Discussion notes

Thursday afternoon

– Predicting Long-Term Performance for PV Products

– Ensuring Quality to Satisfy the Investors

Can we predict 20-30 years for products that have been around for one year?

- Some said “yes”, some said “no”
- Reasons for “no”
  - There are many failure mechanisms
  - Effects may be interrelated, so testing for each stress separately can give the wrong answer
  - The weather is variable, so lifetime depends on location; sequence of applying stresses may depend on location
  - Need many samples to provide adequate statistics
- Reasons for “yes”
  - More detailed understanding of fundamental mechanisms of failure can lead to improved projections
  - It’s difficult, but careful work can help

Is our quality assurance adequate?

- In 2007-2008, people would buy whatever you could deliver; now, the bar is higher
- Qualification tests are a “cost of entry”, not an “assurance of quality”
- Solar ABCs has recently issued a recommendation that products pass a qualification test. Although many US organizations do not require a qualification test, SunEdison requires it for all of their purchases and will not decrease quality standards for a lower price product. Passing a qualification test is not helpful if you do not have a quality plan, but Solar ABCs did not mention this.
- It’s not clear whether requiring an ISO 9000 standard is useful. ISO 9000 standards assure quality processes, not necessarily quality products.
- A product with higher efficiency could have lower efficiency after field exposure
- The panel was asked whether they would embrace third-party factory inspections to measure quality; the panel response was negative both about the value and acceptability of the concept
- 25 year warranties were begun without a rigorous evaluation; then, most companies followed for marketing reasons rather than because the reliability engineers recommended it.
- A 3-sample testing size is adequate for some failures, but not for others