

Supplemental Project Notice

PROJECT HIGHLIGHTS

- User group for owners, operators, maintainers, and organizations purchasing power from large-scale photovoltaic (PV) power plants
- Focused on reducing lifetime costs, increasing energy production and reliability, and adding operational capabilities
- Identifies best practices for improving PV operations and maintenance
- Provides plant and fleet performance and reliability analysis for benchmarking large-scale PV plants
- Provides a collaboration forum where members can ask questions and have an interactive dialogue to address pressing issues



Key Research Questions

More than 90% of the 2.0+ terawatts (TW) of solar photovoltaic (PV) plants installed globally have operated for less than 10 years. A knowledge gap exists between actual experience and expected performance and maintenance over the 20+ years of expected plant operation. As solar technology regularly and rapidly evolves, there are many lessons learned from the design, construction, operation, and maintenance of existing plants that need to be compiled and shared for the benefit of the community of solar owners and operators. In addition, it is important to answer the question of how PV plant owners can develop a reliable and a resilient source of electricity that generates energy for end users in a non-disruptive way.

User groups serve an important function in facilitating information sharing and collaboration among the organizations across the power sector. There are very few user groups focused on large-scale PV plants. Additionally, there are few data resources available to PV plant owners and operators to assist with benchmarking and analysis of operational performance, health and reliability of the plant and its equipment, and correlating results and cost of maintenance strategies and activities.

Objective

The Solar Owners League (SOL) provides a technical forum and tools to help owners and operators of large-scale PV plants balance tradeoffs between energy production, affordability, reliability, and operational capabilities. The forum brings together owners and operators to discuss issues with the goals of exchanging lessons learned and facilitating networking opportunities. It is one of the key objectives of the league to help PV plant owners identify the most common PV vulnerabilities during severe weather events. The user group will also discuss opportunities to improve operations and maintenance best practices. Longer-term value exists in using ideas captured to inform the solar industry's research needs and opportunities for technology development.

SOL enables operational excellence, continuous improvement, and validation by providing tools to benchmark the performance, availability, and reliability of large-scale PV plants.

Approach

Annual workshop – a multi-day meeting focused on operations and maintenance topics with technical presentations and roundtable discussions. This workshops often include special sessions covering impacts of severe weather (hail, winds, and wildfires) on plant performance and operations.

Website – provides access to workshop proceedings and reports: <https://www.epri.com/sol>

Webcasts – based on input from SOL participants, webcasts and/or less formal meetings may be scheduled.

Research Value

SOL provides timely, actionable, and objective information to its members and the public about large-scale PV plants and their ability to provide power in a safe, reliable, and cost-effective manner, which includes improving the capabilities of large-scale PV plants to improve grid support. Lessons learned from commercially operating plants and the associated best practices provide valuable information to owners, operators, maintainers, and organizations considering addition of large-scale PV plants.

The value of SOL includes:

- A collaborative forum to share lessons learned with colleagues and experts, including developing a network of colleagues.
- Information on how to improve energy production, affordability, reliability and operational capabilities.
- Provides insights to PV plant owners on developing, operating, and maintaining power plants that are reliable and resilient during external disturbances.
- Professional development opportunities.
- Validating and benchmarking plant performance to aid decisions around existing and future plants.
- Determining research needs for future projects.

Deliverables

- Website that includes high-level information for the public, and more detailed access-controlled content for SOL members
 - <https://www.epri.com/sol>
- One annual in-person workshop, periodic webcasts
- Conference proceedings and slide decks from annual workshops and webcasts

- Benchmarking with results from plant performance and reliability analysis for those that purchase the additional benchmarking access (SUPER)

Price of Project

There are two tiers of participation in SOL:

Solar Owners League (SOL)

- SOL participation is included for members of EPRI Solar Generation Program (P207).
- SOL participation for non-P207 members is \$15,000/year.

SUPER Benchmarking Access (SUPER 3002025905)

- In addition to participating in SOL, interested customers may also fund access to SUPER for \$18,000/year. The SUPER platform allows funders to access anonymized PV plant performance analysis performed by EPRI.

This project qualifies for Self-Directed Funding (SDF).

Project Schedule

Participation in SOL is based on a calendar year and may be renewed each year. The annual workshop is usually held in summer at a U.S.-based location. The website is updated on a regular and as-needed basis.

Who Should Join

Owners, operators, and maintainers of large-scale PV plants should join. Companies actively engaged in procuring, financing, or ensuring solar electricity from such facilities may also find the forum valuable.

Contact Information

For more information, contact the EPRI Customer Assistance Center at 800.313.3774 (askepri@epri.com).

Technical Contact

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