Options for SB 379 Compliance

PANEL OF PRESENTERS
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CA Energy Commission

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City of Lynnwood
• SB 379 Mandates Objective and requirements
• Timelines and deadlines to comply and implement
• Grants for Instant solar permitting
California Energy Commission

Residential Solar Permit Reporting – SB 379 and the California Automated Permit Processing Program

Lucio Hernandez

April 22, 2024
Senate Bill 379 Overview

**Who?**
California cities & counties (with exemptions)

**What?**
Implement an online, automated permitting platform such as SolarAPP+ and Symbium

**When?**
By September 30, 2023 or September 30, 2024 (depending on population size)

**CEC Role**
- Adopted guidelines for annual reporting
- [Residential Solar Permit Reporting – SB 379](#)
<table>
<thead>
<tr>
<th>Who?</th>
<th>Threshold</th>
</tr>
</thead>
<tbody>
<tr>
<td>City</td>
<td>• Population fewer than 5,000</td>
</tr>
<tr>
<td>Example</td>
<td>• City of Truckee (Population ~16,000) [NOT EXEMPT]</td>
</tr>
<tr>
<td>County</td>
<td>• Population fewer than 150,000 (includes population of cities within)</td>
</tr>
<tr>
<td>Example</td>
<td>• Nevada County (Population ~97,000) [EXEMPT]</td>
</tr>
</tbody>
</table>
Annual Reporting

Data Submission to the CEC:
Authorized representatives of non-exempt reporting jurisdictions shall provide information to the Energy Commission that satisfies the requirements of SB 379.

Submission deadlines:
Non-exempt reporting jurisdictions shall submit annual reports by June 30th every year following compliance until June 30, 2034.

Data Reporting:
Data shall cover the previous calendar year from January 1 – December 31.

SB 379: “The Energy Commission shall set guidelines…for jurisdictions to report on the number of permits issued and the relevant characteristics of those systems.”
CEC Data Submission Portal

https://datasubmission.energy.ca.gov/RSPR/Report
<table>
<thead>
<tr>
<th>Name of Jurisdiction</th>
<th>Type</th>
<th>Estimated Population</th>
<th>Year Reported</th>
<th>PV Permits Issued</th>
<th>Online PV Permits Issued</th>
<th>PV + Storage Permits Issued</th>
<th>Online PV + Storage Permits Issued</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aliso Viejo</td>
<td>City</td>
<td>52,222</td>
<td>2023</td>
<td>269</td>
<td>269</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Arcadia</td>
<td>City</td>
<td>55,503</td>
<td>2023</td>
<td>155</td>
<td>48</td>
<td>41</td>
<td>16</td>
</tr>
<tr>
<td>Benicia</td>
<td>City</td>
<td>28,174</td>
<td>2023</td>
<td>189</td>
<td>55</td>
<td>47</td>
<td>33</td>
</tr>
<tr>
<td>Butte</td>
<td>County</td>
<td>207,000</td>
<td>2023</td>
<td>750</td>
<td>750</td>
<td>93</td>
<td>93</td>
</tr>
<tr>
<td>Chino</td>
<td>City</td>
<td>95,000</td>
<td>2023</td>
<td>6</td>
<td>6</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Citrus Heights</td>
<td>City</td>
<td>89,000</td>
<td>2023</td>
<td>91</td>
<td>91</td>
<td>17</td>
<td>17</td>
</tr>
<tr>
<td>Concord</td>
<td>City</td>
<td>124,074</td>
<td>2023</td>
<td>32</td>
<td>3</td>
<td>95</td>
<td>30</td>
</tr>
<tr>
<td>Contra Costa</td>
<td>County</td>
<td>1,160,000</td>
<td>2023</td>
<td>2,018</td>
<td>8</td>
<td>536</td>
<td>32</td>
</tr>
</tbody>
</table>
California Automated Permit Processing (CalAPP) Program
CalAPP Program Overview

**What?**
Grant program for cities, counties, or cities and counties to establish online solar permitting

**Eligibility**
All incorporated California cities (482) and counties (58)

**Funding Structure**
$40,000 - $100,000

**Deadline**
May 1, 2024
Application Form: [https://www.energy.ca.gov/calapp](https://www.energy.ca.gov/calapp)

Senate Bill 129 (Skinner, Budget Act of 2021)
Budget: $20 million (up to $1 million for admin costs)
CalAPP Numbers to Date

- Applications
  - 331 applications submitted
  - 327 agreements awarded
- Funding
  - $18,100,000 encumbered
  - $900,000 remaining

Jurisdictions using CalAPP funds to assist with the adoption or implementation of an online, automated platform issuing solar permits in real time.
Next Steps & More Information

• **May 1, 2024**: CalAPP Application deadline to reserve funding

• CalAPP Program webpage: [https://www.energy.ca.gov/calapp](https://www.energy.ca.gov/calapp)
  • Application Form accessible from this page


• Please join the CalAPP email list topic, available from our webpage or at [https://public.govdelivery.com/accounts/CNRA/signup/31719](https://public.govdelivery.com/accounts/CNRA/signup/31719)

• CEC Contact: calapp@energy.ca.gov
Customer Experience
Instant Solar Permits

The City of Lynwood is pleased to announce a new streamlined residential roof top solar plan check and permitting process.

New simplified Solar Permit Application - just one application to complete!

Apply for the qualifying Expedited Solar PV Permit through our Lynwood Instant Solar Permits
https://lynwood.edgessoftware.com/cap/ or in person at City Hall.

Residential Photovoltaic Eligibility Checklist - for projects that comply with the new screening checklist, no structural plan check required!

For questions regarding this permit process, please consult the Community Development Department at (310) 603-0220, ext. 289 or visit https://www.lynwoodca.gov
Welcome To The City Of Lynwood Online Portal!

Please refer to the navigation bar at the left of the screen to navigate. Some of the features include:

- **APPLY FOR PLANNING REVIEW**
  - Apply and pay for Online Planning Applications.

- **APPLY FOR INSTANT SOLAR PERMIT**
  - Apply and pay for Online Instant Solar Permit.

- **PERMIT STATUS**
  - My Active Permits.

- **INSPECTIONS**
  - Request an Inspection, Review Scheduled Inspections, Cancel a Scheduled Inspection.

- **MY PROFILE**
  - Review and update your profile. Provide the city with your contact information.
Step 1 of 5 - Apply for Solar Permit: Address

At What Address Will This Permit/Application Be Taking Place?

<table>
<thead>
<tr>
<th>Street Name</th>
<th>Street Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Please Select</td>
<td></td>
</tr>
</tbody>
</table>

Street Fraction

If you haven't yet obtained a confirmation number from SolarApp+ please click here

NEXT
Enter the address and jurisdiction of your new project to get started.

Title
New Project 2022-10-27 15:46:22

Address
108 North Bluebird Drive, Green Valley, AZ, USA

Address Validated
108 N Bluebird Dr
Green Valley, AZ 85614

AHJ
Pima County, Arizona

Project Type
Nothing selected

Cancel
Continue
Welcome To The City Of Norwalk Online Portal!

Please refer to the navigation bar at the left of the screen to navigate. Some of the features include:

- **Apply for Building Permits**
  - Apply and pay for Online Building Permits.

- **Apply for Planning Review**
  - Apply and pay for Online Planning Applications.

- **Yard Sale Application**
  - Yard Sale Application

- **Instant Solar Permit**
  - This is applicable for residential solar permit only. For all other permits, use building permit process.

- **Permit Status**
  - My Active Permits

- **Inspections**
  - Request an inspection, review scheduled inspections, cancel a scheduled inspection

- **My Permits Status**

- **Building Inspections**

- **My Profile**
Step 1 of 4 - Basic Information

At What Address Will This Permit/Application Be Taking Place?

Street Name*
Please Select
Street Number*

Street Fraction

SolarAPP+ Approval ID*

Description

If you don't have a confirmation number from SolarApp+ please [click here](#)

If this involves a meter upgrade, please get an additional permit.

NEXT
Enter the address and jurisdiction of your new project to get started.

**Title**
New Project 2022-10-27 15:46:22

**Address**
108 North Bluebird Drive, Green Valley, AZ, USA

**Address Validated**
108 N Bluebird Dr
Green Valley, AZ 85614

**AHJ**
Pima County, Arizona

**Project Type**
Nothing selected
Welcome To The City Of Burbank Online Portal!

Please refer to the navigation bar at the left of the screen to navigate. Some of the features include:

- **MY PERMITS**
  - My Active Permits

- **INSPECTIONS**
  - Request an Inspection, Review Scheduled Inspections, Cancel a Scheduled Inspection

- **APPLY FOR BUILDING PERMITS**
  - Apply and pay for Online Building Permits

- **INSTANT SOLAR PERMIT**
  - This is applicable for residential solar permit only. For all other permits, use building permit process.

- **GARAGE SALE APPLICATION**
  - Garage Sale Application

- **MY PROFILE**
  - Review and update your profile to provide the City with your current contact information
CITY OF LONG BEACH
Population of almost ½ million
Required to comply by October 2023

Steps we followed:

1. Adjusted the residential PV and ESS city permit fees in accordance with mandate
2. Trained and established a team of expert “permit technicians” to address the large number of expected submittals
3. Updated the existing checklists
4. Hired a consultant and developed a portal that applicants can pay and process their PV, ESS, and EVCS projects in real time
5. Applied and awarded a grant of $100,000 from the CA Energy Commission (CEC)
6. Demonstrated the system and passed the CEC audit
SOLAR PHOTOVOLTAIC (PV) PROCESS

The City of Long Beach (City) is committed to encouraging and supporting the installation of rooftop solar PV systems that generates renewable energy, provides stable electricity, and reduces pollution. The City permits such installations by reviewing, approving, and issuing most construction permits (electrical and/or building) over the public counter process. The inspection of these projects can be scheduled and conducted at the convenience of the applicant upon the issuance of the construction permits.

SUBMIT ELECTRONIC SOLAR PV PLANS AND APPLICATIONS

The City’s Development Permit Center accepts electronic solar PV plans and applications for the installation of solar PV systems.

https://www.longbeach.gov/lbcd/building/permit-center/solar-permit/
## Permit Statistics Since October 2023

<table>
<thead>
<tr>
<th>System</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Photovoltaic System (PV)</td>
<td>424</td>
</tr>
<tr>
<td>Energy Storage System (ESS)</td>
<td>16</td>
</tr>
<tr>
<td>Electrical Vehicle Charging Station (EVCS)</td>
<td>73</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>513</strong></td>
</tr>
</tbody>
</table>
LA County compliance with SB379 for an online, automated permitting platform
LA County Compliance with SB379

SB379 requires a software platform that must be:

◦ Capable of verifying code compliance or issuing permits in real time.
◦ Consistent with the system parameters, configurations, and eligibility of SolarAPP+.

LA County elected to utilize their existing EpicLA platform to comply with SB379 by implementing two new “express permit” types:

◦ Express Solar Roof Mount Residential
◦ Express Solar Roof Mount Residential with Energy Storage System
LA County Compliance with SB379

To comply with California Senate Bill 379, LA County took the following steps:

1) Created “express permit” types as part of the EpicLA (Energov) online system.
   ◦ These application types were developed by the in-house IT Section. A copy of the design template used to make these permit application types is available to be shared.
   ◦ EpicLA collects general information about the solar and energy system.
   ◦ The applicant is responsible for providing accurate inputs, which are used to generate the fee and subsequently create a permit for those items.
   ◦ Inspections can be scheduled online through EpicLA as well.
   ◦ Additional information is provided to the applicants concerning outside agency involvement such as Fire Department and Department of Regional Planning (Coastal Commission).
LA County Compliance with SB379

To comply with California Senate Bill 379, LA County took the following steps:

2) Trained inspectors for review and inspections of solar and solar/ESS installations.
   - Inspection guide checklists for the express permit types were created.
### EXPRESS SOLAR PERMIT + EXPRESS SOLAR AND ENERGY STORAGE PERMIT
#### Inspection Guide Checklist

<table>
<thead>
<tr>
<th></th>
<th>Applicant presented a copy of the permit and equipment data sheets.</th>
<th>Y</th>
<th>N</th>
<th>NA</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Equipment model numbers and quantities on the express permit match what is on site</td>
<td>Y</td>
<td>N</td>
<td>NA</td>
</tr>
<tr>
<td>2</td>
<td>a. PV Module</td>
<td>Y</td>
<td>N</td>
<td>NA</td>
</tr>
<tr>
<td></td>
<td>b. DC-DC Converter (&quot;optimizers&quot;)</td>
<td>Y</td>
<td>N</td>
<td>NA</td>
</tr>
<tr>
<td></td>
<td>c. Central Inverter</td>
<td>Y</td>
<td>N</td>
<td>NA</td>
</tr>
<tr>
<td></td>
<td>d. Microinverter</td>
<td>Y</td>
<td>N</td>
<td>NA</td>
</tr>
<tr>
<td></td>
<td>e. Racking system</td>
<td>Y</td>
<td>N</td>
<td>NA</td>
</tr>
<tr>
<td></td>
<td>f. Other equipment</td>
<td>Y</td>
<td>N</td>
<td>NA</td>
</tr>
<tr>
<td></td>
<td>NRTL certifications are confirmed for all PV equipment.</td>
<td>Y</td>
<td>N</td>
<td>NA</td>
</tr>
<tr>
<td>3</td>
<td>a. PV module – UL1703 or UL01730</td>
<td>Y</td>
<td>N</td>
<td>NA</td>
</tr>
<tr>
<td></td>
<td>b. Central or Microinverters – UL1741</td>
<td>Y</td>
<td>N</td>
<td>NA</td>
</tr>
<tr>
<td></td>
<td>c. Racking System – UL2703</td>
<td>Y</td>
<td>N</td>
<td>NA</td>
</tr>
<tr>
<td></td>
<td>d. DC-DC Converter (&quot;optimizers&quot;) – UL1741</td>
<td>Y</td>
<td>N</td>
<td>NA</td>
</tr>
<tr>
<td></td>
<td>e. Other equipment – applicable standards</td>
<td>Y</td>
<td>N</td>
<td>NA</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>PATHWAYS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>At least 2x 3-foot-wide pathways on separate roof planes are provided from the lowest roof edge to the ridge.</td>
</tr>
<tr>
<td></td>
<td>At least one pathway is on the street or driveway side of the roof.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>SETBACK AT RIDGE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>If the building does not have an automatic sprinkler system:</td>
</tr>
<tr>
<td></td>
<td>- When the PV modules cover up to 33% of the total roof space, an 18” setback is provided on each side of the ridge.</td>
</tr>
<tr>
<td></td>
<td>- When the PV modules cover more than 33% of the total roof space, a 30” setback is provided on each side of the ridge.</td>
</tr>
<tr>
<td></td>
<td>If the building has an automatic sprinkler system:</td>
</tr>
<tr>
<td></td>
<td>- When the PV modules cover up to 66% of the total roof space, an 18” setback is provided on each side of the ridge.</td>
</tr>
<tr>
<td></td>
<td>- When the PV modules cover more than 66% of the total roof space, a 30” setback is provided on each side of the ridge.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>EMERGENCY ESCAPE AND RESCUE OPENING</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Modules are arranged such that a 3-foot-wide pathway is available to any emergency escape and rescue openings.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Roof and attachment details are consistent with the structural compliance method identified in the express permit:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>- Prescriptive Requirements</td>
</tr>
<tr>
<td></td>
<td>- Attachment E – Structural Toolkit</td>
</tr>
<tr>
<td></td>
<td>- Structural Engineering Calculations</td>
</tr>
</tbody>
</table>

|   | Roof member size, roof member spacing, roof material, attachment method (lag size), attachment spacing, and height between module and roof are all appropriate for the selected method of structural compliance. |
|   | Projects with site elevation > 2000 ft. (especially Antelope Valley District Office): Structural calculations include 20 psf snow load analysis. |

<table>
<thead>
<tr>
<th></th>
<th>PRESCRIPTIVE REQUIREMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1) The roofing material is wood shingle, asphalt shingle, or rolled/torch-down and is single or double layered only.</td>
</tr>
<tr>
<td></td>
<td>2) The PV system weighs not more than 4 psf.</td>
</tr>
<tr>
<td></td>
<td>3) The maximum concentrated load imposed by the PV system supports onto the roof structure is 40 pounds.</td>
</tr>
<tr>
<td></td>
<td>4) The distance between the top most part of any module to the roof is less than 18”.</td>
</tr>
<tr>
<td></td>
<td>5) Rafters are 2x4’s (or better) spaced 24” on center with a maximum PV attachment span of 4 feet (48 inches) on center.</td>
</tr>
<tr>
<td></td>
<td>6) Attachments are made with minimum 5/16” lag screws with minimum 2.5” penetration depth.</td>
</tr>
</tbody>
</table>

|   | No plumbing/attic vents are installed beneath the PV modules (or are rerouted appropriately). | Y | N | NA |

|   | Rooftop and/or attic wiring methods are per Code. |
|   | PV Wire or USE-2RHW-2 for exposed wires; exposed wires are secured beneath modules/rails and off the roof; THWN or THWN-2 or similar rated wire in raceways; wire size is appropriate; conduit size is appropriate; conduits are strapped/supported at appropriate intervals. | Y | N | NA |

|   | Rooftop junction box(es) are installed per Code. |
|   | Transition from free-air wiring to raceway wiring methods using appropriate wire types, wire nuts, and C-Clamp properly crimped if applicable. | Y | N | NA |

|   | The racking system is bonded per installation instructions with any grounding lugs and ground wire at appropriate locations. |

<p>|   | For installations in very high fire hazard severity zones, the racking system classification + module fire type rating are shown to have a Class A Rating. | Y | N | NA |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
</table>
| 11 | Rapid Shutdown equipment is installed per Section 680.12(B)  
The Rapid Shutdown Initiation Device is one of the below options and is installed outside of the residence per Section 680.12(C).  
- Service disconnecting means  
- PV system disconnecting means  
- Readily accessible switch that plainly indicates whether it is in the "off" or "on" position | Y |   |
| 12 | The AC side breakers and wire sizes are determined using 125% of the inverter output current per Sections 690.8 and 690.9.  
The Equipment Grounding Conductor(s) are determined using the breaker/fuse size per Table 250.122 | Y |   |
| 13 | All AC wiring methods are per Code.  
THWN or THWN-2 or similar rated wire in raceways, wire size is appropriate, conduit size is appropriate, conduits are strapped/support at appropriate intervals. | Y |   |
| 14 | The backfeed contribution satisfies one of the 705.12 methods of compliance.  
Most commonly, installations will follow the "120% rule" per Section 705.12(B)(2)(B). The PV breaker is installed at the opposite end of the main breaker or input feeders such that  
MAX Backfeed = 1.2 x Busbar Rating – Main OCPD Rating  
If the main breaker is de-rated, a residential load calculation per Article 220 is presented to justify the demand is less than the main breaker rating. | Y |   |
| 15 | All PV labels are installed with values completed.  
See separate reference guide for more details. | Y |   |
| 16 | All equipment and inverter compatibility was verified.  
Examples:  
SolarEdge optimizer P370 allows for a maximum input of 370W with a footnote allowing up to +5%  
388.5W absolute maximum power for the module rating  
SolarEdge optimizer P400 requires a minimum of 8 per string and up to a maximum of 5700W per string on 3.0, 3.8, 5.0, 6.0 kW inverter OR 6000W per string on the 7.6 kW and higher rated inverters  
SolarEdge inverters have a maximum DC power allowed. For example, a maximum of 11.8 kW DC (rating of all modules) on a 7.6 kW SolarEdge inverter is allowed. | Y | N | NA |
| 17 | When a main panel upgrade is part of the scope of work...  
- Panel is accounted for on an issued electrical permit  
- Overhead entrance conductors are sized to Section 310.12(A)  
- Vertical riser is strapped per Code based on the type of conduit selected.  
- Grounding Electrode Conductor (GEC) is sized to Table 250.66  
- If structure is served by a metallic water service, the water pipe electrode is bonded within the first five feet of entrance into the building. Section 250.88(C)(1)  
- At least one type of electrode is used to supplement the water pipe electrode per Section 250.53(D)(2)  
- If using ground rods as the supplemental electrode type, at least 2 ground rods shall be installed with minimum of 8 feet separation. Section 250.53(A)(2)(8)(3)  
- If the main service panel was relocated such that circuits are extended more than six feet, AFCI protection is provided for applicable circuits per Section 210.12(D). | Y |   |
| 18 | Smoke and carbon monoxide detectors are installed inside the residence where required.  
(Video documented or walk-through) | Y |   |
| 19 | The applicant provided a completed permit affidavit form – eligible on projects <8.4kW (AC Nameplate Rating). If no permit affidavit is completed, the modules are verified to be installed on a legal structure. | Y |   |
| 20 | Electrical work in general is per Code and there are no code violations related to the PV installation. Possible examples shown below.  
- Working clearance for panels and fused disconnects. Section 110.26  
Location of breakers not more than 6'7" from floorgrade. Section 240.24(A)  
- Equipment is at least 5 feet from pool edge. Section 908.22(C)  
Conduit, junction box, and raceway fills are not exceeded. Chapter 3 | Y |   |

**For projects that are in the COASTAL COMMISSION AREA, a referral from the field office staff must be made to the Department of Regional Planning for their review and approval.**
<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Y</td>
<td>N</td>
</tr>
<tr>
<td>2</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>3</td>
<td>Y</td>
<td>N</td>
</tr>
<tr>
<td>4</td>
<td>Y</td>
<td>N</td>
</tr>
<tr>
<td>5</td>
<td>Y</td>
<td>N</td>
</tr>
<tr>
<td>6</td>
<td>Y</td>
<td>N</td>
</tr>
<tr>
<td>7</td>
<td>Y</td>
<td>N</td>
</tr>
<tr>
<td>8</td>
<td>Y</td>
<td>N</td>
</tr>
<tr>
<td>9</td>
<td>N</td>
<td>Y</td>
</tr>
</tbody>
</table>

- **Applicant presented a copy of the permit and equipment data sheets.**
- **Equipment model numbers and quantities on the express permit match what is on site.**
- **LA County Fire Department field inspection completed.**
- **The location of the ESS is installed in a location allowed by Section R328.4**
  1. Detached garages and detached accessory structures.
  2. Attached garages separated from the dwelling unit living space in accordance with Section R302.6.
  3. Outdoors or on the exterior side of exterior walls located not less than 3 ft from doors and windows directly entering the dwelling unit.
  4. Enclosed utility closets, basements, storage, or utility spaces within dwelling units with finished or noncombustible walls and ceilings. Walls and ceilings of unfinished wood-framed construction shall be provided with not less than 5/8-inch Type X gypsum wallboard.
  - ESS shall not be installed in sleeping rooms, closets, spaces opening directly into sleeping rooms or in habitable spaces of dwelling units.
- **The spacing between individual ESS units is at least 3 feet per Section R328.3.1.**
- **Disconnecting means for the ESS is provided in a readily accessible location, is lockable in the open position, and is within sight of the ESS.** If not already outside, an additional disconnect is required outside. Section 706.15(A).
- **Overcurrent protective devices (OCPD) are provided on the ESS circuit per Section 706.31(A).**
- **An OCPD is provided at the ESS location if the conductors to the connected equipment pass through a wall, floor, or ceiling.** Section 706.31(C).
- **The DC or AC side OCPDs and wire size are determined using 125% of the output current per Sections 706.30(B) and 706.31(B).**
- **The Equipment Grounding Conductor(s) are determined using the breaker/fuse size per Table 250.122.**

- **Where the ESS is connected to a bussed circuit breaker, an additional fastener shall be provided on that breaker per Section 408.36(D).**
- **The circuit breaker and additional fastener shall be made by the same manufacturer.**
- **The backfeed contribution satisfies one of the 705.12 methods of compliance.**
  Most commonly, installations will follow the "120% rule" per Section 705.12(B)(1)(b). The PV/ESS breaker is installed at the opposite end of the main breaker or input feeders such that:
  - MAX Backfeed = 1.2 x Busbar Rating – Main OCPD Rating
  - Alternatively, the installer demonstrates the system is equipped with a Power Control System (PCS) and has been programmed to meet compliance via Section 705.13.
- **Each panel is protected from all available power sources. Section 408.30**

- **Electrical work in general is per Code and there are no code violations related to the ESS installation.** Possible exceptions shown below:
  - Location of breakers not more than 6'7" from floor plane. Section 240.54(A).
  - Equipment is at least 5 feet from pool edge. Section 680.22(C).
  - Conduit, Junction Box, and Raceway fills are not exceeded. Chapter 3.
  - Physical protection shall be provided if the equipment is on the back wall of a garage or otherwise facing vehicle traffic.

- **Manufacturer instructions specific to the ESS product have been followed.**
  - **Common examples:**
    - The Solar Edge Back Up Interface has terminals for the "grid" connection and for the "backup load" connection that accept 4-4/0 wires. A minimum #4 wire is needed even if a smaller sized breaker is used on either end of those terminals.
    - The Tesla Gateway 2 comes standard with a "Neutral Bond Strap" installed. This should be removed in any installation where the Gateway 2 is not acting as the main service (which is almost all installations in LA County).
    - The Tesla Gateway 2 has various configurations for its internal panelboard to be installed. If installed as the "non-back up" panel within the Gateway 2, it is required to have a bussed 100A (max) main breaker.
    - The Sunpower Hub is permitted to be installed on a circuit breaker up to 200A from the main service panel. The "non back up panel" (subpanel) within the HUB is rated 125A. If the breaker at the main panel is larger than 125A, a 125A (max) main breaker must be installed on that panel within the HUB.
Solar Checklist

Please select Yes or No:

- Is there any existing ESS and or existing PV on this property? [ ] Yes [ ] No
- Is the service rated greater than 225A? [ ] Yes [ ] No
- Does the total PV system exceed 38.4 KWAC? [ ] Yes [ ] No
- Are you using a service that is rated other than 120/240V single phase? [ ] Yes [ ] No
- Are multiple solar module types being used for this installation? [ ] Yes [ ] No

Back to LADBS
PV System Grounding Method

Installation Requirements

1. The number of strings is four or fewer (with or without one combiner box).
2. The total capacity of the PV system is 35 kWAC or less.
3. QFCI or AFCI over current devices are not installed in the Alternating Current (AC) outlet of the inverter.
4. PV modules are roof-top mounted and are crystalline or multi-crystalline types.
5. The AC power system is rated 120/240 volts single phase.
6. The service disconnect is sized for less than or equal to 250A with a busbar size up to 400A, and meets one of the methods of compliance per NEC: 2006 705.1(B)(1), (2), or 705.13.
7. The PV system does not consist of any of the following items: storage battery, building-integrated photovoltaics, photovoltaic rail mounting.
8. DC fault circuit protective device shall be installed per 690.11.
9. A separate building permit may be required for the ground-mounted structural support of the solar photovoltaic system. Refer to Information Bulletin P10-2014-007 ‘Guidelines for Permit Check and Permit Requirements for Solar Energy Devices’ for more information.
10. Solar PV system will be installed on an existing permitted building/structure.
11. PV Solar installation shall comply with LAFC requirement No. 96.

Rent Control

For installations in rental properties that are subject to the Rent Stabilization Ordinance, no portion of the work covered by this permit will occur in any habitable room, and as housing accommodations. Further, the portion of the work being performed under this permit shall not affect tenants’ habitability and/or safety. For additional information, refer to the Los Angeles Housing and Community Investment Department’s ‘Information Check for All Rent Properties Subject to the Rent Stabilization Ordinance.’

City Planning Requirements

I hereby acknowledge that I have read the Los Angeles City Planning Department Advisory Notice for Installing Solar Equipment on Historic Buildings.

I have read and agree to follow the above Terms & Conditions.
General Information

### Total Number of Inverters Installed

<table>
<thead>
<tr>
<th>Inverter</th>
<th>Power Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>11.0 kW</td>
</tr>
<tr>
<td>2</td>
<td>11.0 kW</td>
</tr>
<tr>
<td>3</td>
<td>11.0 kW</td>
</tr>
<tr>
<td>4</td>
<td>7.5 kW</td>
</tr>
</tbody>
</table>

### Number of AC Backfeed Overcurrent Protective Device

<table>
<thead>
<tr>
<th>Protective Device (COPD)</th>
<th>Current (A)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protective Device 1 (COPD)</td>
<td>50 A</td>
</tr>
<tr>
<td>Protective Device 2 (COPD)</td>
<td>50 A</td>
</tr>
<tr>
<td>Protective Device 3 (COPD)</td>
<td>50 A</td>
</tr>
<tr>
<td>Protective Device 4 (COPD)</td>
<td>50 A</td>
</tr>
</tbody>
</table>

Are you installing a branch circuit for Energy Meter?  
@ Yes  ☐ No

### Module Information

**Inverter 1 System**

<table>
<thead>
<tr>
<th>Module</th>
<th>Voc</th>
<th>Vmax</th>
<th>Isc</th>
<th>Imsc</th>
<th>Pmp</th>
<th>Pmax</th>
</tr>
</thead>
<tbody>
<tr>
<td>Module 1</td>
<td>41.5</td>
<td>Vmax</td>
<td>9.76</td>
<td>Imsc</td>
<td>340</td>
<td>W</td>
</tr>
<tr>
<td>Module 2</td>
<td>Vmax</td>
<td>37.8</td>
<td>0.0</td>
<td>Vmax</td>
<td>37.60</td>
<td>kW</td>
</tr>
</tbody>
</table>

Solar Photovoltaic (PV) System AC Output Power Rating: 37.60 kW

All inverters are using same module information.
## Inverter Information

### Inverter 1 Information
- **Inverter Manufacturer**: [ ]
- **Inverter Model**: [ ]
- **Max Continuous AC Output Current Rating**: 40.0 A
- **Max Input Short Circuit Current Rating**: 45.8 A
- **Max Inverter Input Voltage Rating**: 500 V
- **Are DC/DC Converters used?**: [ ] Yes [ ] No

### Inverter 2 Information
- **Inverter Manufacturer**: [ ]
- **Inverter Model**: [ ]
- **Max Continuous AC Output Current Rating**: 32.3 A
- **Max Input Short Circuit Current Rating**: 33.3 A
- **Max Inverter Input Voltage Rating**: 500 V
- **Are DC/DC Converters used?**: [ ] Yes [ ] No

### Inverter 3 Information
- **Inverter Manufacturer**: [ ]
- **Inverter Model**: [ ]

### Inverter 4 Information
- **Inverter Manufacturer**: [ ]
- **Inverter Model**: [ ]

### DC Module Layout

#### How many source circuits (strings) are installed in Inverter 1 System?
- **Number of Modules per Source Circuit**

<table>
<thead>
<tr>
<th>Source Circuit Label</th>
<th>Number of Modules per Source Circuit</th>
</tr>
</thead>
<tbody>
<tr>
<td>String 1</td>
<td>10</td>
</tr>
<tr>
<td>String 2</td>
<td>12</td>
</tr>
<tr>
<td>String 3</td>
<td>10</td>
</tr>
</tbody>
</table>
Your input on this worksheet will be used to calculate the values required for the standard plan, and to determine the scope of work for the permit application.

### Inverter 1 System (Continued)

#### DC/DC Converter
- **Are DC/DC Converters used?**
  - Yes
  - No
- **DC/DC Converter Model**
- **DC/DC Converter Max DC Input Voltage**
- **Max DC Output Voltage**
- **Max DC Output Current**
- **Number of Modules per DC/DC Converter**
- **DC/DC Converter Max DC Input Power**
- **DC/DC Converter Used with**
  - [ ] Yes
  - [ ] No
  - [ ] @Ans
- **Do DC/DC Converters run in parallel on one source circuit?**
- **Largest number of DC/DC converters running in parallel on one source circuit**
- **Maximum System DC Voltage**
  - **Are you using the module manufacturer’s open-circuit voltage temperature coefficient (TCvoc)?**
  - Yes
  - No
- **Select the unit for the Temperature Coefficient**
  - [%/°C]
  - [°C/°C]
- **Enter the temperature coefficient value (Format: -2.000)**
  - [-2.000]
- **Sizing PV Source Circuit Conductors**
  - **Number of current carrying conductors in raceway**
  - **Raceway height above the roof**
- **Inverter DC Disconnect**
  - **Does the inverter have an integrated DC disconnect?**
  - Yes
  - No
- **Sizing Inverter Output Circuit Conductors**
  - **Number of current carrying conductors in raceway**
  - **Raceway height above the roof**

[BACK] [NEXT]
Your input on this worksheet will be used to calculate the values required for the standard plan, and to determine the scope of work for the permit application.

Inverter 2 System

DC Module Layout:  [Copy information from Inverter 1 system. Please review and add information as applicable.]

How many source circuits (strings) are installed in Inverter 2 System? [ ]

<table>
<thead>
<tr>
<th>Source Circuit Label</th>
<th>Number of Modules per Source Circuit</th>
</tr>
</thead>
<tbody>
<tr>
<td>String 1</td>
<td>10</td>
</tr>
<tr>
<td>String 2</td>
<td>10</td>
</tr>
<tr>
<td>String 3</td>
<td>10</td>
</tr>
</tbody>
</table>

DC/DC Converter: [Copy information from Inverter 1 system. Please review and add information as applicable.]

Are DC/DC Converters used? [ ]

DC/DC Converter Model: [ ]

DC/DC Converter Max DC Input Voltage [ ] Volts

Max DC Output Voltage [ ] Volts

Max DC Output Current [ ] Amps

Number of Modules per DC/DC Converter [ ]

DC/DC Converter Max DC Input Power [ ] Watts

DC/DC Converter Used with [ ]

Do DC/DC Converters run in parallel on one source circuit? [ ]

Largest number of DC/DC converters running in parallel on one source circuit [ ]

Maximum System DC Voltage: [Copy information from Inverter 1 system. Please review and add information as applicable.]

Are you using the module manufacturer's open-circuit voltage temperature coefficient (TCoc)? [ ]

Select the unit for the Temperature Coefficient [ ]

Enter the temperature coefficient value (Format: 0.000) [ ]
Your input on this worksheet will be used to calculate the values required for the standard plan, and to determine the scope of work for the permit application.

Inverter 2 System (Continued)

Sizing PV Source Circuit Conductors

- Number of current carrying conductors in raceway: 6
- Raceway height above the roof: Greater or equal to 7/

Inverter DC Disconnect

- Does the inverter have an integrated DC disconnect? Yes

Sizing Inverter Output Circuit Conductors

- Number of current carrying conductors in raceway: 2
- Raceway height above the roof: Greater or equal to 7/
Inverter 3 Server

DC Module Layout [Copy information from Section 2 options. Please review and fill in information as applicable.]

How many source circuits (strings) are installed in Inverter 3 System?

<table>
<thead>
<tr>
<th>Source Circuit Label</th>
<th>Number of Modules per Source Circuit</th>
</tr>
</thead>
<tbody>
<tr>
<td>String 1</td>
<td>10</td>
</tr>
<tr>
<td>String 2</td>
<td>10</td>
</tr>
<tr>
<td>String 3</td>
<td>10</td>
</tr>
</tbody>
</table>

DC/DC Converter [Copy information from Inverter 2 options. Please review and fill in information as applicable.]

Are DC/DC Converters used? [ ] Yes [ ] No

DC/DC Converter Model

DCDC Converter Max DC Input Voltage

DC Output Voltage

Max DC Output Current

Number of Modules per DC/DC Converter

DCDC Converter Max DC Output Power

DCDC Converter Used with

Do DC/DC Converters run in parallel on one source circuit? [ ] Yes [ ] No

Maximum System DC Voltage [ ] [ ] [ ] [ ] [ ]

Select the unit for the Operating Temperature [°C] or [°F]

Enter the temperature coefficient value (Format: -0.0001)

String PV Source Circuit Conductors [Copy information from Inverter 2 options. Please review and fill in information as applicable.]

Number of current carrying conductors in each run

Nominal height above the roof

Inverter 3 Disconnect [Copy information from Inverter 2 options. Please review and fill in information as applicable.]

Does the inverter have an integrated DC disconnect? [ ] Yes [ ] No

String Inverter Output Circuit Conductors [Copy information from Inverter 2 options. Please review and fill in information as applicable.]

Number of current carrying conductors in each run

Nominal height above the roof

CALIFORNIA BUILDING OFFICIALS
### Inverter 4 System

<table>
<thead>
<tr>
<th>DC Module: Layout</th>
<th>Note Information from Inverter 4 system. Please note any information as applicable.</th>
</tr>
</thead>
</table>

#### How many source circuits (strings) are installed in Inverter 4 system?

<table>
<thead>
<tr>
<th>Source Circuit Label</th>
<th>Number of Modules per Source Circuit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group 1</td>
<td></td>
</tr>
<tr>
<td>Group 2</td>
<td></td>
</tr>
</tbody>
</table>

#### DC/AC Converter

- Can Inverter 3 system. Please note any information as applicable.

#### Are DC/DC Converters used?

- Yes: Yes
- No: No

#### DC DC Converter Input

- DC DC Converter Input Voltage

#### DC DC Converter Output

- DC DC Converter Output Voltage

#### DC DC Converter Number of Modules per DCDC Converter

<table>
<thead>
<tr>
<th>Number of Modules per DCDC Converter</th>
<th>Note Information from Inverter 4 system. Please note any information as applicable.</th>
</tr>
</thead>
</table>

#### DC DC Converter Used with

- Yes: Yes
- No: No

#### Maximum System DC Voltage

- Note Information from Inverter 4 system. Please note any information as applicable.

#### Select the units for the temperature coefficient

- °C/°C

#### Enter the temperature coefficient value (V/celcius - 4°C/°C)

- 0.00

#### Sizing PV Source Circuit Conductors

- Note Information from Inverter 4 system. Please note any information as applicable.

<table>
<thead>
<tr>
<th>Number of current carrying conductors in raceway</th>
<th>Note Information from Inverter 4 system. Please note any information as applicable.</th>
</tr>
</thead>
</table>

#### Inverter 4 Disconnect

- Can Inverter 4 system. Please note any information as applicable.

#### Does the inverter have an integrated DC Disconnect?

- Yes: Yes
- No: No

#### Sizing Inverter Output Circuit Conductors

- Note Information from Inverter 4 system. Please note any information as applicable.

<table>
<thead>
<tr>
<th>Number of current carrying conductors in raceway</th>
<th>Note Information from Inverter 4 system. Please note any information as applicable.</th>
</tr>
</thead>
</table>

#### Micron Height above the roof

- Greater or equal to 7: Greater or equal to 7
Generation Subpanel

Combined PV inverters (DCP) rating:

- 220 Amps
- 187.5 Amps
- 226 Amps ≤ 260 Amps
- 206 Amps ≤ 230 Amps

Number of output current carrying conductors in raceway:

- Greater or equal to 7:

Point of Connection to Main Service Panel

Is this a new or existing service panel?

- Existing
- New

Main Circuit Breaker Rating (Main OCPD Size):

- 100 Amps ≤ 225 Amps
- 250 Amps ≤ 400 Amps

Rapid Shutdown

The rapid shutdown initiation device shall be labeled according to CEC 690.56(C), and its location shall be shown on the site plan drawing. The rapid shutdown system on the building shall comply with 690.10(A) through (E).

Grounding and Bonding of Modules and Racking System

Racking system listed to UL 2763 using modules identified in the listing.
Supplemental Worksheet

- Are junction boxes included on the roof? (Label 3 under single line)?
  - No
- Is a separate DC disconnect installed for the solar system? (Label 4 under single line)?
  - No
- Does the inverter have built-in DC disconnect? (Label 5 under single line)?
  - No
- Does the inverter have built-in AC disconnect? (Label 6 under single line)?
  - No
- Is a separate AC disconnect installed for the solar system? (Label 7 under single line)?
  - No
- Is a performance meter required and installed per L&AMP;W? (Label 8 under single line)?
  - No
- What is the rating of the main service? (Label 9 under Single Line)?
  - 200 Amps
  - 225 Amps

Tag A / B: Carried-Carrying Conductors (TYP based on the largest source circuit)

<table>
<thead>
<tr>
<th>Conductor Size</th>
<th>THHN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Conductors</td>
<td>6</td>
</tr>
<tr>
<td>Conductor/Cable Type</td>
<td>THHN</td>
</tr>
<tr>
<td>Conductor/Cable Type</td>
<td>LVT</td>
</tr>
</tbody>
</table>

Tag A / B: E90 (AWG Copper)

| Conductor Size | 8 |
| Number of Conductors | 2 |
| Conductor/Cable Type | THHN |
Tag C: Current-Carrying Conductors (Typical based on the largest Inverter output circuit)

| Conductor Size | 6 |
| Number of Conductors | 2 |
| Conductor/Cable Type | THHW |
| Conduit Size | 1 1/4 |
| Conduit Type | RMC |

Tag C: EGC (AWG Copper)

| Conductor Size | 0 |
| Number of Conductors | 3 |
| Conductor/Cable Type | THWN-2 |

Tag D: Current-Carrying Conductors

| Conductor Size | 0.0 |
| Number of Conductors | 3 |
| Conductor/Cable Type | THHW |
| Conduit Size | 1/4 |
| Conduit Type | RMC |

Tag D: EGC (AWG Copper)

| Conductor Size | 12 |
| Number of Conductors | 2 |
| Conductor/Cable Type | THHW |
The following is a list of equipment based on the information you have entered.

<table>
<thead>
<tr>
<th>Solar Photovoltaic System</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Branch Circuit</td>
<td>11</td>
</tr>
<tr>
<td>Modules (DC)</td>
<td>112</td>
</tr>
<tr>
<td>Inverter (0-3kW)</td>
<td>0</td>
</tr>
<tr>
<td>Inverter (3.1-5kW)</td>
<td>0</td>
</tr>
<tr>
<td>Inverter (5.1-20kW)</td>
<td>4</td>
</tr>
<tr>
<td>Inverter (20.1-50kW)</td>
<td>0</td>
</tr>
<tr>
<td>Panel (0 - 200 Amps)</td>
<td>0</td>
</tr>
<tr>
<td>Panel (201 - 600 Amps)</td>
<td>1</td>
</tr>
</tbody>
</table>
Permit Fees Review

Applying as: Contractor
License Number: 92
Expiration Date: 08/31/2025
BTCR Number: 0000068408

Permit Address: 204 E SUNSET AVE 90291
Permit Type: Solar PV/ Energy Storage - Electrical
Permit Sub-Type: House/Duplex

<table>
<thead>
<tr>
<th>Fee Item</th>
<th>Fee Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ltg/Gen Rac, Dwell App, Non-Dwell App(PVR)</td>
<td>$187.00</td>
</tr>
<tr>
<td>Modules</td>
<td>$672.00</td>
</tr>
<tr>
<td>Inverter (5.1 to 20 kW)</td>
<td>$108.00</td>
</tr>
<tr>
<td>Panel 201-600 Amp</td>
<td>$16.00</td>
</tr>
<tr>
<td>Fee Subtotal</td>
<td>$983.00</td>
</tr>
<tr>
<td>State Cap (AB1414)</td>
<td>-$533.00</td>
</tr>
<tr>
<td>Issuing fee</td>
<td>$23.00</td>
</tr>
<tr>
<td>Dev Serv Center Surch</td>
<td>$14.19</td>
</tr>
<tr>
<td>System Surcharge</td>
<td>$28.38</td>
</tr>
<tr>
<td>Total Fees Due</td>
<td>$515.57</td>
</tr>
</tbody>
</table>
Electrical - Scope of Work

All items marked with asterisk (*) are required

Enter the applicable items to be included on this permit within each of the designated boxes.

Leave boxes blank that are not applicable. If you are not sure which boxes are applicable, please call our customer Call Center at one of the following numbers:

Within Los Angeles County, dial 311
Outside Los Angeles County, dial (213) 473-3231

Service Panel Upgrade

- [ ] 0 - 200A
- [x] 201 - 400A

Project Name: MT Test

Next
## Permit Fees Review

**Applying as:** Contractor  
**License Number:** 92  
**Expiration Date:** 08/31/2025  
**BTRC Number:** 0000068488  
**Permit Address:** 204 E SUNSET AVE 90291  
**Permit Type:** Electrical  
**Permit Sub-Type:** House/Duplex

<table>
<thead>
<tr>
<th>Fee Item</th>
<th>Fee Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Services 201-600 Amp</td>
<td>$34.00</td>
</tr>
<tr>
<td>Fee Subtotal</td>
<td>$34.00</td>
</tr>
<tr>
<td>State Cap (AB1414)</td>
<td>$0.00</td>
</tr>
<tr>
<td>Issuing fee</td>
<td>$23.00</td>
</tr>
<tr>
<td>Dev Serv Center Surch</td>
<td>$1.71</td>
</tr>
<tr>
<td>System Surcharge</td>
<td>$3.42</td>
</tr>
<tr>
<td><strong>Total Fees Due</strong></td>
<td><strong>$62.13</strong></td>
</tr>
</tbody>
</table>

**Back**  
**Next**
## Permit Cart Review

<table>
<thead>
<tr>
<th>Permit Type</th>
<th>Application No</th>
<th>Date</th>
<th>Time</th>
<th>Fee</th>
</tr>
</thead>
</table>

Apply For Another Permit

Continue To Pay

---

CALIFORNIA BUILDING OFFICIALS
Q&A
Questions?
For additional questions about this program, please contact the CALBO Office at 916-457-1103 or info@calbo.org