switches are acknowledged by CPG to perhaps be a valid addition to Minnesota technical requirements however, this is quickly followed by the assertion that transfer switches are of little concern and should not be included in an interconnection standard. CPG's discussion of open transition transfer switches also implies this equipment is universally pre-certified by UL and DG owners and suppliers should not be required to have further concern than that. The topic is a little deeper than CPG implies.

All transfer switches, both open transition and closed transition switches, are not created equal. The term “transfer switch” covers a broad array of equipment. Some styles, especially small, low voltage units, tend to fail in a “safe” mode. These are usually also UL certified and we agree, are typically of minor concern to most utilities. Some styles can fail with generation tied to the utility on a long-term basis. These are seldom UL certified. In this situation, the DG unit presents the full hazards to the utility and public as any DG unit that is tied to the utility on a “continuous” basis. This style of transfer equipment is definitely of concern to the utility. For some styles, the present use of versatile, microprocessor based controls increases the hazards due to their ease of operating mode change. The Minnesota DG standards recognize these differences and provide requirements that vary with the style and size equipment involved.

The assertion that all transfer switches are UL certified is not correct. This statement is true for most pre-packaged units. However, this statement is seldom true for high capacity installations that are often custom assembled from components such as medium voltage switchgear.

The above discussion is intended to emphasize that much thoughtful consideration and discussion was given in preparing the suggested interconnection requirements. From a utility perspective, the chief purpose in establishing technical criteria for the installation of DG is to ensure safe, reliable operation of the distribution system to provide electric service to utility customers; allowing customers to *choose* to install DG equipment to address their own electric needs while not permitting adverse impact to customers who choose *not* to install such generation. Adopting the suggestion that Minnesota’s technical requirements for DG need not be thorough and should be reduced would be inconsistent with that purpose. We continue to support the technical requirements presented in the Department’s Phase II Report.

## **B. Contractual Requirements**

On the topic of contractual-type language versus purely technical requirements, the Phase II Report does include contractual and technical requirements. This is because the 2001 legislation directing the Commission to establish generic standards for utility tariffs for the interconnection and operation of DG combined both technical and contractual concepts into the list of what was expected from the tariff standards. The Minnesota standards contemplated by Minnesota Statute 216B.1611 Subd. 2 require much more than what you will find addressed by technical engineering requirements. Careful consideration should be given before simply deleting language intended to make the technical documents more understandable.

## **C. Specific Comments on Attachment 2**

A frequent complaint heard by utilities is that documents describing their interconnection requirements are not understandable and too long to be thoroughly familiar with the contents. The writing team involved in the finalization of Attachment 2 of the Phase II Report focused on making this document understandable and of a reasonable length. CPG is promoting the document to contain tightly worded precision. If the Commission chooses to adopt this approach, the document will require considerable additional detail. Such an approach would be counter-productive to the idea of simplification and would make the resulting document excessively cumbersome to use. We will not address each of the specific comments made by CPG on a point-by-point basis but have identified several instances where clarification might be helpful. Our comments below use section and paragraph references from page 3 of CPG's comments.

### **1. Introduction, Paragraph 2:**

The comment implies that this paragraph states that DGs are not allowed on secondary networks. Attachment 2 in the Phase II Report simply states that the additional requirements for such unusual applications are not included in this

document. It says nothing more and nothing less than this. IEEE 1547 does not provide requirements for this situation. Xcel Energy, for example, allows DGs to be connected to secondary networks in many situations with the appropriate protective relaying.

**1. Introduction, B:**

The word “minimum” in Attachment 2 is consistent with the approach of IEEE 1547 where IEEE 1547 states in its Introduction that it provided the “minimum functional technical requirements” for a “technically sound interconnection”.

**3. Types... B)v.**

Precertification of inverters under IEEE 529 insures the “necessary protection” as defined in IEEE 1547 is present and functional. Presently, not all inverters are precertified or are functionally compliant with the IEEE 1547 requirements. For these units, additional relaying may indeed be required.

**4. I & T... A)iii:**

Attachment 2 of the Phase II Report covers all generator types. Induction generators *always* operate in the lead. This section makes no mention of synchronous generators specifically.

**4. I & T... B)I:**

CPG comment is valid and clearer phrasing would be in order.

**5. GMM&C... :**

IEEE 1547 lists the minimum requirements whereas the Phase II Report document monitoring section lists the maximum monitoring requirements and states the Area EPS can waive any or all of these. Frequently the monitoring is waived due to no pressing system need being present. The CPG comment about not being required to install monitoring is perhaps testimony to how frequently the monitoring requirements have historically been waived.

**Table 5:**

See similar discussion under 5. GMM&C above.

## **6. Protection:**

IEEE 1547 provided no specifics on relaying testing requirements. The specifics were purposely moved to a testing standard (P1547.1) that is presently under development.

### **Figure 3, 4 and 5:**

The figures clearly identify those relay functions that are required by the proposed DG Interconnection Requirements.

## **CONCLUSION**

Xcel Energy again appreciates the opportunity to provide feedback on this process. Participants made sincere efforts to accommodate the concerns of all parties present in the process. With CPG's late arrival to this docket, we hope the discussion and explanation offered by us and others will assist in providing helpful background. We maintain our support of the product of the Technical Standards Workgroup and the Department's Phase II Report. We look forward to continuing to work with the Department and all of the stakeholders as the Commission considers how best to proceed with this important initiative.

Dated: July 15, 2003