NREL
NATIONAL RENEWABLE ENERGY LABORATORY

PV Module Reliability Workshop – Discussion Notes

Wednesday, February 25, 2015

International PV Quality Assurance Task Force (PVQAT) Open Discussion

- Communication of climatic "ratings."
- Combined testing for 61215 and 62892: 31 yes, 0 no.
- Impact of combining all six tests into one sequence is unclear.
- Sampling: is ten enough?
- Additional data for desert, tropical, and moderate climates would be helpful.
  - Extremes and others with extensive climatic and PV module data.
  - Humidity/freeze/thaw data seems to be missing.
- Should we further accelerate tests (UV) via higher temperatures?
  - Modules have to survive all extremes.
  - Module and material tests.
  - UV at higher temperatures will discriminate.
  - Models of module temperatures are used for overall module temperatures, not specific areas related to hotspot, etc.
  - There is a difference between thermal and UV plus thermal tests.
  - UV source dilemma.
  - UV test is a screening test.
  - Temperatures are based on 85th percentile of daily module temperatures.
- Peter's presentation:
  - Good start, we need more data.
  - Plan to move towards other materials.
  - Pass/fail is transmission.
- Tanahashi-san's presentation:
  - Thermal cycling.
  - TC600 combined with EL imaging indicates solder process variations.
  - Change the focus of this material test from an encapsulant transmission test to a test for long term-environmental stability of polymeric packaging materials.
  - Straw poll: nine in favor, three for leaving it the same, hybrid method (partially coupon, partially module) also proposed.

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