Renewable hydrogen feed into the gas network

Source:

OÖ. Ferngas AG

Section:

Renewable hydrogen feed into the gas network

Company:
OÖ- Ferngas AG
Fronius International GmbH

Location: Haid/Ansfelden, Austria

Description:

For the first time in a research facility, hydrogen generated from solar energy was fed into the natural gas pipeline network and thus renewable energy was made transportable and storable.

Specifically, the research facility in Haid allows the excess of solar current produced by a photovoltaic system to be stored in the form of hydrogen. By means of electrolysis, the solar energy is converted into hydrogen and finally fed into the natural gas pipeline network. This means that renewable energy is available for a wide range of segments (heat, transport, electricity production in gas and steam power plants, etc.) via the nationwide network.

Via a specially installed photovoltaic system with an output of 10.3 kWp and a panel area of approx. 67.2 m², direct current is produced from sunlight and is subsequently used for electrolysis. The water consumption during the electrolysis is about 1 liter per hour. The water is supplied by a water tank in the research facility, the water being treated by a mixed bed desalination.

The hydrogen generated by the electrolysis (about 1.2 Nm^3 per hour) reaches the natural gas pressure control system via a hydrogen line and is fed into the natural gas flow to supply the municipality of Haid / Ansfelden. A mixer at the feed point ensures that hydrogen and natural gas mix evenly. Safe operation of the hydrogen feed is ensured by a pressure control device and a safety relief valve. The entire system is controlled and monitored via a remote control system.

The solar power generated by the photovoltaic system is used for the operation of the adjacent natural gas reduction station as well as the entire OÖ. Ferngas Service-Center Haid uses and supplies the electrolyzer for hydrogen generation with the necessary current. In addition, waste heat is generated during the electrolysis process, which in turn is used in the adjacent natural gas reduction station (natural gas preheating).

This project is a company co-operation of OÖ. Ferngasnetz GmbH and Fronius International GmbH. The total investment sum amounts to approx. 380.000, - Euro.

Further information LINKJ.

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