# PV Reliability: Database and Lifetime Prediction



## **Objective:**

To develop a comprehensive reliability database for the lifetime prediction of PV technologies, especially in the context of the environment of India and the United States.

### **Achievement:**

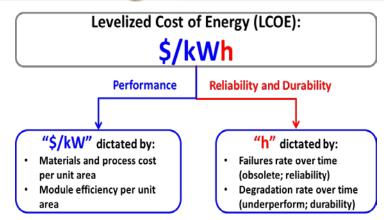
Four power plants in a desert climate of United States and several systems in five climatic zones of India have been evaluated for reliability and durability—and catalogued for the SERIIUS reliability database.

#### **Research Details:**

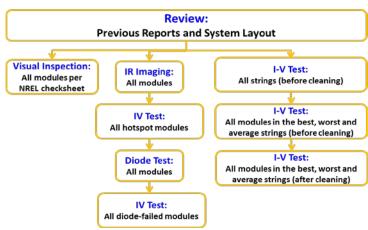
- ASU has evaluated four power plants (4–16 years old) installed in a desert climatic condition of Phoenix, Arizona, through: visual inspection, infrared (IR) imaging, diode testing, and current-voltage (I-V) testing, as shown in the flow diagram.
- IITB and SEC have evaluated various PV systems covering five climatic zones in India.
- The data processing and analyses of all the PV systems and power plants investigated in this study will be completed.
- All modules in the rooftop PV system at FSEC will be examined for reliability and durability.
- Complete the construction of small-scale setup for reliability testing of unencapsulated cells.

#### Publication(s):

Six publications from ASU, FSEC, and IIT-B were presented at the IEEE PVSC, Tampa, Florida, June 2013 (see <a href="https://www.SERIIUS.org">www.SERIIUS.org</a>).



LCOE dictated by performance, reliability, and durability



Various tests performed at the older power plants in India and U.S. to populate the reliability and durability database

#### Contact(s):

Bibek Bandyopadhyay (<a href="mailto:bibek@nic.in">bibek@nic.in</a>)
Mani G. Tamizhmani (<a href="mailto:manit@asu.edu">manit@asu.edu</a>)

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