After years of innovation, offshore wind turbines are becoming more efficient and cost-effective. Statoil plans to take the industry in a completely new direction: floating wind farms. Unlike conventional wind turbines which are rooted to the seabed, the Hywind wind farm that is being piloted off the Scottish coast, is a wind turbine placed on top of a ballasted steel cylinder. The 30 MW pilot will consist of five 6 MW floating turbines operating in waters exceeding 100m of depth. The project is expected to produce power in 2017 and will transmit electricity through a 30 KM export cable.

This innovation does not stop at floating wind farms. Statoil and its partners are exploring the concept of a battery and converter onshore that will become an integrated part of the Hywind project. The 1 MWh storage capacity battery could hold excess electricity for sale when capacity is free. It will also reduce balancing costs by introducing its own regulation of power supply. This lays the groundwork for future projects which have the potential to store additional batteries within the structure of the offshore turbines.

The onshore facility for Batwind would be located in Peterhead in Aberdeenshire, Scotland, where the electricity is then exported into the wider grid network. Battery storage has the potential to mitigate intermittency and optimise output which is beneficial to the grid. This can improve efficiency and lower costs for offshore wind when it comes to exporting power. Linking up batteries with offshore wind highlights how innovation is overcoming traditional obstacles associated with intermittency in wind that has presented challenges for the technology.

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UK households depend on electricity from sources as diverse as natural gas and offshore wind to biomass and solar. The way we generate and consume our electricity is changing too. Of electricity generated in the second quarter of 2016, gas accounted for 45%, whilst coal accounted for a record low of only 6%. This is good news for emissions and also means we maintain a stable supply of baseload electricity. On top of this, technologies such as Hywind and Batwind have the potential to provide clean sources of electricity generation that further contribute to our efforts to reduce emissions, all whilst powering Britain’s homes and industries.