Solar ABCs Policy on Standards:
Adoption of Qualification and Power Rating Standards in the United States

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Solar ABCs Policy on Standards (www.SolarABCs.org)

**Standard Protocol**

- **Supply Chain: PV Cells**
  - Adoption by SEMI or ASTM standard?

**Standard Policy**

- **Standard Protocol for Nameplate Rating Tolerance**
  - Adoption by IEEE, IEC or ASTM standard?

**Standard Validation**

- **Power Rating Standard (IEC 61853-1)**
  - Adoption by United States?

**Standard Policy**

- **Adoption of Qualification Standards (IEC 61215/61646/62108)**
  - Adoption by United States?
Power/energy rating models require performance data at multiple test conditions, not just one test condition of STC (25°C; 1000 W/m²).
IEC 61215/61646/62108 (Qualification Standards): Motivation - Reliability

Why focus on PV reliability?

   • More than 20 years required for most components and systems.

Source: Sandia National Labs
Survey Evidence:
There are modules **certified to UL 1703 (US Safety), but not to IEC 61215 (minimum durability/reliability)**.

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**IEC 61215**

- **Safety Tests**
  - **Pass:** Meets minimum safety requirements
  - **Pass:** $>95\%$ of initial power!

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**UL 1703**

- **Safety Tests**
  - **Pass:** Meets maximum safety requirements
  - **Pass:** $0\%$ of initial power!
Solar ABC Policy recommends (January 2010) the use of qualification standards for PV modules:

“Meeting the requirements of qualification standards is considered to be a minimum requirement for any module procurement. Photovoltaic modules sold or installed in the U.S. shall be independently tested and certified to the following qualification standard: IEC 61215 (crystalline silicon flatplate modules), IEC 61646 (thin film flatplate modules) and IEC 62108 (concentrator modules / assemblies).”