"The innogy Green Fuel Project"

linking the electricity and mobility sectors by power to methanol technology

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Abstract

In the "greenfuel" project innogy's Research & Development demonstrates the entire value chain of a methanol-based renewable liquid fuel for the first time. Methanol is a promising fuel-option to meet the long-term CO2 reduction targets in long-distance traffic (with cars, aircraft, ships, trucks), which is very difficult to decarbonize, and offers further highly attractive applications, for example when it comes to distributed energy solutions.

This value chain will be demonstrated on a small scale as part of Essen's role as European Green Capital 2017. The green methanol is produced directly at Lake Baldeney using an innovative, electrobiocatalytic process. Producing the fuels only requires CO2 directly filtered from the air, and renewable electricity produced in innogy's neighbouring hydroelectric plant.

It is planned to test the methanol in two different transport systems. Starting in the summer, a methanol-powered passenger vessel, MS innogy, will cruise on Lake Baldeney. It is to be equipped with a fuel cell producing electricity from methanol fed into a battery-buffered electric motor.

What is more, two Nissan e-NV200 electric cars are being equipped with a methanol fuel cell as range extender. The project is designed not only to explore the application in long-distance traffic starting in the summer, but also to hook this up to a house. The main advantage is that by this the car becomes part of the home's energy supply. In the event that the building's photovoltaics and the battery storage do not provide enough power to the house, the car can simply take over the supply.

By realising the entire value chain of methanol in Essen we are not only making an important contribution to 2017 Green Capital of Europe event in Essen, but will also generate a lot of valuable know-how to build up a promising new business model for the energy industry.