

GARKANE ENERGY COOPERATIVE, INC.

ARIZONA

Distributed Generation Interconnection Application

Level 2 and 3

Over 10 kW Generation Capacity

This application should be completed by Interconnection Customers that are not eligible for net metering and with facility nameplate capacities no larger than 20 MW. This application form applies to all generating facilities except inverter-based generating facilities with a capacity of 10 kW or less. The Interconnection Customer is to complete all fields of this application form to the extent that such requested information is applicable to the proposed Generating Facility. If questions exist about the applicability of the requested information or assistance is needed, please contact the designated contact person identified below. The completed application should be submitted to:

Designated Contact Person: Mike Avant, Engineering Manager

Address: 1802 South Highway 89A, Kanab, Utah 84741

Telephone Number: 435-644-5026

Facsimile Number: 435-644-8120

E-Mail Address: mavant@garkaneenergy.com

Legal Name of the Customer (or, if an individual, individual's name):

Name: _____

Contact Person: _____

Mailing Address: _____

Physical Address: _____

City: _____ State: _____ Zip Code: _____

Telephone (Daytime): _____ (Evening): _____

Cell Phone: _____

Fax Number: _____

E-Mail Address: _____

System Installer/Consulting Engineer:

Name: _____

Contact Person: _____

Mailing Address: _____

Physical Address: _____

City: _____ State: _____ Zip Code: _____

Telephone (Daytime): _____ (Evening): _____

Cell Phone: _____

Facsimile Number: _____

E-Mail Address: _____

Electric Service Information for Applicant's Facility Where Generator Will Be Interconnected:

Application is for: ___ New Generating Facility ___ Capacity addition to existing Generating Facility

If capacity addition to existing Generating Facility, please describe:

Will the Generating Facility be used for any of the following?

To Supply Power to the Interconnection Customer? ___ Yes ___ No

To Supply Power to Others? ___ Yes ___ No

Location of Proposed Generating Facility will interconnect, provide:

Physical Address: _____

City: _____ State: _____ Zip: _____

Garkane Account Number: _____

Garkane Meter Number: _____

Garkane Transformer Number: _____

Type of Service: Single Phase Three Phase

Service Voltage: _____

Requested Point of Interconnection:

Requested In-Service Date: _____

Is Facility going to be a Qualified Facility ("QF")? Yes No

If yes, has Applicant completed FERC "Notice of Self Certification"? Yes No

Applicability

Applicable to "Net Metering Facility" as defined below, or applicable Commission Decision, where facilities of adequate capacity and the required phase and suitable voltage are adjacent to the sites served and which meet ALL of the following conditions:

1. Generator must be installed at a service receiving electric service on or adjacent to the customer's Primary Service, subject to the cooperative's service requirements. (Primary Service).
2. Generator must be incidental to the Primary Service, installed on the customer's premises, and used to supply some or all of the customer's loads.
3. Generator capacity shall not be more than 125% of the Net Metering customer's total connected load as determined by the following:
 - a. For customers with a demand history it will be 125% of the highest demand in the most current 12 month period.

- b. In the absence of demand data (for residential and small business) the highest 12 months (Calendar Year) kWh consumption in the previous three years will be divided by 2190 (to determine the 100% capacity level in kW which will achieve a “net zero” home or business) and multiplied by 125%.

Interconnection

A customer that installs a Net Metering Facility is not required to take service under the Net Meter Tariff but still must comply with the Cooperative’s interconnection standards[, including, but not limited to, the following:]

1. Generator must have a maximum output of less than 10% of the nearest source side primary voltage protective device, and must be less than 80% of the installed transformer capacity at the Primary Service.
2. The maximum aggregate generation must not exceed 15% of the maximum load on the feeder.
3. Generator must have the same output voltage and phasing as the Primary Service.
4. Generator must have positive “anti islanding” capability per UL1741.
5. Generator must have output voltage with less than 1% Total Harmonic Distortion (THD), current output with less than 2% THD, and be operated with a 1.0 to .95% lagging Power Factor. Leading power factor operation will not be permitted.
6. Generator must be provided with a “Visible Disconnect Switch” per NESC requirements, which can be padlocked in the OPEN position and is accessible to Garkane personnel at all times. Disconnect must be permanently and visibly marked as “GENERATOR DISCONNECT” in letters at least 2” high.
7. The electrical function, operation, or capacity of a customer generation system, at the point of connection to the electrical corporation’s distribution system, may not compromise the quality of service to the electrical corporation’s other customers.

Requested Procedure Under Which to Evaluate Interconnection Request:

Please indicate below which review procedure applies to the interconnection request.

____ Level 2 –

Certified interconnection equipment with an aggregate electric nameplate capacity of 2 MW or less. Generation facility does not qualify for a Level 1 review or has been reviewed but not approved under a Level 1 review. The applicant shall pay the cost of all studies and inspections associated with the interconnection of the proposed Generating Facility. A refundable estimated cost for such services of \$ _____ shall be paid at the time of submitting the application. Applicant shall be responsible for any charges above the estimate and shall be entitled to a refund of any unused fees collected. The payment or refund shall be made within twenty (20) days of interconnection. Failure to pay any charges shall be grounds to halt work on the interconnection, or if interconnection has been made, disconnection of the Generating Facility. Proof provided demonstrating certification with the following standards as applicable; please indicate type of certification below:

____ IEEE Standard 1547

____ UL Standard 1741 Inverters, Converters, and Controllers for Use in Independent Power Systems (January 2001).

- Attach Certification Documentation to this Application

Level 2 Generator Nameplate Rating is limited to the lesser of:

1. 2 MW maximum Generation Capacity.
2. A generating facility's point of common coupling must be on a portion of the public utility's distribution system which is under the interconnection jurisdiction of the commission and not be on a transmission line.
3. For interconnection of a proposed generating facility to a radial distribution circuit, the aggregate generation on the distribution circuit, including the proposed generating facility, must not exceed 15 percent of the distribution circuit's total highest annual peak load, as measured at the substation. For the purposes of this subsection, annual peak load will be based on measurements taken over the 60 months previous to the submittal of the application, measured for the circuit at the nearest applicable substation.
4. The proposed generating facility, in aggregation with other generation on the distribution circuit to which the proposed generating facility will interconnect, must not contribute more than 10 percent to the distribution circuit's maximum fault current at the point on the high voltage (primary) level nearest the proposed point of common coupling.
5. If the proposed generating facility is to be connected to a single-phase shared secondary, the aggregate generation capacity connected to the shared secondary, including the proposed generating facility, must not exceed 20 kilowatts.
6. If a proposed single-phase generating facility is to be connected to a transformer center tap neutral of a 240 volt service, the addition of the proposed generating facility must not create a current imbalance between the two sides of the 240 volt service of more than 20 percent of nameplate rating of the service transformer.
7. No construction of facilities by the public utility on its own system shall be required to accommodate the generating facility.
8. The aggregate generation capacity on the distribution circuit to which the proposed generating facility will interconnect, including the capacity of the proposed generating facility, must not cause any distribution protective equipment (including, but not limited to, substation breakers, fuse cutouts, and line reclosers), or customer equipment on the electric distribution system, to exceed 90 percent of the short circuit interrupting capability of the equipment. In addition, a proposed generating facility must not be connected to a circuit which already exceeds 90 percent of the circuit's short circuit interrupting capability, prior to interconnection of the facility.
9. For a proposed generating facility connecting to a three-phase, three wire primary public utility distribution line, a three-phase or single-phase generator must be connected phase-to-phase.

10. For a proposed generating facility connecting to three-phase, four wire primary public utility distribution line, a three-phase or single-phase generator must be connected line-to-neutral and must be effectively grounded.
11. If there are known or posted transient stability limitations to generating units located in the general electrical vicinity of the proposed point of common coupling, including, but not limited to within three or four transmission voltage level busses, the aggregate generation capacity, including the proposed generating facility, connected to the distribution low voltage side of the substation transformer feeding the distribution circuit containing the point of common coupling may not exceed 10 megawatts.
12. If a proposed generating facility's point of common coupling is on a spot network, the proposed generating facility must utilize an inverter-based equipment package and, together with the aggregated other inverter-based generation, must not exceed the smaller of five percent of a spot network's maximum load or 50 kilowatts.

_____ Level 3 – Aggregate electric nameplate capacity rating is 20 MW or less and the Generating facility is not certified; does not qualify for a Level 1 or Level 2 review; or has been reviewed but not approved under a Level 1 or Level 2 review. The applicant shall pay the cost of all studies and inspections associated with the interconnection of the proposed Generating Facility. A refundable estimated cost for such services of \$ _____ shall be paid at the time of submitting the application. Applicant shall be responsible for any charges above the estimate and shall be entitled to a refund of any unused fees collected. The payment or refund shall be made within twenty (20) days of interconnection. Failure to pay any charges shall be grounds to halt work on the interconnection, or if interconnection has been made, disconnection of the Generating Facility.

Note Electrical Interconnection. Level 1 interconnection review of certified inverter-based Generating Facilities having a generation capacity of 10 kW or less requires a separate application form.

Generating Facility Information:

Total Number of Generators in generation facility to be interconnected pursuant to this Interconnection Request: #: _____

Energy Source: _____ Solar _____ Wind _____ Hydro - Hydro Type (e.g. Run-of-River)
 _____ Diesel _____ Natural Gas _____ Fuel Oil _____ Biomass
 _____ Other (state type): _____

Prime Mover: _____ Fuel Cell _____ Reciprocating Engine _____ Gas Turbine
 _____ Steam Turbine _____ Microturbine _____ PV
 _____ Other (Describe): _____

Type of Generator: ___Synchronous ___Induction ___Inverter

Generator Nameplate Rating kW: _____ Generator Nameplate kVAr: _____

Interconnection Customer or Customer-Site Load: _____kW (if none, so state)

Typical Reactive Load (if known): _____KVAr

Maximum Physical Export Capability Requested: _____ kW

List components of the Generating Facility equipment package that are currently certified (include proof from manufacture of certification, Certifications):

Equipment Type or Package	Certifying Entity
1. _____	_____
2. _____	_____
3. _____	_____
4. _____	_____
5. _____	_____

Is the prime mover compatible with the certified protective relay package? ___ Yes ___ No

Generator (or solar collector) Manufacturer, Model Name & Number:

Version Number: _____

Nameplate Output Power Rating in kW: (Summer) _____ (Winter) _____

Nameplate Output Power Rating in kVA: (Summer) _____ (Winter) _____

Rated Power Factor: Leading: _____ Lagging: _____

Inverter Manufacturer, Model Name & Number (if used):

List of adjustable set points for the protective equipment or software:

Proposed Generating Facility Characteristic Data (for inverter-based machines):

Manufacturer: _____ Model: _____

Type: Forced Commutated Line Commutated

Electric Nameplate Capacity Rated Output: _____ Amps _____ Volts _____ kW

Efficiency: _____% Power Factor: _____%

Max design fault contribution current: _____ Amps Instantaneous RMS

Harmonics characteristics: _____

Start-up requirements: _____

Synchronous Generators:

Submit copies of the Saturation Curve and the Vee Curve.

Manufacturer: _____

Model: _____

Version: _____

Poles: ___ Salient ___ Non-Salient

Torque: _____ lb-ft at RPM: _____

Field Amperes: _____ at rated generator voltage and current and _____ % PF over-excited

Type of Exciter: _____

Output Power of Exciter: _____

Type of Voltage Regulator: _____

Locked Rotor Current: _____ Amps

Synchronous Speed: _____ RPM

Min. Operating Freq./Time: _____

Generator Connection: ___ Delta ___ Wye ___ Wye Grounded

Direct Axis Synchronous Reactance, X_d : _____ P.U.

Direct Axis Transient Reactance, X'_d : _____ P.U.

Direct Axis Subtransient Reactance, X''_d : _____ P.U.

Negative Sequence Reactance, X_2 : _____ P.U.

Zero Sequence Reactance, X_0 : _____ P.U.

KVA Base: _____

Maximum Field Volts: _____

Maximum Field Amperes: _____

Induction Generators:

Manufacturer: _____

Model No.: _____

Version No.: _____

Locked Rotor Current: _____ Amps

Phases: ___ Single ___ Three-Phase

Motoring Power (kW): _____

$I_2^2 \cdot I_2 \cdot t$ or K (Heating Time Constant): _____

Rotor Resistance, R_r : _____ Ω

Stator Resistance, R_s : _____

Stator Reactance, X_s : _____

Rotor Reactance, X_r : _____

Magnetizing Reactance, X_m : _____

Short Circuit Reactance, X_d'' : _____

Exciting Current: _____ Amps

Frame Size: _____ Design Letter: ___ Temp. Rise: _____ dC.

Reactive Power Required In Vars (No Load): _____

Reactive Power Required In Vars (Full Load): _____

Total Rotating Inertia, H: _____ Per Unit on kVA Base _____

Excitation and Governor System Data for Synchronous Generators Only:

Provide appropriate IEEE model block diagram of excitation system, governor system and power system stabilizer (PSS). A PSS may be determined to be required by applicable studies. A copy of the manufacturer's block diagram may not be substituted.

Interconnection Facilities Information:

Will a transformer be used between the generator and the point of common coupling? ___ Yes ___ No

Will the transformer be provided by the Interconnection Customer? ___ Yes ___ No

Interconnection Customer Transformer Data (please provide information for all transformers, attach separate sheet if necessary):

Is the transformer: ___ single phase ___ three phase Size: _____ kVA

Transformer Impedance: _____ % on _____ kVA Base

Transformer Primary: _____ Volts ___Delta ___Wye ___ Wye Grounded

Transformer Secondary: _____ Volts ___Delta ___Wye ___ Wye Grounded

Transformer Tertiary: _____ Volts ___Delta ___Wye ___ Wye Grounded

Transformer Fuse Data (if applicable, for Interconnection Customer-Owned Fuse):

(Attach copy of fuse manufacturer's Minimum Melt and Total Clearing Time-Current Curves)

Manufacturer: _____ Type: _____ Size: _____ Speed: _____

Interconnecting Circuit Breaker (if applicable):

Manufacturer: _____ Type: _____

Load Rating (Amps): _____ Interrupting Rating (Amps): _____ Trip Speed (Cycles): _____

Interconnection Protective Relays (if applicable):

If Microprocessor-Controlled:

List of Functions and Adjustable Setpoints for the protective equipment or software:

Setpoint Function	Setpoint	Minimum	Maximum
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

If Discrete Components:

(Enclose Copy of any Proposed Time-Overcurrent Coordination Curves)

Manufacturer	Type	Style/Catalog No.	Proposed Setting
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Current Transformer Data (If Applicable):

(Enclose Copy of Manufacturer's Excitation and Ratio Correction Curves)

Manufacturer	Type	Accuracy Class	Proposed Ratio Connection
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Potential Transformer Data (If Applicable):

(Enclose Copy of Manufacturer's Excitation and Ratio Correction Curves)

Manufacturer	Type	Accuracy Class	Proposed Ratio Connection
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Other Facility Information:

Enclose copy of site electrical one-line diagram showing the configuration of total proposed Generating Facility equipment, current and potential circuits, and protection and control schemes. Please include system impedance and distance for all segments of the generating facility.

One Line Diagram attached: Yes No

Enclose copy of any site documentation that indicates the precise physical location of the proposed Generating Facility (e.g., USGS topographic map, distance from public utility facility number, other diagram or documentation).

Plot Plan attached: Yes No

Enclose copy of any documents that provide proof of site control.

Site Control attached: Yes No

The undersigned (hereinafter called "Applicant") hereby applies for membership in and agrees to purchase electric energy from Garkane Energy Cooperative, Loa, Utah, (hereinafter called "Garkane") upon the following terms and conditions:

1. Applicant will comply with and be bound by the provisions of the Articles of Incorporation and By-Laws of Garkane, and such rules and regulations as may from time to time be adopted by Garkane.
2. Applicant assumes no personal liability or responsibility for any debts or liabilities of Garkane, and it is expressly understood that under the law his private property is exempt from execution for any such debts or liabilities.
3. Applicant understands and agrees that he will not become a member of Garkane unless and until this application is expressly accepted by the Board of Directors.
4. Applicant agrees to make all payments to Garkane at its offices in Loa, Utah, or at such other locations as designated by the Association. If legal suit is commenced to collect amounts due Garkane, Applicant agrees and acknowledges that such action may be filed, at the option of Garkane, in either Wayne County or the county in which services were received by Applicant with all costs incurred in collecting the same including Court costs and attorney's fees to be paid by Applicant.
5. Applicant, as property owner, grants Association Rights of Way to place, construct, operate, maintain and replace power lines and equipment associated with the provision of electricity, and to cut and trim trees and shrubbery to keep them clear of power lines, consistent with prudent utility practice.
6. Applicant has reviewed the Net Meter Tariff and certifies that the proposed Net Meter Installation will comply with all the Tariff terms and conditions.
7. **The Arizona Corporation Commission may, in the future, authorize Garkane to significantly alter the nature and type of its electricity rates, basic charges and service fees, which could include the net metering tariff, applied to customers in Arizona. Future adjustments to these items may positively or negatively impact potential savings or the value of a customer's Net Metering Facility. To provide uniformity in rates, Garkane intends to request the Commission approve a net metering tariff for use in Arizona that is the same or substantially similar to the net metering tariff used in Utah.**

CERTIFICATION:

I hereby certify that all of the information provided in this application request form is correct.

Applicant Signature: _____

Printed Name: _____

Title: _____

Date Signed: _____

Application Fee Included:

Amount: \$ _____