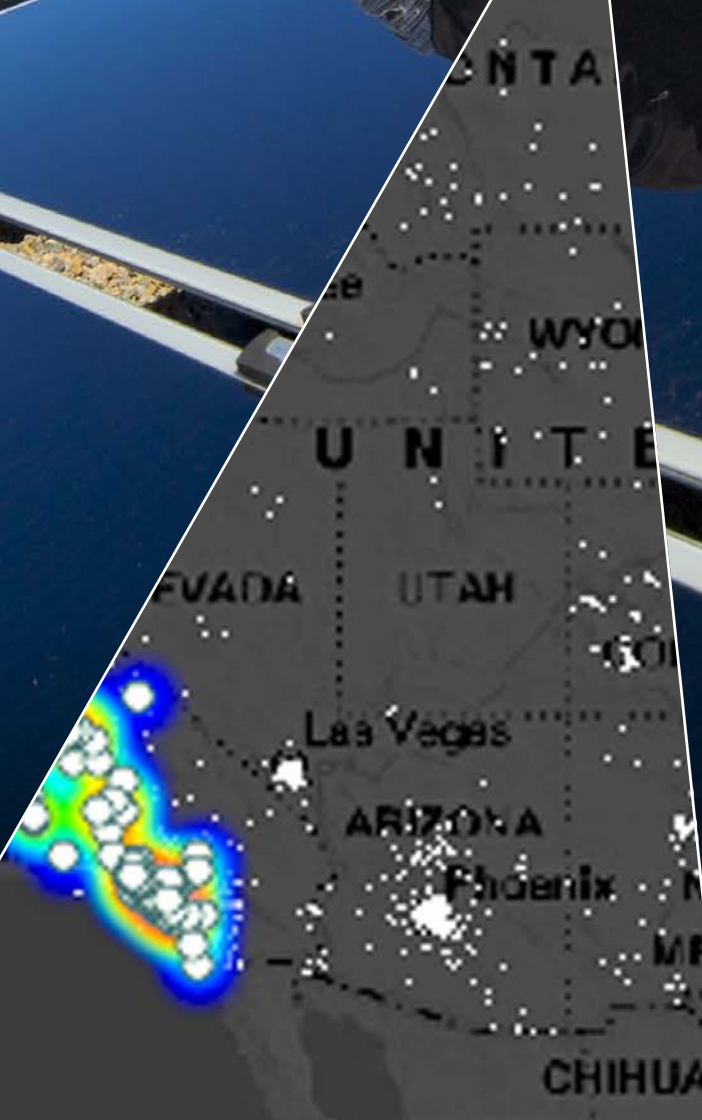


# The Open PV Project

## Unlocking PV Installation Data



NREL is a national laboratory of the U.S. Department of Energy Office of Energy Efficiency and Renewable Energy Operated by the Alliance for Sustainable Energy, LLC

# The Open PV Project: Unlocking PV Installation Data<sup>1</sup>

Because the solar photovoltaic (PV) market is the most diffuse of the large renewable generation markets, tracking costs and local trends can be difficult. In addition, costs and incentives can vary significantly by region. The Open PV Project provides timely information on U.S. PV costs and market trends, which can be critical to policy-makers and market participants.

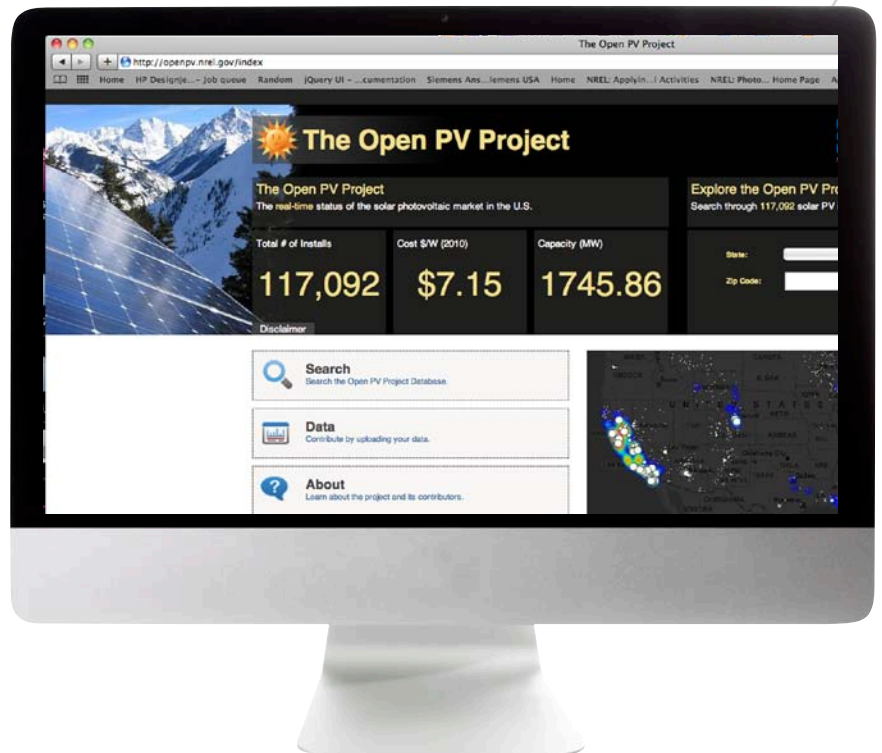
The Open PV Project is a collaborative effort of government, industry, and the public to compile a comprehensive database of PV installations in the United States. A variety of sources—including state renewable energy rebate programs, utilities, installers, and the public—contribute data for the project. The Open PV Project actively maintains these data to provide an evolving, up-to-date snapshot of the U.S. PV market. But Open PV is more than just a data repository. It is also an interactive web-based resource (<http://openpv.nrel.gov/>) for users to explore current and past U.S. PV market trends. Users can:

- Upload PV installation data one record at a time or upload multiple records in batch mode
- Edit data they previously loaded into the database and flag data entered by other users
- Perform detailed searches of the Open PV database and export search results data in Excel-compatible format
- Explore summary-level statistics and rankings using interactive maps and other applications.

## Who Benefits from Open PV?

The Open PV Project is designed for anyone interested in U.S. PV market trends, from the energy analyst to the curious citizen. Different user categories may have different uses:

- Homeowners can browse PV installation records in their cities and neighborhoods.
- PV installers can explore potential market opportunities. By identifying areas with strong growth potential, installers can allocate resources and marketing efforts to target consumers. Installers can also contribute data to Open PV, indirectly promoting themselves by increasing exposure of their installations in local markets.
- Local government officials and staff—including those working in state energy offices, legislatures, and regulatory bodies—can use Open PV to monitor installation activity in their jurisdictions relative to program goals or objectives.



<sup>1</sup>Open PV was originally released with installation records that were collected primarily from state rebate program administrators in 15 states with support from the market transformation activities of the U.S. Department of Energy (DOE) Solar Energy Technologies Program. For more information about these market transformation activities, see [http://solar.energy.gov/sunshot/accelerating\\_deployment.html](http://solar.energy.gov/sunshot/accelerating_deployment.html).

## Capabilities—Visualize PV Data

Open PV provides four interactive tools for exploring PV data: the Market Mapper, the Time Mapper, Project Contributors, and State Rankings.

**Market Mapper—Plot PV Market Data at Different Levels** This tool allows users to view the U.S. solar market at many different spatial scales: national, state, county, and zip code. The tool provides detailed system cost, date, and size statistics in both map and graphical format.



**Time Mapper—Display PV Installations Over Time** This tool illustrates the expansion of PV installations over time. As time progresses, the map is gradually illuminated with the addition of each PV installation.



**Project Contributors—Show Who is Sharing PV Data** The Open PV Project relies on user contributions to ensure the database is current and accurate. This tool highlights project data contributors and provides transparency of the sources of the Open PV Project data.



**State Rankings—View PV Leaders** How does your state rank in the Open PV data? This tool shows state rankings in terms of three metrics: total number of installations, total capacity installed, and average cost per watt.

# Capabilities—Find, Export, Upload, and Edit PV Data

**Search Data** Users need not contribute to use data in the Open PV Project. They can query—or search—the database by state, zip code, size, installation date, and contributor criteria. Additionally, users can limit their queries or searches to include only those data they have submitted.

**Upload and Download Data** Open PV users can download any PV installation data available on the Open PV website by simply exporting search results records to Excel-compatible comma separated values (CSV) files.

Additionally, registered users can share their own PV installation data by uploading it to the Open PV website.

(Registration is needed to maintain data integrity and accountability.) Users can upload either single records one at a time or multiple records in batch mode.

**Edit and Flag Data** Owners of submitted data—those who originally entered the data—can edit or delete individual records. Data owners can also add new fields to data records they contributed. Additionally, users who see irregularities or potential errors in data contributed by others can flag specific parts of the record, and Open PV Project administrators will follow up on the flagged data.

**Integrity of the Open PV Data** As a crowd-sourced data collection effort, the Open PV Project is designed to benefit from the collective knowledge and data of the PV community. To ensure a user-friendly process while maintaining data integrity, Open PV has a flexible database structure, robust data quality features, and procedures in place to reduce data duplication. To learn more about these aspects of Open PV, please consult the project website:

<http://openpv.nrel.gov/>.

**Coming Features** The Open PV Project is continually looking to improve its value to the users' analysis of the U.S. PV market. In forthcoming improvements and enhancements, the Open PV Project team will:

- Incorporate incentive data to provide both pre-incentive and post-incentive system cost reporting
- Differentiate PV installation records by market sector—residential, commercial, and utility-scale—to enable search and reporting of market statistics by sector
- Implement a data comparison feature—a visualization tool that will allow users to compare data across spatial scales (e.g., compare metrics between states or between a county and another state)
- Export data to KML format for display in Google Earth
- Improve data validation and outlier identification procedures
- Increase installer participation in data contributions through strengthened marketing and outreach efforts
- Provide real-time access to Open PV data for third parties and software developers through a web service application programming interface (API).

**Contact Us** For additional information, contact the Open PV Project team at [openpv@nrel.gov](mailto:openpv@nrel.gov).