



Application for Participation in CVEA's Net Metering Program

This application is required for all consumer-owned alternative power generation systems that will be interconnected with the CVEA electrical grid. It is highly recommended that this application be submitted before equipment is purchased. It is mandatory that this application be submitted before any alternative power generation systems are interconnected with the CVEA grid. NOTE: This application is not required for consumer-owned alternative power generation systems that will remain isolated from the CVEA electrical grid. Any questions should be directed to the CVEA System Engineer at 835-7028.

Member Name: _____ Member Number: _____

Federal Tax ID No. or Social Security No.: _____

Contact Person: _____

Address: _____

City: _____ State: _____ Zip Code: _____

Location of Proposed Project (legal description): _____

Wind Turbine:

Wind Turbine Manufacturer: _____ Model No.: _____

Rated Power Output, Watts: _____ at _____ mph Wind Speed

Inverter Manufacturer: _____ Model No.: _____

UL 1741 "Utility Interactive" Listed: Yes No

IEEE 1547 Compliant: Yes No

Solar PV Type:

Number of Solar Panels: _____ x Nominal Rating Watts (each) _____ = Total Wattage _____

Solar Panel Manufacturer: _____ Model No.: _____

Type of Array Mounting: Fixed Tracking

Inverter Manufacturer: _____ Model No.: _____

UL 1741 "Utility Interactive" Listed: Yes No

IEEE 1547 Compliant: Yes No

Other Qualified Alternative Energy Generator:

Describe: _____

Documents required to be provided along with this application:

- Liability Insurance Certificate
- Electrical "One-Line" Drawing of proposed installation
- Manufacturer's Specifications for equipment to be installed

I have read and understand the terms and conditions of Copper Valley Electric Association's Tariff No. 3, specifically Section 17, Net Metering; schedule CV1; and Copper Valley Electric Association's requirements for the Interconnection of Consumer-Owned Alternative Power Installations. I agree to abide by all of the rules, regulations, and requirements as set forth in the aforementioned documents.

I understand that my system may not be larger than 25,000 watts (25KW), name plate rating.
_____ (initials)

Member Signature: _____ Date: _____

Title (if applicable): _____

- Member has provided all the required information and is cleared to proceed with construction of alternative power generation system.
- Member has not met all requirements and may not proceed with construction for the reasons indicated below.
 - Liability insurance requirements have not been met.
 - System "one-line" drawing does not meet CVEA requirements.
 - Equipment does not meet specifications.

System Engineer

Date _____

- I hereby certify that I have inspected this alternate power generation system and have found that the system DOES meet all CVEA requirements, and I thereby recommend approval of this system.
- I hereby certify that I have inspected this alternative power generation system and have found that the system DOES NOT meet all CVEA requirements and/or IS NOT safe to operate for the following reason(s):
 - _____
 - _____
 - _____

System Engineer

Date _____

Congratulations! Your alternative power generation system has met all CVEA requirements for inclusion in the CVEA Net Metering Program and is authorized for use.

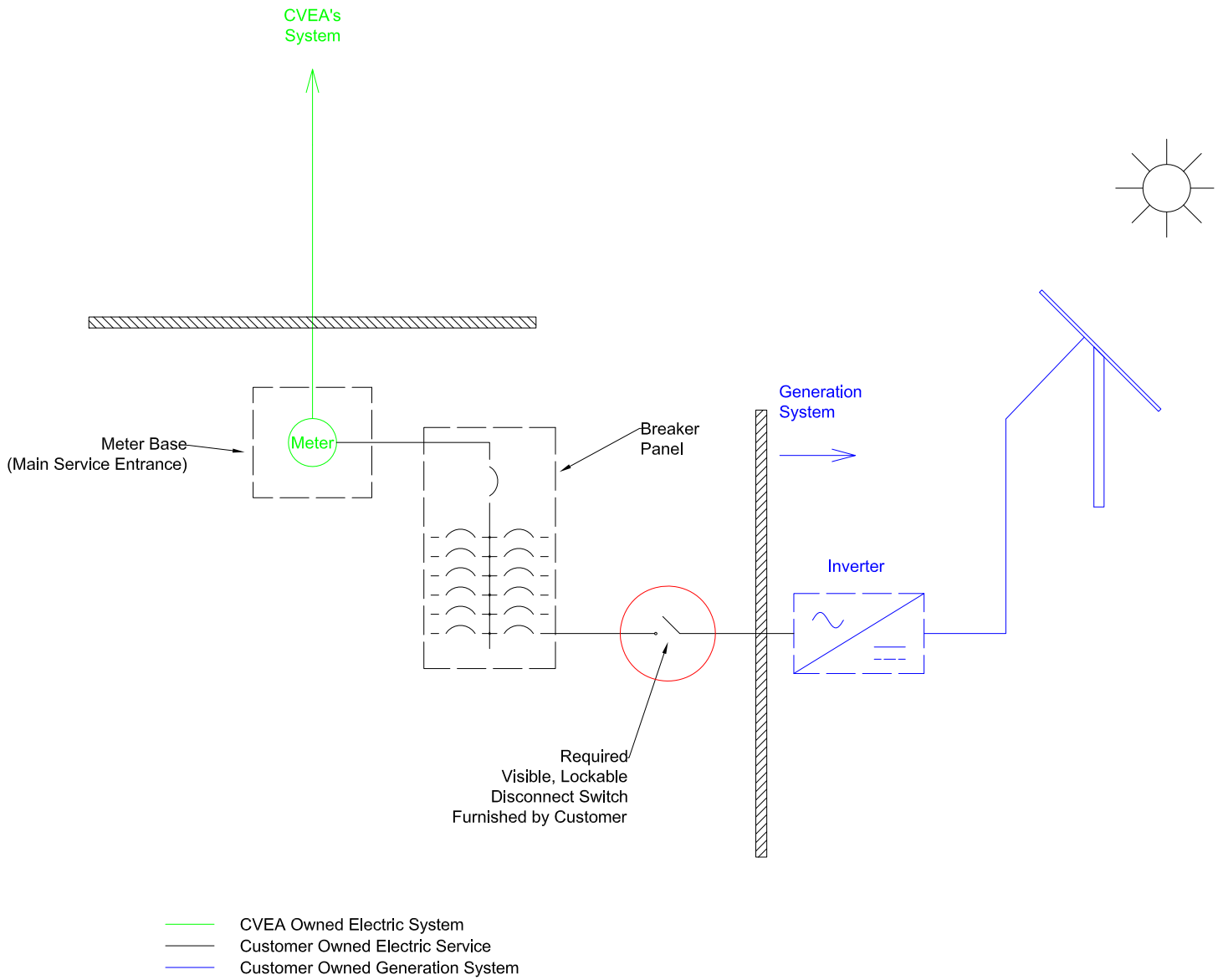
Approved by: _____ Date: _____

Title: Manager of Transmission and Distribution

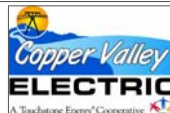
Scope: this document is provided to assist customers through CVEA's Net Metering application process. The checklist will help save time throughout the application, installation, and inspection of a Net Metering installation.

- 1) The customer should read and become familiar with Section 17 of CVEA's Tariff Number 3 before deciding to participate in the Net Metering program. The Tariff can be found at <http://www.cvea.org/aboutUs/tariff.htm>.
- 2) The customer should follow these steps PRIOR to purchasing the equipment to ensure compliance with utility and industry standards:
 - Provide documentation to CVEA of the power generation equipment to be installed, indicating the total capacity of the installation in kilo-Watts (kW).
 - Verify that the installation is an eligible generation system (Tariff, section 17.3).
 - Provide documentation to CVEA of the power generation equipment, identifying IEEE and UL standards (Tariff, section 17.4(c)). This information can be found on the equipment's nameplate or brochures and specifications provided by the manufacturer.
 - Provide documentation of the visible and lockable disconnect to be located between the generation equipment and the main service entrance.
- 3) Once the equipment is found compliant, the customer should follow these steps for submitting an application:
 - Provide a completed application; the application can be found on-line at www.cvea.org/electricalService/netMetering under Application and Interconnection Standards.
 - Provide a certificate providing proof of meeting the minimum liability insurance requirements (Tariff, section 17.4(g)).
 - Provide a simple electrical one-line of the proposed installation; an example of this has been provided to you as part of the application paperwork (see drawing NM01, Example One-Line).
- 4) Once the application has been approved by CVEA, the customer may proceed with construction.
- 5) Upon completion of installation, contact the System Engineer for an on-site inspection.
- 6) Once the inspection is completed, the System Engineer will approve the Net Meter installation or provide the customer with recommended changes.

CVEA's System Engineer is available to assist with new Net Metering installations at any time throughout this process. Please contact the System Engineer, Darin Sauls, at 907-835-7028 or sauls@cvea.org.



Notes:

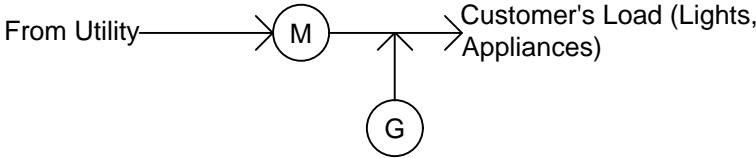


Copper Valley Electric Assn.
P.O. Box 45
Glennallen, AK 99588

**EXAMPLE ONE-LINE
MEMBER SOLAR NET METERING**

DWN: DDS	APP: DDS	DWG. No.	
CKD:	APP: DDS	NM01	R49
DATE: 3/23/16		SCALE: NONE	SHEET ____ OF ____

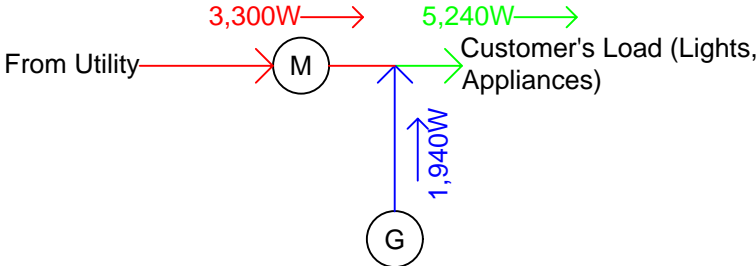
Net Metering 101



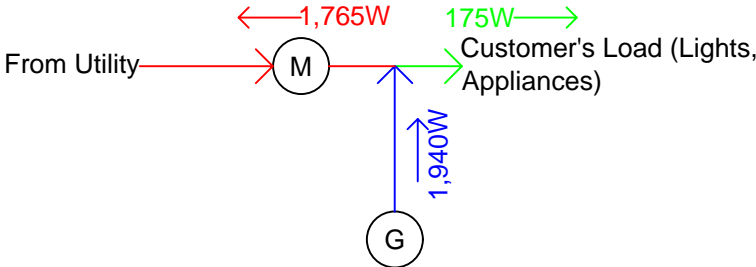
The power flowing through the meter is the Net result of the customer's load minus the customer's generation.

The reason for this is that the meter can only see current that flows through it. Current flowing from the customer's generator to the customer's load cannot be metered by the utility.

The generation and load magnitudes in the following examples are for illustration purposes only. The loads are not intended to practically represent an actual Net-Metering installation.



Example 1:
 The customer is generating 1,940W and consuming 5,250W (five 25W light bulbs are on, 2,000W stove, 3,000W boiler, 125W TV) the meter would read $5,240W - 1,940W = 3,300W$ of power being fed from the utility to the customer.



Example 2:
 The customer is generating 1,940W and consuming 175W (two 25W light bulbs are on and a 125W TV) the meter would read $175W - 1,940W = 1,765W$ of power being fed from the customer to the utility.

Copper Valley Electric Association Requirements For The Interconnection of Consumer-Owned Alternative Power Installations

This document states the minimum requirements to ensure the safe and reliable operation of Consumer-owned alternative power interconnected generating facilities (25 kW or smaller in size—hereafter “Interconnection/s”) that will be eligible to be connected and operated in parallel with the Copper Valley Electric Association Inc. (CVEA) utility system. Consumer-owned generating facilities that are fueled by: (a) wind; (b) solar energy; (c) geothermal energy; (d) landfill gas; (e) wave or tidal action; (f) gas produced during the treatment of wastewater; (g) hydropower; or (h) biomass energy based on solid organic fuels from wood or field residues or dedicated energy crops are eligible to become interconnected.

Interconnections shall not be fueled by nor connected to any non-qualified alternative energy sources.

1. **Consumer Information.** In order to proceed with an Interconnection, the Consumer must complete an Application for New Membership and Electrical Service and an Interconnection Application. The Consumer shall also provide equipment specifications, protection arrangements, and design drawings to CVEA for review.
2. **Compliance with Codes and Standards.** Interconnection customers shall comply with all applicable local, state, and federal codes such as building codes, National Electric Code (NEC), and National Electrical Safety Code (NESC) for the installation of an interconnection. Once operating, CVEA reserves the right to require the Consumer, at the Consumer's expense, to provide corrections, modifications, or additions to the Interconnection as required or recommended by government or industry regulations and standards. CVEA will provide written documentation of the necessary changes and a time frame within which to complete them. If the Consumer fails to comply with the changes in the specified time frame, CVEA will open and lock the Interconnection.
3. **Placement of Consumer-owned Interconnection.** To maintain the existing CVEA distribution system's power quality and reliability, only one Interconnection per distribution transformer will be authorized. This requirement may be waived by CVEA when CVEA, at its sole discretion, deems it appropriate under the circumstances.
4. **Power Quality and Reliability.** The Interconnection with the CVEA utility system shall not cause any reduction in the quality and reliability of service provided to other CVEA Consumers. There shall be no generation of abnormal voltages or voltage fluctuations, and the harmonic content of the Interconnection output must be below that level which would cause interference with other Consumer loads, other utilities, or CVEA facilities and equipment.

To minimize interference, CVEA requires the Interconnection to meet the power quality standards presented in accordance with Section 10, **Recommended Practices for Individual Consumers** of the latest Institute of Electrical and Electronics Engineers (IEEE) Standard 519, **IEEE Recommended Practices and Requirements for Harmonic Control in Electrical Power Systems**. In addition to meeting all

requirements identified in this document, the Interconnection shall comply with CVEA's Rules and Regulations and latest IEEE 1547, **IEEE Standard Conformance Test Procedures for Equipment Interconnecting Distributed Resources with Electric Power Systems**.

5. Testing. Prior to initial energization of the Interconnection, an inspection and/or tests will be performed by both the interconnecting Consumer and CVEA personnel. The purpose of the inspection and testing will be to determine if the generator and related equipment of the Interconnection meets the minimum requirements described by IEEE 1547, IEEE 519, and UL 1741, **Underwriter Laboratories Inc., Standard for Inverters, Converters, and Interconnection System Equipment for Use With Distributed Energy Resources**, as well as any requirements in the CVEA Interconnection Agreement. Based on the inspection, CVEA may elect to accept the installation and energize the Interconnection. In the event that discrepancies are noted between the certified equipment and drawings previously provided to CVEA and the Consumer's system inspected by CVEA, retesting may be required in addition to resubmitting drawings matching the as-built system. The Consumer shall be solely responsible for all costs associated with any retesting or drawing revisions.
6. Association Inspection and Consumer Maintenance Records. The Consumer shall maintain the Interconnection in good working order. The Interconnection (i.e., generator and associated equipment) is subject to inspection and retesting by CVEA upon reasonable notice each year after the unit is placed in service. The Consumer will assume full responsibility for the routine maintenance of the Interconnection and associated protective devices. The Consumer shall maintain accurate records of all maintenance activities performed. These records shall record the date and time, the person(s) who performed the activities, and a brief description of the work. These records shall be made available to CVEA for inspection at all times upon reasonable notice to the Consumer. Failure to comply may result in the disconnection of the equipment or additional testing as outlined in #5 above. The Consumer is solely responsible for all costs associated with any inspections required.
7. Visible, Lockable Disconnect Switch. An accessible, visible, lockable disconnect switch is to be provided by the Consumer, which is lockable in the open position only. This switch must be appropriately labeled when locked in the open position for any of the following conditions may be unlocked only by CVEA personnel. CVEA will lock the switch in the open position under the following circumstances:
 - (a) If it is necessary for the protection of line crew personnel when working on de-energized circuits during a system emergency;
 - (b) If inspection of the Interconnection reveals a hazardous condition or a lack of proper maintenance;
 - (c) If the Interconnection interferes with other Consumers or with the operation of CVEA's distribution system;

(d) If CVEA determines that the Interconnection has generated power from a non-qualified alternative energy resource; or

(e) For general maintenance of CVEA's distribution system.

CVEA will provide reasonable notice, as determined at CVEA's sole discretion, before locking the switch open for general maintenance as provided in condition (e) above.

8. **Metering/Billing.** CVEA shall install and maintain a kilowatt-hour meter or meters at the Interconnection, capable of registering the bidirectional flow of electricity at the Point of Interconnection at a level of accuracy that meets all applicable standards, regulations, and statutes. The meter(s) may measure such parameters as time of delivery, power factor, voltage, and such other parameters as CVEA shall specify at its sole discretion. The Consumer shall provide space for metering equipment as specified by CVEA, with the location of the meter(s) to be approved by CVEA. The Consumer is solely responsible for all costs associated with the purchase, installation, and maintenance of all equipment required by CVEA in order to properly meter the Interconnection.

All energy a Consumer receives from CVEA is purchased by the Consumer at the applicable CVEA tariff rate found in CVEA's Rules and Regulations. When a Consumer's Interconnection delivers energy to CVEA, CVEA's purchase price of the energy is documented in Schedule CV1 of those regulations.

9. **Nominal Voltages and Phasing.** The generator nameplate voltage should be the same as one of the nominal voltages supplied by CVEA. The nominal voltages are 120/240 V single-phase, 120/208 V three-phase, and 277/480 V three-phase. If the generator nameplate voltage is different from CVEA's nominal voltages, the Consumer must supply a dedicated generator transformer that will provide the required nominal voltage. The required transformer connection, unless otherwise specified, is grounded wye-grounded wye.
10. **Fault Current Increase and Upgrading Equipment.** In general, installation of a new generator will increase the fault current level at the Consumer's electrical facility. This may require upgrading some of the Consumer's equipment. The Consumer will assume full responsibility of upgrading Consumer's own equipment.
11. **Starting as Induction Motor.** In general, induction generators start as motors; also, synchronous generators may be designed to start as motors. The Consumer-owned generator starting as a motor shall meet the motor starting requirements prescribed by CVEA. CVEA may require the Consumer to provide, at Consumer's own expense, special or additional starting equipment.
12. **Generating Facility Grounding.** There are additional safety concerns that shall be addressed when considering circuit grounding of the Interconnection interconnected to CVEA's utility system. To ensure proper grounding of the generating facility, the Consumer shall follow all applicable national, state, and local codes regarding grounding for applicable generating installations.

13. Synchronization. The Interconnection must be synchronized with CVEA's utility system at all times, and the Consumer shall be responsible for the cost and maintenance of all synchronization equipment.
14. Automatic Disconnection and Time-Delayed Automatic Reconnection. The Interconnection shall be designed to automatically disconnect and lock out when CVEA's service is interrupted for any reason. Automatic reconnection of the Interconnection to CVEA's utility system shall be done only on Hot-Bus/Hot-Line/Sync-Check.

An automatic reclose of the Interconnection breaker (or interrupting device) is permitted once utility power has been restored for a minimum of 5 minutes.

15. Single Phasing Protection. The Consumer is advised that a phase-unbalance disturbance on CVEA's utility system can result in overheating of the Interconnection. A negative-sequence-type relay (current or voltage) could be necessary to initiate tripping under phase-unbalance conditions and may also be used to block closing of the automatic disconnecting device if CVEA's utility system is single-phased.
16. Generating Facility Protection. The Consumer is fully responsible for the protection of the generator and all of its associated equipment. Protection should be provided for the Consumer's own equipment failures, faults, and other disturbances on CVEA's utility system.
17. Fault Detection and Automatic Isolation. To prevent an Interconnection from supplying current to a fault on CVEA's utility system, the Interconnection shall be equipped to provide isolation from CVEA's utility system for any fault occurring on CVEA's utility system. The automatic isolation shall be done prior to the Association breaker (or recloser) reclosing and within a reasonable period of time, typically less than two seconds (120 cycles). The Consumer is solely responsible for all costs associated with the purchase, installation, and maintenance of all equipment required by CVEA in order to properly isolate the Interconnection from CVEA's utility system for any fault occurring on the CVEA system.
18. Under/Over Voltage Relay. To prevent any hazardous operating conditions, the Interconnection shall be isolated from CVEA's utility system for any under-voltage (lower than 90 percent of nominal voltage) and over-voltage conditions (higher than 110 percent of nominal voltage) within two seconds (120 cycles). The Consumer is solely responsible for all costs associated with the purchase, installation, and maintenance of all equipment required by CVEA in order to properly isolate the Interconnection from CVEA's utility system for any voltage level described above.
19. Under/Over Frequency Relay. To prevent any hazardous operating conditions, the Interconnection shall be capable of disconnecting the Consumer's generation source from CVEA's utility system for any over-frequency and under-frequency conditions exceeding 61.5 Hz or below 58.5 Hz within 5 seconds. The Consumer is solely responsible for all costs associated with the purchase, installation, and maintenance of all equipment

required by CVEA in order to properly isolate the Interconnection from CVEA's utility system for any frequency deviation described above.

20. **Dedicated Distribution Transformer.** To ensure reliable service to other CVEA Consumers and to minimize all possible problems for other CVEA Consumers, the Interconnection shall be interconnected to the CVEA utility system through a dedicated-to-single-Consumer distribution transformer. This requirement may be waived by CVEA when CVEA, at its sole discretion, deems it appropriate under the circumstances. Any cost associated to achieve dedicated-to-single-Consumer service shall at be the Consumer's sole expense.
21. **Single-phase Generating Facility on Three-phase Distribution Transformer.** In general, a Consumer-owned single-phase generating facility greater than 10kW shall not be allowed to be connected to a CVEA three-phase distribution transformer. This requirement may be waived by CVEA on a case-by-case basis, when it deems such waiver appropriate, at its sole discretion.
22. **Surge Protection.** The Consumer is responsible for the protection of Consumer's Interconnection from transient surges initiated by lighting, switching, or other system disturbances.
23. **Future Modification or Expansion.** Any future modification or expansion of the Interconnection will require a separate engineering review and approval by CVEA.
24. **Reservation of Rights.** CVEA reserves the right to require, at its sole discretion, additional Interconnection requirements for interconnection generating facilities in order to preserve the safety and integrity of CVEA's utility system.