



# PV Inverter Product Qualification Program (PQP)

Independent testing that drives market acceptance for manufacturers and builds buyer confidence

## PQP Benefits

- **Be Recognized in our Scorecard.**  
Eligible top performing results from each PQP are included in PVEL's PV Inverter Scorecard. PVEL's scorecards are downloaded thousands of times by buyers around the world.
- **Obtain Data to Respond to RFPs.**  
The PVEL PQP provides necessary reliability and performance data that helps manufacturers quickly and easily respond to inverter purchasing RFPs.
- **Reach New Buyers and Markets.**  
With manufacturer's approval, PVEL shares test reports with the global PV inverter buying community via our online portal.
- **Drive Product Improvements.**  
PVEL's testing provides insights to manufacturers to improve designs by enhancing product durability and performance.

## Who We Are

PVEL is the leading independent lab of the downstream solar industry. Our bankability testing and data-driven reports connect manufacturers with a global network of PV equipment buyers and investors that represent over 30 GW of annual buying power.

## What are PQPs?

Our PV inverter PQP was established in 2014 with two goals:

1. To provide PV inverter buyers and investors with empirical, consistent reliability and performance data that supports effective supplier management.
2. To independently recognize manufacturers who outpace their competitors in product quality and reliability.

As with our PV module and energy storage PQPs, PVEL's PV Inverter PQP links manufacturers to over 400 developers, investors, and installers that use our data. From thermal derating to arc fault detection, our Inverter PQP addresses the industry's top reliability and performance concerns for string inverters, microinverters, power optimizers and broad range of ancillary power electronics devices.

PVEL has in-house testing capabilities for 600V, 1000V and 1500V products to address the inverter diligence requirements of solar projects of almost any scale.



## Factory Witness

All products submitted to PVEL's PV Inverter PQP are witnessed in production before testing:

- The bills of materials of the tested products are identified and recorded.
- Each step of the manufacturing process is thoroughly documented.
- Finally, products are packaged in tamper-proof tape and shipped to PVEL for testing.

## PQP Testing

PVEL's tests provide a more complete understanding of inverter reliability and performance that extend beyond datasheet specifications. Each test in the PQP is designed to rigorously evaluate an inverter's response to conditions it is likely to experience in the field.

### Passive Chamber Testing

Damp heat, thermal cycling, humidity freeze

### Thermal Performance Characterization

Powered thermal cycling, high temperature operation, low temperature operation

### Performance Testing: Efficiency

MPPT efficiency, conversion efficiency, energy harvest

### Performance Testing: Operational Window

AC operational window, DC operational window, transient response

### Field Testing

Ground and arc fault, 30-day runtime

## Why PQP Matters

New inverter functions, features and advancements are constantly released to keep pace with market and interconnection demands. PVEL updates the PQP regularly so that manufacturers can provide buyers with consistently relevant data.

## Central Inverter Testing

PVEL provides Factory Acceptance Testing (FAT) and Reliability Testing Oversight (RTO) witness tests to confirm product capabilities and independently assess central inverter performance and design characteristics. FAT and RTO are conducted on-site at the factory.

To find out more about how to participate, contact:  
PVEL's business development team at [info@pvel.com](mailto:info@pvel.com)

For more information about PVEL's PV Inverter Qualification Program, go to [pvel.com/pqps](https://pvel.com/pqps)

