

## Xcel Energy Responses - Prep Materials for 3/23/18 Meeting

- 1) If you do not support the Regulated Utilities' Draft Proposal, a proposed discussion topic outline or red-lined/track changes draft of Regulated Utilities' TIIR proposal;
  - a. Include a description of the purpose/role of the statewide technical requirements

N/A – We support the TIIR.

- 2) Rationale and list of topics with summary/examples of content considered in scope of a utility TSM

A non-exhaustive list of topics appropriate for utilities' TSM includes:

1. Protection system requirements details
2. Non-parallelizing generator interconnections. (i.e. power quality considerations for break-before-make interconnections)
3. Performance category assignment, or assignment process, for unique technologies
4. Reactive and real power control function default settings (especially if different from IEEE 1547)
5. Details on implementing DER real and reactive control functions, if applicable.
6. Reactive power constraints related to the bulk power system.
7. Details on process for determining use of the DER interoperability interface
8. Interoperability technologies, including communication protocols.
9. Cybersecurity requirements
10. Metering requirements
11. Evolving energy storage requirements
  - a. Note: More generally, the TSM should contain industry standards that are yet to be incorporated in the TIIR.
12. Details for implementing 1547 testing and verification requirements.

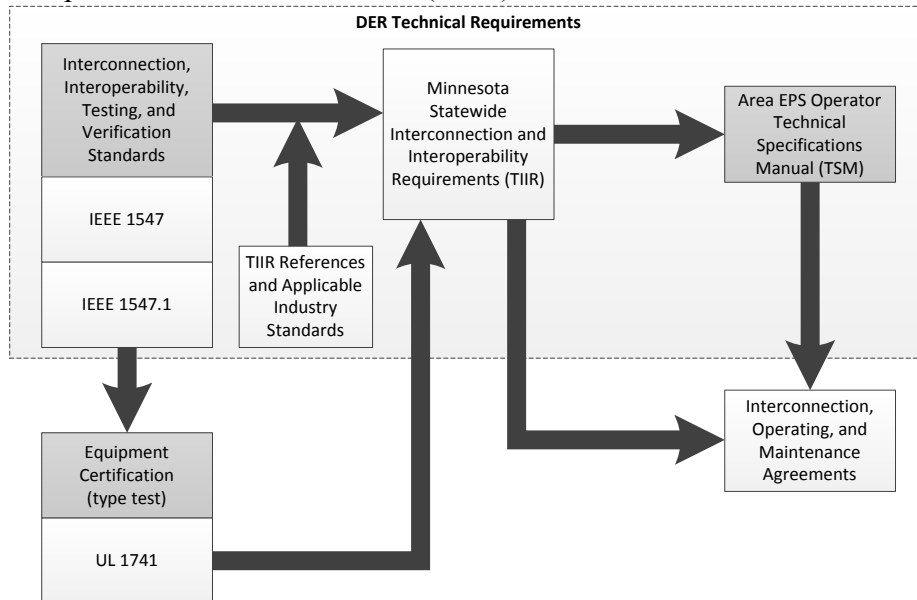
Copied below for reference is a relevant section from the TIIR describing the purpose and scope of the TSM.

The TSM lists the Area EPS Operator specific requirements and provides further detail in areas where no common industry standards exist<sup>1</sup>. In addition to allowing for differences in distribution and information systems design and operation, the Area EPS Operator TSM allows for expedited adoption of new industry standards and best practices as they become available without creating conditions where the statewide interconnection standards and national standards become out-of-sync. Each Area EPS Operator' TSM shall be submitted in an information filing to the Minnesota Public Utilities Commission on an annual basis and posted on the Area EPS Operator's website. Area EPS which are regulated by the Minnesota Public Utilities Commission shall post the TSM online. For non-regulated cooperatives and municipals to which the statewide standards apply, the TSM may be posted on the Area EPS Operator's website. Figure 1 depicts

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<sup>1</sup> For example, industry standards do not define conditions or size thresholds for when metering, interoperability, protection, or other requirements shall be applied. Also, interconnect standards only address the electrical an interoperability interface between the Local EPS and Area EPS. Area EPS impacts are not addressed by the IEEE 1547 standard series.

the interaction of key DER industry technical standards, statewide technical standards (TIIR), and Area EPS Operator’s technical manuals (TSM).



3) List of definitions that need to be discussed

We should attempt to be consistent with definitions from the MN DIP, MN DIA, IEEE 1547, and other relevant standards to the extent possible. Anywhere that definitions deviate from industry or Minnesota standards should be topics of discussion. The proposed definitions in the draft TIIR that meet these criteria include:

- Area EPS operator technical specification manual (TSM)
- Customers
- energy storage system (ESS)
- inadvertent export
- inverter (based on note added in TIIR)
- non-export, non-exporting
- parallel operation
- regional transmission operator (RTO)
- secondary network
- Technical Interconnection and Interoperability Requirements (TIIR)
- transmission power system

4) Review the proposed Phase II Agenda/Topics for 7 meetings (attached)

We have no comments on the agenda.