

Northern States Power Company, a Minnesota corporation  
 and wholly owned subsidiary of Xcel Energy Inc.  
 Minneapolis, Minnesota 55401

**MINNESOTA ELECTRIC RATE BOOK - MPUC NO. 2**

**DISTRIBUTED GENERATION STANDARD  
 INTERCONNECTION AND POWER PURCHASE TARIFF (Continued)**

Section No. 10  
 Original Sheet No. 102

**APPENDIX B: Generation Interconnection Application Form**

**WHO SHOULD FILE THIS APPLICATION:** Anyone expressing interest to install generation which will interconnect with Xcel Energy (Local electric utility). This application should be completed and returned to the Generation Interconnection Coordinator, in order to begin processing the request.

**INFORMATION:** This application is used by Xcel Energy to perform a preliminary interconnection review. The Applicant shall complete as much of the form as possible. The fields in BOLD are required to be completed to the best of the Applicant's ability. The Applicant will be contacted if additional information is required. The response may take up to 15 business days after receipt of all the required information.

**COST:** A payment to cover the application fee shall be included with this application. The application fee amount is outlined in the "State of Minnesota Interconnection Process for Distributed Generation Systems".

<b>OWNER/APPLICANT</b>		
Company / Applicant's Name:		
Representative:	Phone Number:	FAX Number:
Title:		
Mailing Address:		
Email Address:		
<b>LOCATION OF GENERATION SYSTEM INTERCONNECTION</b>		
Street Address, legal description or GPS coordinates:		
<b>PROJECT DESIGN / ENGINEERING (if applicable)</b>		
Company:		
Representative:	Phone:	FAX Number:
Mailing Address:		
Email Address:		
<b>ELECTRICAL CONTRACTOR (if applicable)</b>		
Company:		
Representative:	Phone:	FAX Number:
Mailing Address:		
Email Address:		

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Date Filed: 11-02-05 By: Cynthia L. Lesher Effective Date: 02-01-07  
 President and CEO of Northern States Power Company  
 Docket No. E002/GR-05-1428 Order Date: 09-01-06





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Section No. 10  
 Original Sheet No. 105

**APPENDIX C: Engineering Data Submittal Form**

**WHO SHOULD FILE THIS SUBMITTAL:** Anyone in the final stages of interconnecting a Generation System with Xcel Energy. This submittal shall be completed and provided to the Generation Interconnection Coordinator during the design of the Generation System, as established in the "State of Minnesota Interconnection Process for Distributed Generation Systems".

**INFORMATION:** This submittal is used to document the interconnected Generation System. The Applicant shall complete as much of the form as applicable. The Applicant will be contacted if additional information is required.

<b>OWNER / APPLICANT</b>		
Company / Applicant:		
Representative:	Phone Number:	FAX Number:
Title:		
Mailing Address:		
Email Address:		

<b>PROPOSED LOCATION OF GENERATION SYSTEM INTERCONNECTION</b>
Street Address, Legal Description or GPS coordinates:

<b>PROJECT DESIGN / ENGINEERING (if applicable)</b>		
Company:		
Representative:	Phone:	FAX Number:
Mailing Address:		
Email Address:		

<b>ELECTRICAL CONTRACTOR (if applicable)</b>		
Company:		
Representative:	Phone:	FAX Number:
Mailing Address:		
Email Address:		

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Section No. 10  
Original Sheet No. 107

**APPENDIX C: Engineering Data Submittal Form (Continued)**

<b>REQUESTED CONSTRUCTION START/COMPLETION DATES</b>	
Design Completion:	
Construction Start Date:	
Footings in place:	
Primary Wiring Completion:	
Control Wiring Completion:	
Start Acceptance Testing:	
Generation operational (In-service):	
(Complete all applicable items. Copy this page as required for additional generators.)	

<b>SYNCHRONOUS GENERATOR (if applicable)</b>			
Unit Number:	Total number of units with listed specifications on site:		
Manufacturer:	Type:	Phases: 1 or 3	
Serial Number (each)	Date of manufacture:	Speed (RPM):	Freq. (Hz);
Rated Output (each unit) kW Standby:	kW Prime:	kVA:	
Rated Power Factor (%):	Rated Voltage(Volts):	Rated Current (Amperes):	
Field Voltage (Volts):	Field Current (Amperes):	Motoring Power (kW):	
Synchronous Reactance (Xd):	% on	kVA base	
Transient Reactance (X'd):	% on	kVA base	
Subtransient Reactance (X''d):	% on	kVA base	
Negative Sequence Reactance (Xs):	% on	kVA base	
Zero Sequence Reactance (Xo):	% on	kVA base	
Neutral Grounding Resistor (if applicable):			
$I^2 t$ or K (heating time constant):			
Exciter data:			
Governor data:			
Additional Information:			

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**DISTRIBUTED GENERATION STANDARD  
INTERCONNECTION AND POWER PURCHASE TARIFF (Continued)**

Section No. 10  
Original Sheet No. 108

**APPENDIX C: Engineering Data Submittal Form (Continued)**

<b>INDUCTION GENERATOR (if applicable)</b>			
Rotor Resistance (Rr):	Ohms	Stator Resistance (Rs):	
Rotor Reactance (Xr):	Ohms	Ohms	
Magnetizing Reactance (Xm):	Ohms	Stator Reactance (Xs):	
		Ohms	
		Short Circuit Reactance (Xd):	
		Ohms	
Design Letter:		Frame Size:	
Exciting Current:		Temp Rise (deg C°):	
Rated Output (kW):			
Reactive Power Required:		kVars (no Load)	kVars (full load)
If this is a wound-rotor machine, describe any external equipment to be connected (resistor, rheostat, power converter, etc.) to rotor circuit, and circuit configuration. Describe ability, if any, to adjust generator reactive output to provide power system voltage regulation.			
Additional Information:			
<b>PRIME MOVER (Complete all applicable items)</b>			
Unit Number:		Type:	
Manufacturer:			
Serial Number:		Date of Manufacture:	
H.P. Rated:		H.P. Max:	
		Inertia Constant:	lb.-ft. <sup>2</sup>
Energy Source (hydro, steam, wind, wind etc.):			

<b>INTERCONNECTION (STEP-UP) TRANSFORMER (If applicable)</b>			
Manufacturer:		kVA:	
Date of Manufacture:		Serial Number:	
High Voltage:	kV	Connection: delta wye	Neutral solidly grounded?
Low Voltage:	kV	Connection: delta wye	Neutral solidly grounded?
Transformer Impedance (Z):		% on	kVA base
Transformer Resistance (R):		% on	kVA base
Transformer Reactance (X):		% on	kVA base
Neutral Grounding Resistor (if applicable)			

(Continued on Sheet No. 10-109)

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Section No. 10  
Original Sheet No. 109

**APPENDIX C: Engineering Data Submittal Form (Continued)**

<b>TRANSFER SWITCH</b> (If applicable)	
Model Number:	Type:
Manufacturer:	Rating (amps):

<b>INVERTER</b> (If applicable)		
Manufacturer:	Model:	
Rated Power Factor (%):	Rated Voltage (Volts):	Rated Current (Amperes):
Inverter Type (ferroresonant, step, pulse-width modulation, etc.):		
Type of Commutation: forced line	Minimum Short Circuit Ratio required:	
Minimum voltage for successful commutation:		
Current Harmonic Distortion	Maximum Individual Harmonic (%): Maximum Total Harmonic Distortion (%):	
Voltage Harmonic Distortion	Maximum Individual Harmonic (%): Maximum Total Harmonic Distortion (%):	
Describe capability, if any, to adjust reactive output to provide voltage regulation:		
<b>NOTE:</b> Attach all available calculations, test reports, and oscillographic prints showing inverter output voltage and current waveforms.		

<b>POWER CIRCUIT BREAKER</b> (if applicable)					
Manufacturer:			Model:		
Rated Voltage (kilovolts):			Rated Ampacity (Amperes):		
Interrupting Rating (Amperes):			BIL Rating:		
Interrupting Medium (vacuum, oil, gas, etc.)			Insulating Medium (vacuum, oil, gas, etc.)		
Control Voltage (Closing):	(Volts)	AC	DC		
Control Voltage (Tripping):	(Volts)	AC	DC	Battery	Charged Capacitor
Close Energy (circle one):	Spring	Motor	Hydraulic	Pneumatic	Other
Trip Energy (circle one):	Spring	Motor	Hydraulic	Pneumatic	Other
Bushings Current Transformers (Max. ratio):				Relay Accuracy Class:	
CT'S Multi Ratio? (circle one); No / Yes: (Available taps):					

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**APPENDIX C: Engineering Data Submittal Form (Continued)**

<b>MISCELLANEOUS</b> (Use this area and any additional sheets for applicable notes and comments)

<b>SIGN OFF AREA</b>	
This Engineering Data Submittal documents the equipment and design of the Generation System. We agree to supply Xcel Energy with an updated Engineering Data Submittal any time significant changes are made in the equipment used or the design of the proposed Generation System. The Applicant agrees to design, operate and maintain the Generation System within the requirements set forth by the "State of Minnesota Distributed Generation Interconnection Requirements".	
Applicant Name (print):	
Applicant Signature:	Date:
<b>SEND THIS COMPLETED &amp; SIGNED ENGINEERING DATA SUBMITTAL AND ANY ATTACHMENTS TO THE GENERATION INTERCONNECTION COORDINATOR</b>	

(Continued on Sheet No. 10-111)

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