

## Small Generation Interconnection Application

This Interconnection Application is made between Public Service Company of Colorado, d/b/a Xcel Energy, and Customer, dated <today's date>.

To be completed by Customer. Application is made for permission to interconnect to the Xcel Energy Electric Distribution System as follows:

<b>OWNER/APPLICANT INFORMATION</b>			
Company:			
Representative:	Phone Number:	FAX Number:	
Title:	Email Address:		
Mailing Address:			
<b>PROPOSED LOCATION OF GENERATING PLANT AND PROPOSED INTERCONNECTION</b>			
Address:			
<b>PROJECT DESIGN / ENGINEERING</b>			
Company:			
Representative:	Phone:	FAX Number:	
Mailing Address:	Email Address:		
<b>ELECTRICAL CONTRACTOR</b>			
Company:			
Representative:	Phone:	FAX Number:	
Mailing Address:	Email Address:		
<b>ESTIMATED LOAD INFORMATION</b>			
The following information will be used to help properly design the Xcel-Customer interconnection. This information is not intended as a commitment or contract for billing purposes.			
Minimum anticipated load (generation not operating):		kVA:	Time:
Maximum anticipated load (generation not operating):		kVA:	Time:

**Existing Electric Service:**

Capacity:                      Amperes                      Voltage:                      Volts  
 Service Character:         Single Phase                       Three Phase

**Estimated In-Service Date:** \_\_\_\_\_

**Site Control Documentation:** Documentation of site control must be submitted with the interconnection request as required by Code of Colorado Regulations, CCR 4 723-3, Rule 3665.

Site Control:     Ownership of Site     Option to Purchase Site     Other (specify) \_\_\_\_\_

**Energy Producing Equipment/Inverter Summary:**

Manufacturer:  
 Model No.: \_\_\_\_\_ Version No.: \_\_\_\_\_  
 Synchronous       Induction       Inverter       Other  
 Rating:      kW      Rating:      kVA  
 Generator Connection:  Delta       Wye Ungrounded       Wye Grounded  
 Generator Voltage:      Volts  
 System Type Tested:     Yes       No (attach product literature)  
 Equipment Type Tested:  Yes       No (attach product literature)

(Complete all applicable items, Copy this page as required for additional generators)			
<b>SYNCHRONOUS GENERATOR DATA</b>			
Unit Designation:	Total number of units with listed specifications on site:		
Manufacturer:			
Type:	Date of manufacture:		
Serial Number (each):			
Phases: 1 or 3	Speed:      RPM:	Frequency:	Hz
Rated Output (each unit) Kilowatt:	kW Kilovolt-Ampere:		kVA
Rated Power Factor:      %	Rated Voltage:      V	Rated Current:	A
Field Voltage:      V	Field Current:      A	Motoring Power:	kW
Synchronous Reactance ( $X_d$ ):	% on		kVA base
Transient Reactance ( $X'_d$ ):	% on		kVA base
Subtransient Reactance ( $X''_d$ ):	% on		kVA base
Negative Sequence Reactance ( $X_s$ ):	% on		kVA base
Zero Sequence Reactance ( $X_o$ ):	% on		kVA base
Neutral Grounding Resistor (if applicable):	Yes    No	Resistance:	Ohms
$I^2 t$ or K (heating time constant):			
Exciter data:			
Governor data:			
Additional Information:			
<b>INDUCTION GENERATOR DATA</b>			
Rotor Resistance ( $R_r$ ):	Ohms	Stator Resistance ( $R_s$ ):	Ohms
Rotor Reactance ( $X_r$ ):	Ohms	Stator Reactance ( $X_s$ ):	Ohms
Magnetizing Reactance ( $X_m$ ):	Ohms	Short Circuit Reactance ( $X_d''$ ):	Ohms
Design Letter:	Frame Size:		
Exciting Current:	Temp Rise (deg C°):		
Rated Output:	kW		
Reactive Power Required:	kVAr (no Load)		kVAr (full load)
For a wound-rotor machine, describe external equipment to be connected (resistor, rheostat, power converter, etc.) to rotor circuit, and circuit configuration. Describe ability, if any, to adjust generator reactive power output.			

<b>PRIME MOVER</b> (Complete all applicable items)				
Unit Designation:		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, etc.):				
Additional Information:				
<b>Type of Interconnected operation</b>				
Long term Parallel operation:	Yes	No		
Closed momentary transition:	Yes	No	Transition Closed Time:	seconds
Other (describe):				
<b>TRANSFORMER</b> (If applicable)				
Manufacturer:			kVA:	
Date of Manufacture:		Serial Number:		
High Voltage:	V	Connection: k delta k wye	Neutral solidly grounded? Yes No	
Low Voltage:	V	Connection: k delta k wye	Neutral solidly grounded? Yes No	
Transformer Impedance (Z):		% on	kVA base	
Transformer Resistance (R):		% on	kVA base	
Transformer Reactance (X):		% on	kVA base	
Neutral Grounding Resistor (if applicable)	Yes	No	Resistance:	Ohms
Additional Information:				
<b>INVERTER DATA</b> (If applicable)				
UL Pre-certified per UL 1741 and IEEE 929?	Yes	No	Certification Number:	
Manufacturer:		Model:		
Rated Power Factor (%):	Rated Voltage (Volts):	V	Rated Current (Amperes):	A
Inverter Type (ferroresonant, step, pulse-width modulation, etc.):				
Type of Commutation: k forced k 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:				
Additional Information:				
<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:		kV	Rated Ampacity (Amperes):		A
Interrupting Rating:		A	BIL Rating:		kV
Interrupting Medium (vacuum, oil, gas, etc.):			Insulating Medium (vacuum, oil, gas, etc.):		
Control Voltage (Closing):		(Volts)	k AC	k DC	
Control Voltage (Tripping):		(Volts)	k AC	k DC	k Battery k Charged Capacitor
Close Energy:	k Spring	k Motor	k Hydraulic	k Pneumatic	k Other
Trip Energy:	k Spring	k Motor	k Hydraulic	k Pneumatic	k Other
Bushings Current Transformers (Max. ratio):				Relay Accuracy Class:	
Multi Ratio?	k No	k Yes: (Available taps):			
Construction Schedule:	Start date:		Completion date:		
<b>MISCELLANEOUS</b> (Use this area and any additional sheets for applicable notes and comments)					

**ADDITIONAL REQUIREMENTS:** In addition to the items listed on this form, please attach:

- 1) Detailed One Line Diagram:     Yes
- 2) Installation Test Plan:         Yes
- 3) Site plan:                          Yes
- 4) Major equipment (generators, transformers, inverters, circuit breakers, protective relays, isolation disconnect) specifications:     Yes
- 5) Relaying detail:                  Yes                 Date: \_\_\_\_\_
- 6) Metering telemetry:              Yes                 Date: \_\_\_\_\_
- 7) Test reports attached:          Yes                 Date: \_\_\_\_\_
- 8) Other applicable drawings or documents necessary for the proper design of the interconnection:  
Describe \_\_\_\_\_

<b>ACCEPTANCE</b>	
The Customer agrees to provide Xcel Energy with any additional information required to complete the interconnection.	
_____	_____
Customer Signature	Date
Please upload this signed document to the Solar*Rewards program website, along with the Line Diagram and Site Plan for all systems over 10 kW.	