

The Reliable and Ultimate Solar cell and module Test

Publieke samenvatting / Public summary

Aanleiding

Environmental exposure of solar modules can lead to (premature) module failures. In order to prevent field failures, modules are tested and qualified with Accelerated Lifetime Tests according to IEC standards. However, current tests do not gain insight in degradation mechanisms. Therefore, their predictive value for field exposure of solar modules is at the moment limited.

Doelstelling

The goal of the TRUST project is to increase the predictive value of accelerated lifetime tests. Technical capabilities of existing test equipment will be developed further to allow better simulation of outside conditions as well as the study of actual degradation mechanisms. This will accelerate the production of more reliable solar modules resulting in a lower LCOE. Eternal Sun, Hielkema and ReRa Solutions aim to develop a generic setup which allows the testing and degradation of all types full-scale PV modules (so called setup version 3.0, expected in 2017) under field-related conditions. Observed failures will lead to understanding field-related degradation processes. In this project Solliance will validate and use the improved test facilities for accelerated lifetime testing on thin film solar cells and modules.

Korte omschrijving

The two most important scientific and design issues are: 1. ReRa Solutions and Solliance will design tunable electronic biases and use this to test thin

Projectinformatie / Project information

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Algemene informatie / General information

Penvoerder / Secretariat
Eternal Sun B.V.

Publicaties en materialen / Publications and attachments

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film solar cells and modules under various electrical biases, in order to determine the impact of these biases. 2. Eternal Sun, Hielkema and Solliance will improve the current setup (version 2.0) to a realization of the next version (version 2.1) which will have a lower cost price than the current setup.

Resultaat

This project will result in a unique in-situ degradation setup (version 2.1) with lower costs but with more testing features than competitive products. Additionally, this project will result in identification of the degradation mechanisms of thin film solar cells and modules under electrical biases in accelerated lifetime testing and in the field. This knowledge and equipment will help in realizing lower LCOE of solar, decrease the investment risks in PV projects and make solar a more competitive and feasible electricity source.

De data in deze applicatie is afkomstig van de Rijksdienst voor Ondernemend Nederland (RVO) en wordt in samenwerking met de Topsector Energie ontsloten.

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