

Acceleration of on-board solar for automotive and electric transportation

Publieke samenvatting / Public summary

Aanleiding

Electrified transportation offers to significantly reduce the CO2 emissions that account for approximately 30% of total CO2 emissions. In this DEI Pilot Project, we aim to demonstrate a solution that can reduce CO2 emissions from personal vehicles by as much as 70% per kilometer. We achieve this by developing the world's first solar electric vehicles with more than 50% of the energy needed for driving coming from on-board solar PV panels. These will cover all the sun-facing surfaces of the car roof, trunk and hood. Solar EVs change the paradigm of electric vehicles by making them more efficient with lower CO2 emissions, longer range, more autonomy, and more attractive to the general population.

Doelstelling

The goal of the project is to demonstrate the viability of a VIPV car. Here we take into account the demands of: changing environments for PV, safety of the vehicle and customer demands on reliability, performance and durability. In the recent TKI Toeslag Urban Energy VELOCITY project (3/18 to 2/19) we have developed a VIPV system (PV panels and MPPT electronics). In this DEI Pilot Project, we want to further develop the integrated VIPV system to make it ready for market introduction including safety and validation.

Korte omschrijving

The project will entail the product development and optimisation of the whole VIPV system. Together

Projectinformatie / Project information

Projectnummer / Project number
DEI119009

Subsidiebedrag / Grant amount
€ 1.541.122,00

Algemene informatie / General information

Penvoerder / Secretariat
Atlas Technologies B.V.

Publicaties en materialen / Publications and attachments

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Eindrapport DEI119009

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with TNO we will build double curved (3DPV) panels and an innovative and novel power electronic system for dynamic environments, all integrated into the trunk, roof, and hood of the car. Material and component development will be done in cooperation with suppliers and process development and manufacturing optimized with Dutch and European partners. For automotive, we must ensure a safe product as well. Together with TNO, we will ensure that all ISO 26262 safety norms are followed and develop new tests where needed in order to ensure that PV can be safely, effectively, and reliably integrated with a passenger vehicle.

Resultaat

The result will be a fully developed VIPV system and production process. The pilot system will be tested and proven to perform according to specifications, and be reliable and safe. This pilot system will be the basis for the production of Lightyear One cars. Later Lightyear can serve as a VIPV system supplier, or other competitor car companies can make use of our technology. This pilot will also create key innovations for other integrated PV markets such as BIPV, infrastructure integrated PV, and floating PV.

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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