

Are next-generation solar modules deteriorating?

Tom Kenning reports on the testing of next-generation modules and efforts to ensure their longevity in the field. PV modules are generally performing well across the solar industry but recent results from leading test labs suggest that some forms of next-generation modules are showing surprising levels of degradation in just a few years.

What causes a solar module to fail?

Processing Poor processing, either in component or module manufacturing, is often identified as the root cause of PV module failures in the field. Some examples: thermal stressing during stringing and lamination can cause microcracks in solar cells [25,77].

Does PV module packaging affect the durability of a PV module?

However, the durability of module packaging is essential for long-term operation, and the choice of materials has a distinct impact on PV module attributes such as: Reliability, as many PV module degradation modes are directly linked to packaging degradation and material interactions with it [49,61,104].

Why do PV modules fail?

In this period, there was a much stronger prevalence of defective interconnections in the module, and failures due to PV module glass breakage, burn marks on cells (10%), and encapsulant failure (9%) while failures due to junction-boxes and cables remained high.

What are the design considerations for all components in a PV module?

Review of design considerations for all components in a PV module regarding reliability. The degradation of photovoltaic (PV) systems is one of the key factors to address in order to reduce the cost of the electricity produced by increasing the operational lifetime of PV systems.

What causes PV module degradation?

More often, material interactions with the encapsulant are a root cause for PV module degradation.

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Dricus is Managing Director at Sinovoltaics Group. Sinovoltaics Group assists PV developers, EPCs, utilities, financiers and insurance companies worldwide with the execution of ZERO RISK SOLAR projects - implemented ...

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