

World's first green energy storage demonstrator

June 27 2018, by Melissa Warren

The world's first green energy storage demonstrator is now live in the UK and has brought carbon-free fuel, that can be stored or transported for later use, a step closer.

The demonstrator [project](#) offers a way to decouple the supply of [electricity](#) (governed by fluctuating renewables) from the demand (driven by consumer dynamics) and is using [renewable electricity](#) to obtain hydrogen from water via electrolysis, nitrogen via air separation, and to power the Haber-Bosch process to make ammonia. Ammonia produced in this way can be a completely carbon-free and practical bulk [energy](#) source.

The project is a collaborative effort between Siemens, the Science and Technology Facilities Council (STFC), Oxford University and the University of Cardiff. STFC is hosting the demonstration project on their Energy Research Unit's Test Site at RAL in Oxfordshire.

Dr. Jim Halliday, Head of STFC's Energy Research Unit (ERU) said "We have been very pleased to work with Siemens, Oxford University and the University of Cardiff to create this unique facility which will allow the feasibility of using surplus renewable energy to create "green [ammonia](#)" to be demonstrated for the first time. The facility will allow the technical aspects of this exciting new energy breakthrough to be thoroughly evaluated and optimised."

The fluctuating renewable electricity needed for the project is being

generated by ERU's new 12kW wind turbine. ERU have also created a special area for the project infrastructure – each of the parts of the system has been delivered in "shipping containers" and these have then been integrated by Siemens technical staff.

On-site energy storage is becoming increasingly attractive, as there are times when the UK electricity grid is unable to accept all the wind power being generated across the nation which means either the wind turbines are turned off or the electricity is used on site or is stored.

Ian Wilkinson, Programme Manager, Siemens Corporate Technologies, said: "Carbon-free chemical energy storage – including Green Ammonia – has the potential to work alongside other storage methods such as batteries, and help increase the penetration of renewable power into our energy systems.

"This demonstrator, and the work we've done with colleagues from academia, is showing that Green Ammonia is a viable option and can help reduce carbon emissions from existing industrial processes as well as provide a means for transporting and storing renewable energy in bulk."

Provided by UK Energy Research Centre (UKERC)

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