

PV Module Reliability Workshop – Discussion Notes

Tuesday, February 24, 2015

Thin Film Breakout Session

- What limits thin film (TF) PV from increased market penetration?
 - Money matters (i.e., access to capital to conduct internal reliability R&D).
 - Role of national labs crucial to further fundamental understanding of failure mechanisms, not just for newcomers.
 - Manufacturing costs (price) trump reliability; sell at a small penalty vs. x-Si.
 - TF has a significant manufacturing cost advantage, but suffers from an image problem. X-Si propaganda successful in manifesting certain misconceptions about TF.
 - Need to better market the advantages of TF.
 - The First Solar presentation was very useful.
- PVQAT TG8 topics:
 - Flexible TF PV modules.
 - Round robin tests.
 - More field data.
 - More fundamental work at coupon level.
- Question: Is there a stigma in the public about the reliability of thin film PV modules that is limiting their impact on the PV market?
Answer: The public really doesn't know much about thin film modules in general. Perhaps these technologies need to be marketed to the public better? Also, thin film modules are still not efficient enough for residential rooftop PV applications.
- Question: Is the reliability work done on thin film modules at NREL valuable to manufacturers like First Solar? Similarly, do the manufacturers benefit from collaboration with NREL or other national labs and academic institutions?
Answer: Definitely 'yes'. Especially early on, First Solar benefited a lot from collaboration with NREL.
- Question: What is known about the root causes of instabilities and degradation in First Solar modules? Are there analyses beyond characterizing performance through the stresses or over time?
Answer: Yes, have some ideas (speculations) about what causes the instabilities (e.g., copper migration), but no proof yet. For example, they haven't sectioned the modules in order to do failure analysis.