

## Hydrogen Mini Grid System

The Hydrogen Mini Grid System (HMGS) illustrates how the expertise of TNEI and Future Transport Systems can fit together to develop integrated low carbon solutions.



The Hydrogen Mini Grid System, HMGS, is a unique development which has been designed, constructed and project managed by TNEI with project partner, the Pure Energy Centre on behalf of regional development agency, Yorkshire Forward.

The project showcases the potential for hydrogen as a reliable and sustainable energy source for both buildings and transport applications.

It is estimated that the Hydrogen mini-grid system will generate around 500 MWh of electrical energy per annum from the onsite VESTAS wind turbine. This electrical energy will be used to provide power to the building and displace the use of electricity supplied by the local network operator, potentially saving over 130 tonnes of CO<sub>2</sub> every year.

Excess electricity generated during periods of low demand will be used to produce hydrogen using a state-of-the-art high pressure alkaline electrolyser. Once generated, the hydrogen from the electrolyser will be compressed from 30 bar to 420 bar for storage.

Once the storage capacity is full any further excess electricity generated will be fed back to the national grid as “green” electricity.

The inclusion of a hydrogen refueller and grid-tied fuel cell allows the hydrogen generated to be used for a variety of applications from fuelling local delivery vans to supplying electricity to the national grid on demand.

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