

MASS customization through prefab PV Elements

Publieke samenvatting / Public summary

Aanleiding

Building – and vehicle integrated PV applications demand different shapes and sizes of PV for each product, different final encapsulation materials and specific ways to deal with shade. However, creating a new shape or size for each application is a costly affair, hence novel designs and manufacturing solutions based on prefab elements, which can be produced by mass manufacturing are required.

Doelstelling

The project goal is to prove that mass customization of integrated PV products is possible, by demonstrating that suitable PV semi-fabricates - or PV Pixel Elements - can be manufactured at competitive costs (<0.24 €/Wp or less than €50/m²), and that these Pixels are suitable for integration into end products. The Pixels can be manufactured using large-scale processes and retain their functionality after product integration. This way, mass manufacturing of customized products can be achieved at competitive cost.

Korte omschrijving

TUX Mobility and ASAT will define the requirements for the end products and set up a validation program together with TNO. Based on that, TNO will define the requirements of the PV Pixel Element and select suitable materials in collaboration with Endurans. The large scale manufacturing aspects will be evaluated with Energyra Europe, who will provide also input for the cost analysis. TNO will run process trials of the PV Pixel Elements on their production facility in Petten. Validation tests will be executed on those. The Pixel elements will also be

Projectinformatie / Project information

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Algemene informatie / General information

Penvoerder / Secretariat

TNO

Publicaties en materialen / Publications and attachments

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supplied to TUX Mobility and to ASAT, who will use these to manufacture test samples of their integrated products. Ways of interconnection on system level will be tested, and validation tests will be executed on the end product test samples.

Resultaat

The project will result in: - Design drawings of the PV Pixel Elements; - Design drawings of several PV Pixel elements on system level; - Report describing the process optimization, bill of materials and results of validation testing on the PV Pixel Elements; - Report describing the results of several PV Pixel Elements on system level, including power performance under partial shading conditions; - Report describing the process optimization, bill of materials and results of validation testing on vehicle and building integrated products; - Business case analysis and report describing requirements for mass production.

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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