

‘ECN has unrivalled knowledge and expertise in the field of solar energy’

Stijn Verkuilen
Innovation manager



Heijmans and ECN

work together to develop energy-generating noise barrier

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Solar cells are becoming increasingly and more efficiently integrated into buildings, roads and noise barriers. ECN is using its expertise to realise the enormous potential of integrated solar cells in noise barriers.

ECN is developing various solar-energy products tailor-made for the business community. These include solar cells on building facades, floating solar panels, roads and noise barriers. It is also supporting companies in the design, production and testing of prototypes. To do this, ECN is using unique (simulation) equipment and solar power expertise in the Netherlands. Market parties receive customised information regarding the costs and benefits, as well as the expected service life of a prototype.

ECN cooperation

The listed construction company, Heijmans, has recently collaborated with ECN as

part of the Solar Noise Barriers project. Innovation manager Stijn Verkuilen is very positive about the cooperation. He says, “ECN has unrivalled knowledge and expertise in the field of solar energy. ECN researchers always take a very pragmatic approach. They were extremely proactive during the design phase, and were actively involved in the discussions regarding the use of materials and the assembly of the solar-panelled noise barriers.”

The cooperation between the market party and knowledge institution went very smoothly. Verkuilen: “It’s obvious that everyone is really genuinely motivated to make this technology a success. A shared passion for the subject and a common interest are the right ingredients for a successful project.”

Scaling up for a breakthrough

With 1,250 kilometres of noise barriers, the Netherlands has excellent potential for generating renewable energy. A research

consortium, including Heijmans, TU Eindhoven, SEAC and ECN, successfully completed the Solar Noise Barriers Project (SONOB) at the end of 2016. The test revealed the potential of two prototype solar panels: a semi-transparent panel with silicon solar cells (single and double-sided) and a semi-transparent panel based on luminescent solar concentrator (LSC) technology.

Using ECN's simulation software, it became clear that LSC barriers can potentially achieve a nine-times higher energy yield by using the solar cells more efficiently, optimal design and better mounting material.

According to Verkuilen, Heijmans would like to follow up on the successful field trial. "Now is the time to take this a

step further. With more and larger-scale projects, this technology is becoming cheaper and more interesting. Noise barriers that generate renewable energy also reduce noise pollution for the surrounding area at the same time."

One of the projects Heijmans would like to work on is Rijkswaterstaat's Solar Highways project, whereby an energy-generating noise barrier is being constructed along the A50 near Uden. Heijmans is currently participating in the tender process for this project.

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