Solar Automated Permit Processing: SolarAPP

A campaign to streamline permitting, inspection, and interconnection processes for solar & storage in the US

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What is the Solar Automated Permit Processing (SolarAPP) Campaign?

Permitting and interconnection processes in the U.S. impose direct and indirect costs that contribute to installations being far more expensive per Watt than in other countries with mature solar markets. The Solar Automated Permit Processing Campaign (SolarAPP) aims to address this challenge by making solar permitting, inspection, and interconnection seamless, while maintaining high quality, safety, and reliability.

Campaign Launched in 2018 at Solar Power International:

- **Intent:** streamline permitting, inspection and interconnection (PII) processes
- **Goal:** reduce soft costs by $1/W for residential solar and solar plus storage
- **Solution:** Produce an online permitting portal to help AHJs improve their processes and reduce delays
- **Founded by the Solar Foundation (TSF) and Solar Energy Industries Association (SEIA) in collaboration with the National Renewable Energy Laboratory (NREL), solar industry stakeholders, and authorities having jurisdiction (AHJs) across the country.**
- **Your input and assistance is needed!**
SolarAPP: Vision & Objectives

Direct and indirect PII costs include:

- Direct cost of permit application, site inspection, and interconnection fees
- Indirect cost related to time spent completing and submitting permitting applications, physical trips for permitting and inspection(s), and high cost of losing customers who grow impatient with delays.

Every week of delay due to external processes correlates with a 5-10% cancellation rate which results in lost revenue for the AHJ and contractor.

Direct + indirect costs add approximately $7,000 (1 per watt) to the cost of an average residential solar system. This is roughly equivalent to the current value of the 30% ITC, which will begin phasing out at the end of this year.

$1 per watt savings over five years is projected to yield:

- $7,000 in typical homeowner savings
- 30,000 new solar jobs
- 1.1 Million solar homes
SolarAPP: Vision & Objectives

**Vision:** For solar customers to purchase, install, and utilize small-scale solar photovoltaic (PV) systems and battery storage without undue delays, all while maintaining safety, quality, and reliability.

**Key elements of the proposed reformed process:**

- Simple, standardized online platform to register systems
- Centralized equipment standards, and certified equipment lists
- Standardize system design for qualifying projects
- Safety & skills training for permitting and interconnection
SolarAPP Team

Campaign Collaborators:

- National Renewable Energy Lab
- Interstate Renewable Energy Council
- Institute for Building Technology and Safety
- California Solar+Storage Association
- Vivint
- SunPower

Organizational Support:

- International Code Council (and local chapters)
- International Association of Electrical Inspectors (and local chapters)
- Sustainable Energy Action Committee
- Regional Councils of Governments
- State/Regional Solar & Storage Associations
- And YOU!!

Additional Stakeholder Engagement:
Project team created a comprehensive action plan that outlines the steps needed to research, design, fund, and implement proposed solutions. Intent is to create a self-sufficient, nationally-administered program that can easily be implemented by local jurisdictions across the country.

Planning & Capacity Building

- **Research & Industry Best Practices**: Produce necessary research to establish a strong, data-driven foundation
- **Policy Strategy**: Develop policy strategy for rolling out process at national, state, local levels
- **Strategic Communications**: Define internal, external communications plans to maintain momentum and cultivate outside support
- **Fundraising**: Secure funding from industry, foundations, and relevant government agencies

Development & Implementation

- **Development of Model Process**: Create online permitting and inspection platforms
- **Local & State Government Pilot Programs**: Pilot projects at local and state levels
AHJs Should Support the SolarAPP Campaign!

What do AHJs gain from improved processes?
- More installations completed with less work and the same fees per project
- Greater community resilience, especially as storage proliferates
- Liability burden shifted toward the installer
- Fewer full inspections for high performing installers provides a carrot for new and struggling installers
- Fewer full inspections mean fewer on-the-job injuries

What AHJs policies improve the situation?
- Instantaneous permitting for solar and storage
- Online application portals that include live inspection scheduling and tracking
- Low flat or algorithm-based fees for solar with or without storage
- No requirement to meet onsite for inspection
- For high performers; video inspections, audits instead of inspections, and/or full inspections reduced to 10%
Solar Contractors Should Support the SolarAPP campaign!

Benefits to Industry:

- Fewer project cancellations due to lengthy processes and PII delays
- Cost reductions that mitigate Solar Investment Tax Credit (ITC) Step-Down
  - Scheduled to Start Next Year
    - Current: 30%
    - 2020: 26%
    - 2021: 22%
    - 2022: 0% (Residential); 10% (Non-residential and Utility)
  - Achieving a $1/W reduction in installed costs is roughly equivalent to the value of the 30% ITC (for residential)
- Additional Solar Capacity
  - Over five years, a $1/W reduction in installed costs will yield approximately 1.1 million additional solar homes
- New Solar Jobs
  - Over five years, a $1/W reduction in installed costs will create nearly 30,000 new solar jobs
The digitization of permit approval processes is the fastest route to improvement for all involved. SolarAPP will develop a flexible, web-based portal that can process residential solar and solar plus storage permit applications and inspections, all at no added cost to AHJs. We want you to help us build it!

**Activities:**

1. Develop New Online Permitting Platform
2. Engage with AHJs and Other Key Stakeholders
   a. Advise on design of online platform and secure participation in pilots
3. Create or Refine Existing Certified Equipment Lists and /or System Design Requirements
4. Conduct Regional Pilots
5. Perform Program Evaluation Activities
6. Refine Platform and Deploy Nationally
Inspiration from existing processes

**Las Vegas**
Registration Permit Model

Submit:
- Project address
- Installer information
- kW capacity
- Payment for permit fee

Most similar to Germany and Australia

Many AHJs in TX and VT have no permitting process at all and fully depend on inspections

**Los Angeles**
Administrative Permit Model

Submit:
- Project/installer information
- Site, building and electrical plans + component specs
- Scope of work questionnaire
- Payment for permit fee

Common throughout CA, SC, NV, and FL

Automates some compliance checks and handles the rest at inspection or via audit

**FL/CA/NV/AZ**
Simplified Inspection Model

Innovative models are emerging:
- Online scheduling
- Virtual inspections
- Reduced inspections based on performance
- Third-party inspections
- Audits

Lots of experimentation going on throughout the country!
What could the online portal do?

The following bullets summarize our main objectives and we welcome feedback:

● Flexible, open-source, online solar and storage permitting tool provided to AHJs at no cost to them
● Supports residential and commercial PV and storage (potential for add. tech, w/ add. funding)
● Enables online payment and encourages flat rate fees
● Standardizes instant permitting and inspection for residential solar and solar plus storage + more
● Enables instant permitting, record tracking, and a variety of inspection models including third-party and virtual inspections
● Organizes and evaluates standardized applications, questions, and single line diagrams based on code year
● Connected to state/national databases of contractor and component certifications
● Incorporates a library of resources and training from entities like the International Code Commission (ICC), Interstate Renewable Energy Council (IREC), International Association of Electrical Inspectors (IAEI), and more
SolarAPP Campaign 1-pagers

Help build the momentum!

Download and Share SolarAPP one-pagers:

www.thesolarfoundation.org/solarapp

SolarAPP Campaign: Cutting Red Tape for Rooftop Solar

The Solar Automated Permit Processing (SolarAPP) Campaign will create a low-cost, seamless process for rooftop solar installations, while enhancing safety and reliability by automating simple tasks and allowing building officials to focus their efforts on areas that would benefit from additional attention. Solar energy is now mainstream for homes and businesses, with over 2 million U.S. solar customers. However, solar in the U.S. is a long way from realizing its full potential. Direct and indirect costs of permitting, inspection and interconnection add about $7,000 ($1,00 per watt) to the cost of a typical residential solar energy system.

That is about the same as the value of the 30% federal investment tax credit for solar, which is set to begin phasing out at the end of 2019. A patchwork of permitting and interconnection processes create installation and activation delays, increase cancellations and impose costs on solar installations that are far higher than in other mature solar markets.

5-Years SolarAPP Impacts

2.4 Million Solar Homes
$7,000 in Savings per Solar System
About 30,000 Solar Jobs

The SolarAPP Campaign seeks to:

1. Develop and provide free and simple online permitting tools for local governments.
2. Help local governments provide instantaneous permitting and innovative inspections for qualifying solar projects.

Achieving these objectives will help millions of Americans choose affordable solar and storage for their homes and businesses over the next five years. Local governments will also benefit from added revenues from increased adoption.
SolarAPP Plan for Inspections

Objective:
Conduct research to compare inspection practices and outcomes (with regard to system performance and safety) in the U.S. with those observed in other major national solar markets (e.g., Australia and Germany), then develop a nationally-applicable, locally-implementable inspection regime for solar and storage systems that incorporates new best practices that save time and money while maintaining or improving installation quality.

Activities:
1. Conduct Comparative Research on Inspection Processes and Outcomes
2. Engage with AHJs and Other Key Stakeholders
3. Develop Standardized Next-Generation Inspection Process
4. Conduct Regional Pilots
5. Program Evaluation and Sustainability
6. Refine Models and Deploy Nationally
## International Precedents

### Australia 🇦🇺

Electricians approve projects without 3rd party oversight.

**Australian Clean Energy Council (CEC)** private non-profit that promotes renewable energy
- Approves eligible products
- Manages installer and designer accreditations

**Clean Energy Regulator** public agency that implements government mandated clean energy programs
- Administers grants used for most residential solar projects
- Projects must designed and installed by CEC-accredited installers, using CEC-approved hardware eligible for funding
- Audits installed systems for compliance with codes and standards

### Germany 🇩🇪

Small-scale PV systems submitted online by registered installer for interconnection by Federal Grid Agency, typically no permitting fees or inspection by local officials, installer self-certifies compliance.

Additional Voluntary QA Processes are Popular
- **PV Passport** - Comprehensive documentation for installers created by the German Solar Association & Electrician Association to ensure quality and safety of system components, design, installation, and commissioning.
- **RAL Quality Assurance Association** - Manufacturers, Designers, Installers, and O&M Providers are assessed to standards annually to be able to use RAL Quality Mark
SolarAPP Funding Opportunities

Team members are actively pursuing federal, state, foundation, and private funding for Solar APP Campaign

➔ Develop SolarAPP Permitting and Inspection Software
  Approx. $1m in cost share required to match nearly $2.5m in funding

➔ Campaign Administration and Outreach Activities, Local Pilots of Permitting Software, Conducting Supporting Research, Developing Best Practices, Deploying Inspection Schemes, Program Scaling
  Approx. $750k in cost share required to match over $3m in funding

  Approx. $1m in cost share required to match over $4.5m in funding

TOTAL NEED: $2.75m in matching funds

TOTAL LEVERAGE: $10m in outside funds

What can you do? Sign a letter of commitment or support!
Looking Ahead

Solar APP Campaign is looking beyond permitting and inspection of solar and solar plus storage!

- Automated Interconnection Approvals and Inspections
- Installer qualification programs to facilitate audits and fewer inspections
- Commercial-Scale PV and Solar plus Storage
- Electric Vehicle Charging permits and inspections
- Micro-CHP and other clean energy technologies
- Basic electrical upgrades and other standard work
- ...
Get involved!!

Achieving the SolarAPP vision will require sustained commitments from AHJs, policy makers, the solar industry, and proponents of solar energy.

We will continue to host regular updates and stakeholder engagement sessions!

**Authority-Having Jurisdictions:**
- Engage local solar companies
- Review program materials
- Provide feedback and insights
- Participate in pilot programs
- Share your innovative ideas!

**Solar Industry:**
- Share permitting cost data with NREL
- Fill out SEIA’s permitting survey [https://www.surveymonkey.com/r/2GDXBDS](https://www.surveymonkey.com/r/2GDXBDS)
- Engage local your AHJs ; share one-pagers, invite them to our national calls
- Support funding opportunities!

Send commitments, insights & feedback to [SolarAPP@solarfound.org](mailto:SolarAPP@solarfound.org)
Discussion: Insights & Input from Participants

Send thoughts and questions to us via chat!

- Reactions to Solar APP?
- How would you like to get involved?
- Are you able to commit cost share for proposals (time, money, other resources)?
- What innovative ideas do you have?
- Good examples of online permitting and virtual inspections; we’d love to give you a shout out!
- Lessons learned from going online
- What aspects are needed for AHJs to have confidence in SolarAPP?
- What organizations should we bring into the campaign?
- Would you like to help pilot our online application portal?
- What would you like to see on our next national call?