

Start of test with solar energy generating noise barriers alongside highway

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An impression of a future solar noise barrier.

Alongside the A2 highway near Den Bosch, The Netherlands, two test noise barriers are installed that generate solar energy. The aim of this practical test, that was officially launched 18 June is to assess the economic and technical feasibility of this form of energy generating noise barriers. Playing a key role in the test are the LSC panels, developed by researcher Michael Debije at TU/e.

The translucent, colored panels are a new type of energy source, developed jointly by TU/e. These 'luminescent solar concentrators'

(LSCs) receive sun light and guide it to the side of the panels. There, it lands in concentrated form on traditional solar cells. "Thanks to their many colors the LSC are visually very attractive, which makes them ideal for use in many different situations in the built environment", explains Debijs of the Department of Chemical Engineering and Chemistry, who has carried out years of research into these panels. "Further benefits are that the principle used is low cost, they can be produced in any desired, regular color, is robust, and the LSCs will even work when the sky is cloudy. That means it offers tremendous potential." Debijs published his latest research findings on this subject last March in *Nature*.

On 18 June a one-year practical test started in 's-Hertogenbosch, led by the building company Heijmans. The researchers intend to assess the feasibility of generating electricity using solar cells integrated in noise barriers or SONOBs (Solar Noise Barriers). This is the first time in the Netherlands that a practical test of this kind is being carried out at real-life size. The aim is to provide better understanding of how much electricity these semi-transparent acoustic screens can generate under different conditions. Aspects like vandal-resistance and maintenance requirements also form part of the test. Carrying out the test outdoors will allow the researchers to gain valuable data, which they would otherwise not be able to obtain under laboratory conditions.

Each of the two noise barriers used in the practical test is 5 meters wide and 4.5 meters high, and as well as the LSC panels it also contains semi-transparent panels holding classical [solar cells](#), for comparison purposes. The first research results show that 1 km of energy-generating noise barriers can produce enough electricity to supply 50 households with power.

"The Netherlands has enough noise barriers and can also provide the necessary [solar cell technology](#)", says Stijn Verkuilen, project leader at

Heijmans. "Our practical test is a simple sum, through which we're investigating the ways solar cell technology can be integrated in a robust and visually attractive way."

More information: "Renewable energy: Better luminescent solar panels in prospect" *Nature* 519, 298–299 (19 March 2015) [DOI: 10.1038/519298a](https://doi.org/10.1038/519298a)

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