

Net Energy Metering 2.0 Solar PV Interconnection Handbook

Effective January 1, 2017



Overview

This Handbook illustrates the steps, processes, and requirements to apply for a Solar Photovoltaic (PV) interconnection for qualified Net Energy Metering (NEM).

Where to find information or ask questions

MID's website www.mid.org will have Solar Information on applying for a solar PV interconnection including downloadable applications, forms, and manuals. If you are unable to locate the information you require please contact the MID Solar Information line at (209) 526-7582 or email us at MID.Photovoltaic.Program@mid.org.

Consumer Protection

As with any large investment, do your homework. Get multiple bids from separate contractors and ask for referrals. For additional tips or to review your contractor go to California State Contractors License Board website at <http://www.cslb.ca.gov/>. Even if the project offered for \$0 down, be sure you fully understand the details and terms of the agreement.

Application Requirements

To be eligible for interconnection a customer must have an active electric account in their name and be in good financial standing with MID. Applicants must also comply with all MID Electric Service Rates and Rules. MID Solar PV interconnection applications, forms, and manuals can be found on the MID website at www.mid.org/solar.

Solar Rebates

Unfortunately MID solar PV rebates are not available in 2017.

Federal Tax Benefits

The Federal Investment Tax Credit (ITC) is currently at 30%. Check with your CPA or the Internal Revenue Service for more information.

Net Energy Metering (NEM)

Net Energy Metering (NEM) is applicable to qualified renewable generating facilities intended primarily to offset part of all of the customer's own electrical usage limited to 1,000 kilowatts CEC-AC Nameplate rating per billed meter account. There are two types of NEM:

Transitional NEM

MID has closed the "transitional" NEM 1.0 rate effective the end of 2016. This rate was developed to aid in the transition of solar PV to be more cost competitive. Customers who have successfully applied for the NEM 1.0 rate in 2016 and have received acceptance letters have until June 30th 2017 to interconnect their solar PV system to MID. PV systems not interconnected by this date will only be eligible for the NEM 2.0 rate.

Successor NEM

MID has opened the "Successor" NEM 2.0 rate effective January 1, 2017. Solar PV applications submitted in 2017 will only be eligible for the NEM 2.0 rate. Be sure to only submit the new applications and forms that will be updated and available on the MID website in January 2017

PV Modifications

When existing PV systems under the MID NEM 1.0 Rate are modified, where solar panels are added or rearranged that increases the PV system output by 10% or more, customers **MUST** apply for the new NEM 2.0 rate. Systems that are modified in any way and the result is a change in the initial systems annual CSI kWh output equal to or less than 10 percent, the customer or contractor must complete and submit the PV System Modification Form found at www.mid.org/solar to MID with the new system size CSI calculation sheets as well as the initial system size CSI calculation sheets. Failure to notify MID of PV modifications could result in the loss of NEM 1.0 agreement and the PV account may be retroactively recalculated under the NEM 2.0 rate.

As stated above, systems are allowed to be expanded up to 10% without the customer having to reapply under the new NEM 2.0 program. This is to be calculated as 10% of the initial system CSI annual KWh rating calculation (www.csi-epbb.com). For example, if the CSI calculation rating of the current system is 8,450 KWh after taking into consideration the panel output, inverter efficiency, panel orientation, design factor, etc. 845 KWh of solar can be added for a total system CSI rating of 9,295 KWh verified by the EPBB calculator. This number is not to be exceeded. If an addition is made within the 10% allotment it will be the contractor and/or homeowner's responsibility to meet all electrical requirements, verify PV breakers are correctly sized and Main Service Panel ratings are not exceeded under the 120% rule. Local building authority permits may also

need to be amended and a re-inspection may be required. Please consult the local building authority for further information.

MID tracks generation output for all PV systems and reserves the right to audit PV installations where system output is in excess of calculated values for the system approved by MID. Systems where the number of solar panels installed or generation output is greater than 110% of the initial MID PV Application and Interconnection Agreement will need to reapply for interconnection to MID under the effective NEM rate or will result in the loss of interconnection under their current NEM agreement. MID may deny any system addition after review of the customer's consumption and/or generation history. MID recommends NEM 1 customers to allow for a full year of solar production from the date of interconnection to be sure systems are sized correctly according to their usage.

PV System Sizing

PV system size should not exceed the average two year annual consumption of the meter where the PV is being installed based on the CSI calculator. New construction or vacant dwellings without kWh usage history will be subject to review by MID to determine the reasonableness of PV sizing.

Installing Solar PV

MID will interact with your contractor to get your solar PV system interconnected. In most cases your contractor will handle all the details. Your contractor should be aware of MID application paperwork and technical requirements. Complete and correct PV applications will insure you of a timely interconnection process. Installers must also follow MID guidelines in the placement of electrical interconnection equipment. Failure to adhere to MID requirements could delay the interconnection of the solar PV system.

Application Process (3 Steps)

Step 1 - Submit MID PV Interconnection Application Package

The following items must be included in the NEM Interconnection Package:

- Engineering Review/GenMeter Fee Check - \$300 fee for PV systems up to 99.9 kW-AC or \$800 for PV systems 100 kW-AC or greater.
- NEM 2.0 Application (electronic signatures require verification receipt)
- Single Line Diagram (SLD) – a technical drawing provided by the PV contractor detailing the wiring and electrical components of the PV system must be legibly printed on 8.5"x11" paper
- Site Diagram (SD) – A detailed drawing depicting the layout and placement of PV panels and inverters, metering, switches/disconnects, placarding/signage, obstructions, and relative placement to dwelling and any obstructions to access such as gates (locked or unlocked) must be legibly printed on 8.5"x11" paper

- California Solar *Initiative* solar calculator (CSI) – This calculator is used to produce a report to show the expected production of the PV system installed.
- NEM 2.0 Net Metering Agreement – signed by customer
- Interconnection Agreement – signed by customer
- *If electronic signatures are used on any document please provide a DocuSign certificate or comparable document legitimizing the signatures.
- Mail (USPS or Express Mail) or drop off package to MID
- Only current applications and forms will be accepted. Go to mid.org for a printable list of forms and manuals for solar PV interconnection.

Please Note:

MID will not accept incomplete interconnection application packages. Packages that are missing information, incomplete, or are inaccurate, will be returned by USPS mail to the contractor. MID must be notified of any “as-built” changes that deviates from the original application package. Projects with significant deviation from application to “as built” could have the application cancelled and MID will require a new and corrected application package to be submitted.

Application Check List – Insure Complete Packages

Application Package Requirements Check List	
✓	Documentation Description
	Solar PV Application (current version required see MID website)
	Details for Multiple Arrays Form (required if more than one array in system)
	Copy of contract with vendor/contractor
	Single Line Electrical Diagram
	Site Diagram/Plans
	CSI Evaluation (www.csi-epbb.com)
	Completed MID Interconnection Agreement
	Completed MID Net Metering Agreement (See MID website)
	\$300 check for Engineering Review/GenMeter for PV systems with

	nameplates of <100kW-AC per meter or a \$800 check for PV systems of 100 kW-AC or greater per meter
✓	Required for Interconnection
	Copy of City / County Permit

Where to Send Application Package

To submit application package, please send to the following:
 Modesto Irrigation District
 Attn: Solar PV Program
 1231 11th St
 P.O. Box 4060
 Modesto, CA 95352-4060

Applications packages may also be submitted in person at the above address but no electronic applications will be accepted. Electronic signatures are permitted as long as certification is also included.

Step 2 - Application Package Received and Accepted by MID

Application Acceptance Letter Will be Issued

MID will issue an acceptance letter when all required information and documentation has been submitted and plans have been approved by engineering. An Acceptance letter will be sent to the MID customer of record via mail and the PV contractor listed on the application via email.

Energizing the PV System for Testing Only

Once installed and before passing MID inspection the PV system should not be energized on a sustained basis prior to the “passing” of the Interconnection Inspection. Systems energized for testing purposes longer than 24 hours will be subject to tampering fines and could face termination of Interconnection and Net Metering agreements with MID.

Step 3 - MID PV Interconnection Inspection

After the PV system is installed, typically the solar contractor will submit the appropriate “signed-off” copy of the City/County permit to MID. Send a copy of the signed-off final permit to MID.Photovoltaic.Program@mid.org, MID will normally perform the Interconnection Inspection within 12 working days. The permit is required for MID to

perform an Interconnection Inspection. The inspection verifies the installation and the correct electrical wiring of required devices (generation/production meter and ac disconnects) as well as installation of MID required signage (placarding).

If the PV system passes the inspection, MID will install the generation meter. The installation of the generation meter signifies that your system has been interconnected to MID and your PV system can be energized. MID will not energize customer PV systems. You and your contractor will receive a “Permission to Operate” (PTO) letter from MID formally informing you that MID has interconnected your system. This typically occurs within 10 days of a successful Interconnection Inspection.

As-Built Changes

The application and site plan must match the project. If as-built changes make the original site plan inaccurate, please submit a corrected site plan with your permit. Projects that do not match the application and site plan provided MID may not pass inspection.

Project Fails MID Inspection

After the approved city/county inspection notice has been forwarded to MID by the contractor, MID will inspect the site. If the MID inspection fails, MID will send an email to the contractor stating the reasons for failure and copy the customer. A \$100 inspection fee will be applied to the customer’s account for each re-inspection following the initial inspection. The contractor will address the issues and request a re-inspection (new city/county permit may be required). Following MID PV interconnection guidelines closely will help eliminate delays and MID re-inspection fees.

Common Reasons for Interconnection Problems

Be sure to read the MID Solar Photovoltaic Service Guide before you install solar – go to <http://www.mid.org/tariffs/default.html> to download this information. Failed interconnection inspections can result in fees and interconnection delays.

Project Stage	Common Issues
Project Approval	Missing documents (all required documents must be included. See table above.)
	Missing signatures and/or initials
	Inconsistent information - Application Form does not match EPBB worksheet, site

	plan and/or single line diagram
	Interconnection Review Fee not included with Reservation / Application packet
	Site Plan- See MID Electric Service Guide for requirements. <ul style="list-style-type: none"> • Number of panels / orientation does not match EPBB and/or application • Location of MID equipment not included • Gates and/ or fences not included • Gates must be marked as locked or unlocked (MID access required).
	Single Line Diagram- See MID Electric Service Guide for requirements. <ul style="list-style-type: none"> • Incorrect placement of AC disconnect and/or generation meter socket • AC disconnect and/or generation meter socket missing • AC disconnect and/or generation meter socket missing description
Interconnection (\$100 Re-inspection fee will be applied)	Missing city / county final approved permit
	MID seal(s) cut / missing
	No access to MID equipment, PV equipment not placed according to Site Plan
	Missing / inadequate placard(s)
	Placard not attached properly
	Damaged Meter Clips – Clips fail tension test <i>Note: For testing, contractors may use jump covers to maintain meter clip integrity</i>
	Meter socket improperly wired- New permit required
	Meter socket height @ centerline exceeds maximum (48" to 75")

PV System Modifications May Require a New Current PV Application

- Adding new PV Panels to an existing system
- Relocating PV Panels
- Change or Rearrangement of electrical interconnection equipment
- Adding a Battery System

Contact MID at (209) 526-7582 or email us at MID.Photovoltaic.Program@mid.org if you have questions. Any form of modification of your PV system requires MID to be notified. Systems not in compliance with MID Rates or Electric Service Rules may be subject to having their solar PV systems disconnected from the MID grid.

NEVER CUT A METER SEAL OR ATTEMPT TO REMOVE AN MID NET OR GENERATION METER
Cutting MID meter seals or removing an MID meter can result in Tampering Charges and potential loss of the NEM agreement.

General Information

System Size for NEM

- NEM system size for qualified renewable generating facilities intended primarily to offset part of all of the customer's own electrical usage limited to 1,000 kilowatts CEC-AC Nameplate rating
- Maximum system per customer not to exceed 1,000 kW AC. Customer is determined by MID Account Number, MID Meter Number and Federal Tax Identification Number(s).
- MID reserves the right to determine maximum system NEM size. This includes for new construction or where only consistent electrical usage histories are not available.

Installation Requirements

- Premises with multiple electric meters will be limited to one PV system per meter. MID will not increase transformer/service capacity to facilitate PV generation under this program.
- The solar PV system must be interconnected to the utility distribution grid and generate electricity to offset the end-use consumer's on-site electrical load.
- The solar PV system must be located on the same premises of the end-use consumer where the consumer's own electrical demand is located.
- Where multiple PV systems are installed, separate meter monitoring systems may need to be maintained for each installation.
- Eligible PV systems must be permanently mounted to a permanent structure. In addition, the building permit for the solar system must be approved by the building code enforcement.
- Systems must be installed in conformance with the manufacturer's specifications and all applicable electrical and building codes and standards.
- MID requires the installation of MID performance (generation) meter measuring the alternating current output of the PV system.
- Systems must meet MID interconnection standards. Please review the MID Electric Service Rules for complete details.

Definitions

Grid Interconnection

Qualifying PV systems must be grid-connected. This means that the PV system must be electrically connected (on the customer's property) to the MID electric system serving the customer's load. The interconnection of the customer's PV system must comply with all applicable electrical codes, MID interconnection requirements and MID Electric Service Guidelines.

Electrical Interconnection and Net Metering Agreements

Customers installing a Solar PV system and customers requesting service at an existing service with a Solar PV system are required to submit an Electrical Interconnection Agreement and a Net Metering Agreement. Net metering is designed to off-set the customer's existing load. Oversized systems are not eligible for net metering.

Electrical Interconnection Agreement

The Electrical Interconnection Agreement allows the customer to interconnect their generating system with the MID electric system. MID reserves the right to inspect and verify all interconnected systems at any time.

Net Energy Metering Agreement

An agreement that specifies the terms and rate in which PV generation will be compensated

“End of Document”