

## **Testing Requirements**

With the drive to move away from non-renewable energy sources gaining steam, more and more manufacturers are looking to reduce their carbon footprint by using green energy efficiently. To meet this increasing demand for renewable energy, PV Inverter manufacturers are charged with creating a product that is safe, reliable, robust, and efficient. While there are standards to follow and different approaches employed, using the right equipment can save both time and money and will help avoid any unwanted surprises during certification.

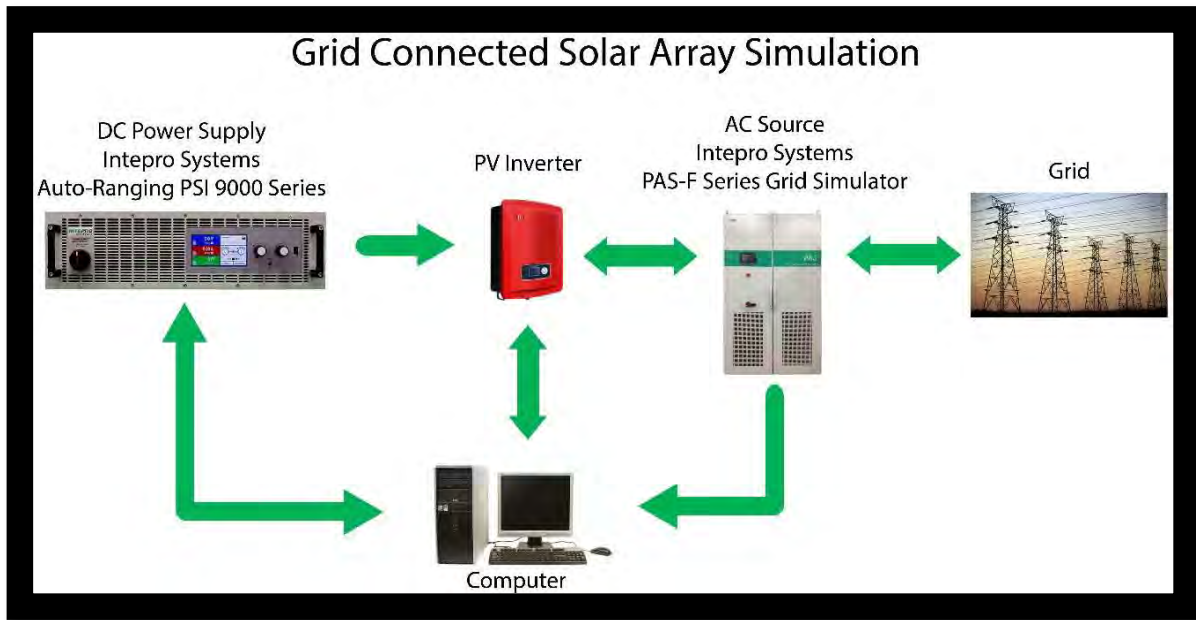
A PV Inverter takes unregulated DC power generated by photovoltaics (or solar panels) and converts it to clean AC power suitable for local use or sent to the utility grid. Since the inverter is a central component in this process, performance and reliability are of utmost importance. Testing to IEEE 1547/IEC 61000-3-15/IEC 62116 ensures these products will not cause disturbances while operating safely. In addition, the inverter must also be verified for functionality typically consisting of the following:

- Ability of the PV Inverter design to meet design & interconnect requirements
- Verification of PV Inverter performance when used in a properly sized system
- Verification/Establishment of relevant operational PV Inverter characteristics

## **Testing Challenges**

To perform these tests, a manufacturer will require the ability to provide the input to the inverter – the DC power that is being captured by the PVs or solar panels. The manufacturer will also need to provide a suitable output for the inverter like an AC load or simulated utility grid depending on the stage of development.

Sourcing solar panels to provide the DC input for testing is not cost-effective. The best practice calls for simulation of the energy which allows for complete control to truly stress the DUT. Connecting an untested product to a live utility grid is also not advised. The preferred method is to recoup the energy in a simulated and controlled environment that allow for the duplication of real-world effects. This is accomplished with an AC Grid Simulator. Surrounding the DUT with these types of products reduces time to market in addition to the obvious reduction in operational costs.



**Figure 1**

*Choosing test equipment that is energy efficient, versatile, and regenerative is key to profitability here -as there is a vast amount of energy used in the testing process. Can you afford to burn off that energy as heat and then spend more energy to remove that heat through facility HVAC?*

## The Better Way

Thankfully, Intepro offers our PSI Series of high-efficiency (up to 95%) DC Power Supplies and our Regenerative AC Source/Grid Simulator to surround PV inverters with energy-saving technology (depicted in Figure 1). In addition, the PSI Series boasts a powerful “PV Sim” Suite designed to fully simulate a variety of PV Systems, IR curves, and accurately track MPP (Maximum PowerPoint). This gives you the tools you need to work on your product right out of the box.

If you would like to learn more or are interested in a demonstration showing how we can help you get the most out of your PV Inverter testing, please feel free to reach out using the information below.

## Contact Us

[sales@inteproate.com](mailto:sales@inteproate.com)

### **Americas**

Intepro Systems America, LP  
14662-E Franklin Ave  
Tustin, CA 92780  
Tel: 1 714 953 2686  
[sales@inteproate.com](mailto:sales@inteproate.com)  
[www.inteproate.com](http://www.inteproate.com)

[service@inteproate.com](mailto:service@inteproate.com)

### **Europe & Africa**

Intepro UK Ltd.  
9 Lakeside Business Park  
Swan Lane, Sandhurst Berkshire  
GU47 9DN / UK  
Tel: 44 012 5287 5600

[www.inteproate.com](http://www.inteproate.com)

### **Asia & Oceania**

Intepro Power Electronics  
(Shenzhen) Co., Ltd  
No. 828, Block 7,  
Fourth Industrial Area  
Nanyou, Nanshan District  
Shenzhen, China 518052  
Tel: 0086 755 86500020