NREL
NATIONAL RENEWABLE ENERGY LABORATORY

PV Module Reliability Workshop – Discussion Notes

Tuesday, February 24, 2015

X-Silicon Breakout Session

- When snail trails are observed, cracked cells may be a bigger problem than discoloration.
- The discoloration associated with snail trails is a reaction with the front metallization.
- For understanding thermal cycling effects, TMY (hourly) data are not very helpful; one-minute data are good. Modeling of Potential Induced Degradation (PID) also benefits from one-minute data.
- For PID:
  - The newer, reduced-stress conditions would suggest a longer stress time.
  - The Al foil test seems to be stricter than the newer version of the damp-heat test.
  - For deployment near the sea, PID testing could consider the salt.
  - If you see only a few percent degradation early on, then it will probably recover.
  - To detect PID, can use thermography.
  - May be able to see PID sooner with luminescence compared with thermography.

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