

**FORT LOUDOUN ELECTRIC COOPERATIVE
INTERCONNECTION AGREEMENT FOR SMALL GENERATION (LESS THAN 50 kW)**

This INTERCONNECTION AGREEMENT FOR SMALL GENERATION (LESS THAN 50 kW), (the "Agreement"), is entered into as of _____, 20____, (the "Effective Date"), by and between

_____ hereinafter called "Member", and Fort Loudoun Electric Cooperative, hereinafter called "Cooperative". Member and Cooperative are hereinafter collectively referred to as the "Parties" or "Party". In consideration of the mutual covenants set forth herein, the Parties agree as follows:

1. SCOPE OF AGREEMENT:

- (a) This Agreement relates solely to the conditions under which Cooperative and Member agree that Member's generation system and equipment, hereinafter the "Generator", and located at or near _____ may be interconnected to and operated in parallel with Cooperative's electric system. This Agreement does not authorize Member to export power or constitute an agreement to purchase or wheel Member's power. Other services that Member may require from Cooperative shall be covered under separate agreements.
- (b) Cooperative will supply the electrical requirements of Member that are not supplied by Member's Generator. Such electric service shall be supplied to Member under Cooperative's rates schedules, riders, and services regulations applicable to Member's class of service.

2. INTERCONNECTION:

- (a) Cooperative hereby authorizes Member to interconnect and commence operation under the terms of this Agreement on or after _____ subject to Member having received Cooperative's written acceptance specified in 2. (f) (See item below).
- (b) Member's Generator must be manufactured, installed and operated in accordance with governmental and industry standards.
- (c) Member's Generator shall be installed as described in Application for Operation of Customer-Owned Generation, a copy attached hereto and made a part hereof.
- (d) The nameplate output of the Generator is _____ kW in the form of _____ phase, _____ wires, alternating current of 60 hertz frequency and at _____ volts.
- (e) The point of interconnection between Member and Cooperative hereunder will be the generation meter provided by and installed by the Cooperative on the Member's meter base.
- (f) Member shall not interconnect Member's Generator with Cooperative's electric system nor commence parallel operation of Member's Generator until both Parties have accepted this Agreement and the requirements for interconnection have been met. Cooperative shall have the right and opportunity to have representatives present at the initial testing of Member's protective apparatus. Member shall notify Cooperative 5 business days prior to the initial testing. In the event Member has interconnected Member's Generator without Cooperative's acceptance of this Agreement or the Generator has not met the requirements of the Interconnection Agreement, Cooperative shall have the right to immediately isolate Member's premises and/or Generator from Cooperative's system until Cooperative's acceptance is granted and the requirements of the Interconnection Agreement have been met.

- (g) Member shall not make any changes to the Generator output capacity and/or modification to the protection system required to meet the Interconnection Agreement without first submitting a new Application for Operation of Customer-Owned Generation and obtaining a new acceptance from Cooperative before making the changes to the Generator.
- (h) **Isolation Device:** Member shall install a manual load-break, fused, disconnect switch with a clear visible indication of switch position between Cooperative's electric system and Member's Generator. The Cooperative in its sole discretion determines if the device is suitable.
- (i) **Warning Label:** Member will install a permanent warning label in a conspicuous place in close proximity to the electric meter or on the meter base to notify Cooperative personnel that there is a generator installed on the load side of the meter. The warning label shall not be placed in a location that would interfere with the ability of Cooperative personnel to read the electric meter. Member shall also place a warning label on the Isolation Device. The warning labels must be in place before the Generator can be interconnected with Cooperative's system.
- (j) The installation of the Generator and all equipment in the system must comply with the latest published edition of IEEE 929 and IEEE 1547 as applicable.
- (k) Future IEEE Standards and/or Recommended Practices: IEEE P1547.1, P1547.2, and P1547.3 are still proposed draft documents and still in working groups at the time of writing this agreement. Generators interconnected after these standards are published may be required to comply with these IEEE documents.
- (l) The customer's inverter or interconnection protection system must be tested and listed for compliance with the latest published edition of Underwriters Laboratories, Inc. (UL) 1741.
- (m) The Generator must be a non-islanding type as defined in IEEE 929.
- (n) The Generator must pass the anti-islanding test in UL 1741.
- (o) The Customer's inverter or interconnection protection system must be manufactured after November 7, 2000.
- (p) Any protection settings affecting anti-islanding performance must not be adjusted after passing anti-islanding tests.
- (q) The grounding scheme of the Generator shall comply with IEEE 1547.
- (r) Existing customers of the Cooperative must have at least twelve (12) months of historical annual energy usage data from the site.
- (s) Systems with a generation nameplate capacity of up to 10 kW DC are not subject to any load or energy usage requirements.
- (t) If the nameplate capacity of the system is greater than 10 kW DC, the system will be subject to site energy usage requirements. In this case the system nameplate capacity is limited to the lesser of (i) 50 kW DC or (ii) the kW capacity that is designed to generate no more than the yearly average kW, as determined by the twelve (12) months of historical annual energy usage data from the site.
- (u) Cooperative WILL NOT ALLOW any batteries, battery banks, or any other means of energy storage to be installed on a grid-tied customer generation system. Any batteries, battery banks, or any other means of energy storage could only be installed and connected to a completely separate and stand-alone system that provided no means of ever being connected to the grid.
- (v) Cooperative WILL NOT ALLOW any Hybrid Inverter to be installed on a grid-tied system.

3. COSTS AND FEES

The cost to Member for all Cooperative owned and maintained facilities constructed and/or installed by Cooperative to accommodate the interconnection and safe operation of Member's Generator in parallel with Cooperative's electric system shall be determined by the Cooperative in accordance with prudent utility practice. Costs shall include the following:

- (a) **Interconnection Application Fee:** The nonrefundable and nontransferable interconnection application fee covers only the application process for interconnection of generators and shall

be \$500.00.

- (b) **Facility Inspection Fee:** Each facility will be subject to inspection(s) by Cooperative personnel prior to parallel operation commencement. Each inspection shall be in the amount of \$50.00
- (c) **Generation Meter Service Charge:** The Generation Meter Service Charge shall be applied monthly to the Member's account in an amount calculated per Cooperative's Operational Policy applicable.
- (d) **Facilities 50kW and Greater:** A Generation Meter Service Charge shall be calculated for facilities 50kW and greater; this agreement is not applicable for systems 50kW and greater.

4. **RIGHT OF ACCESS AND EQUIPMENT INSTALLATION:**

- (a) **Access To Premises:** The duly authorized agents of Cooperative shall have the right of ingress and egress to the premises of Member at all reasonable hours, over the same general route as Member utilizes, for the purpose of reading meters, inspecting Cooperative's wiring and apparatus, changing, exchanging, or repairing its property on the premises of Member and to remove such property at the time of or at any time after the suspension of interconnection of the Generator or termination of this Agreement. Cooperative shall have access to Member's Isolation Device at all times.
- (b) Cooperative's obligation to provide the interconnection as covered in this Agreement on the agreed upon Effective Date is contingent upon Cooperative receiving the rights-of-way and receiving the necessary equipment in sufficient time to install it on or before that date.

5. **MAINTENANCE OF INTERCONNECTION FACILITIES:** Member shall maintain Member's Generator and all related Member-owned protective equipment and facilities in a safe and prudent manner, conforming to all applicable laws and regulations. Member shall reimburse Cooperative for any and all losses, damages, claims, penalties or liability Cooperative incurs as a result of Member's failure to maintain the Generator, equipment, and facilities in a safe and prudent manner or failure to obtain and/or maintain any governmental authorizations or permits required for construction and operation of Member's facility.

6. **DISCONNECTION OF GENERATOR:** Cooperative may isolate Member's premises and/or Generator from Cooperative's system when necessary in order to construct, install, repair, replace, remove, investigate, or inspect any of Cooperative's equipment or part of Cooperative's system; or if Cooperative determines that isolation of Member's premises and/or Generator from Cooperative's system is necessary because of emergencies, forced outages, Force Majeure or compliance with prudent electrical practices. Whenever feasible, Cooperative shall give Member reasonable notice of the possible isolation of Member's premises and/or Generator from Cooperative's system. Notwithstanding any other provision of this Agreement, if at any time Cooperative determines that either the Generator may endanger Cooperative's personnel or other persons or property, or the continued operation of Member's Generator may endanger the integrity or safety of Cooperative's electric system, Cooperative shall have the right to isolate Member's premises and/or Generator from Cooperative's system. **It is agreed that Cooperative shall have no liability for any loss of sales or other damages, including all punitive and consequential damages for the loss of business opportunity, profits, or other losses, regardless of whether such damages were foreseeable, for the isolation of Member's premises and/or Generator from Cooperative's system per this Agreement.** Cooperative shall expend reasonable effort to reconnect the Member's premises and/or Generator with the Cooperative's system in a timely manner.

7. PERMITS AND APPROVALS:

- (a) Member shall obtain all environmental and other permits required by governmental authorities prior to construction, installation, and interconnection of the Generator. Member shall also maintain these applicable permits and compliance with these permits during the term of this Agreement.
- (b) All installed wiring, protection devices, cabinets, and connectors, etc. must comply with the latest published edition of the NEC as used by the local jurisdiction and all applicable local codes. An approved electrical inspection by the authority having jurisdiction is required.

8. INDEMNITY AND LIABILITY:

- (a) **Limitation of Liability:** Each party's liability to the other party for any loss, cost, claim, injury, liability, or expense, including reasonable attorney's fees, relating to or arising from any act or omission hereunder, shall be limited to the amount of direct damage actually incurred. In no event shall either party be liable to the other party for any indirect, special, incidental, consequential, or punitive damages of any kind.
- (b) **Indemnification:** The parties shall at all times indemnify, defend and save the other party harmless from any and all damages, losses, claims, including claims and actions relating to injury or death of any person or damage to property, demand, suits, recoveries, costs and expenses, court costs, attorney's fees, and all other obligations by or to third parties, arising out of or resulting from the other party's action or inaction of its obligations hereunder on behalf of the indemnifying party, except in cases of gross negligence or intentional wrongdoing by the indemnified party.
- (c) The provisions of Section 8.(a) shall not be construed to relieve any insurer of its obligations to pay any claims in accordance with the provision of any valid insurance policy.
- (d) If Member at any time fails to comply with the insurance provisions of this Agreement, Member shall, at its own cost, defend, save harmless and indemnify Cooperative, its directors, officers, employees, agents, assignees, and successors in interest from and against any and all loss, liability, damage, claim, cost, charge, demand, or expense of any kind or nature (including attorney's fees and other costs of litigation) resulting from the death or injury to any person or damage to any property, including the personnel and property of Cooperative, its contractors, its members, and/or the public to the extent that Cooperative would have been protected had Member complied with all such insurance provisions. The inclusion of this Section 8.(d) is not intended to create any express or implied right in Member to elect not to provide any such required insurance.
- (e) Member shall be responsible for installing and maintaining devices adequate to protect against damages caused by irregularities or outages on Cooperative's system, regardless of the cause or fault, including devices to protect against voltage fluctuations and single phasing.

9. INSURANCE:

- (a) Member shall obtain and retain, for as long as its Generator is interconnected with the Cooperative's system, liability insurance which protects Member from claims for bodily injury and/or property damage. For a non-residential Member the minimum coverage shall be comprehensive general liability insurance with coverage at least \$300,000 per occurrence and for a residential Member the minimum coverage shall be at a standard homeowner's insurance policy with liability coverage in the amount of at least \$100,000 per occurrence. Prior to interconnection of the Generator with Cooperative's system, Member shall furnish a properly executed certificate of insurance to Cooperative clearly evidencing the required coverage and any exclusions applicable to such coverage. The certificate shall provide that the insurance coverage shall not be canceled or modified unless and until Cooperative receives at least thirty

(30) days prior written notice. Member shall further replace such certificates for policies expiring during the period its Generator is interconnected with Cooperative's system. Cooperative has the right to refuse to establish or continue the interconnection of Member's generation facility to Cooperative's system if such insurance is not in effect.

- (b) Insurance on the premises where the Member's Generator is located shall, by endorsement to the policy or policies, provide for thirty (30) days of written notice to Cooperative prior to cancellation, termination, alteration, or material change of such insurance.

10. FORCE MAJEURE: For purposes of this Agreement, Force Majeure shall mean any act of God, labor disturbance, act of the public enemy, war, terrorism, insurrection, riot, fire, storm or flood, explosion, breakage or accident to machinery or equipment, any order, regulation or restriction imposed by governmental, military or lawfully established civilian authorities, or any other caused beyond a Party's control. A Force Majeure event does not include an act of negligence or intentional wrongdoing.

11. NON-WARRANTY: Cooperative's approvals given pursuant to this Agreement or actions taken hereunder shall not be construed as any warranty or representation to Member or any third party regarding the safety, durability, reliability, performance or fitness of Member's generation and service facilities, its control or protective devices or the design, construction, installation or operation thereof.

12. EFFECTIVE TERM AND TERMINATION RIGHTS: This Agreement becomes effective when executed by both parties and shall continue in effect until terminated. The Agreement may be terminated in accordance with the following:

- (a) If Member desires to terminate the Agreement, Cooperative will agree to such termination if Cooperative is satisfied that Member no longer can operate Member's Generator in parallel with Cooperative's system at the premises and all bills for services previously rendered to Member, plus any applicable termination charges, have been paid. Cooperative may waive the termination charges if Cooperative has secured or expects to secure from a new occupant or operator of the premises an Agreement satisfactory to Cooperative for the interconnection to Cooperative for a term not less than the unexpired portion of Member's Agreement.
- (b) Cooperative, in addition to all other legal remedies, may either terminate the Agreement or suspend interconnection with Member (1) for any default or breach of Agreement by Member, (2) for failure to pay any applicable bills when due and payable, (3) for a condition on Member's side of the point of interconnection actually known by Cooperative to be, or which Cooperative reasonably anticipates may be, dangerous to life or property, (4) if Member either fails to energize the Generator within 12 months of the Effective Date of this Agreement or permanently abandons the Generator, or (5) by giving the Member at least sixty days notice in the event that there is a material change in an applicable rule or statute concerning interconnection and parallel operation of the Generator, unless the Member's installation is exempted from the change or the Member complies with the change in a timely manner. No such termination or suspension, however, will be made by Cooperative without written notice delivered to Member, personally or by mail, stating what in particular in the Agreement has been violated, except that no notice need to be given in instances set forth in 12.(b)(3) above. Failure to operate the Generator for any consecutive 12 month period after the Effective Date shall constitute permanent abandonment unless otherwise agreed to in writing between the Parties.

13. GENERAL:

- (a) This Agreement and the applicable Schedule, Riders, Interconnection Standard, Service Regulations, and Terms and Conditions For the Purchase of Electric Power hereto attached are

subject to changes or substitutions, either in whole or in part, made from time to time by a legally effective filing of Cooperative with, or by order of, the regulatory authority having jurisdiction, and each party to this Agreement reserves the right to seek changes or substitutions, in accordance with law, from such regulatory authority. Unless specified otherwise, any such changes or substitutions shall become effective immediately and shall nullify all prior provisions in conflict therewith.

(b) **Headings:** The descriptive headings of the various sections of this Agreement have been inserted for convenience of reference only and are to be afforded no significance in the interpretation or construction of this Agreement.

- 14. ENTIRE AGREEMENT:** This Agreement and the documents attached hereto constitute the entire Agreement between the Parties relating to the subject matter hereof, there being no other agreements or understandings, written or oral, other than those contained in this Agreement and the attachments hereto. This Agreement does not modify, change or impact any other agreement between the Parties relating to the supply of electric service, or the sale of, or purchase of, electric power.
- 15. AMENDMENTS:** The Parties may amend this Agreement but such amendment may only be effective and enforceable if it is set forth in a written instrument signed by both Parties.
- 16. ASSIGNMENT:** Member shall not assign its rights nor delegate its duties under this Agreement without Cooperative's written consent. Any assignment or delegation Member makes without Cooperative's written consent shall not be valid. Cooperative shall not unreasonably withhold its consent to Member's assignment of this Agreement. An assignee or new member must submit a new Application for Operation of Customer-Owned Generation to Cooperative and obtain Cooperative's written approval before any assignment shall occur. Member assumes the responsibility of ensuring a new member or assignee is aware the new member or assignee must re-apply and obtain Cooperative's written acceptance or the equipment must be removed or disabled to prevent future interconnection and/or operation.
- 17. THIRD PARTIES:** This Agreement is intended solely for the benefit of the parties hereto. Nothing in this Agreement shall be construed to create any duty to, or standard of care with reference to, or any liability to, any person not a party of this Agreement.
- 18. GOVERNING LAW:** This Agreement shall be governed under laws of the State in which the interconnection between the facilities of Cooperative and Member, which is the subject hereof, is located.
- 19. SEVERABILITY:** If any provision or portion of this Agreement shall for any reason be held or adjudged to be invalid or illegal or unenforceable by any court of competent jurisdiction, such portion or provision shall be deemed separate and independent, and the remainder of this Agreement shall remain in full force and effect.
- 20. WAIVER:** No delay or omission in the exercise of any right under this Agreement shall impair any such right or shall be taken, construed or considered as a waiver or relinquishment thereof, but any such right may be exercised from time to time and as often as may be deemed expedient. In the event that any agreement or covenant herein shall be breached and thereafter waived, such waiver shall be limited to the particular breach so waived and shall not be deemed to waive any other breach hereunder.
- 21. MEMBER CERTIFICATION:** By signing this Agreement below, Member hereby certifies that, to the

best of Member's knowledge, all of the information provided in the Application for Operation of Customer-Owned Generation is true and correct, the Generator will comply with the Interconnection Standard, and that Member has received and reviewed this Agreement.

22. ACCEPTANCE AND SIGNATURES: Upon the acceptance hereof by Cooperative, evidenced by the signature of its authorized representative appearing below, this document shall be an Agreement for the interconnection of Member's Generator to Cooperative's system.

Witness as to Member:

_____ **Member**
By _____
Title _____
This _____ day of _____ 20 ____

Address of Member:

Accepted: FORT LOUDOUN ELECTRIC COOPERATIVE

By _____
Title _____
This _____ day of _____ 20 ____

FORT LOUDOUN ELECTRIC COOPERATIVE

Application for Operation of Customer-Owned Generation

This application should be completed 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 Customer interface. Every effort should be made to supply as much information as possible.

PART 1

OWNER/APPLICANT INFORMATION

Owner/Customer

Name: _____

Mailing Address: _____

City: _____ County: _____ State: _____ Zip Code: _____

Phone Number: _____ Representative: _____

Email Address: _____ Fax Number: _____

PROJECT DESIGN/ENGINEERING (ARCHITECT) (as applicable)

Company: _____

Mailing Address: _____

City: _____ County: _____ State: _____ Zip Code: _____

Phone Number: _____ Representative: _____

Email Address: _____ Fax Number: _____

ELECTRICAL CONTRACTOR (as applicable)

Company: _____

Mailing Address: _____

City: _____ County: _____ State: _____ Zip Code: _____

Phone#: _____ Representative: _____

Email Address: _____ Fax#: _____

TYPE OF GENERATOR (as applicable)

Photovoltaic _____ Wind _____ Microturbine _____

ESTIMATED LOAD, GENERATOR RATING AND MODE OF OPERATION INFORMATION

The following information is necessary to help properly design the Cooperative customer interconnection. This information is not intended as a commitment or contract for billing purposes.

Total Site Load _____ (kW)

Residential _____ Commercial _____ Industrial _____

Generator Rating _____ (kW) Annual Estimated Generation _____ (kWh)

Mode of Operation

Isolated _____ Paralleling _____ Power Export _____

DESCRIPTION OF PROPOSED INSTALLATION AND OPERATION

Give a general description of the proposed installation, including a detailed description of its planned location, the date you plan to operate the generator, the frequency with which you plan to operate it and whether you plan to operate it during on or off-peak hours.

PART 2

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

SYNCHRONOUS GENERATOR DATA

Unit Number: _____ Total number of units with listed specifications on site: _____

Manufacturer: _____ Type: _____

_____ Date of manufacture: _____

Serial Number (each): _____ Phases: Single

Three R.P.M.: _____ Frequency (Hz): _____

Rated Output (for one unit): _____ Kilowatt _____ Kilovolt-Ampere Rated

Power Factor (%): _____ Rated Voltage (Volts): _____ Rated Amperes: _____

Field Volts: _____ Field Amps: _____ 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): _____

$I_2^2 t$ or K (heating time constant): _____

Additional information: _____

INDUCTION GENERATOR DATA

Rotor Resistance (Rr): _____ ohms Stator Resistance (Rs): _____ ohms

Rotor Reactance (Xr): _____ ohms Stator Reactance (Xs): _____ ohms

Magnetizing Reactance (Xm): _____ ohms Short Circuit Reactance (Xd''): _____ ohms Design letter: _____ Frame Size: _____

Exciting Current: _____ Temp Rise (deg C): _____ Reactive

Power Required: _____ Vars (no load), _____ Vars (full load) Additional information: _____

PRIME MOVER (Complete all applicable items)

Unit Number: _____ Type: _____ Manufacturer: _____

Serial Number: _____ Date of manufacture: _____

H.P. Rated: _____ H.P. Max.: _____ Inertia Constant: _____ lb.-ft.² Energy

Source (hydro, steam, wind, etc.) _____

GENERATOR TRANSFORMER (Complete all applicable items)

TRANSFORMER (between generator and utility system)

Generator unit number: _____ Date of manufacturer: _____

Manufacturer: _____

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): _____

INVERTER DATA (if applicable)

Manufacturer: _____ Model: _____

Rated Power Factor (%): _____ Rated Voltage (Volts): _____ Rated Amperes: _____

Inverter Type (ferroresonant, step, pulse-width modulation, etc): _____

Type commutation: forced line

Harmonic Distortion: Maximum Single Harmonic (%) _____

Maximum Total Harmonic (%) _____

Note: Attach all available calculations, test reports, and oscillographic prints showing inverter 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): _____ (Volts) AC DC

Control Voltage (Tripping): _____ (Volts) 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: (Available 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. Also describe the project's planned operating mode (e.g., combined heat and power, peak shaving, etc.), and its address or grid coordinates.

END OF PART 2

SIGN OFF AREA

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

Applicant Date