



100kW PV Inverter Test & Verification Platform

End User: National Chung-Shang Institute of Science & Technology

Industry / Product: National Research Laboratory

Challenges:

With the increasing requirement for smart grid and PV inverter testing, there is need for a total solution and platform to test the PV Inverter and verify compliance to the standards IEEE1547, IEC61727...etc. For a PV inverter with 100kW, they need corresponding solar simulation, grid simulation, electronic load, and monitoring data acquisition system.



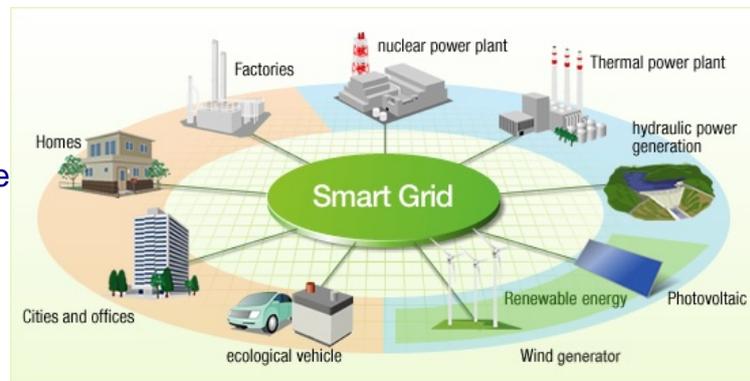
Solution:

Applied Preen Power Solution ACST-L-33150(150kVA) for grid power simulation and DCST-100-250(250kW) for PV power simulation. The RLC load (ACLT-3830H) and NI PXI Solution provide a load test and monitoring platform.

Background:

As global warming has become an important issue today, Chung-Shang Institute was trying to develop new solutions for smart grid and new energy fields. The researches include Photovoltaic, Wind Power, Fuel Cell, Power Distribution, Thermal Power, EV...etc. During the process of development, a test and verification platform was necessary for R&D and it needed to follow the international standards such as IEEE, IEC, UL...etc. For the PV Inverter test, it must include the following test criteria:

- Deviation of Grid Voltage
- Harmonic Distortion Test
- Power Factor
- Voltage Unbalance Test(3 Phase)
- DC Component Test
- Over/Under Voltage Test
- Over/Under Frequency test
- Trip Time Test
- Anti-Islanding Test
- LVRT (Low Voltage Test)

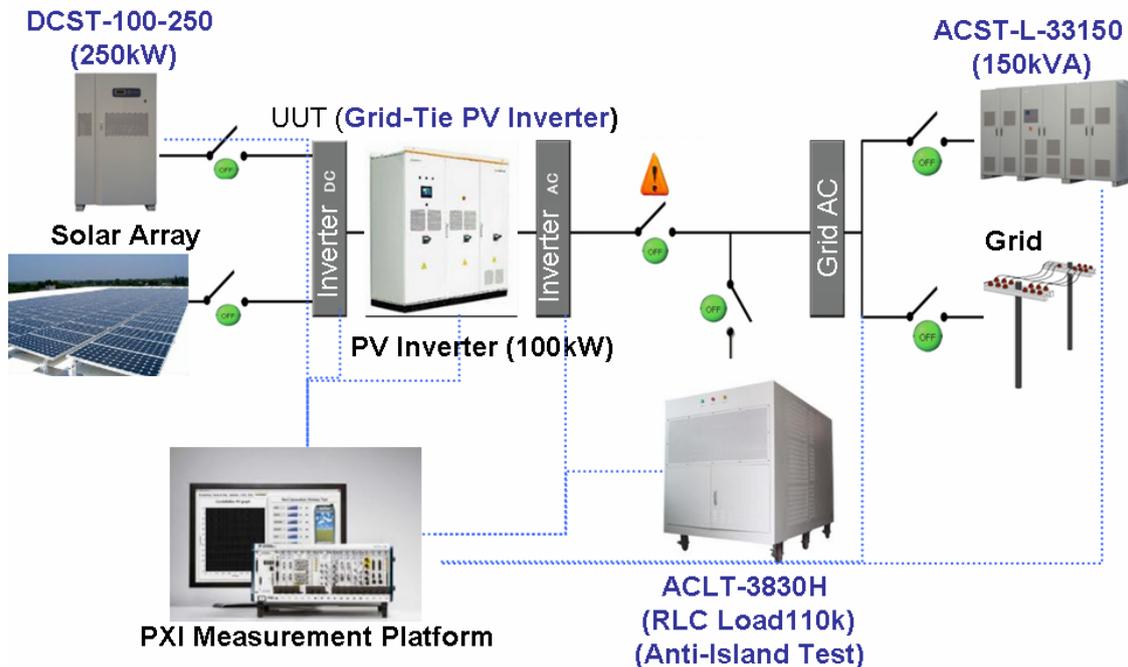




Why Use Preen Power Solution:

Preen provide a complete power solution include AC Simulation, PV Simulation and RLC Load with monitoring platform and testing software. They have many years of field experience in PV Inverter testing and also have more than 10 sets of 800kVA large capacity solutions installed. The ACST also builds in with test standards and parameters that can accelerate the test process.

Solution Introduction:



The system includes a 250kW DCST for simulating the PV power to provide a DC power source for testing the PV inverter. The 150kVA ACST provides a simulated grid power with varying test parameters, following the test standards and conditions. The PV inverter will synchronize to the grid and feed power to 110k RLC Load with Anti-Islanding test function. All the data will be monitored and acquired by the NI PXI platform for further analysis, to check that the PV inverter meets the testing standard requirements.

Other References:

