

TID Solar Installation Guidelines

The following document is intended to assist solar installation designers and contractors in ensuring systems are built in a way that is acceptable by TID. Each area in this document will need to pass the TID field inspection before metering equipment can be installed. In order to help streamline this process, a checklist intended for use by field personnel has also been attached.

1. Single Line Diagram

- a. Project must be built according to the single line diagram (SLD) submitted and approved by TID. Any revisions to the SLD after approval by TID need to be submitted and approved by TID before metering equipment can be installed.
- b. Specify the Main Breaker rating and bus size.
- c. Specify the Battery Storage System size and manufacturer (if applicable).
- d. Any job requiring a line side tap will need to have permission from TID - Not permitted on residential applications.

2. Overall Design

- a. Only one (optional) *TID* PV generation meter is allowed per main service panel (MSP).
- b. AC Disconnect (*If installed*) must be located within 10 feet and line of sight of the main service panel (MSP) and if optional generation meter is used (additional fee) installation of an AC disconnect is required between the MSP and the generation meter.
- c. AC Disconnect (*If installed*) must be on the same side of any obstruction (Fences, Gates, etc) as the MSP
- d. *If utilized*, the TID PV generation meter socket can be located no more than 60 feet from the inverter or, in the case of micro inverters, the array.
- e. *EMS protecting the bus is not sufficient and a breaker or fuse is required.*
- f. *Derating of phase wires is not permitted.*

3. Gas Meter Clearances

- a. TID does not have a rule pertaining to the proximity of electrical equipment and/or wiring to natural gas metering facilities. Per the National Electric Code (NEC), a minimum of a 36 inch radius from the top of the gas riser must be clear of any electrical equipment or wiring. Please make sure to contact your local inspection jurisdiction for their exact requirements.

4. Placarding

- a. Some components of solar installations require permanent labeling per NEC 690.14.C.2 and NEC 690.52. In order to ensure that an installation passes the TID inspection, the following must be labelled in accordance with NEC rules:

- i. Dedicated PV (maximum 1) breaker located in MSP
- ii. AC disconnect switch
- iii. Conduits for solar circuit
- iv. Site map placard on MSP (If the *optional* TID generation meter is to be located where not visible from MSP)
- v. Main service panel (MSP)
- vi. Line side Tap

5. Breaker Sizing

- a. Only one dedicated PV breaker is allowed per Main Service Panel (MSP). This breaker needs to be positioned on the end of the bus furthest from the main breaker and not exceed the NEC 120% rule. Otherwise the main breaker plus the PV breaker cannot exceed the capacity of the bus.
- b. PV breaker sizing is calculated using the total bus capacity rating of the MSP or TID service entrance rating, whichever is applicable.
 - i. End fed bus
 - 1. The sum of the main breaker rating and the dedicated PV breaker rating must not exceed 120% of the panel bus capacity rating.
 - ii. Line side tap (Commercial and Agricultural Only)
 - 1. The total output of the solar installation must not exceed the TID service entrance rating.
 - iii. Split Bus Panel without Main Breaker (commonly referred to as the “6 Throw Rule”) is not permitted unless certain criteria is met under the current NEC.

6. Battery Storage

- a. Battery storage systems need to be operable at time of TID inspection. Also, a contractor representative needs to be present to verify the proper operation of the system.
- b. When power from TID is interrupted, it must be demonstrated that there is no possibility for the system to back feed.
- c. Storage battery size kWh and kW must be specified on the SLD.
 - i.

7. Wiring and Construction

- a. Splices
 - i. Splices are not allowed on energized conductors. This includes cable limiters.
- b. AC disconnect (if installed) (Required for Line Side Tap)
 - i. The AC disconnect switch must be wired according to the manufacturers specifications. In most cases, the utility feed needs to be landed on the top (line).
- c. PV generation meter socket (if installed)(optional)

- i. The PV generation meter socket must be wired with the utility feed landed on the load side jaws (bottom). TID requires the socket be wired this way to ensure forward registration on the meter during generation. AC disconnect required between the main service panel and the optional generation meter.
- d. Connectors and Equipment
 - i. All connectors and equipment used in the installation must be UL approved.
- e. Openings
 - i. All openings in equipment (i.e. hubs or knockouts) must have appropriate UL approved covering installed at time of TID inspection.
- f. Fused AC disconnect (if installed)
 - i. If AC disconnect is fused, the size of the installed fuses must be equal to or less than the current rating of the switch.

8. Solar Additions

- a. When adding on generation capacity to an existing solar interconnected service, a new SLD must be submitted for TID approval.
- b. Any added generation capacity needs to be connected to pass through the existing TID PV generation meter (if previously installed).

9. TID Metering Equipment Location and Working Space Requirements

- a. Any equipment on which TID metering equipment is to be installed must conform to TID's construction standards.
 - i. Meter Height
 - 1. The requirements for meter height, which is the vertical distance between the centerline of the meter and the ground or standing surface, shall be as follows:
 - 2. 48" minimum - 75" maximum for single meter residential & meter pedestals
 - 3. 36" minimum – 75" maximum allowed for commercial meter clusters in self-supporting, rain-tight cabinets.
 - ii. Meter Working Space
 - 1. Working space in front of the meter permits access to the metering installation and provides working safety for personnel. A working space entirely on the property of the customer is required in front of all meters except for buildings constructed on zero lot lines.
 - 2. The working space is to be kept clear and unobstructed and shall not be used for storage.
 - 3. When meters or metering equipment are placed in cabinet enclosures, the clear working space shall extend from the outer face of the cabinet.
 - 4. The height of the clear working space shall be 78 inches minimum from the standing surface.

5. The width of the clear working space shall be 36 inches minimum for a one meter installation and shall extend the additional width necessary for access to the total number of metering panels.
6. The centerline of any meter shall not be less than 18 inches from any adjacent side wall or other protruding obstruction.
7. The depth of the clear working space shall be 36 inches minimum for services rated 150 volts or less to ground. When the service is rated in excess of 150 volts to ground, the depth shall be as required by applicable electrical codes or as dictated by the physical design and arrangement of the metering cubicles.