

## 1. Table of Contents

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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.

### General

As defined in the Rate Tariff Schedule No. NEM: "Net Energy-Metering" is applicable to residential, small commercial, commercial, industrial, or agricultural Customer who use an electrical generating facility:

1. with a capacity of not more than 1,000 kilowatts;
2. that is located on the customer's owned, leased, or rented premises;
3. is interconnected and operates in parallel with the Utility's transmission and distribution facilities;
4. is intended primarily to offset part or all of the customer's own electrical requirements;
5. uses one of the following generation technologies:
  - a. solar or wind turbine, or a hybrid system of both as specified in PUC 2827(b)(2) and 2827 (b) (4) ("Eligible Customer-Generator")
  - b. eligible fuel cell as specified in California Public Utilities Code Section 2827.10(a)(2) and (3) ("Fuel Cell Customer-Generator")



**Liberty Utilities**

ELECTRIC SERVICE REQUIREMENTS

SHEET 1 OF 6

**NET METERING SYSTEMS**

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## 4. Applicable Standards

A Net Energy 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.

## 1. Definitions

- A. Customer-Generator: A user of a Net Energy Metering system.
- B. Net Energy: the difference between the electricity supplied by the Utility through the electric grid to the Eligible Customer-Generator and electricity generated by an Eligible Customer Generator and fed back into the electric grid over a 12 -month period or part, such that the end of the Relevant Period ends in December of each year ("Relevant Period").

## 6. Studies

Neither an Interconnection Study nor a Detailed Impact Study is required for installations of 100 kilowatts or less. Installations greater than 100 kilowatts will require an Impact Study to be conducted by Liberty Utilities.

## 7. Metering Arrangement

- A. The Revenue Net Metering will be arranged so that utility measures the net electricity produced or consumed during the billing period.
  - B. Dual Meter. An additional meter or meters, installed in a dual meter socket ("dual metering"), to monitor the flow of electricity in each direction may be installed with the consent of the Customer-Generator, at the expense of the Utility, and the dual metering shall be used only to provide the information necessary to accurately bill or credit the customer according to the Customer-Generator's OAS or to collect generating facility performance information for research purposes. The Utility shall determine whether dual metering is required under this provision.
  - C. The Utility shall not require dual metering except where necessary for billing accuracy. If none of the normal metering options available at the Utility's disposal which are necessary to render accurate billing are acceptable to the Customer-Generator, the Utility shall have the right to refuse interconnection under this schedule.
  - D. Connections to the supply side of the main disconnecting means that are 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.
1. 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.
  2. The visible break, readily accessible and lockable disconnect switch and Dual Meter, if installed, 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 Energy Metering" system:

- A. A visible disconnect switch is not required for electric panels that have self contained meters. Electric system isolation can be accomplished by pulling the meter out of the socket. Booting the meter or installing a lockable cover plate will occur during isolation.
- B. A visible disconnect switch is required for electric panels where the panel contains metering transformers. The disconnect switch shall be furnished and installed by the customer. The device must be accessible to Utility personnel and be capable of being locked in the open position. Locate the Utility Source disconnect switch within 10' of the Net Meter, see the attached drawing.
- C. The Dual Meter, if installed, shall be in a dual meter socket.

## 9. Customer Operating Requirements

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

- A. Quality of service - Generating facilities shall not be operated in a manner that interferes with the Utility's operations or service to other customers. The Utility retains the right to disconnect service to maintain safety and quality of service to other customers. 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.
- B. De-energized utility Circuit - The customer will at no time energize a de-energized utility circuit.
- C. 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:
  - 1. Determine whether utility's circuit is energized or de-energized.
  - 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.
  - 3. If it is determined that the utility circuit is de-energize, 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.
  - 4. The customer is not prohibited from isolating their system from the utility and supplying their own premise wiring while utility's circuit de-energized.
- D. 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.
- E. Utility is not responsible for damage caused to other customers and to utility as a result of improper operation or malfunction of their generation facilities.
- F. It is not recommended that on the loss of power from the utility, the customer-generator isolate itself from the utility. The customer generation shall delay the reconnection to the utility for one minute 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.



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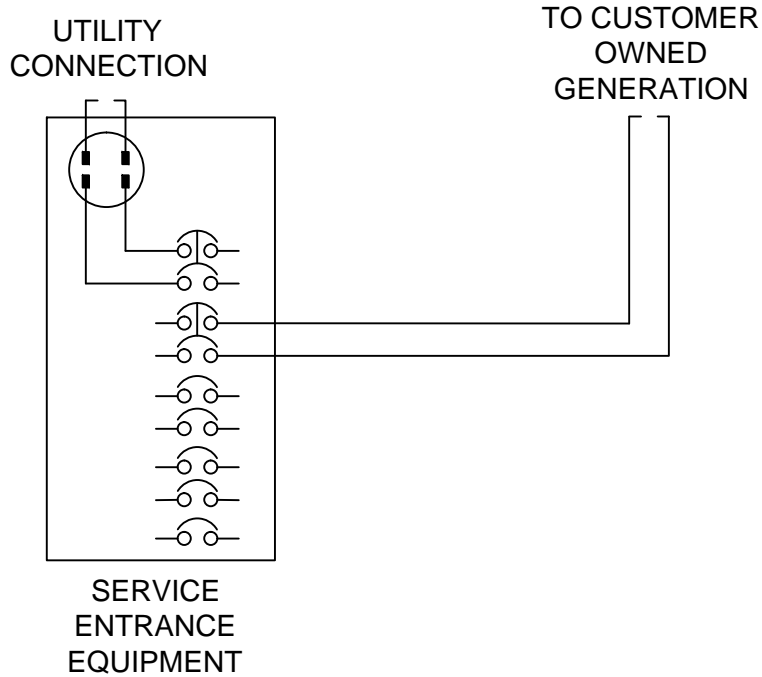
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ELECTRIC SERVICE REQUIREMENTS
<b>NET METERING SYSTEMS</b>

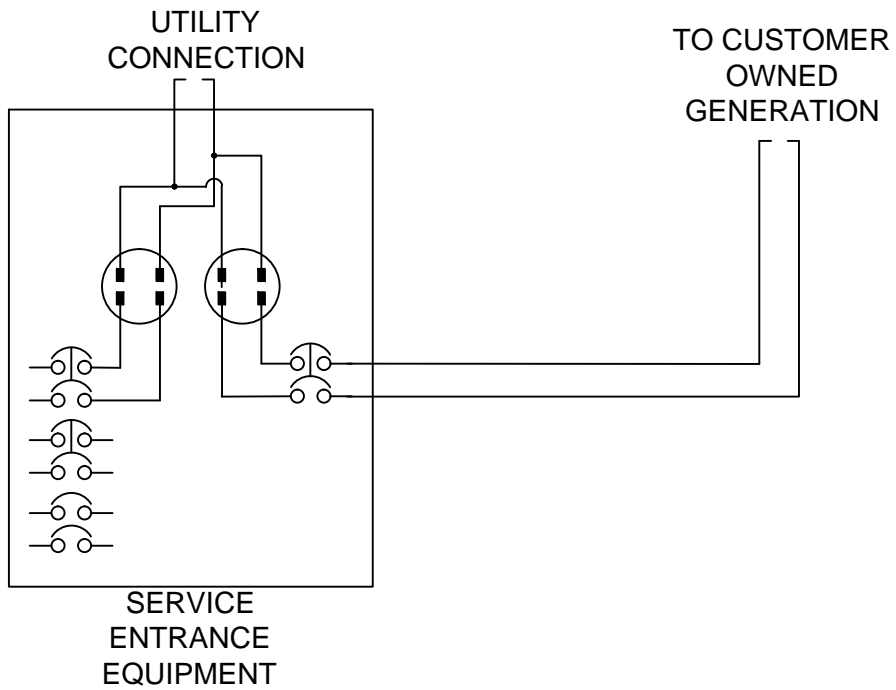
SHEET <u>3</u> OF <u>6</u>
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## 10. Attachments

### ATTACHMENT 1: SINGLE SELF CONTAINED METER ONE LINE DIAGRAM (TYPICAL INSTALLATION)



### ATTACHMENT 2: DUAL SELF CONTAINED METER ONE LINE DIAGRAM (INSTALLATION SHOULD UTILITY REQUEST A SECOND METER)



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**NET METERING SYSTEMS**

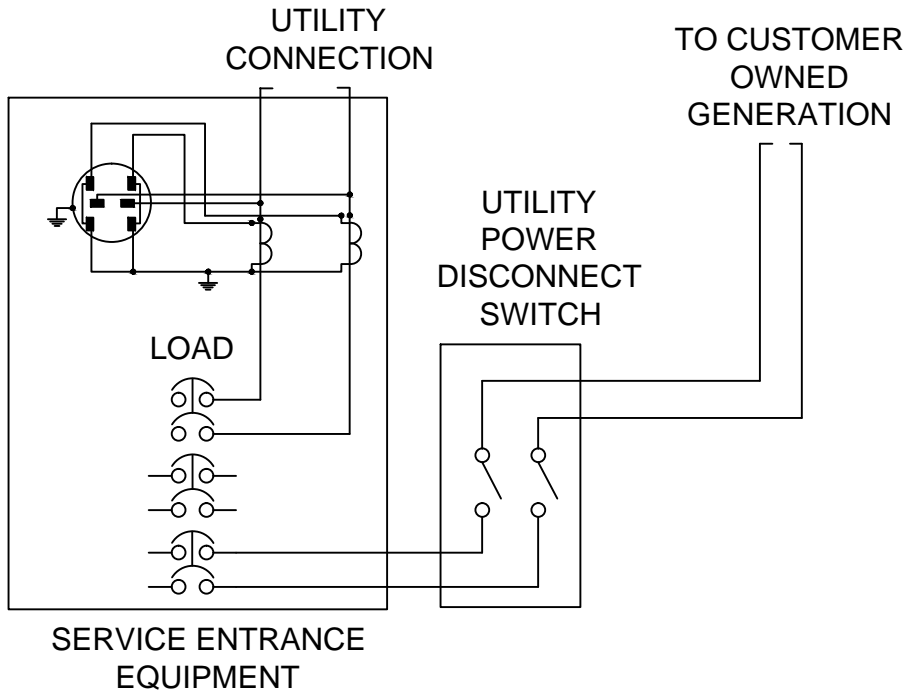
TECHNICAL

DRAWING NUMBER

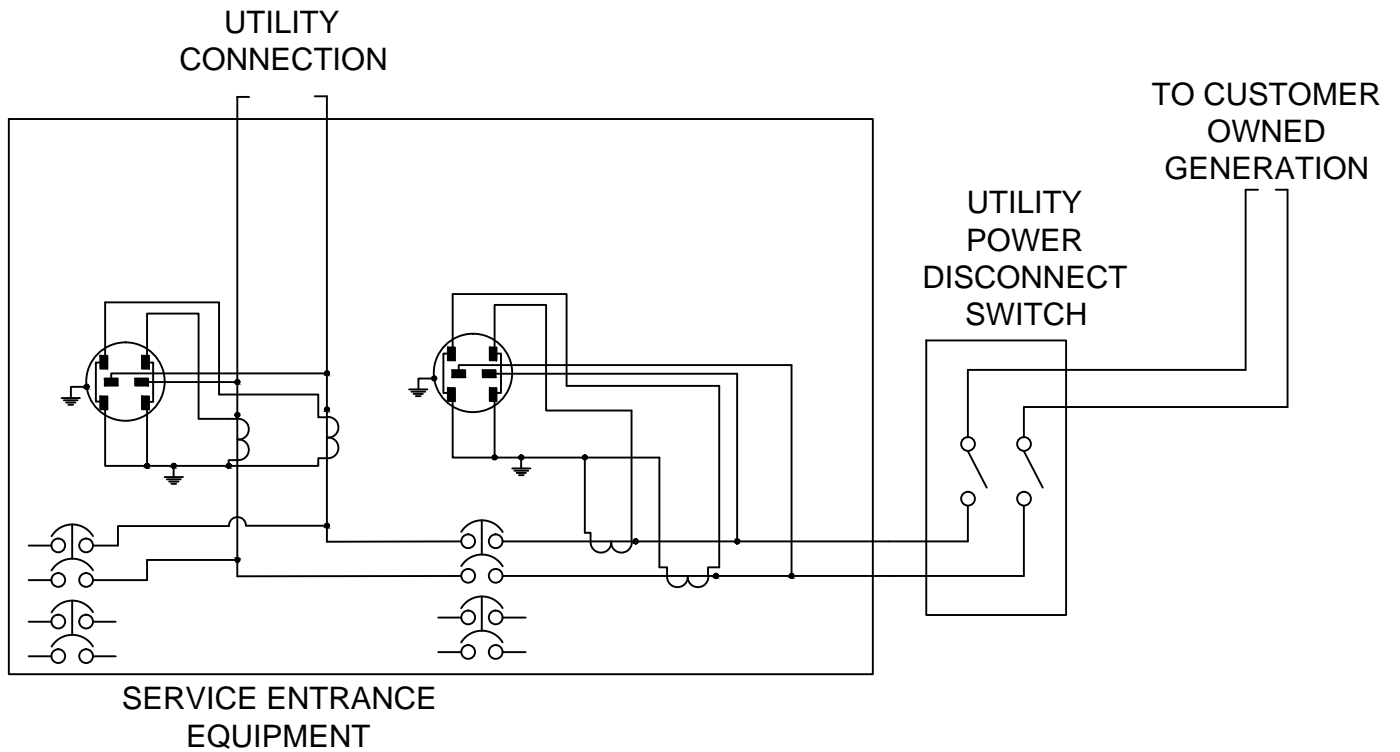
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**ATTACHMENT 3: SINGLE INSTRUMENT METER ONE LINE DIAGRAM  
(TYPICAL INSTALLATION)**



**ATTACHMENT 4: DUAL INSTRUMENT METER ONE LINE DIAGRAM  
(INSTALLATION SHOULD UTILITY REQUEST A SECOND METER)**



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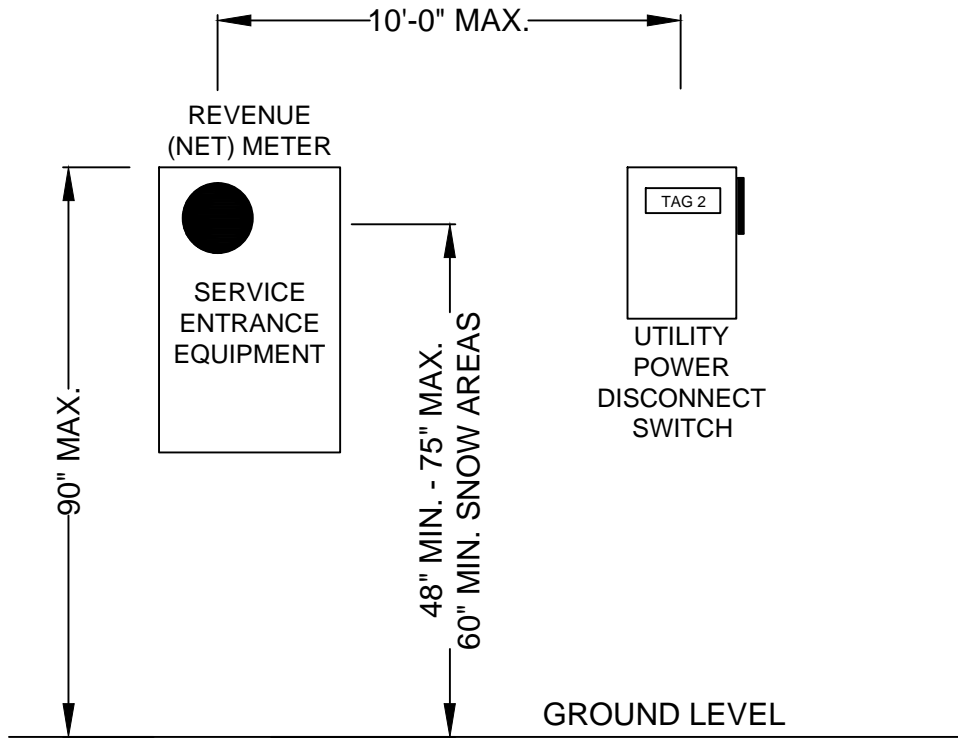
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ATTACHMENT 5: METERING ARRANGEMENT

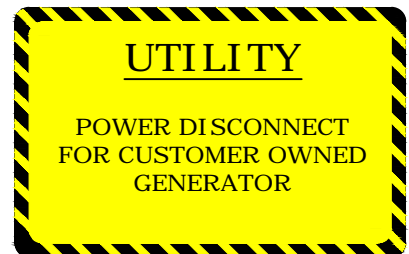


ATTACHMENT 6: REQUIRED TAGGING

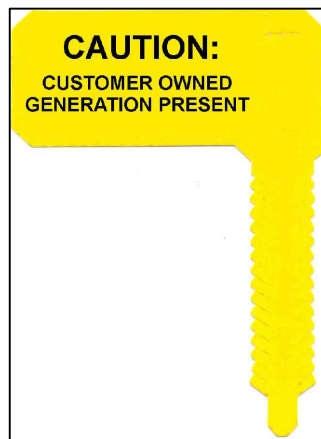
TAG 1: Install on Meter Box



TAG 2: Install on Disconnect Switch Box



TAG 3: Install on Transformer, J-Bar, or Service Conductor



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