

VEhicLe integrated PV Optimized for performanCe. flexibillTY, and design

Publieke samenvatting / Public summary

Aanleiding

Vehicle Integrated PV (VIPV) offers one of the most sustainable power systems for electric vehicles. VIPV needs to be lightweight, aesthetic and produce maximum power in extremely dynamic conditions. Improvements in c-Si cell efficiency and recent innovations in module technology open new opportunities for VIPV.

Doelstelling

In VELOCITY, we will make a 22% efficient c-Si PV system integrated into a car roof to maximize power and aesthetics and power a small electric car. The challenges are to integrate c-Si cells attractively into a two-dimensional curved surface and optimize power production in very dynamic situations.

Korte omschrijving

In order to make a VIPV system that meets all the necessary specifications, we propose to adapt TESSERA™ technology recently developed by ECN, for smaller laminate building blocks and to work with high efficiency interdigitate back contact (IBC) cells. The TESSERA™ concept, using small Si solar cells combined with back-contact foil technology, allows high surface coverage fraction, aesthetics, lifetime, efficiency, shadow tolerance and enables integration in 3D curved surfaces. ECN will work with Lightyear to further develop TESSERA™ and the novel concept of distributed maximum power point tracking (DMPPT) power conversion for application in VIPV. Research and development of materials and new designs of flexible, high

Projectinformatie / Project information

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Algemene informatie / General information

Penvoerder / Secretariat
ECN

Publicaties en materialen / Publications and attachments

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efficiency, lightweight, attractive, c-Si based laminate building blocks integrated into the car body as a full rooftop system capable of supplying a significant fraction of the Lightyear One concept vehicle.

Resultaat

In VELOCITY the consortium aims to design and build the highest power and most attractive PV car body in the world, with novel PV laminates and new power conversion solutions. The technology developed will promote solar electric vehicles and also offer solutions for other integrated PV applications.

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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