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INTERSTATE RENEWABLE ENERGY COUNCIL

December 18, 2024

Will Seuffert, Executive Secretary
Minnesota Public Utilities Commission
121 7th Place East, Suite 350
Saint Paul, MN 55101-2147

**Subject: Interstate Renewable Energy Council Comments in Response to November 27, 2024
Notice of Comment Period**

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

Docket No. E999/CI-16-521

Dear Mr. Seuffert:

Interstate Renewable Energy Council, Inc. (IREC) respectfully submits these comments in response to the Minnesota Public Utilities Commission's (Commission) November 27, 2024 Notice of Comment Period (November 27th Notice) in the above referenced docket.

I. Background

In the Commission's July 17, 2023 Order in the Xcel Energy Rate Case Docket¹, the Commission directed the Distributed Generation Working Group's ("DGWG") Technical Subgroup ("TSG") as follows:

[The TSG shall] convene to examine the possibility of unintentional islanding caused by interconnection of DERs. As part of the examination, the TSG will identify additional screens that utilities can perform to assess the risk of unintentional islanding, and determine if there are less costly alternatives to Voltage Supervisory Reclosing for addressing any perceived risk. The TSG will seek feedback from the DGWG during this examination, and file in Docket No. E999/CI-16-521 a report with its findings and recommendations by July 31, 2024.

On November 17, 2023, the DGWG held an informational meeting on unintentional islanding with presentations from experts from Sandia National Labs, IREC, and Electric Power Research Institute (EPRI). Slides of this meeting were filed on March 21, 2024, in Docket No. E999/CI-16-521.

On April 15, 2024, the Commission extended the deadline for the task created in the Xcel Rate Case to December 31, 2024, via Commission Order in Docket 16-521.

¹ Docket No. E002/GR-21-630; Decision Option 134 on Page 165

The TSG, which IREC participated in, met five times through May, June, and July and submitted a report of the group's findings and recommendations to Staff on August 26, 2024 in Docket 16-521.

On November 1, 2024, the TSG presented their findings and recommendations to the DGWG. Slides of that meeting were filed in Docket 16-521 on November 12, 2024.

The Commission's November 27th Notice identified the following topics for comment:

- Should the Commission adopt the TSG's proposed changes to the MN DIP as found in Attachment A to this Notice?
- Are there other issues or concerns related to this matter?

IREC responds to both these issues below.

II. Adoption of TSG's proposed changes to the MN DIP

First, IREC commends the members of the TSG for working collaboratively to explore the topic of unintentional islanding risk assessment. IREC has participated in forums across the country related to unintentional islanding, and we believe this TSG process allowed for a greater understanding of island formation risk. While there was the potential to "move the needle" further than other states and utilities have done elsewhere, we believe there was not sufficient time to explore innovative and specific island screening concepts that would increase transparency for all parties while potentially simplifying risk of islanding mitigation and reducing the deployment of Voltage Supervisory Reclosing. Thus, the proposed changes to the MN DIP with the addition of screen 3.4.4.4 are more general in nature and will have an uncertain effect in terms of resolving island risk concerns for all parties. Because the screen is general in nature, it leaves significant discretion to the utility and therefore lacks the transparency that would be required through a more specific procedure.

Despite these limitations, IREC recommends that the Commission adopt the proposed changes to the MN DIP as written in Attachment A of the November 27th Notice. While the proposed changes do not provide the level of transparency that certain customers may need to ensure fair treatment, the changes do increase the level of transparency compared to the status quo. We recommend the adoption of screen 3.4.4.4 provided the Commission order further investigations within two years to determine a) how well screen 3.4.4.4 is being implemented by the utilities, b) whether the screen has resulted in a reduction of Voltage Supervisory Reclosing, and c) specific and transparent screening processes that could be put in place to improve this screen.

III. Other concerns

The TSG began to explore innovative ideas for screening unintentional islanding risk that should continue to be explored. IREC recommends the Commission continue to explore the screening processes identified by TSG members, including:

Example 1: Use the EPRI IPRAT (Island Probability Risk Assessment Tool) tool to determine island risk exposure hours (note this tool only applies to a solar PV-driven islanding scenario). This analysis includes consideration of the reactive power balance after loss of the main grid to evaluate the possibility for formation of a stable island. Hourly load data is required for the assessment and load power factor is also a critical input. Reactive power balance is necessary to allow an inverter DER island to persist. It is a function of the capacitive compensation on the

circuit, the expected raw load power factor, and the DER over/under frequency trip limits. For any island mix scenario, use reactive power balance after loss of the main grid to evaluate possibility for a stable island.

Example 2: 3.4.4.4 Islanding and Reverse Power: If the three-phase, certified inverter-based DER fails 3.4.4.1 (Minimum Load Screen) but passes screens 3.4.4.2 and 3.4.4.3 and the Area EPS Operator determines that DER may otherwise be interconnected consistent with safety, reliability, and power quality standards when the following technical concerns are addressed:

3.4.4.4.1 – When synchronous DER are interconnected to the same feeder, consider if sufficient Direct Transfer Trip is installed to prevent islanding.

3.4.4.4.2 – For inverter-based DER requiring a utility-controlled recloser and relay, consider activating a zero-sequence current detection function (“3I0” in combination with a grounding bank) or a zero-sequence overvoltage function (“3V0”).

3.4.4.4.3 – Consider if the feeder and/or the substation is capable of anticipated reverse power flow (line regulator controls for two-way power, feeder and substation capacity to receive import, etc.).

IV. Conclusion

IREC appreciates the opportunity to comment on inclusion of the TSG’s proposed language in the MN DIP and looks forward to the Commission further improving the screening process over time.

Sincerely,

/s/ Brian Lydic

Brian Lydic

Chief Regulatory Engineer

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CERTIFICATE OF SERVICE

RE: In the Matter of Updating the Generic Standards for the Interconnection and Operation of Distributed Generation Facilities Established Under Minn. Stat. § 216B.1611
Docket No. E999/CI-16-521

I, Brian Lydic, hereby certify that I have this day served copies of the foregoing document to those on the following service list by e-filing.

Docket No. E-999/CI-16-521

Dated this 18th day of December, 2024.

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106	Alex	Nelson	anelson@dakotaelectric.com	Dakota Electric Association		4300 220nd St Farmington MN, 55024 United States	Electronic Service		No	16-5210Official Service List PUC
107	Ben	Nelson	benn@cmpasgroup.org	CMMPA		459 South Grove Street Blue Earth MN, 56013 United States	Electronic Service		No	16-5210Official Service List PUC
108	David	Niles	david.niles@avantenergy.com	Minnesota Municipal Power Agency		220 South Sixth Street Suite 1300 Minneapolis MN, 55402 United States	Electronic Service		No	16-5210Official Service List PUC
109	Michael	Noble	noble@fresh-energy.org	Fresh Energy		408 Saint Peter St Ste 350 Saint Paul MN, 55102 United States	Electronic Service		No	16-5210Official Service List PUC
110	Rolf	Nordstrom	mordstrom@gpisd.net	Great Plains Institute		2801 21ST AVE S STE 220 Minneapolis MN, 55407-1229 United States	Electronic Service		No	16-5210Official Service List PUC
111	Samantha	Norris	samanthanorris@alliantenergy.com	Interstate Power and Light Company		200 1st Street SE PO Box 351 Cedar Rapids IA, 52406-0351 United States	Electronic Service		No	16-5210Official Service List PUC

#	First Name	Last Name	Email	Organization	Agency	Address	Delivery Method	Alternate Delivery Method	View Trade Secret	Service List Name
112	Logan	O'Grady	logrady@mnseia.org	Minnesota Solar Energy Industries Association		2288 University Ave W St. Paul MN, 55114 United States	Electronic Service		No	16-5210Official Service List PUC
113	Timothy	O'Leary	toleary@llec.coop	Lyon-Lincoln Electric Cooperative, Inc		P.O. Box 639 Tyler MN, 56178-0639 United States	Electronic Service		No	16-5210Official Service List PUC
114	Jeff	O'Neill	jeff.oneill@ci.monticello.mn.us	City of Monticello		505 Walnut Street Suite 1 Monticello MN, 55362 United States	Electronic Service		No	16-5210Official Service List PUC
115	Russell	Olson	rolson@hcpd.com	Heartland Consumers Power District		PO Box 248 Madison SD, 57042-0248 United States	Electronic Service		No	16-5210Official Service List PUC
116	Wendi	Olson	wolson@otpc.com	Otter Tail Power Company		215 South Cascade Fergus Falls MN, 56537 United States	Electronic Service		No	16-5210Official Service List PUC
117	Bethany	Owen	bowen@mnpower.com	Minnesota Power		30 West Superior Street Duluth MN, 55802 United States	Electronic Service		No	16-5210Official Service List PUC
118	Cezar	Panait	cezar.panait@state.mn.us		Public Utilities Commission	121 7th Place East Suite 350 St. Paul MN, 55101 United States	Electronic Service		No	16-5210Official Service List PUC
119	Dan	Patry	dpatry@sunedison.com	SunEdison		600 Clipper Drive Belmont CA, 94002 United States	Electronic Service		No	16-5210Official Service List PUC
120	Jeffrey C	Paulson	jeff.jcplaw@comcast.net	Paulson Law Office, Ltd.		4445 W 77th Street Suite 224 Edina MN, 55435 United States	Electronic Service		No	16-5210Official Service List PUC
121	Dean	Pawlowski	dpawlowski@otpc.com	Otter Tail Power Company		PO Box 496 215 S. Cascade St. Fergus Falls MN, 56537-0496 United States	Electronic Service		No	16-5210Official Service List PUC
122	Susan	Peirce	susan.peirce@state.mn.us		Department of Commerce	85 Seventh Place East St. Paul MN, 55101 United States	Electronic Service		No	16-5210Official Service List PUC
123	Wess	Pfaff	wes.pfaff@mrenergy.com			null null, null	Electronic Service		No	16-5210Official

#	First Name	Last Name	Email	Organization	Agency	Address	Delivery Method	Alternate Delivery Method	View Trade Secret	Service List Name
						United States				Service List PUC
124	DONNA	PICKARD	dpickard@aladdinsolar.com	Genie Solar Support Services		1215 Lilac Lane Excelsior MN, 55331 United States	Electronic Service		No	16-521Official Service List PUC
125	Crystal	Pomerleau	crystal.r.pomerleau@xcelenergy.com	Xcel		null null, null United States	Electronic Service		No	16-521Official Service List PUC
126	David G.	Prazak	dprazak@otpc.com	Otter Tail Power Company		P.O. Box 496 215 South Cascade Street Fergus Falls MN, 56538-0496 United States	Electronic Service		No	16-521Official Service List PUC
127	Elizabeth	Psihos	elizabeth.psihos@idealenergies.com			null null, null United States	Electronic Service		No	16-521Official Service List PUC
128	Peter	Reese	preese@sundialsolarenergy.com	Sundial Energy, LLC		3363 Republic Ave Saint Louis Park MN, 55426 United States	Electronic Service		No	16-521Official Service List PUC
129	John C.	Reinhardt		Laura A. Reinhardt		3552 26th Ave S Minneapolis MN, 55406 United States	Paper Service		No	16-521Official Service List PUC
130	Generic Notice	Residential Utilities Division	residential.utilities@ag.state.mn.us		Office of the Attorney General - Residential Utilities Division	1400 BRM Tower 445 Minnesota St St. Paul MN, 55101-2131 United States	Electronic Service		Yes	16-521Official Service List PUC
131	Kevin	Reuther	kreuther@mncenter.org	MN Center for Environmental Advocacy		26 E Exchange St, Ste 206 St. Paul MN, 55101-1667 United States	Electronic Service		No	16-521Official Service List PUC
132	Kristi	Robinson	krobinson@star-energy.com	STAR Energy Services, LLC		1401 South Broadway Pelican Rapids MN, 56572 United States	Electronic Service		No	16-521Official Service List PUC
133	Daniel	Rogers	dan@nokomispartners.com			2639 Nicollet Ave Ste 200 Minneapolis MN, 55408 United States	Electronic Service		No	16-521Official Service List PUC
134	Michael	Ruiz	michael.ruiz@xcelenergy.com	Xcel Energy		null null, null United States	Electronic Service		No	16-521Official Service List PUC

#	First Name	Last Name	Email	Organization	Agency	Address	Delivery Method	Alternate Delivery Method	View Trade Secret	Service List Name
135	Darla	Ruschen	d.ruschen@bcrea.coop	Brown County Rural Electrical Association		PO Box 529 24386 State Highway 4 Sleepy Eye MN, 56085 United States	Electronic Service		No	16-5210Official Service List PUC
136	Robert K.	Sahr	bsahr@eastriver.coop	East River Electric Power Cooperative		P.O. Box 227 Madison SD, 57042 United States	Electronic Service		No	16-5210Official Service List PUC
137	Kenric	Scheevel	kjs@dairynet.com	Dairyland Power Cooperative		3200 East Ave S PO Box 817 La Crosse WI, 54602 United States	Electronic Service		No	16-5210Official Service List PUC
138	Dean	Schiro	dean.e.schiro@xcelenergy.com	Xcel Energy		null null, null United States	Electronic Service		No	16-5210Official Service List PUC
139	Kay	Schraeder	kschraeder@minnkota.com	Minnkota Power		5301 32nd Ave S Grand Forks ND, 58201 United States	Electronic Service		No	16-5210Official Service List PUC
140	Matthew	Schuerger	matthew.schuerger@state.mn.us		Public Utilities Commission	121 7th Place East Suite 350 St. Paul MN, 55101 United States	Electronic Service		No	16-5210Official Service List PUC
141	Ronald J.	Schwartau	rschwartau@noblesce.com	Nobles Electric Cooperative		22636 U.S. Hwy. 59 Worthington MN, 56187 United States	Electronic Service		No	16-5210Official Service List PUC
142	Christine	Schwartz	regulatory.records@xcelenergy.com	Xcel Energy		414 Nicollet Mall FL 7 Minneapolis MN, 55401-1993 United States	Electronic Service		No	16-5210Official Service List PUC
143	Rob	Scott Hovland	rob.scott-hovland@mrenergy.com	Missouri River Energy Services		3724 W Avera Dr PO Box 88920 Sioux Falls SD, 57109-8920 United States	Electronic Service		No	16-5210Official Service List PUC
144	Dean	Sedgwick	sedgwick@itascapower.com	Itasca Power Company		PO Box 455 Spring Lake MN, 56680 United States	Electronic Service		No	16-5210Official Service List PUC
145	Will	Seuffert	will.seuffert@state.mn.us		Public Utilities Commission	121 7th Pl E Ste 350 Saint Paul MN, 55101 United States	Electronic Service		Yes	16-5210Official Service List PUC

#	First Name	Last Name	Email	Organization	Agency	Address	Delivery Method	Alternate Delivery Method	View Trade Secret	Service List Name
146	Doug	Shoemaker	dougs@charter.net	Minnesota Renewable Energy		2928 5th Ave S Minneapolis MN, 55408 United States	Electronic Service		No	16-521Official Service List PUC
147	Felicia	Skaggs	fskaggs@meeker.coop	Meeker Cooperative Light & Power		1725 US Highway 12 E Suite 100 Litchfield MN, 55355 United States	Electronic Service		No	16-521Official Service List PUC
148	Trevor	Smith	trevor.smith@avantenergy.com	Avant Energy, Inc.		220 South Sixth Street Suite 1300 Minneapolis MN, 55402 United States	Electronic Service		No	16-521Official Service List PUC
149	Rafi	Sohail	rafi.sohail@centerpointenergy.com	CenterPoint Energy		800 LaSalle Avenue P.O. Box 59038 Minneapolis MN, 55459-0038 United States	Electronic Service		No	16-521Official Service List PUC
150	Beth	Soholt	bsoholt@cleangridalliance.org	Clean Grid Alliance		570 Asbury Street Suite 201 St. Paul MN, 55104 United States	Electronic Service		No	16-521Official Service List PUC
151	Marcia	Solie	m.solie@bcrea.coop	Brown County Rural Electrical Association		24386 State Hwy. 4, PO Box 529 Sleepy Eye MN, 56085 United States	Electronic Service		No	16-521Official Service List PUC
152	Braden	Solum	braden.solum@idealenergies.com	iDEAL Energies		5810 Nicollet Ave Minneapolis MN, 55419 United States	Electronic Service		No	16-521Official Service List PUC
153	Brandon	Stamp	brandon.j.stamp@xcelenergy.com	Xcel Energy		401 Nicollet Mall Minneapolis MN, 55401 United States	Electronic Service		No	16-521Official Service List PUC
154	Sky	Stanfield	stanfield@smwlaw.com	Shute, Mihaly & Weinberger		396 Hayes Street San Francisco CA, 94102 United States	Electronic Service		No	16-521Official Service List PUC
155	Kristin	Stastny	kstastny@taftlaw.com	Taft Stettinius & Hollister LLP		2200 IDS Center 80 South 8th Street Minneapolis MN, 55402 United States	Electronic Service		No	16-521Official Service List PUC
156	Eric	Swanson	eswanson@winthrop.com	Winthrop & Weinstine		225 S 6th St Ste 3500 Capella Tower Minneapolis	Electronic Service		No	16-521Official Service List PUC

#	First Name	Last Name	Email	Organization	Agency	Address	Delivery Method	Alternate Delivery Method	View Trade Secret	Service List Name
						MN, 55402-4629 United States				
157	Sherry	Swanson	sswanson@noblesce.com	Nobles Cooperative Electric		22636 US Highway 59 PO Box 788 Worthington MN, 56187 United States	Electronic Service		No	16-521Official Service List PUC
158	Bryant	Tauer	btauer@whe.org	Wright-Hennepin		6800 Electric Dr Rockford MN, 55373 United States	Electronic Service		No	16-521Official Service List PUC
159	Emma Marshall	Torres	emarshall-torres@convergentep.com			null null, null United States	Electronic Service		No	16-521Official Service List PUC
160	Pat	Treseler	pat.jclaw@comcast.net	Paulson Law Office LTD		4445 W 77th Street Suite 224 Edina MN, 55435 United States	Electronic Service		No	16-521Official Service List PUC
161	Jeff	Triplett	triplettj@powersystem.org	MREA		10710 Town Square Dr NW St 201 Minneapolis MN, 55449 United States	Electronic Service		No	16-521Official Service List PUC
162	Adam	Tromblay	atromblay@noblesce.com	Nobles Cooperative Electric		22636 US Hwy. 59 P.O. Box 788 Worthington MN, 56187-0788 United States	Electronic Service		No	16-521Official Service List PUC
163	Lise	Trudeau	lise.trudeau@state.mn.us		Department of Commerce	85 7th Place East Suite 500 Saint Paul MN, 55101 United States	Electronic Service		No	16-521Official Service List PUC
164	Alan	Urban	alan.m.urban@xcelenergy.com	Xcel Energy		null null, null United States	Electronic Service		No	16-521Official Service List PUC
165	Ellen	Veazey	lveazey@solarunitedneighbors.org	Solar United Neighbors		1350 Connecticut Ave NW Ste 412 Washington DC, 20036 United States	Electronic Service		No	16-521Official Service List PUC
166	Sam	Villella	sdvillella@gmail.com			10534 Alamo Street NE Blaine MN, 55449 United States	Electronic Service		No	16-521Official Service List PUC
167	Wendy	Vorasane	wendy.vorasane@idealenergies.com			null null, null United States	Electronic Service		No	16-521Official Service List PUC

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168	Robert	Walsh	bwalsh@mnvalleyrec.com	Minnesota Valley Coop Light and Power		PO Box 248 501 S 1st St Montevideo MN, 56265 United States	Electronic Service		No	16-521Official Service List PUC
169	Roger	Warehime	roger.warehime@owatonnautilities.com	Owatonna Municipal Public Utilities - Gas		208 S Walnut Ave PO BOX 800 Owatonna MN, 55060 United States	Electronic Service		No	16-521Official Service List PUC
170	Samantha	Weaver	samantha@communitysolaraccess.org	Coalition for Community Solar Access		1380 Monroe St. Washington DC DC, 20010 United States	Electronic Service		No	16-521Official Service List PUC
171	Elizabeth	Wefel	eawefel@flaherty-hood.com	Missouri River Energy Services		525 Park St Ste 470 Saint Paul MN, 55103 United States	Electronic Service		No	16-521Official Service List PUC
172	John	Williamson	john.williamson@state.mn.us	Minnesota Department of Labor and Industry		443 Lafayette Rd N St. Paul MN, 55155-4341 United States	Electronic Service		No	16-521Official Service List PUC
173	Danielle	Winner	danielle.winner@state.mn.us		Department of Commerce	85 7th Place East Suite 500 Saint Paul MN, 55101 United States	Electronic Service		No	16-521Official Service List PUC
174	Robyn	Woeste	robynwoeste@alliantenergy.com	Interstate Power and Light Company		200 First St SE Cedar Rapids IA, 52401 United States	Electronic Service		No	16-521Official Service List PUC
175	Terry	Wolf	terry.wolf@mrenergy.com	Missouri River Energy Services		3724 W Avera Dr PO Box Sioux Falls SD, 57109-8920 United States	Electronic Service		No	16-521Official Service List PUC
176	Brian	Zavesky	brianz@mrenergy.com	Missouri River Energy Services		3724 West Avera Drive P.O. Box 88920 Sioux Falls SD, 57108-8920 United States	Electronic Service		No	16-521Official Service List PUC