Introductions

• Doug Hensel

• Jeff Cook, Ph.D., SolarAPP+ Program Lead, National Renewable Energy Laboratory (NREL)

• Steven Jones, UL Codes and Regulatory Services Department

• Geoffrey Dobson, CalAPP Grant Program
SB 379 Legislation

• Senator Wiener, Statutes 2022
• Requires local jurisdictions to implement an online, automated permitting platform that verifies code compliance and issues permits in real time for residential solar systems 38.4 kW or less
• SolarApp+ is one compliance option
SB 379 Legislation

- Exempt:
  - Cities with a population less than 5,000
  - Counties with a population less than 150,000 (County population includes the population of cities within the county)
SB 379 Legislation

- Effective Dates
  - City or County which is not exempt and a population greater than 50,000, September 30, 2023
  - City which is not exempt and a population of 50,000 or less, September 30, 2024
SolarAPP+
The US Residential Solar Permitting Solution
SolarAPP+ is a standardized plan review software that can run compliance checks and process building permit approvals for eligible rooftop solar systems.

The tool was developed through a collaborative effort to accelerate rooftop solar adoption by making it easier for local governments to quickly and safely approve rooftop PV projects for installation.
SolarAPP+ Eligibility

SolarAPP+ can cover standardized systems as defined [here](#).

Current Support Parameters
- Residential PV
- Approved equipment
- NEC 2017 & 2020
- 2018 & 2021 i-Codes
- Bus <225A
- Service <400A
- PV systems <4PSF
- Single phase utility supply
- No wood shake roofs
- No metal roofs w >15PSF snow load
- Main panel upgrades
- California’s Title 24
- Add-ons for existing systems

Support In Progress
- Residential storage

Planned
- EV chargers, electric appliances, roof tiles, and more...

Let us know what you’d like to see next!
Interest in SolarAPP+

**Interested Installers**
Across the country, installers are interested in utilizing SolarAPP+ for permit review.

**Engaged Jurisdictions**
Cities and counties across the country have shown their interest in adopting SolarAPP+.

- **Significant interest**
- **Some interest**
- **Emerging**
Tucson's Experience with SolarAPP+

- 2,400 PV permits issued to date
- 14,200+ kW approved via SolarAPP+
- Over 2,400 hours of staff time saved in plan review
- Piloting PV+ storage

“The permitting process was taking four weeks. Now with SolarAPP+ we give a permit the same day. We just approved about 450 installations in the last 60 days alone.”

- Tucson Mayor Regina Romero
### SolarAPP+ Performance Snap Shot

**Median Business Days for Permit Review**

<table>
<thead>
<tr>
<th>Paper Process</th>
<th>VS</th>
<th>SolarAPP+</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>Menifee, CA</td>
<td>&lt;1</td>
</tr>
<tr>
<td>5</td>
<td>Pima County, AZ</td>
<td>&lt;1</td>
</tr>
<tr>
<td>&lt;1</td>
<td>Pleasant Hill, CA</td>
<td>&lt;1</td>
</tr>
<tr>
<td>4.5</td>
<td>Stockton, CA</td>
<td>&lt;1</td>
</tr>
<tr>
<td>24</td>
<td>Tucson, AZ</td>
<td>&lt;1</td>
</tr>
</tbody>
</table>

14,000+ Residential rooftop PV permits approved to date, including 1,500+ revisions

1,000+ Permits approved to date for Solar+Storage projects

By providing instantaneous review SolarAPP+ has reduced the average permit review time to **less than 1 day** saving jurisdictional staff over **15,000 hours** in review.

**No time added**

No time added to inspections of PV systems in the field, with comparable inspection passage rates to traditional inspections.

Projects submitted through SolarAPP+ were installed and inspected **12 days faster** on average than projects using the traditional process.
Permit Review Durations

- Automated review and permit approval means permits are issued instantly through SolarAPP+.
- In contrast, the median permit review duration (application to issuance) for traditional projects was 9 business days.

**Median permit review times**

Benicia and Modesto excluded because these AHJs began pilots late in 2021.

^ Based on 2021 data from Solar Trace.

* 2021 data unavailable, based on 2020 data.
Inspection Times

Inspection times are similar for traditional and SolarAPP+ projects, suggesting that expedited permitting has little or no impact on inspection times downstream.

<table>
<thead>
<tr>
<th>Location</th>
<th>Traditional</th>
<th>SolarAPP+</th>
<th>Minutes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tucson (AZ)</td>
<td>15</td>
<td>15</td>
<td>14.3</td>
</tr>
<tr>
<td>Plima County (AZ)</td>
<td>16</td>
<td>16</td>
<td>15.8</td>
</tr>
<tr>
<td>Stockton (CA)</td>
<td>13</td>
<td>11</td>
<td>N/A</td>
</tr>
<tr>
<td>Simi Valley (CA)</td>
<td>N/A</td>
<td>N/A</td>
<td>0</td>
</tr>
<tr>
<td>Menifee (CA)</td>
<td>20</td>
<td>20</td>
<td>19.5</td>
</tr>
<tr>
<td>Pleasant Hill (CA)</td>
<td>20</td>
<td>20</td>
<td>19.5</td>
</tr>
<tr>
<td>San Ramon (CA)</td>
<td>N/A</td>
<td>N/A</td>
<td>0</td>
</tr>
</tbody>
</table>

Sonoma County is excluded because fewer than 10 inspections were performed by the end of 2021. No SolarAPP+ projects were inspected in Benicia and Modesto in 2021.
Solar Adoption Timeline Impacts

Across all AHJs in 2021, median project times were 13 days shorter for SolarAPP+ projects than for traditional projects (32 days compared to 45 days).

Median project time from permit submission to passed inspection by AHJ

Benicia and Modesto excluded because pilots began late in 2021. * Traditional durations based on 2020 data.
Accelerated Project Timelines

Cumulative estimated acceleration of project timelines across AHJs (permit submission to passed inspection)

Benicia and Modesto excluded because pilots began in late 2021
How it Works
Installer submits an application with design specifications through SolarAPP

1

2 SolarAPP checks the application to ensure the system design is code compliant

3 Code compliant applications are issued a permit instantly after fee payment

(Review sample approval docs here)
How it Works

- The contractor enters design information into the application.
- No diagrams are uploaded as a part of the submission process.
There is a problem with your project design

Your project design does not meet SolarAPP+’s requirements. You will need to edit your project before you can continue. If you cannot modify your design to meet SolarAPP+ requirements you will need to apply for a permit directly with City.

Electrical Details

- R72: The Racking System shall be UL 2703 listed for grounding and bonding in combination with the PV module models specified in this SolarAPP project. SolarAPP maintains a UL 2703 database of eligible combinations of racking systems and modules. If you are having trouble getting your combination approved, please reach out to the SolarAPP team for help at team@solar-app.org, and provide appropriate NRTL or manufacturer documentation to support your claim for a combination compatibility.

Go to Payment
Inspection Checklist

- Inspectors are tasked with verifying the design meets the checklist. No plan review is done in the field.

### General Guidelines

- The installer shall follow the manufacturer’s instructions for all installed equipment and shall have them available at the time of inspection.
- All wire sizes shown are a minimum, unless indicated otherwise, and the installer may upsize them at their discretion.
- All OCPD ratings shown must match the inspection checklist exactly, any ratings that do not match the inspection checklist are valid reasons for inspection failure.
- Conduit sizing to be confirmed at time of inspection. Contractor to provide conduit fill calculations where requested by inspector.

### Main Service Panel Equipment

<table>
<thead>
<tr>
<th>Description</th>
<th>Pass</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main Breaker Ampere Rating Size</td>
<td>200 AMP</td>
</tr>
<tr>
<td>Main Bus Ampere Rating Size</td>
<td>225 AMP</td>
</tr>
<tr>
<td>Utility Service Rating</td>
<td>225</td>
</tr>
</tbody>
</table>

### Inverter

<table>
<thead>
<tr>
<th>Description</th>
<th>Pass</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inverter architecture:</td>
<td>String Inverter with DC-DC Converters</td>
</tr>
<tr>
<td>EGC Wire Size Inverter 1</td>
<td>10 AWG</td>
</tr>
<tr>
<td>Overcurrent Protective Device rating: Inverter 1</td>
<td>30 AMP</td>
</tr>
<tr>
<td>AC Wire size Inverter 1</td>
<td>10 AWG</td>
</tr>
<tr>
<td>Maximum number of THWN-2 conductors in a PV inverter AC output circuit raceway, excluding any equipment grounding conductors.</td>
<td>3</td>
</tr>
<tr>
<td>Inverter 1 model number</td>
<td>SE5000H-240V [240V]</td>
</tr>
<tr>
<td>Inverter 1 manufacturer</td>
<td>SolarEdge Technologies Ltd.</td>
</tr>
</tbody>
</table>
Adoption Options

**Stand Alone SolarAPP+**
(For email and in-person jurisdictions)

Installer pre-approves project with SolarAPP+ & pays $25 admin fee

- SolarAPP+ collects permit fee via Stripe on behalf of jurisdiction
- SolarAPP+ stores approval documents
- SolarAPP+ issues permit instantly & sends outputs to jurisdiction

**Integrated with Existing Permitting Software**
(For already online jurisdictions)

- SolarAPP approval docs uploaded to jurisdiction software system
- Jurisdiction system collects permit fee
- Jurisdiction system issues permit instantly

**SolarAPP+ Software**

**Existing Software**
How to Adopt
SolarAPP can be set up to:
- *integrate* with your existing online permitting software
- *stand alone* as a complete online permitting solution

These include:
- Permitting contacts
- AHJ boundaries
- Local wind and snow variables
- Model code years
- Terms and conditions

Depending on your integration, either:
- Set up an instant permit application in your software
- Set up permit payments in SolarAPP

This involves:
- Inviting 1-3 installers to use your SolarAPP permitting process
- Opening up SolarAPP+ permitting to all installers
The California Automated Permit Process Program (CalAPP) is a $20 million funding program that provides grants to cities and counties to help implement SolarAPP+

CalAPP will be available in ~June 2022

**Proposed Grant Sizes:**
- Population <50,000: Up to $40K
- Population 50,000-99,999: Up to $60K
- Population 100,000-200,000: Up to $80K
- Population >200,000: $100K

**Grant Can Cover:**
- IT staff time on adoption
- Inspector time on training
- Time spent meeting with NREL
- And more

For more information visit: [https://www.energy.ca.gov/programs-and-topics/programs/california-automated-permit-processing-program-calapp](https://www.energy.ca.gov/programs-and-topics/programs/california-automated-permit-processing-program-calapp)
But, what if I need help?

- Standing Demonstration Calls
  - Tuesday: https://nrel.zoomgov.com/meeting/register/vJlsf-CggiorGfnQwVFUXzBjAD1tpmNtpHc
  - Thursday: https://nrel.zoomgov.com/meeting/register/vJltduCrrToqHhXc8G2yVJ73uJ_nO5skb4E

- Standing Onboarding Calls
  - Tuesday: https://nrel.zoomgov.com/meeting/register/vJltcuyorDwsHUHD9utm5DcrQUGM13Yb-Hb4
  - Thursday: https://nrel.zoomgov.com/meeting/register/vJ ltd-2ggwrHzuUlqC97ZYYWYM132OONUC

- Free, Online Training Materials
  - https://cleanenergytraining.org/code-official-training#solarapp

- Frequently Asked Questions
  - https://help.solar-app.org/

- Still have questions?
  - Contact us at: team@solar-app.org
SolarAPP Outreach Materials

• Website:
  • [https://solarapp.nrel.gov/](https://solarapp.nrel.gov/)

• Performance Review
  • [https://www.nrel.gov/docs/fy22osti/83046.pdf](https://www.nrel.gov/docs/fy22osti/83046.pdf)

• Demonstration webinar:
  • [https://youtu.be/xKhX_UAT8YQ](https://youtu.be/xKhX_UAT8YQ)

• Where is SolarAPP+ available?

• SolarAPP Benefits Memo:

Questions and Thank You!

For more information contact:

[team@solar-app.org](mailto:team@solar-app.org)

[www.nrel.gov](http://www.nrel.gov)
Agenda

• CalAPP Program Overview
  • Scope of Work
  • Grant Process
  • Funding Structure
  • Reimbursable Costs
  • Application Form Overview

• Senate Bill 379
  • Annual Reporting & Data

• Next Steps and More Information
## CalAPP Program Overview

| Legislation & Budget | Senate Bill 129 (Skinner, Budget Act of 2021)  
|                      | “…support a grant program for cities, counties, or cities and counties to establish online solar permitting.”  
|                      | Budget: $20 million (up to $1 million for admin costs) |
| Eligibility | All incorporated California cities (482) and counties (58) |
| Application Deadline | May 1, 2023 |
| Application Form | [https://www.energy.ca.gov/calapp](https://www.energy.ca.gov/calapp) |
Scope of Work – Choose Either

1. • Adopt SolarAPP+

2. • Adopt software that meets these requirements:

- Performs an automated plan review for residential solar energy systems that completes automatic code compliance checks based on user inputs (such as a contractor), thereby enabling or otherwise issuing permits instantly when the project is confirmed as code compliant, without the need for human review
- Supports online, immediate fee payment once an application is complete, which may include auto-invoicing of permit fee costs
- Supports immediate generation of a permit job card following payment confirmation
- Blocks noncompliant applications from receiving a permit

**EITHER:** 1) Stand-alone permitting tool; OR 2) Integrates with current software and inspection platform already in use
Grant Process

1. Submit Application
2. CEC Approves, Reserves Funding
3. Awardee Completes Grant Activities
4. Awardee Invoices CEC for Payment
## CalAPP Funding Structure

<table>
<thead>
<tr>
<th>Applicant Population</th>
<th>Reserved Grant Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less Than 50,000</td>
<td>$40,000</td>
</tr>
<tr>
<td>50,000 to 99,999</td>
<td>$60,000</td>
</tr>
<tr>
<td>100,000 to 200,000</td>
<td>$80,000</td>
</tr>
<tr>
<td>Greater Than 200,000</td>
<td>$100,000</td>
</tr>
</tbody>
</table>
### Reimbursable Costs

<table>
<thead>
<tr>
<th>Allowable</th>
<th>Unallowable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Staff time (IT, third-party consultation, etc.)</td>
<td>Costs incurred prior to grant agreement execution</td>
</tr>
<tr>
<td>In-house staff training</td>
<td>Costs not directly related to adoption of permitting platform</td>
</tr>
<tr>
<td>Costs to train installers</td>
<td>Typically excluded items such as food for training events</td>
</tr>
<tr>
<td>Maintenance and subscription costs for supporting software</td>
<td>All other</td>
</tr>
</tbody>
</table>

- Appropriateness of an activity to be reimbursed is determined by the nature of the activity and its alignment with the grant objectives.
- Reimbursable costs are those that are directly related to the grant activities and are considered necessary and reasonable for the purpose of achieving the grant objectives.
Application Form Overview

- Applications accepted via electronic email submittal
- Submittal Deadline: May 1, 2023
- Application can be accessed at https://www.energy.ca.gov/calapp
Senate Bill 379
Annual Reporting

SB 379: “The Energy Commission shall set guidelines...to report on the number of permits issued and the relevant characteristics of those systems.”

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

- Non-exempt jurisdictions will submit annual reports by June 30th every year following compliance until June 30, 2034

- Data shall cover the previous calendar year from January 1 – December 31
Data Collection

• Proposed Data Collection Fields:
  1. Name of Jurisdiction
  2. Reporting Year
  3. Estimated population
  4. Total number of permits issued for solar only
     a) Number of permits through automated, online system
  5. Total number of permits issued for solar paired with storage
     b) Number of permits through automated, online system
  6. Electric utility service provider
Next Steps & More Information

• May 1, 2023: CalAPP Application deadline to reserve funding
  • Spring 2023: Anticipated adoption of SB 379 Guidelines

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

• SB 379 webpage: https://www.energy.ca.gov/programs-and-topics/programs/residential-solar-permit-reporting-sb-379

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

• CEC Contact: calapp@energy.ca.gov