

## NOTICE OF CORRECTION TO INTERIM IMPLEMENTATION GUIDANCE

Issued: April 27, 2020

### In the Matter of Updating the Generic Standards for the Interconnection and Operation of Distributed Generation Facilities Established Under Minn. Stat. §216B.1611

PUC Docket Number(s):     **E999/CI-16-521**  
                                          **E999/CI-01-1023**

*The attached **CORRECTED** Minnesota Technical Interconnection and Interoperability Requirement (TIIR) Interim Implementation Guidance Addendum will be published with the TIIR on the Commission’s webpage and go into effect with the TIIR on July 1, 2020.*

#### Background

On April 14, 2020, the Distributed Generation Workgroup Technical Subgroup identified an issue with the “Minnesota Technical Interconnection and Interoperability Requirement (TIIR) Interim Implementation Guidance Addendum” related to the frequency and voltage shall trip settings in Tables 1-3 in “Section 6 Response to Abnormal Conditions.” While these settings may be adjusted by mutual agreement, the Tables incorrectly identified as default the IEEE 1547a-2014 default settings; rather than IEEE 1547-2003 default settings.

On April 21, 2020, the Technical Subgroup’s writing subgroup submitted the attached red-lined Correction. The Correction adjusts the Tables to align with IEEE 1547-2003 to avoid unnecessary customization of inverter settings in the interim to ease implementation for both Distributed Energy Resource customers and utilities.

The Commission’s January 22, 2020 Order at Order Point 4 outlines a process for providing additional interim guidance for how the transition from the 2004 Interconnection Standards’ Technical Requirements to the new Minnesota Technical Interconnection and Interoperability Requirements (TIIR) will occur.<sup>1</sup> This guidance is necessary because until equipment that is certified to IEEE 1547-2018 is “readily available” some portions of the TIIR do not go into statewide effect.

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<sup>1</sup> MPUC, [ORDER ESTABLISHING UPDATED TECHNICAL INTERCONNECTION AND INTEROPERABILITY REQUIREMENTS \(January 22, 2020\)](#), Docket No. E-999/CI-16-521, Order Point 4, p. 11

The Executive Secretary will publish a clean version of the attached document along with the TIIR on the Commission's website at <https://mn.gov/puc/energy/distributed-energy/interconnection/> and it will go into effect on July 1, 2020 with the TIIR.

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## Attachment 1

The following clarifies which sections of the TIIR go into effect immediately and which are replaced with an existing technical requirement until the Commission provides Notice that IEEE 1547-2018 certified equipment is readily available (“Commission Notice”).<sup>1</sup> The “interim period” referred to below is from July 1, 2020, the date the TIIR goes into interim effect, until the Commission Notice announcing the TIIR is in full effect.

All sections of the TIIR shall go into effect on July 1, 2020 except for the following sections for inverter-based systems. Mutual agreement between parties does allow for utilization of the full TIIR during the interim period.

### Section 4 (Performance Categories)

This section does not go into effect until Commission Notice. No alternate provision is in place during the interim period.

### Section 5 (Reactive Power Capability and Voltage/Power Control Performance)

Sections 5.4 does not go into effect until Commission Notice unless mutual agreement exists between parties. In the interim period, the power factor requirements of Section 5.3 shall be used as default settings<sup>2</sup>.

### Section 6 (Response to Abnormal Conditions)

This section does not go into effect until Commission Notice. In the interim period, the following tables shall be considered default settings unless mutual agreement between parties exists.

*Table 1 - Synchronous DER Response (shall trip) to Abnormal Voltages*

Shall Trip – Synchronous DER		
Shall Trip Function	Default Setting	
	Clearing time (s)	Voltage (p.u. of nominal voltage)
UV2	0.16	0.4550
UV1	2.0	0.788
OV1	<del>2.0</del> 1.0	1.10
OV2	0.16	1.20

<sup>1</sup> MN PUC, ORDER 159427-01, Docket E-999/CI-16-521. Request input from the Technical Subgroup (TSG) of the Distributed Generation Workgroup (DGWG) as to when IEEE 1547-2018 certified equipment is “readily available” and delegate to the Executive Secretary the authority to notice when the full TIIR goes into effect in consultation with the TSG.

<sup>2</sup> IEEE 1547-2018 section 5.3.1, as referenced in the TIIR, does not apply in the interim period, but the constant power factor specification requirement can be applied.

Table 2 - Inverter DER Response (shall trip) to Abnormal Voltages

Shall Trip – Inverter DER		
Shall Trip Function	Default Setting	
	Clearing time (s)	Voltage (p.u. of nominal voltage)
UV2	0.16	0.4550
UV1	<del>10.02.0</del>	0.7088
OV1	<del>2.01.0</del>	1.10
OV2	0.16	1.20

Table 3 - DER Response (shall trip) to Abnormal Frequencies

Shall Trip Function	Default Setting	
	Clearing time (s)	Frequency (Hz)
<del>UF2</del>	0.16	56.5
UF1	<del>300.00.16</del>	58.559.3
OF1	<del>300.00.16</del>	61.260.5
<del>OF2</del>	0.16	62.0

**Section 9 (Interoperability)**

This section does not go into effect until Commission Notice. In the interim period, the Area EPS Operator’s TSM shall be used. The Area EPS Operator’s TSM shall contain Interoperability requirements comparable to section 5 (regarding metering and monitoring control requirements) of the 2004 State of Minnesota Distributed Generation Interconnection Requirements document.

**Section 12 (Enter Service and Synchronization)**

This section does not go into effect until Commission Notice. In the interim period, when entering service, the DER shall not energize the Area EPS until the applicable voltage and system frequency are within the ranges specified in Table 4, unless mutual agreement between parties exists.

Table 4 - DER Enter Service Criteria Ranges

Enter Service Criteria	Default settings	
Applicable voltage within range	Minimum Value	≥0.917 p.u.
	Maximum Value	≤1.05 p.u.
Frequency within range	Minimum Value	≥59.3 Hz
	Maximum value	≤60.5 Hz

DER shall be capable of delaying enter service by an intentional adjustable minimum delay when the Area EPS steady-state voltage and frequency are within the ranges specified in Table 4. The adjustable range of the minimum intentional delay shall be 0 s to 300 s with a default minimum delay of 300 s.

**Section 14 (Test and Verification Requirements)**

This section does not go into effect until Commission Notice. In the interim period, the Area EPS Operator’s TSM shall be used. The Area EPS Operator’s TSM shall contain Test and Verification requirements comparable to section 8 of the 2004 State of Minnesota Distributed Generation Interconnection Requirements document.