

# **DISTRIBUTED GENERATION**

# **INITIAL REQUIREMENTS**

(Parallel Operation) Below 50 KW Contact RCEC for anything above 50 kW

Member must:

- Provide the completed application and forms that are required seven (7) business days prior to construction, and
- 2. Provide copies of liability insurance, and
- 3. Pay all Fees: Application and Aid-To-Construction

 (see Application fees by class below):

 i. DG ≤ 15 kW
 Pages 6 - 9
 \$100.00

 ii. 15 < DG ≤ 50 kW</td>
 Pages 10 - 17
 \$150.00

4. Have an approved RCEC field inspection of installation before energizing.

#### RUSK COUNTY ELECTRIC COOPERATIVE, INC.

#### **APPLICATION FOR OPERATION OF MEMBER-OWNED GENERATION**

This application should be completed as soon as possible and returned to the Cooperative Member Service representative in order to begin processing the request.

INFORMATION: This application is used by the Cooperative to determine the required equipment configuration for the Member interface. Every effort should be made to supply as much information as possible.

#### PART 1. OWNER/APPLICANT INFORMATION

Company:			
Mailing Address:			
City:	County:	State:	Zip Code:
Phone Number:	Rep	presentative:	
PROJECT DESIG	N/ENGINEERIN	<b>G</b> (as applicable)	
Company:			
Mailing Address:			
City:	County:	State:	Zip Code:
Phone Number:	Rep	presentative:	
ELECTRICAL CON	ITRACTOR (as a	pplicable)	
Company:			
Mailing Address:			
City:	_ County:	State:	Zip Code:
Phone Number:	Rep	presentative:	
TYPE OF GENERA		,	
Photovoltaic_Wind		Microturbine _	
Diesel Engine:	Gas E	ngine:	Turbine Other:

#### ESTIMATED LOAD INFORMATION

The following information will be used to help properly design the Cooperative member interconnection. This information is not intended as a commitment or contract for billing purposes.

Total Site Peak Load(	(kW)	Total Member Generation Output:	_(kW)
Design Capacity	(kW)	Planned Maximum Output	_(kW)
MODE OF OPERATION (check all t	hat apply	<i>y</i> )	

Isolated \_\_\_\_\_ Paralleling \_\_\_\_\_ Power Export \_\_\_\_\_

# DESCRIPTION OF PROPOSED INSTALLATION AND OPERATION

Is the generator a "Qualifying Facility" as defined in Federal Energy Regulatory Commission Rules promulgated under Sections 201 and 210 of the Public Utility Regulatory Policies Act?

No\_\_\_\_\_ Yes\_\_\_\_\_

Has the Owner/Applicant filed a formal request with any Regional Transmission Organization or utility (other than the Cooperative) for transmission service? No\_\_\_\_\_ Yes\_\_\_\_\_ If yes (name of organization or utility):

Give a general description of the proposed installation, including when you plan to operate the generator.

If yes, member may be referred to the Cooperative's Wholesale Power Provider for interconnection.

# PART 2

(Complete all applicable items. Copy this page as required for additional generators.

# SYNCHRONOUS GENERATOR DATA

Unit Number:	Total numb	per of units	with liste	d specifications on sit	e:
Manufacturer:					
Type:	Date of	of manufac	ture:		
Serial Number (each):					
Phases: Single	Three	R.P.	М.:	Frequency (H	lz):
Rated Output (for one Rated Power Factor(%	unit): k	(ilowatt:		Kilovolt-Amper:	
Rated Power Factor(%	6): Rate	d Voltage	(Volts):	Rated Ampere	es:
Field Volts: Synchronous Reactan	_ Field Amps	S:	Motor	ing power (kW):	
Synchronous Reactan	Ce (X`d):	%	o on		KVA base
Transient Reactance (	(X U):	%	o On		
Subtransient Reactand	Ce (X 0):	%	₀ ON ⁄ on		
Negative Sequence R	$(X_{0})$	7 0	0011		
Zero Sequence React Neutral Grounding Re	sistor (if applicable	<i>7</i>	% ON		
		;)			
1/t of K (heating time of	constant)				
Additional information					
Rotor Resistance (Rr):		ohms	Stator R	Resistance (Rs)·	ohms
Rotor Reactance (Xr):					
Magnetizing Reactance					
Design letter:					
Exciting Current:				se (deg C° ):	
Reactive Power Requi	ired:Var	s (no load)	, Vars		(full load)
Additional Information	:				
PRIME MOVER (Com					
Unit Number: Type: _					
Manufacturer:					
Serial Number: H.P. Rates:		Date o	f manufa	cturer:	
H.P. Rates:	H.P. Max	X.:		Inertia Constant:	IDITZ
Energy Source (hydro					
		oto all ann	licabla ita		(botwcon
GENERATOR TRANS generator and utility sy Generator unit numbe	ystem)				·
Generator unit numbe					

Serial Number:		
High Voltage: KV, Connection:	delta wye, Neutral so	lidly grounded?
Low Voltage: KV, Connection:		
Transformer Impedance (Z):	% on	KVA base
Transformer Resistance (R):	% on	KVA base
Transformer Reactance (X):	% on	KVA base
Neutral Grounding Resistor (if applicable) :		
INVERTER DATA (if applicable) Manufacturer:	Model:	
Rate Power Factor(%): Rated Volt Inverter Type (ferroresonant, step, pulse-w		
Type commutation: forced		
Harmonic Distortion: Maximum Single Har	mile	
	monic(%)	
Note: Attach all available calculations, test output voltage and current waveforms.	( )	

#### **POWER CIRCUIT BREAKER** (if applicable)

Manufacturer:	Model:
Rated Voltage (kilovolts):	Rated ampacity (Amperes)
Interrupting rating (Amperes):	BIL Rating:
Interrupting medium/ insulating medium (ex	. Vacuum, gas, oil)/
Control Voltage (Closing): (Volt	s) AC DC
Control Voltage (Tripping): (Vol	ts) AC DC Battery Charged Capacitor
Close energy: Spring Motor Hydraulic	Pneumatic Other:
Trip energy: Spring Motor Hydraulic	Pneumatic Other:
Bushing Current Transformers:	(Max. ratio) Relay Accuracy Class:
Multi Ratio? No: Yes: (availa	ble taps):

# ADDITIONAL INFORMATION

In addition to the items listed above, please attach a detailed one-line diagram of the proposed facility, all applicable elementary diagrams, major equipment (generators, transformers, inverters, circuit breakers, protective relays, etc.), specifications, test reports, etc., and any other applicable drawings or documents necessary for the proper design of the interconnection.

If Approved for interconnection, member agrees to abide by the Cooperative's Tariffs for Electric Service and to regular Safety and Engineering inspections of the members facilities.

# SIGN OFF AREA

The member agrees to provide the Cooperative with any additional information required to complete the interconnection. The member shall operate his equipment within the guidelines set forth by the Cooperative.

Applicant: \_\_\_\_\_

Date: \_\_\_\_\_

# ELECTRIC COOPERATIVE CONTACT FOR APPLICATION SUBMISSION AND FOR MORE INFORMATION:

Cooperative contact: Title:	 	 
Address:		
Phone:		
Fax:		

# COOPERATIVE AGREEMENT FOR INTERCONNECTION AND PARALLEL OPERATION OF RENEWABLE MEMBER GENERATION FACILITIES OF 15 KW OR LESS

This agreement provides for the safe and orderly operation of the electrical facilities interconnecting the Member Generation Owner/Operator's renewable distributed generation (Member Generation) facility at and the electrical distribution facility owned by Cooperative.

This Agreement does not supersede any requirements of any by-laws, applicable tariffs, rates, rules and regulations in place between the Member Generation Owner/Operator and Cooperative.

1. **Intent of Parties**: It is the intent of the Member Generation Owner/Operator to interconnect an electric power generator to the Cooperative's electrical distribution system.

It is the intent of the Cooperative to operate the distribution system to maintain a high level of service to their members and to maintain a high level of power quality.

It is the intent of both parties to operate the facilities in a way that ensures the safety of the public and the Cooperative's employees.

2. **Design Requirements**: The Member Generation Owner/Operator's Distributed Generation facility shall be designed and installed in compliance with IEEE Standards.

# 3. Self-Protection of Customer Generation Facilities:

- a) The Member will furnish, install, operate and maintain in good order and repair all equipment necessary for the safe operation of Customer Generation facilities operated in parallel with the Cooperative system.
- b) For more information regarding specifications, contact Rusk County Electric Cooperative.

# 4. Safety Disconnect:

- a) The Member will install a visible load break disconnect switch at the Member's expense and to the Cooperative's specifications.
- b) The switch will be located so as to be readily accessible to Cooperative personnel in a location acceptable to both the Member and Cooperative.
- c) The switch shall be a type that can be secured in an open position by a lock owned by the Cooperative. If the Cooperative has locked the disconnect switch open, the Member shall not operate or close the disconnect switch.
- d) The Cooperative shall have the right to lock the switch open when, in the judgment of

the Cooperative:

- (1) It is necessary to maintain safe electrical operating and/or maintenance conditions,
- (2) The Member's Customer Generation adversely affects the Cooperative system, or
- (3) There is a system emergency or other abnormal operating condition warranting disconnection.
- e) The Cooperative reserves the right to operate the disconnect switch for the protection of the Cooperative system even if it affects the Member's Customer Generation facility. In the event the Cooperative opens and/or closes the disconnect switch:
  - (1) The Cooperative shall not be responsible for energization or restoration of parallel operation of the Customer Generation facility.
  - (2) The Cooperative will make reasonable efforts to notify the Member.
- f) The Member will not bypass the disconnect switch at any time for any reason.
- g) Signage may be required by the Cooperative at the Member's expense and located at the disconnect indicating the purpose of the switch along with contact names and numbers of both the Member and the Cooperative.
- 6. **Metering**: Metering shall be accomplished as described in the Cooperative's Tariff for Electric Service.
- 7. Suspension of Interconnection: It is intended that the interconnection should not compromise the Cooperative's protection or operational requirements. The operation of the Member Generation Owner/Operator's System and the quality of electric energy supplied by the Member Generation Owner/Operator shall meet the standards as specified by the Cooperative. If the operation of the Member Generation Owner/Operator's system or quality of electric energy supplied (in the case of power export) does not meet the standards as specified, then the Cooperative will notify the Member Generation Owner/Operator to take reasonable and expedient corrective action. The Cooperative shall have the right to disconnect the Member Generation Owner/Operator's System, until compliance is reasonably demonstrated. Notwithstanding, the Cooperative may in its sole discretion disconnect the Member Generation Owner/Operator's generating plant from the Distribution Facility without notice if the operating of the Member Generation imposes a threat, in the Cooperative's sole judgment, to life and property.
- 8. **Maintenance Outages:** Maintenance outages will occasionally be required on the Cooperative's system, and the Cooperative will provide as much notice and planning as practical to minimize downtime. It is noted that in some emergency cases such notice may not be practical. Compensation will not be made for unavailability of Cooperative's facilities due to outages.
- 9. Access: Access is required by the Cooperative to the Member Generation Owner/Operator's plant site for maintenance, operating and meter reading. The Cooperative reserves the right, but not the obligation, to inspect the Member Generation Owner/Operator's facilities.

- 10. **Insurance:** Throughout the term of this Agreement, the Member Generation Owner/Operator shall carry a liability insurance policy that provides for protection against claims for damages arising out of Member Generation Owner/Operator's ownership and/or operation of the Member Generation facility. The limits of such insurance policy shall be at least \$1,000,000 per occurrence or prove financial responsibility by another method acceptable, and approved in writing, to the Cooperative.
- 11. **Liability and Indemnification:** Member Generation Owner/Operator shall assume all liability for and shall indemnify the Cooperative for any claims, losses, costs, and expenses of any kind of character to the extent that they result from Member Generation Owner/Operator's negligence or other wrongful conduct in connection with the design, construction or operation of Member Generation Owner/Operator's facility.
- 12. **Term:** This document may be canceled by either party with not less than 30 days' notice to the other party.

AGREED TO DI	
Member Generation Owner/Operator	Rusk County Electric Cooperative, Inc
Name	Name
Title	Title
Date	Date

# COOPERATIVE AGREEMENT FOR INTERCONNECTION AND PARALLEL OPERATION OF MEMBER GENERATION

# SHORT FORM CONTRACT

This Interconnection Agreement ("Agreement") is made and entered into this \_\_\_\_\_day of \_\_\_\_\_\_\_, 20\_\_\_\_\_, by \_\_\_\_\_\_\_, ("Cooperative"), a corporation organized under the laws of Texas, and \_\_\_\_\_\_ ("Member Generation Owner/Operator"), each hereinafter sometimes referred to individually as "Party" or both referred to collectively as the "Parties". In consideration of the mutual covenants set forth herein, the Parties agree as follows:

The provisions of the Cooperative's Tariff for Electric Service shall be considered to be a part of this contract.

This agreement provides for the safe and orderly operation of the electrical facilities interconnecting the Member Generation Owner/Operator's facility at

and the electrical distribution facility owned by the Cooperative.

This Agreement does not supersede any requirements of any applicable tariffs in place between the Member Generation Owner/Operator and the Cooperative.

1. **Intent of Parties**: It is the intent of the Member Generation Owner/Operator to interconnect an electric power generator to the Cooperative's electrical distribution system.

It is the intent of the Cooperative to operate the distribution system to maintain a high level of service to their member and to maintain a high level of power quality.

It is the intent of both parties to operate the facilities in a way that ensures the safety of the public and their employees.

2. **Operating authority**: The Member Generation Owner/Operator is responsible for establishing operating procedures and standards within their organization. The operating authority for the Member Generation Owner/Operator shall ensure that the Operator in Charge of the generator is competent in the operation of the electrical generation system and is aware of the provisions of any operating agreements and regulations relating to the safe operation of electrical power systems.

The operating authority for the Member Generation Owner/Operator is:

Name or title of operating authority	
Address	
Phone number	

3. **Operator in Charge**: The operator in charge is the person identified by name or job title responsible for the real time operation of all electrical facilities related to the interconnection and owned by their organization.

The operator in charge for the Member Generation Owner/Operator is:

Name or title of operating authority	
Address	
Phone number	

#### 4. Self-Protection of Customer Generation Facilities:

- a) The Member will furnish, install, operate and maintain in good order and repair all equipment necessary for the safe operation of Customer Generation facilities operated in parallel with the Cooperative system.
- b) For more information regarding specifications, contact Rusk County Electric Cooperative.

# 5. Safety Disconnect:

- a) The Member will install a visible load break disconnect switch at the Member's expense and to the Cooperative's specifications.
- b) The switch will be located so as to be readily accessible to Cooperative personnel in a location acceptable to both the Member and Cooperative.
- c) The switch shall be a type that can be secured in an open position by a lock owned by the Cooperative. If the Cooperative has locked the disconnect switch open, the Member shall not operate or close the disconnect switch.
- d) The Cooperative shall have the right to lock the switch open when, in the judgment of the Cooperative:
  - (1) It is necessary to maintain safe electrical operating and/or maintenance conditions,
  - (2) The Member's Customer Generation adversely affects the Cooperative system, or
  - (3) There is a system emergency or other abnormal operating condition warranting disconnection.
- e) The Cooperative reserves the right to operate the disconnect switch for the protection of the Cooperative system even if it affects the Member's Customer Generation facility. In the event the Cooperative opens and/or closes the disconnect switch:
  - (1) The Cooperative shall not be responsible for energization or restoration of parallel operation of the Customer Generation facility.
  - (2) The Cooperative will make reasonable efforts to notify the Member.
- f) The Member will not bypass the disconnect switch at any time for any reason.
- g) Signage may be required by the Cooperative at the Member's expense and located at the disconnect indicating the purpose of the switch along with contact names and numbers of both the Member and the Cooperative.

# 7. Limitation of Liability and Indemnification:

a. Notwithstanding any other provision in this Agreement, with respect to the Cooperative's provision of electric service to Member Generation Owner/Operator and the services provided by the Cooperative pursuant to this Agreement, Cooperative's liability to Member Generation Owner/Operator shall be limited as set forth in the Cooperative's tariffs and terms and conditions for electric service, which are incorporated herein by reference.

- b. Neither Cooperative nor Member Generation Owner/Operator shall be liable to the other for damages for any act or omission that is beyond such party's control, including, but not limited to, any event that is a result of an act of God, labor disturbance, act of the public enemy, war, insurrection, riot, fire, storm, flood, explosion, breakage or accident to any part of the System or to any other machinery or equipment, a curtailment, law, order, or regulation or restriction by governmental, military, or lawfully established civilian authorities.
- c. Notwithstanding Paragraph 5.b of this Agreement, the Member Generation Owner/Operator shall assume all liability for, and shall indemnify Cooperative for, any claims, losses, costs, and expenses of any kind or character to the extent that they result from Member Generation Owner/Operator's negligence or other wrongful conduct in connection with the design, construction or operation of the Facilities or Interconnection Facilities. Such indemnity shall include, but is not limited to, financial responsibility for (a) monetary losses; (b) reasonable costs and expenses of defending an action or claim; (c) damages related to death or injury; (d) damages to property; and (e) damages for the disruption of business. This paragraph does not create a liability on the part of the Member Generation Owner/Operator to the Cooperative or a third person, but requires indemnification where such liability exists.
- d. Cooperative and Member Generation Owner/Operator shall each be responsible for the safe installation, maintenance, repair and condition of their respective lines, wires, switches, or other equipment or property on their respective sides of the Point of Interconnection. The Cooperative, while retaining the right to inspect, does not assume any duty of inspecting the Member Generation Owner/Operator's lines, wires, switches, or other equipment or property and will not be responsible therefore. Member Generation Owner/Operator assumes all responsibility for the electric service supplied hereunder and the facilities used in connection therewith at or beyond the Point of Interconnection.
- e. For the mutual protection of the Member Generation Owner/Operator and the Cooperative, only with Cooperative prior written authorization are the connections between the Cooperative's service wires and the Member Generation Owner/Operator's service entrance conductors to be energized.
- 8. **Metering**: Metering shall be accomplished as described in the Cooperative's Tariffs for Electric Service.
- 9. **Insurance:** Throughout the term of this Agreement, the Member Generation Owner/Operator shall carry a liability insurance policy that provides for protection against claims for damages arising out of Member Generation Owner/Operator's ownership and/or operation of the Member Generation facility. The limits of such insurance policy shall be at least \$1,000,000 per occurrence or prove financial responsibility by another method acceptable, and approved in writing, to the Cooperative.
- 10. **Suspension of Interconnection**: It is intended that the interconnection should not compromise the Cooperative's protection or operational requirements. The operation of the Member Generation Owner/Operator's System and the quality of electric energy supplied by the Member Generation Owner/Operator shall meet the standards as

specified by the Cooperative. If the operation of the Member Generation Owner/Operator's system or quality of electric energy supplied (in the case of power export) does not meet the standards as specified, then (the Cooperative) will notify the Member Generation Owner/Operator to take reasonable and expedient corrective action. The Cooperative shall have the right to disconnect the Member Generation Owner/Operator's System, until compliance is reasonably demonstrated. Notwithstanding, the Cooperative may in its sole discretion disconnect the Member Generation Owner/Operator's generating plant from the Distribution Facility without notice if the operating of the Member Generation may be or may become dangerous to life and property.

11. **Disconnection of Unit** - Member Generation Owner/Operator retains the option to disconnect its Facilities from the System, provided that Member Generation Owner/Operator notifies the Cooperative of its intent to disconnect by giving the Cooperative at least thirty (30) days' prior written notice. Such disconnection shall not be a termination of the agreement unless Member Generation Owner/Operator exercises rights under Section 13.

Member Generation Owner/Operator shall disconnect Facilities from the System upon the effective date of any termination under Section 13.

Cooperative shall have the right to suspend service in cases where continuance of service to Member Generation Owner/Operator will endanger persons or property. During the forced outage of the System serving Member Generation Owner/Operator, Cooperative shall have the right to suspend service to effect repairs on the System, but the Cooperative shall endeavor to provide the Member Generation Owner/Operator with reasonable prior notice.

- 12. **Compliance with Laws, Rules and Tariffs**: Both the Cooperative and the Member Generation Owner/Operator shall be responsible for complying with all applicable laws, rules and regulations, including but not limited to the laws of the state of Texas and the Cooperative's Tariffs, Rules and Regulations, By-Laws and other governing documents. The interconnection and services provided under this Agreement shall at all times be subject to the terms and conditions set forth in the tariff schedules and rules of the Cooperative as applicable to the electric service provided by the Cooperative, which tariffs and rules are hereby incorporated into this Agreement by this reference. The Cooperative shall have the right to publish changes in rates, classification, service or rule, with the proper notification to all Cooperative members.
- 13. **Design Reviews and Inspections** The Member Generation Owner/Operator shall provide to the Cooperative the following documentation and inspection results:

a. <u>One-Line Diagram</u>. The diagram shall include at a minimum, all major electrical equipment that is pertinent to understanding the normal and contingency operations of the Member Generation Interconnection Facilities, including generators, switches, circuit breakers, fuses, protective relays and instrument transformers.

b. <u>Testing Records</u>. Testing of protection systems shall be limited to records of compliance with standard acceptance procedures and by industry standards and practices. These records shall include testing at the start of commercial operation and periodic testing thereafter.

- 14. **Right of Access, Equipment Installation, Removal & Inspection** The Cooperative may send an employee, agent or contractor to the premises of the Member Generation Owner/Operator at any time whether before, during or after the time the Facilities first produces energy to inspect the Interconnection Facilities, and observe the Facility's installation, commissioning (including any testing), startup, and operation.
- 15. **Maintenance Outages**: Maintenance outages will occasionally be required on the Cooperative's system, and the Cooperative will provide as much notice and planning as possible to minimize downtime. It is noted that in some emergency cases such notice may not be possible. Compensation will not be made for unavailability of Cooperative's facilities due to outages.
- 16. **Force Majeure**: For the purposes of this Agreement, a Force Majeure event is any event:

(a) that is beyond the reasonable control of the affected party; and (b) that the affected party is unable to prevent or provide against by exercising reasonable diligence, including the following events or circumstances, but only to the extent that they satisfy the preceding requirements: acts of war, public disorder, rebellion or insurrection; floods, hurricanes, earthquakes, lighting, storms or other natural calamities; explosions or fires; strikes, work stoppages or labor disputes; embargoes; and sabotage. If a Force Majeure event prevents a party from fulfilling any obligations under this agreement, such party will promptly notify the other party in writing and will keep the other party informed on a continuing basis as to the scope and duration of the Force Majeure event. The affected party will specify the circumstances of the Force Majeure event, its expected duration and the steps that the affected party is taking to mitigate the effect of the event on its performance. The affected party will be entitled to suspend or modify its performance of obligations under this Agreement but will use reasonable efforts to resume its performance as soon as possible.

- 17. **Severability**: If any portion or provision of this Agreement is held or adjudged for any reason to be invalid or illegal or unenforceable by any court of competent jurisdiction, such portion shall be deemed separate and independent, and the remainder of this Agreement shall remain in full force and effect.
- 18. **Amendment**: This Agreement may be amended only upon mutual agreement of the Parties, which amendment will not be effective until reduced to writing and executed by the Parties.
- 19. **Term:** This document may be canceled by either party with 30-day notice to the other party.

# AGREED TO BY

Member Generation Facility Owner/Operator	Rusk County Electric Cooperative
Name	Name
Title	Title
Date	Date

# EXHIBIT A DESCRIPTION OF FACILITIES AND POINT OF INTERCONNECTION

Member Generation Owner/Operator will, at its own cost and expense, operate, maintain, repair, and inspect, and shall be fully responsible for its Facilities, unless otherwise specified on Exhibit A

# FACILITIES SCHEDULE NO.

[The following information is to be specified for each Point of Interconnection, if applicable]

1.	
2.	Facilities location:
3.	Delivery voltage:
4.	Metering (voltage, location, losses adjustment due to metering location, and other:
5.	Normal Operation of Interconnection:
6.	One line diagram attached (check one):/Yes/No
7.	Facilities to be furnished by Cooperative:
8.	Facilities to be furnished by Member Generation Owner/Operator:
9.	Cost Responsibility:
10	. Control area interchange point (check one): /Yes/No
11.	. Supplemental terms and conditions attached (check one): /Yes /No
12.	. Cooperative rules for Member Generation interconnection attached (check one): Yes/No
RU	ISK COUNTY ELECTRIC COOPERATIVE, INC.] [[MEMBER GENERATION FACILITY OWNER/OPERATOR NAME]
ΒY	/:BY:
TIT	۲LE: TITLE:
DA	TE: DATE: