

CHANGE FOR BETTER

Change for better
**An innovative
energy solution**

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edilon)(sedra has been involved in an innovative project that looks to extract solar energy from road surfacing, so how does SolaRoad work?

In 2010, a consortium with TNO, the province of North Holland, Ooms Civiel (now part of Strukton) and Imtech Traffic & Infra (now Dynniq) started developing a technology for extracting solar energy from road surfacing, called SolaRoad.

In 2013, Strukton Prefab beton contacted edilon)(sedra to enquire about the adhesion of edilon)(sedra Corkelast® VA-40 on glass and concrete. The material, known from rail applications, was being considered as an option to connect solar panels to underlying concrete that must be processed into a cycle lane. In addition to attaching the solar cell to the concrete, the Corkelast® VA-40 would also provide support for the above loads.

The panels consist of five components, including concrete, solar cells, glass and a layer of epoxy resin and glass granulate - five materials that each shrink and expand in a different way with temperature changes.

After various test versions, the first cycle lane with integrated solar panels was laid in Krommenie in 2014. This 100 m cycle lane was successful and more pilots soon followed. In 2017 for example, in Blauwestad (NL), Haaksbergen (NL) and two further locations in France.

SolaRoad is a modular package in which the solar panel is connected to the concrete using the Corkelast®. As a result, the panel is supported evenly

and can absorb the (heavier) loads from, for example, cyclists, mopeds or emergency service vehicles, and deformations due to expansion caused by heat and cold. In addition, the insensitivity to weather influences and de-icing salts also plays a role.

The cycle lane can supply the generated energy for homes, businesses, street lighting, bus shelters or charging points for e-bikes. A 40 m² SolaRoad panel supplies approximately 4000 kWh per year, which is now more than enough to supply an average household with electricity for a year.

By 2019, the tests were extended to heavy-traffic motorways (N-roads) in North and South Holland. Based on the results of these tests, a new pilot was started in 2020, with an improved version of SolaRoad on the Chemelot Campus in Geleen.

Today, SolaRoad has grown into a fully-fledged partner in solar systems and there are several 'SolaRoads' in the Netherlands. In 2021, for example, the world's longest solar cycle lane was completed in Maartensdijk in Utrecht. Concrete panels with incorporated solar cells span a length of 330 metres. Every day, hundreds of people use a cycle lane that generates sufficient electricity for 45 households on an annual basis.

This energy solution is now being used more widely, for example, for courtyard gardens, bus shelters, train or tram platforms and as such, it contributes to CO₂ reductions and a sustainable energy transition.

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