Application, Procedures, and Terms and Conditions for Interconnecting a Certified Inverter-Based Generation Facility No Larger than 25 kW ("25 kW or less Inverter Process")

1.0 The Interconnection Customer ("Customer") completes the Interconnection Application ("Application") and submits it to K.C. Electric Association ("Cooperative").

2.0 The Cooperative acknowledges to the Customer receipt of the Application within three Business Days of receipt.

3.0 The Cooperative evaluates the Application for completeness and notifies the Customer within ten Business Days of receipt that the Application is or is not complete and, if not, advises what material is missing.

4.0 The Cooperative verifies that the Generation Facility can be interconnected safely and reliably using the screening criteria contained in Attachment A. The Cooperative has 15 Business Days to complete this process. Unless the Cooperative determines and demonstrates that the Generation Facility cannot be interconnected safely and reliably, the Cooperative approves the Application and returns it to the Customer.

5.0 After installation, the Customer returns the Certificate of Completion to the Cooperative. Prior to parallel operation, the Cooperative will inspect the Generation Facility for compliance with standards which may include a witness test, and may schedule appropriate metering replacement, if necessary.

6.0 The Cooperative notifies the Customer in writing that interconnection of the Generation Facility is authorized. If the witness test is not satisfactory, the Cooperative has the right to disconnect the Generation Facility. The Customer has no right to operate in parallel until a witness test has been performed, or previously waived on the Application. The Cooperative is obligated to complete this witness test within ten Business Days of the receipt of the Certificate of Completion.

7.0 Contact Information – The Customer must provide the contact information for the legal applicant (i.e., the Interconnection Customer). If another entity is responsible for interfacing with the Cooperative, that contact information must be provided on the Application as well.

8.0 Ownership Information – Enter the legal names of the owner(s) of the Generation Facility. Include the percentage ownership (if any) by any utility or public utility holding company, or by any entity owned by either.

9.0 UL1741 Listed – This standard ("Inverters, Converters, and Controllers for Use in Independent Power Systems") addresses the electrical interconnection design of various forms of generating equipment. Many manufacturers submit their equipment to a Nationally Recognized Testing Laboratory (NRTL) that verifies compliance with UL1741. This "listing" is then marked on the equipment and supporting documentation.

Application for Interconnecting a Certified Inverter-Based Generation Facility No Larger than 25 kW

This Application is considered complete when it provides all applicable and correct information required below. Additional information to evaluate the Application may be required.

Processing Fee
A non-refundable processing fee of $250 must accompany this Application.

Interconnection Customer

Name: _____

Contact Person: _____

Address: _____

City: _____ State: _____ Zip: _____

Telephone (Day): _____ (Evening): _____

Fax: _____ E-Mail Address: _____

Contact (if different from Interconnection Customer)

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Telephone (Day): _____ (Evening): _____

Fax: _____ E-Mail Address: _____

Owner of the facility (include % ownership by any electric utility): _____

Generation Facility Information

Location (if different from above): _____

Account Number: _____

Site Control

Documentation of site control must be submitted with this Interconnection Application. Site control may be demonstrated through:

- Ownership of, a leasehold interest in, or a right to develop a site for the purpose of constructing the Generation Facility;
- An option to purchase or acquire a leasehold site for such purpose; or
- An exclusivity or other business relationship between the Applicant and the entity having the right to sell, lease, or grant the Applicant the right to possess or occupy a site for such purpose.

Inverter Manufacturer:_____Model_____

Nameplate Rating: _____ (kW) _____ (kVA) _____ (AC Volts)

Single Phase _____ Three Phase _____

System Design Capacity: _____ (kW) _____ (kVA)

PV Array Tilt: _____ (degrees)

PV Array Azimuth: _____ (degrees)

Prime Mover: Photovoltaic ☐ Reciprocating Engine ☐ Fuel Cell ☐
Turbine ☐ Other _____

Energy Source: Solar ☐ Wind ☐ Hydro ☐ Diesel ☐ Natural Gas ☐
Fuel Oil ☐ Other (describe) _____

Is the equipment UL1741 Listed? Yes_____ No ___
(If Yes, attach manufacturer's cut-sheet showing UL1741 listing)

Estimated Installation Date: _____ Estimated In-Service Date: _____

The 25 kW or less Inverter Process is available only for commercial inverter-based Generation Facilities no larger than 25 kW that meet the codes, standards, and certification requirements of Attachments B and C, or the Cooperative has reviewed the design or tested the proposed Generation Facility and is satisfied that it is safe to operate.

List components of the Generation Facility equipment package that are currently certified:

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

Interconnection Customer Signature

I hereby certify that, to the best of my knowledge, the information provided in this Application is true. I agree to abide by the Terms and Conditions for Interconnecting an Inverter-Based Generation Facility No Larger than 25 kW and return the Certificate of Completion when the Generation Facility has been installed. I further agree to relinquish my claims to any Renewable Energy Credit (REC) that will be granted with my equipment as part of this agreement, and I understand that the cooperative rate structure and procedures may change in the future.

.

Signed: _____

Title: _____ Date: _____

Contingent Approval to Interconnect the Generation Facility

(For Cooperative use only)

Interconnection of the Generation Facility is approved contingent upon the Terms and Conditions for Interconnecting an Inverter-Based Generation Facility No Larger than 25 kW and return of the Certificate of Completion.

Cooperative Signature: _____

Title: _____ Date: _____

Application ID number: _____

Generation Facility Certificate of Completion

Is the Generation Facility owner-installed? Yes_____ No _____

Interconnection Customer:

_____

Contact Person:_____

Address: _____

Location of the Generation Facility (if different from above):

_____

City: _____ State: _____ Zip Code: _____

Telephone (Day): _____ (Evening): _____

Fax: _____ E-Mail Address: _____

Electrician:

Name: _____

Address: _____

City: _____ State: _____ Zip Code: _____

Telephone (Day): _____ (Evening): _____

Fax: _____ E-Mail Address: _____

License number: _____

Date Approval to Install Facility granted by the Cooperative: _____

Application ID number: _____

Inspection:

The Generation Facility has been installed and inspected in compliance with the local

building/electrical code of _____

Signed (Local electrical wiring inspector, or attach signed electrical inspection):

_____

Print Name: _____

Date: _____

Certification

By signing below, you certify that the system has been installed in compliance with the manufacturer's recommendations and is ready for K.C. Electric to inspect and test the installation. By signing below, I understand that if installation doesn't pass K.C. Electric's initial inspection and testing, additional fees will be charged for multiple trips to the installation site for inspection and testing.

The system has been installed in compliance with IEEE 929 "Recommended Practice for Utility Interface of Photovoltaic (PV) Systems," and the latest edition of the National Electric Code.

Photovoltaic components are certified by a nationally recognized testing laboratory as meeting the requirements of UL-1703.

The inverter has been certified as meeting the requirements of IEEE-1547 and is UL-1741 certified.

Installer (Signature) _____ Date _____

Name Printed _____
Company _____

As a condition of interconnection, you are required to send/fax a copy of this form along with a copy of the signed electrical permit to:

K.C. Electric Association
Attn: Darren Fox
P.O. Box 285
Stratton, CO 80836
Fax: 719-348-5463

Approval to Energize the Generation Facility (For Cooperative use only)

Energizing the Generation Facility is approved contingent upon the Terms and Conditions for Interconnecting an Inverter-Based Generation Facility No Larger than 25 kW

Cooperative Signature: _____

Title: _____ Date: _____

Terms and Conditions for Interconnecting an Inverter-Based Generation Facility No Larger than 25 kW

1.0 **Construction of the Facility**

The Interconnection Customer (the "Customer") may proceed to construct the Generation Facility when K.C. Electric Association (the "Cooperative") approves the Interconnection Request (the "Application") and returns it to the Customer.

2.0 **Interconnection and Operation**

The Customer may operate the Generation Facility and interconnect with the Cooperative's Distribution System once all of the following have occurred:

2.1 Upon completing construction, the Customer will cause the Generation Facility to be inspected or otherwise certified by the appropriate local electrical wiring inspector with jurisdiction, and

2.2 The Customer returns the Certificate of Completion to the Cooperative, and

2.3 The Cooperative has completed its inspection of the Generation Facility to ensure that all equipment has been appropriately installed and that all electrical connections have been made in accordance with applicable codes. All inspections must be conducted by the Cooperative, within ten Business Days after receipt of the Certificate of Completion and shall take place at a time agreeable to the Parties. The Cooperative shall provide a written statement that the Generation Facility has passed inspection or shall notify the Customer of what steps it must take to pass inspection as soon as practicable after the inspection takes place; or

2.4 The Cooperative has the right to disconnect the Generation Facility in the event of improper installation or failure to return the Certificate of Completion.

2.5 Revenue quality metering equipment must be installed and tested in accordance with applicable ANSI standards.

3.0 **Safe Operations and Maintenance**

The Customer shall be fully responsible to operate, maintain, and repair the Generation Facility as required to ensure that it complies at all times with the interconnection standards to which it has been certified.

4.0 **Access**

The Cooperative shall have access to the disconnect switch and metering equipment of the Generation Facility at all times.

5.0 **Disconnection**

The Cooperative may temporarily disconnect the Generation Facility upon the following conditions:

5.1 For scheduled outages upon reasonable notice.

5.2 For unscheduled outages or emergency conditions.

5.3 If the Generation Facility does not operate in the manner consistent with these Terms and Conditions.

5.4 The Cooperative shall inform the Customer in advance of any scheduled disconnection, or as is reasonable after an unscheduled disconnection.

6.0 **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 to or death of any person or damage to property, demand, suits, recoveries, costs and expenses, court costs, attorney fees, and all other obligations by or to third parties, arising out of or resulting from the other Party's action or inactions of its obligations under this agreement on behalf of the indemnifying Party, except in cases of gross negligence or intentional wrongdoing by the indemnified Party.

7.0 **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 in its performance of this Agreement, 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, incidental, special, consequential, or punitive damages of any kind whatsoever, except as allowed under paragraph 6.0.

9.0 **Termination**

The agreement to operate in parallel may be terminated under the following conditions:

9.1 **By the Customer**

By providing written notice to the Cooperative.

9.2 **By the Cooperative**

If the Generation Facility fails to operate for any consecutive 12 month period or the Customer fails to remedy a violation of these Terms and Conditions.

9.3 **Permanent Disconnection**

In the event this Agreement is terminated, the Cooperative shall have the right to disconnect its facilities or direct the Customer to disconnect its Generation Facility.

9.4 **Survival Rights**

This Agreement shall continue in effect after termination to the extent necessary to allow or require either Party to fulfill rights or obligations that arose under the Agreement.

10.0 **Assignment/Transfer of Ownership of the Facility**

This Agreement shall survive the transfer of ownership of the Generation Facility to a new owner when the new owner agrees in writing to comply with the terms of this Agreement and so notifies the Cooperative.

ATTACHMENT A
SCREENING CRITERIA

To qualify for interconnection using the 25 kW or less Inverter Process, the proposed Generation Facility must pass the following screens:

1) For interconnection of a proposed Generation Facility to a radial distribution circuit, the aggregated generation, including the proposed Generation Facility, on the circuit does not exceed 15% of the line section's annual peak load as most recently measured at the substation or calculated for the line segment. A line section is that portion of the Cooperative's Distribution System connected to a customer bounded by automatic sectionalizing devices or the end of the distribution line.

2) The proposed Generation Facility, in aggregation with other generation on the distribution circuit, does not contribute more than 10% to the distribution circuit's maximum fault current on the distribution feeder voltage (primary) level nearest the proposed Point of Interconnection.

3) The proposed Generation Facility, in aggregate with other generation on the distribution circuit, does not cause any distribution protective devices and equipment (including, but not limited to, substation breakers, fuse cutouts, and line reclosers), or Interconnection Customer equipment on the system to exceed 87.5% of the short circuit interrupting capability.

4) Using the table below, determine the type of interconnection to a primary distribution line. This screen includes a review of the type of electrical service provided to the Interconnection Customer, including line configuration and the transformer connection to limit the potential for creating over-voltages on the Cooperative's Distribution System due to a loss of ground during the operating time of any anti-islanding function.

Primary Distribution Line Type	Type of Interconnection to Primary Distribution Line	Result/Criteria
Three-phase, three wire	Three-phase or single phase, phase-to-phase	Pass screen
Three-phase, four wire	Effectively grounded three-phase or single-phase, line-to-neutral	Pass Screen

5) If the proposed Generation Facility is to be interconnected on single-phase shared secondary, the aggregate generation Nameplate Capacity on the shared secondary, including the proposed Generation Facility, does not exceed 20 kW.

6) If the proposed Small Generation Facility is single-phase and is to be interconnected on a center tap neutral of a 240 volt service, its addition does not create an imbalance between the two sides of the 240 volt service of more than 20% of the nameplate rating of the service transformer.

7) No construction of facilities by the Cooperative on the Cooperative Distribution System shall be required to accommodate the interconnection of the Generation Facility.

8) Interconnections to Distribution Networks

   a) For interconnection of a proposed Generation Facility to the load side for spot network protectors serving more than a single customer, the proposed Generation Facility utilizes an inverter-based equipment package and, together with the aggregated other inverter-based generation, does not exceed the smaller of 5% of a spot network's maximum load or 300 kW. For spot networks serving a single customer, the Generation Facility uses an inverter-based equipment package and either meet the requirements above or uses a protection scheme or operates the generator so as not to exceed on-site load or otherwise prevent nuisance operation of the spot network protectors.

   b) For interconnection of a proposed Generation Facility to the load side of area network protectors, the proposed Generation Facility utilizes an inverter-based equipment package and, together with the aggregated other inverter-based generation, does not exceed the smaller of 10% of an area network's minimum load or 500 kW.

   c) Notwithstanding sub-sections (a) or (b) above, the Cooperative may incorporate into its interconnection standards, any change in interconnection guidelines related to networks pursuant to standards developed under IEEE 1547 for interconnections to networks. To the extent the new IEEE standards conflict with these existing guidelines, the new standards shall apply. In addition, and with the consent of the Cooperative, a Generation Facility may be interconnected to a spot or area network provided the Generation Facility utilizes a protection scheme that will prevent any power export from the Interconnection Customer's site including inadvertent export under fault conditions or otherwise prevent nuisance operation of the network protectors.

ATTACHMENT B
CERTIFICATION

These interconnection procedures recognize the efficiency of "certification" of Generation Facility equipment packages that will help streamline the design and installation process.

Generation Facility equipment proposed for use separately or packaged with other equipment in an interconnection system shall be considered certified for interconnected operation if all of the following conditions are met:

1) It has been tested in accordance with industry standards for continuous utility interactive operation in compliance with the appropriate codes and standards referenced below by any Nationally Recognized Testing Laboratory (NRTL) recognized by the United States Occupational Safety and Health Administration to test and certify interconnection equipment pursuant to the relevant codes and standards listed in Attachment C;

2) It has been labeled and is publicly listed by such NRTL at the time of the Interconnection Application; and

3) Such NRTL makes readily available for verification all test standards and procedures it utilized in performing such equipment certification, and, with consumer approval, the test data itself. The NRTL may make such information available on its website and by encouraging such information to be included in the manufacturer's literature accompanying the equipment.

Additional requirements related to Certification include:

1) The Interconnection Customer must verify that the intended use of the equipment falls within the use or uses for which the equipment was tested, labeled, and listed by the NRTL.

2) Certified equipment shall not require further type-test review, testing, or additional equipment to meet the requirements of this interconnection procedure; however, nothing herein shall preclude the need for on-site commissioning and acceptance testing by the parties to the interconnection nor follow-up production testing by the NRTL.

3) If the certified equipment package includes only interface components (switchgear, inverters, or other interface devices), then an Interconnection Customer must show that the generator or other electric source being utilized with the equipment package is compatible with the equipment package and is consistent with the testing and listing specified for this type of interconnection equipment.

4) Provided the generator or electric source, when combined with the equipment package, is within the range of capabilities for which it was tested by the NRTL, and does not violate the interface components' labeling and listing performed by the NRTL, no further design review, testing, or additional equipment on the customer side of the Point of Interconnection shall be required to meet the requirements of this interconnection procedure.

5) An equipment package does not include equipment provided by the Cooperative.

The use of Certified equipment does not automatically qualify the Interconnection Customer to be interconnected to the Cooperative Distribution System. An application will still need to be submitted and an interconnection review will need to be performed, to determine the compatibility of the Generation Facility with the Cooperative Distribution System.

ATTACHMENT C
CERTIFICATION CODES AND STANDARDS

When the stated version of the following codes and standards is superseded by an approved revision, then that revision shall apply.

IEEE1547 Standard for Interconnecting Distributed Resources with Electric Power Systems (including use of IEEE 1547.1 testing protocols to establish conformity)

UL 1741 Inverters, Converters, and Controllers for Use in Independent Power Systems

IEEE Std 929-2000 IEEE Recommended Practice for Utility Interface of Photovoltaic (PV) Systems

NFPA 70 (2005), National Electrical Code

ANSI C2-2007 National Electric Safety Code, published by IEEE

IEEE Std C37.90.1-1989 (R1994), IEEE Standard Surge Withstand Capability (SWC) Tests for Protective Relays and Relay Systems

IEEE Std C37.90.2 (1995), IEEE Standard Withstand Capability of Relay Systems to Radiated Electromagnetic Interference from Transceivers

IEEE Std C37.108-1989 (R2002), IEEE Guide for the Protection of Network Transformers

IEEE Std C57.12.44-2000, IEEE Standard Requirements for Secondary Network Protectors

IEEE Std C62.41.2-2002, IEEE Recommended Practice on Characterization of Surges in Low Voltage (1000V and Less) AC Power Circuits

IEEE Std C62.45-1992 (R2002), IEEE Recommended Practice on Surge Testing for Equipment Connected to Low-Voltage (1000V and Less) AC Power Circuits

ANSI C84.1-1995 Electric Power Systems and Equipment – Voltage Ratings (60 Hertz)

IEEE Std 100-2000, IEEE Standard Dictionary of Electrical and Electronic Terms

NEMA MG 1-1998, Motors and Small Resources, Revision 3

IEEE Std 519-1992, IEEE Recommended Practices and Requirements for Harmonic Control in Electrical Power Systems

NEMA MG 1-2003 (Rev 2004), Motors and Generators, Revision 1