

# City of Long Beach

This page outlines solar PV incentives, financing mechanisms, permitting process, and interconnection information for the City of Long Beach and the utility that serves its territory, Southern California Edison.

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[Find an Installer](#) | [Financing](#) | [Incentives](#) | [Permitting](#) | [Interconnection](#)

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## Contact Information

City of Long Beach  
Department of Development Services  
333 W. Ocean Blvd.  
Long Beach, CA 90802

**Phone:**

562-570-6651

**Website:**

<http://www.longbeach.gov/citymanager/sustainability/energy/default.asp>

**Hours:**

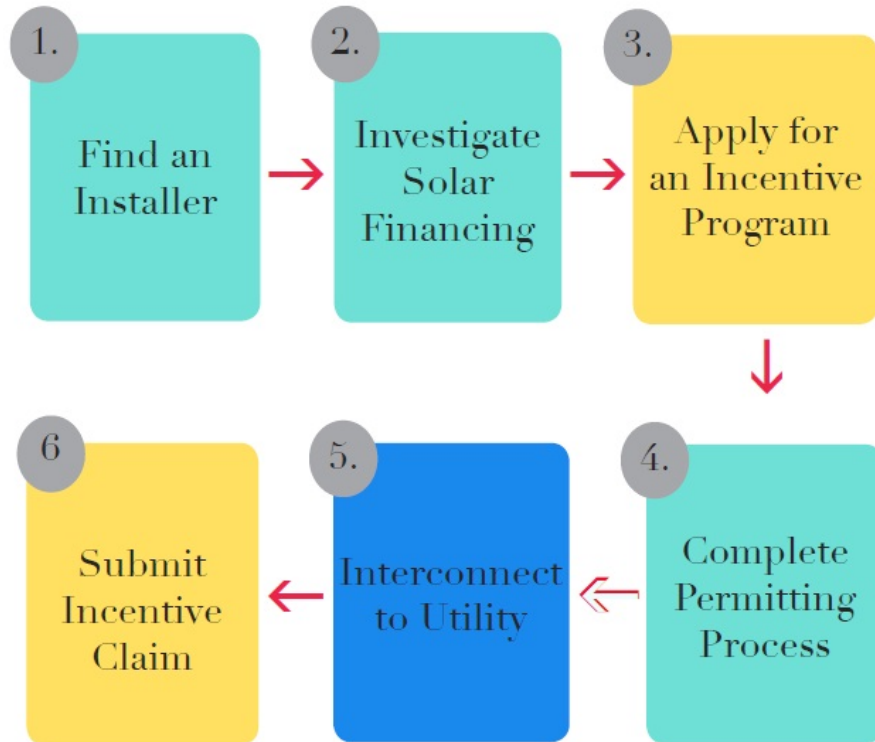
Monday, Tuesday 7:30AM - 4:30PM

Wednesday 8:30AM - 4:30PM

Thursday, Friday 7:30AM - 4:30PM

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## OVERALL SOLAR PROCESS:



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### Find an Installer

- **Qualified contractors are your key to getting the most productive solar energy system for your home or business.**
  - Typically solar installers will:
    - Locate financing programs to fit your needs
    - Apply for rebates and incentives on your behalf
    - Apply for local permits
    - Install your PV system
    - Arrange for your PV system to be interconnected to your utility's power grid
- **California Solar Statistics provides a searchable/sortable list of Installers, Contractors, and Sellers by area who can help you in the process of going solar:**
  - <http://californiasolarstatistics.com/search/contractor/>
  - Important Notes:

- Costs are measured on a per watt basis
- It is important to remember that cost is not the only factor involved in system installation.
- **It is highly recommended to contact *a minimum of three installers* to compare costs, system sizing, and services offered before signing a contract.**

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## Financing Information

### Federal Solar Incentives

- o Residential Renewable Energy Tax Credit
  - A taxpayer may claim a credit of 30% of qualified expenditures for a solar system that serves a residence located in the United States that is owned and used as a residence by the taxpayer.
    - [http://www.dsireusa.org/incentives/incentive.cfm?Incentive\\_Code=US37F&re=1&ee=1](http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=US37F&re=1&ee=1)
- o Business Energy Investment Tax Credit (ITC)
  - This federal tax credit is equal to 30% of expenditures on a solar system, with no maximum credit.
    - [http://www.dsireusa.org/incentives/incentive.cfm?Incentive\\_Code=US02F&re=1&ee=1](http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=US02F&re=1&ee=1)

### Third Party Ownership

- o Solar Power Purchase Agreements
  - A Solar Power Purchase Agreement is a financial arrangement in which a third-party developer owns, operates, and maintains the photovoltaic system, and a host customer agrees to site the system on its property and purchases the system's electricity. With this business model, the host customer buys the kilowatt hours of electricity produced by the PV system rather than the PV system itself. This financial arrangement allows the host customer to receive stable, and sometimes lower cost electricity, while the solar services provider or another party acquires valuable financial benefits such as tax credits and income generated from the sale of electricity to the host customer.
- o Solar Leases
  - Solar Leases are similar to Power Purchase Agreements in that a third party pays for and owns the system, but with this financing mechanism a customer pays a fixed

monthly fee that is not tied to actual use and is responsible for system performance, operations and maintenance.

- [www.energycenter.org/index.php/incentive-programs/california-solar-initiative/csi-latest-news/2167-why-pay-to-install-solar](http://www.energycenter.org/index.php/incentive-programs/california-solar-initiative/csi-latest-news/2167-why-pay-to-install-solar)
- o Southern California Edison Solar Rooftop Program
  - This commercial leasing program allows commercial building owners to lease their roof space to SCE to install solar systems. SCE will pay the building owners to lease their rooftop and generate electricity for the SCE energy grid.
    - [www.sce.com/solarleadership/solar-rooftop-program/](http://www.sce.com/solarleadership/solar-rooftop-program/)

### **Property Assessed Clean Energy (PACE) Programs**

- o Commercial PACE
  - The Los Angeles County PACE program offers funding for nonresidential solar projects. Under this program property owners can negotiate project-specific financing terms with the investor(s) of their choice, and repay the cost of the upgrade over time through a voluntary contractual assessment on the property tax bill.
    - [https://commercial-pace.energyupgradeca.org/county/los\\_angeles/overview](https://commercial-pace.energyupgradeca.org/county/los_angeles/overview)

### **Secured Financing**

Secured financing is a loan in which the borrower pledges some asset as collateral. Typically for a solar installation this collateral is a home or building. The following secured loans are available in the SCRC region:

- o Home Equity Lines of Credit (HELOCs) and Home Equity Loans (HELs)
  - HELOCs are forms of revolving credit in which a home serves as collateral. A HEL is a loan that has a fixed rate and term and also uses a home as collateral. The major difference between these two types of financing mechanisms is that HELOCs are similar to a credit card – you can withdraw money as needed and pay back the debt indefinitely – whereas an HEL gives you a one-time lump sum of cash that is paid off over a fixed amount of time. These types of loans are typically available through banks.
    - Home Equity Lines of Credit:  
[www.federalreserve.gov/pubs/equity/equity\\_english.htm](http://www.federalreserve.gov/pubs/equity/equity_english.htm)
    - Home Equity Loans:  
<http://www.federalreserve.gov/pubs/bulletin/1998/199804lead.pdf>

- o FHA 203(k) Rehabilitation Loans
  - The Federal Housing Administration (FHA), which is part of the U.S. Department of Housing and Urban Development (HUD), administers various single family mortgage insurance programs. These programs operate through FHA-approved lending institutions which submit applications to have the property appraised and have the buyer's credit approved. These lenders fund the mortgage loans which the HUD insures, thereby giving a line of credit to the property owner to make property upgrades, such as solar PV installations.
    - [http://portal.hud.gov/hudportal/HUD?src=/program\\_offices/housing/sfh/203k/203kabou](http://portal.hud.gov/hudportal/HUD?src=/program_offices/housing/sfh/203k/203kabou)
- o HUD Title 1 PowerSaver Loans (Secured or Unsecured)
  - The PowerSaver program insures loans to finance small or moderate improvements to a home, such as a solar energy upgrade. The PowerSaver pilot will provide lender insurance for secured and unsecured loans up to \$25,000 to single family homeowners specifically targeting residential energy efficiency and renewable energy improvements.
    - [www1.eere.energy.gov/wip/solutioncenter/financialproducts/PowerSaver.html](http://www1.eere.energy.gov/wip/solutioncenter/financialproducts/PowerSaver.html)
- o Los Angeles County Energy Loans: Long Beach, Santa Monica, County of Los Angeles
  - The Energy Upgrade California (EUC) Program in Los Angeles County offers property owners a 2% interest rate on eligible residential energy efficiency and solar projects. These loans are offered through Matadors Community Credit Union with support from Los Angeles County.
    - [https://energyupgradeca.org/county/los\\_angeles/about\\_local\\_financing](https://energyupgradeca.org/county/los_angeles/about_local_financing)

### **Unsecured Financing**

Unsecured financing is a loan that is not backed by any collateral. Credit cards and personal loans are the most common examples of unsecured financing. Unsecured financing products available for energy upgrades include personal loans and contractor-sponsored products. However, unsecured financing does come with drawbacks: a good line of credit is typically required with no collateral and the interest rates tend to be higher than with secured loans. However, with some publicly-supported programs, the jurisdiction will pay the interest rate down to attract borrowers.

- o Fannie Mae Energy Loan
  - Fannie Mae offers a direct, non-recourse consumer loan program that will finance up to \$20,000 in energy improvements without putting a lien on your home. Energy Loan is a simple interest, fixed rate loan with longer terms available than typical bank financing.
    - [www.energyloan.net/index.php](http://www.energyloan.net/index.php)
- o Los Angeles County Energy Loans
  - As with the secured loan, Matadors Community Credit Union and Los Angeles County are offering low-interest loans for energy upgrades and renewable energy projects.
    - [https://energyupgradeca.org/county/los\\_angeles/about\\_local\\_financing](https://energyupgradeca.org/county/los_angeles/about_local_financing)
- o Clean Energy Upgrade Financing Program - ABX1 14
  - ABX1 14 authorizes the California Alternative Energy and Advanced Transportation Financing Authority (CAEATFA) to administer a Clean Energy Upgrade Financing Program using up to \$25 million to finance the installation of distributed generation renewable energy sources, electric vehicle charging infrastructure, or energy or water efficiency improvements on homes or small commercial properties.
    - [http://www.treasurer.ca.gov/caeatfa/abx1\\_14/index.asp](http://www.treasurer.ca.gov/caeatfa/abx1_14/index.asp)

### **Other Financing Mechanisms**

- o Feed-in Tariff (FIT)
  - Under a feed-in tariff, eligible renewable electricity generators are paid for the generating renewable electricity and feeding it into the utility grid.
    - [SCE FIT Program](#)
- o Virtual Net Metering
  - VNEM is similar to ordinary Net Energy Metering (NEM) but is for multi-metered properties. VNEM is an agreement under which a share of production credits from a single solar system can be distributed to individual ratepayers in a multi-tenant property.
    - <http://www.sce.com/customergeneration/net-energy-faqs/net-energy-metering-faqs.htm#vnm>

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## Incentive Information

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  - Business Energy Investment Tax Credit (ITC)
    - This federal tax credit is equal to 30% of expenditures on a solar system, with no maximum credit.
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- **California Solar Initiative (CSI)**
  - [www.gosolarcalifornia.com/csi](http://www.gosolarcalifornia.com/csi)
- **Program Administrator**
  - Southern California Edison
  - Phone: (866) 584-7436
  - Email: [CSIGroup@sce.com](mailto:CSIGroup@sce.com)
  - Website: [www.sce.com/csi](http://www.sce.com/csi)
- **Step by Step Process of getting a CSI solar rebate**
  - [Step 1: Energy Efficiency Audit](#)

Complete an energy efficiency audit and make sure to take advantage of all the cost-effective ways to save energy and money in your home or business.
  - [Step 2: Find a Solar Installer](#)

Qualified contractors are your key to getting the most productive solar energy system for your home or business.
  - [Step 3: Apply for Rebates](#)

Qualified contractors will handle the CSI application process for your rebates in two or three steps.
  - [Step 4: Install Your System](#)

If you have received your reservation confirmation letter, you're ready to install your system and interconnect to the utility's power grid.

- [Step 5: Claim Your Incentive](#)  
When your project is installed and operational you may submit the Incentive Claim Form.

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## Permitting Process Information

City of Long Beach  
Department of Development Services  
333 W. Ocean Blvd.  
Long Beach, CA 90802

**Phone:**

562-570-6651

**Website:**

<http://www.longbeach.gov/citymanager/sustainability/energy/default.asp>

**Hours:**

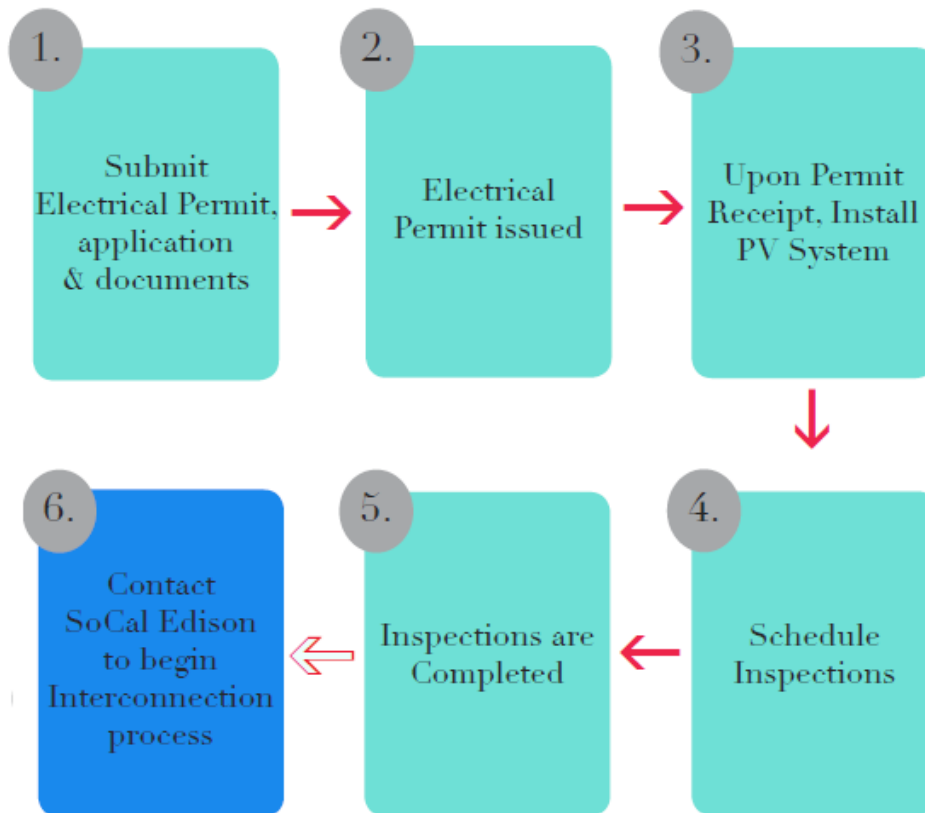
Monday, Tuesday 7:30AM - 4:30PM

Wednesday 8:30AM - 4:30PM

Thursday, Friday 7:30AM - 4:30PM



# PERMITTING PROCESS: Long Beach



- **Permitting Process**

- **STEP 1: Submit Electrical Permit Application and documents**

- The applicant must submit the following required documents to the Long Beach Development Services (LBDS):

1. PV system installation checklist
  - A detailed description of the documents and plans needed for the electrical permit submittal package:
  - <http://www.longbeach.gov/civica/filebank/blobdload.asp?BlobID=18653>
2. Provide 3 sets of plans, stamped and signed by the responsible party on minimum 18" x 24" paper

- *NOTE: responsible party is a State of California licensed architect, electrical engineer, design build C-10, C-46 or the single family/duplex owner*
3. A complete plan view drawing which includes:
    - Array rooftop layout. Indicate the overall height of the installation, referenced from grade level.
    - All raceway runs, cable runs, combiner boxes, junction boxes, disconnects, inverters, subpanels, utility electrical service, etc.
    - If the system is a “ground mount” system, provide a complete, dimensioned site plan.
  4. A complete single line schematic drawing which includes:
    - Photovoltaic panels/arrays, raceway runs, cable runs, combiner boxes, junction boxes, disconnects, inverters, subpanels, utility electrical service, etc.
    - Indicate the quantity of photovoltaic modules in each array.
    - Indicate how the modules and arrays are electrically configured with regards to series and/or parallel circuitry.
    - All raceway and conductor sizes, types and quantities.
    - All disconnecting and overcurrent device ratings.
    - The buss amperage ratings of the utility service and any intermediate load centers that will conduct the Photovoltaic AC power contribution.
    - All system grounding. Include all grounding electrode(s) to be used, grounding electrode conductor size(s) and type(s), location of all grounding and bonding terminations, etc.
    - **IMPORTANT:** The code required Photovoltaic grounding electrode conductor shall be routed separately from all other conductors.
  5. A plan note requiring all code required signage.
  6. A highly visible plan note stating the polarity of the DC grounded conductor.
  7. The photovoltaic equipment manufacturer’s specification sheets on the plans.
  8. Verify inclusion of all information below:
    - Inverter
      - Maximum system voltage (DC)
      - DC maximum operating current
      - Maximum array short circuit current
      - Operating AC voltage range
      - Nominal AC output voltage
      - Maximum continuous output AC current

- Maximum output overcurrent protection
    - Continuous power output
  - Photovoltaic Module
    - Open circuit voltage
    - Operating DC voltage range voltage
    - Maximum power
    - Short circuit current
    - Maximum power current
    - Maximum system voltage
- **STEP 2: Electrical Permit Issued by City of Long Beach**
- **STEP 3: System Installation**
  - Upon approval of your application document, LBDS will give you an electrical permit, and you can commence building the PV system.
- **STEP 4: Schedule Inspections**
  - Inspection information:
    - [http://www.lbds.info/building/inspection\\_services/default.asp#request](http://www.lbds.info/building/inspection_services/default.asp#request)
  - Upon approval of your electrical permit, a set of your plans go to LBDS electrical inspectors who will review them prior to you scheduling an inspection.
    - If issues exist with your installation, the inspector will call to discuss prior to completing the inspection.
  - To schedule an inspection:
    - Phone: (562) 570-6105
  - Two inspections will be completed:
    1. Mounting
    2. Electrical systems
- **STEP 5: Interconnection**
  - Southern California Edison is not notified by the City of Long Beach
  - Installer must notify SCE to initiate the interconnection process

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# Southern California Edison (SCE)

## Interconnection Process

Southern California Edison (SCE) is the local utility for the City of Long Beach. Upon installation of your solar system and completion of your building permit inspection from the City of Long Beach, SCE will complete your interconnection agreement and connect your system to the electric grid so you can start generating electricity for your home or business.

### Contact Information

**Phone:**

(626) 302-9680

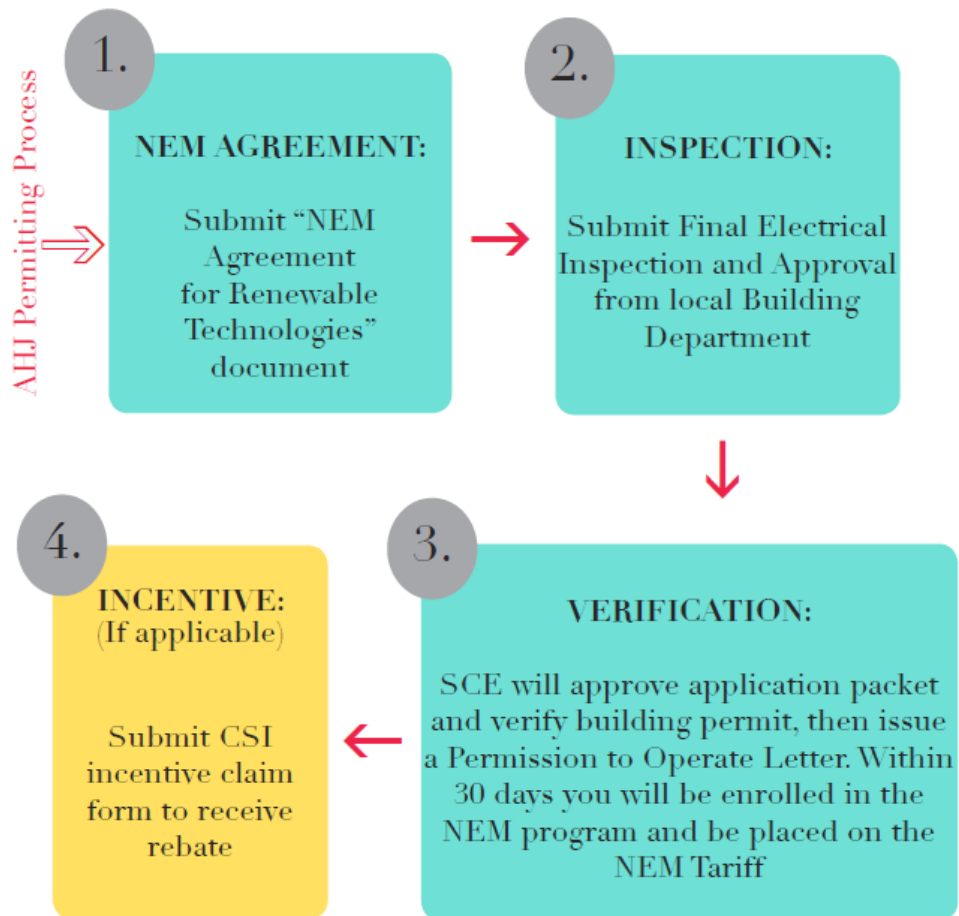
**Website:**

<http://www.sce.com/nem>

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### Interconnection Process

# INTERCONNECTION PROCESS: Southern California Edison



## NEM Interconnection Handbook for Installers:

[http://asset.sce.com/Documents/NEM\\_Interconnection\\_Handbook.pdf](http://asset.sce.com/Documents/NEM_Interconnection_Handbook.pdf)

## NEM Interconnection Checklist

<http://asset.sce.com/Documents/checklist-solarwind.pdf>

## How do I apply for Net Energy Metering (NEM)?

NEM interconnection paperwork is typically submitted by your installer because it involves technical documentation of the proposed system.

Application checklists, required documents, and samples can be downloaded from [www.sce.com/nem](http://www.sce.com/nem). Application documents may be submitted via email to [customer.generation@sce.com](mailto:customer.generation@sce.com) or by fax to (626) 571-4272.

**1. Submit NEM Application Package and “NEM Agreement for Renewable Technologies” document**

- Submit the initial Application Packet as early as possible, long before the system is installed and the final inspection by the local building and safety department is scheduled. The Application Packet consists of:
  - NEM Interconnection Application
    1. [Systems under 10kW](#)
    2. [Systems over 10kW](#)
  - [Single Line Diagram & Plot Plan](#)
  - NEM Interconnection Agreement signed by SCE’s customer

**2. Submit Building Permit Job Card from local Building Department**

- Submit a copy of the Final Electrical Inspection and Approval from the local Building and Safety department as soon as it is issued.

**3. SCE Finalizes Application and Issue Permission to Operate letter**

- Within 30 working days of receipt of all the required documents, SCE will:
- Issue a Permission to Operate (PTO) letter so you can turn on your system. Enclosed with the PTO letter will be an NEM tag for you to place on your meter to notify SCE meter technicians about the presence of your generating system and as proof of your permission to operate.
- Ensure your meter is capable of tracking your net generation.
- Enroll you on the Net Energy Metering rate schedule.

**For regulatory and safety reasons, your generating facility must not be interconnected prior to your receipt of the PTO letter and placement of the NEM tag on your meter.**

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## **Additional Interconnection Information**

The parallel operation of a solar PV unit requires interconnection with SCE’s electrical grid. Electric Rule 21 is a tariff that describes the interconnection, operating and metering requirements for generation facilities to be connected to a utility’s distribution system, over which the California Public Utilities Commission (CPUC) has jurisdiction. Note that the posted Rule 21 may not reflect updates to the tariff that may be pending before the CPUC:

- [SCE Rule 21](#)

The NEM Interconnection Handbook specifies the typical minimum technical requirements to interconnect generating facilities with SCE's electric system under the Net Energy Metering (NEM) program:

- [SCE's Net Energy Metering Interconnection Handbook](#)

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