Microgrid benefits windhoek

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On 31 October 2024, the closing event of the “Hydrogen Tryout Areal” (HyTrA) project took place in Cape Town, South Africa. The aim of the project is to establish the use of hydrogen technology for decentralised power supply in South Africa. HyTrA is funded by the German Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection (BMUV - Bundesministerium f?r Umwelt, Naturschutz, nukleare Sicherheit und Verbraucherschutz) through the Export Initiative Environmental Protection (EXI) programme.

At the heart of the project is a microgrid for generating green hydrogen at a commercial site belonging to the South African company AluCab. This robust and cost-efficient microgrid, which has been specially developed for the African market, combines an electrolyser for hydrogen production with fuel cells for reconversion. The electricity required for hydrogen production is generated directly on site using a photovoltaic system that converts solar energy into electricity. This has created a self-sufficient energy supply system on the site that has been successfully tested under the operational conditions prevailing at the location and the climatic conditions in South Africa.

Hand in hand: Project cooperates with South African partner organisations

In cooperation with the local partner AluCab and the University of Stellenbosch, the project consortium, consisting of Fraunhofer IWU and Texulting GmbH, already put the microgrid into operation in July 2023 and has been testing it ever since. It will remain in operation even after the project has ended, as the project partners have agreed to use the system sustainably beyond the project period.

Nilg?n Parker, Head of the Sustainable Financial Policy, Environment and Foreign Trade Promotion Division at the BMUV: "The EXI project "HyTrA" is a prime example of how innovative technologies from Germany for the production and use of green hydrogen can also contribute directly to a sustainable energy supply locally. The experience gained from operating the microgrid provides valuable insights that not only support further technological development in Germany, but also illustrate the environmental potential of these energy systems. By working closely with local partners, the project implementers have shown how such a system can serve as best practice - in South Africa and far beyond."

Follow-on project in Namibia launched

The follow-on project "HygO", also funded by the EXI, is building on the project results of "HyTrA". It started simultaneously alongside the closing event with a kick-off workshop in Windhoek, Namibia, and is being carried out by the partners Fraunhofer IWU, Texulting GmbH, Krenkel Abwassertechnik GmbH and Haver & Boecker oHG. "HygO" stands for a hydrogen and oxygen biotope. The central component is the microgrid designed for "HyTrA". This is being expanded to include a further cycle for biological-mechanical water treatment. In this process, oxygen, which is produced on site as a by-product of electrolysis, is used to treat wastewater. In this way, the project combines sustainable energy supply with further environmental benefits.

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