

Engineering Requirements

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2. Purpose

The purpose of this document is to present the Utility’s design requirements for Net Metering systems to operate in parallel with the Utility’s electric system to ensure the safety of people and property and the integrity of the electrical system.

3. General

As defined in NRS 704.771: “Net metering system” means facility or energy system for the generation of electricity that:

- A. Uses renewable energy as its primary source of energy to generate electricity;
- B. Has a generating capacity of not more than 1,000 kilowatts
- C. Is isolated on the customer-generator’s premises;
- D. Operates in parallel with the utility’s transmission and/or distribution facilities; and
- E. Is intended primarily to offset part or all of the customer-generator’s requirements for electricity.

As defined in NRS 704.7811, “Renewable energy” means:

- A. Biomass;
- B. Geothermal energy
- C. Solar energy
- D. Waterpower
- E. Wind

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4. Applicable Standards

A Net Metering system used by a customer-generator must meet all applicable safety and power quality standards established by:

- A. The National Electric Code, especially Articles 685,690, and 705
- B. All applicable State and Local codes
- C. Underwriters Laboratories Inc.
- D. The Institute of Electrical and Electronic Engineers, (IEEE) Standards 929 and 1547 having a particular application. The visible break and lockable disconnect switch of IEEE 1547 is required. A pull-out disconnect is NOT acceptable.

5. Definitions

- A. Customer-Generator: A user of a Net Metering system.
- B. Net Metering: Measuring and billing only the difference between electricity supplied by the utility and the electricity generated by the customer-generator that is fed back to the utility over the applicable billing period.

6. Studies

Neither an Interconnection Study nor a Detailed Impact Study is required.

7. Metering Arrangement

- A. The Revenue Net Metering will be arranged so that utility measures the net electricity delivered or received during the billing period.
- B. A second (REC/Generation/Production) meter measures the electricity generated by the customer-generator. NV Energy will provide this meter only if the customer participates in the Renewable Generations Program.
- C. Connections to the supply side of the main disconnecting means installed in accordance with NEC Articles 230.82(6) and 690.64(A), are allowed. The connection shall be on the load side of the metering points.
Connections on the load side of the main disconnecting means installed in accordance with NEC Articles 690.64(B) and 240.21, are allowed.
 - i. Modifications to the electrical equipment may compromise the equipment listing. All modifications shall be approved in writing by the Authority Having Jurisdiction, the manufacturer, or a Nationally Recognized Testing Laboratory. Forward the documentation to Meter Operations.
 - ii. The visible break, readily accessible and lockable disconnect switch and REC meter shall be located per section 8 of this standard.

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8. Customer Engineering Requirements

This section provides the engineering requirements that the customer must comply with to install a “Net Metering” system:

- A. The preferred location of the REC meter is within 10’ of the service entrance equipment. (See Attachment 1).
 - i. Electric Meter Operations will consider the REC (generation) meter to be farther than 10’ from the existing service entrance equipment if there are extenuating circumstances with the project design. Evaluation of the REC meter location will include, but is not limited to, a review of safety issues and accessibility to the REC meter. Relocation of the REC meter for aesthetic reasons is not sufficient.
- B. Locate the Utility Source disconnect switch within 10’ of the net meter. (See Attachment 2.)
 - i. Distribution equipment including but not limited to subpanels and transformers are allowed to be installed between the Utility Source disconnect switch and the REC meter.
 - ii. The installation of the above distribution equipment must NOT electrically bypass the Utility Source disconnect switch. The intent of the Utility Source disconnect switch is to isolate applicant owned generation from NV Energy equipment.
 - iii. For customers served by a dedicated transformer with the net (revenue) meter located on or near the transformer (remote from the service entrance equipment), install the source disconnect within 10’ of the service entrance equipment disconnect rather than the net meter.
 - iv. Under all circumstances the source disconnect must be within 10’ of the service entrance disconnect with a direct line of sight and no obstructions (fence, etc.) between the two.
 - v. AC disconnect must be wired in accordance to Jurisdictional code.
- C. During the design phase, it is recommended that design professionals thoroughly investigate the proposed installation for NEC and Utility compliance issues as part of the due diligence process. Any compliance issues are to be addressed prior to finalization and stamping of the designs.
- D. Installations greater than 100 kilowatts may require improvements to the Utility infrastructure at the Customer’s expense.
- E. Customers who have primary voltage service and who own all of the service equipment on the load side of NVE owned primary metering equipment (a privately owned and maintained system) may use an NVE primary metering switch having a visible air break and under the control and operation of NVE as the means of disconnect. Note that if the customer’s generation remains connected to their system, the potential may exist in such a situation for the customer’s renewable generation to feed into the customer owned system upon the loss of NVE source.

9. Customer Operating Requirements

This section provides the operating requirements that the customer must follow and the responsibilities that the customer must assume for operating their generation in parallel to the utility system:

- 9.1 Quality of service – The operation of the customer’s generation facility must not reduce the quality of service to the utility’s electric system or other Utility customers. No abnormal voltages, currents, frequencies, or interruptions are permitted.
- 9.2 De-energized utility Circuit – The customer will at no time energize a de-energized utility circuit.

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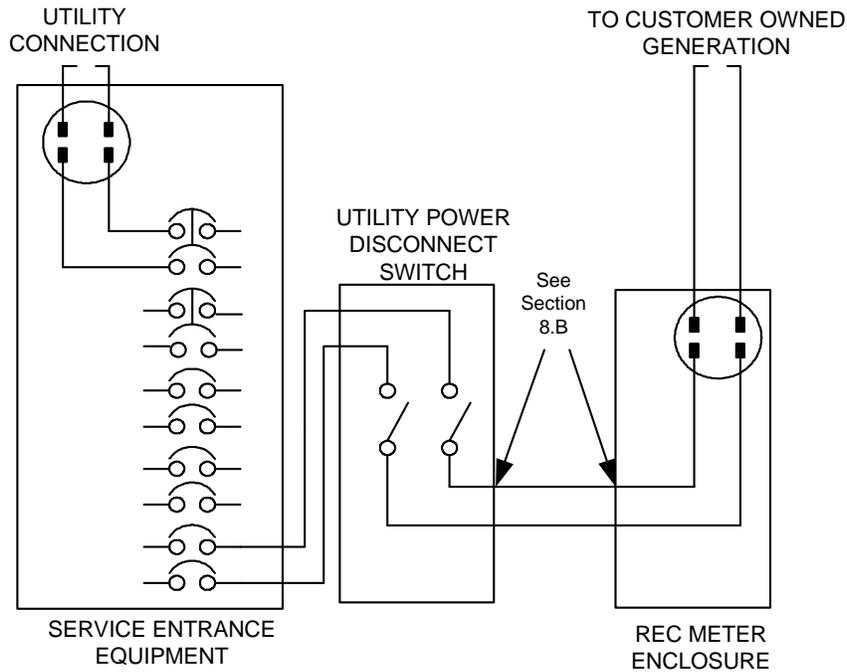
- 9.3 Inhibited Parallel Operation – If while operating parallel to utility’s system, any of the protective devices operate inhibiting parallel operation, the customer will perform the following procedures prior to attempting any further parallel operation with utility:
- 9.3.1 Determine whether utility’s circuit is energized or de-energized.
 - 9.3.2 If utility’s circuit has been continuously energized, then the customer will not attempt to reconnect their system in parallel with the utility until the cause of a protective device mis-operation has been corrected by a certified person and the utility has inspected and has satisfied itself that the customer’s system is operating properly.
 - 9.3.3 If it is determined that the utility circuit is de-energized, the customer must not attempt to re-connect their system until it is confirmed by utility that power has been restored and utility’s circuit is energized.
- 9.4 The customer is responsible for damage caused to other customers and to utility as a result of improper operation or malfunction of their generation facilities.
- 9.5 Utility is not responsible for damage caused to other customers and to utility as a result of improper operation or malfunction of the customer’s generation facilities.
- 9.6 It is recommended that on the loss of power from the utility that the customer-generator not isolate itself from the utility while continuing to generate (islanding). The customer shall coordinate reconnection of their generation to the utility per Section 9.3 after the utility voltage and frequency are restored to normal. Utility is not responsible for damage caused to the customer’s facility as a result of the utilities automatic or manual reclosing of its feeder.

10. Attachments

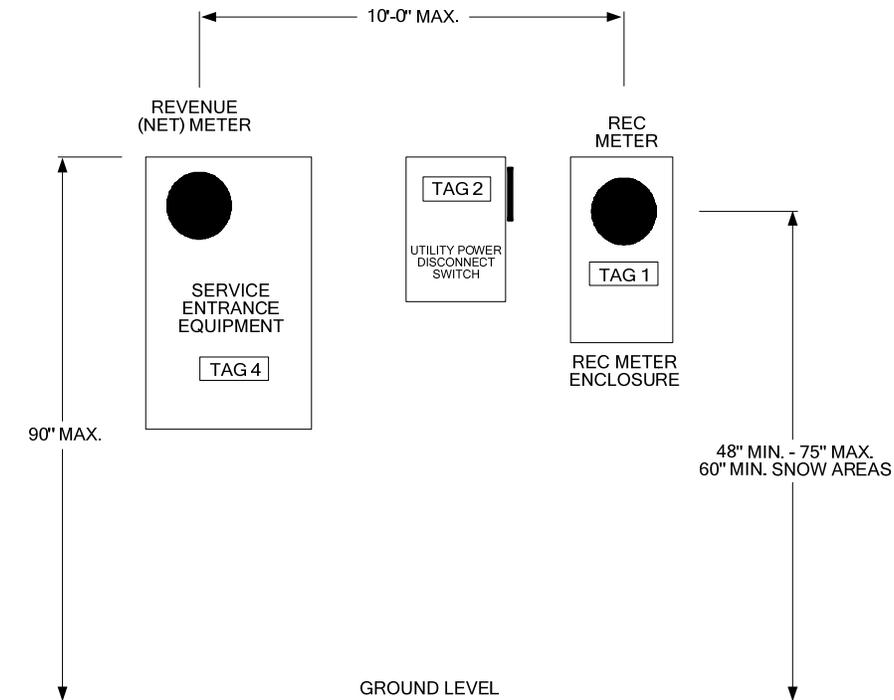
- Attachment 1: Metering One-Line Diagram
- Attachment 2: Metering Arrangement
- Attachment 3: Required Tagging

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ATTACHMENT 1: METERING ONE LINE DIAGRAM



ATTACHMENT 2: METERING ARRANGEMENT



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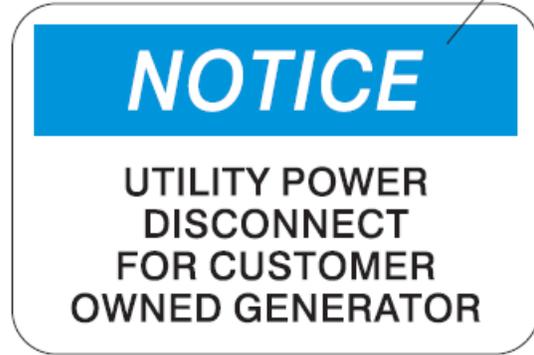
ATTACHMENT 3: REQUIRED TAGGING

NV ENERGY WILL ATTACH THE TAGS BELOW TO ALL NET METERING SYSTEMS

Tag 1. Install on REC Meter Box (956205)



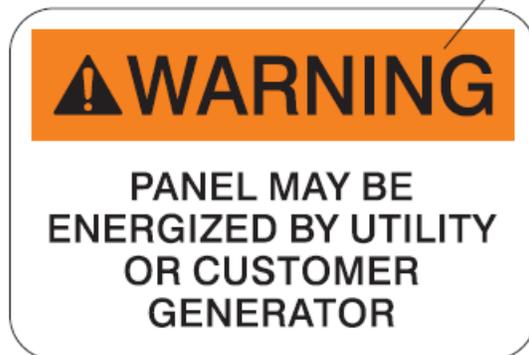
Tag 2. Install on Disconnect Switch Box (956200)



Tag 3. Install on Transformer, J-Bar, or Service Conductor (951022)



Tag 4. Install on Net Meter Box (956210)



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