

The concept of “energy islands” - optimizing offshore wind transmission

Offshore substations are an essential component of offshore wind farms as they collect power from wind turbine generators, stabilize and maximize the voltage of power generated, reduce potential losses and transmit electricity to shore.

So far each wind farm has been established with its own dedicated transformer platform(s). However wind farms are gradually placed in closer proximity, and the costs of offshore substations are expected to rise. Since it is unlikely that new wind farms (turbines and cables) could be “tied-in” to already existing substations, the question is whether new wind farms may benefit from a central hub such as an “energy island”.

The concept of an "energy island" covers a physical island or platform that acts as a hub for electricity generation from surrounding offshore wind farms that are connected and distributed between North Sea countries. Other electrical equipment such as storage facilities, electrolysis systems or other electrical conversion technologies can also be connected in the concept.

The Danish government has now taken the very first baby steps to investigate the feasibility of such an energy island. The early project will include a screening of possible locations in Kattegat, the Baltic Sea and the North Sea and will also consider how future major wind farms could be a part of such a project. It appears obvious that the Danish transmission system owner, Energinet, will be a key player in the considerations regarding a future energy island. It is also clear that a number of regulatory and financial issues are still unresolved, not least on a cross-boundary level.

However, in principle the energy island can contribute to more efficient utilization of offshore wind far from the coast and thus create room for significantly more offshore wind in the Danish and European energy system. In addition, it can contribute to relatively reduced investments in transmission cables and grid reinforcements on land.

DKK 65 million have now been allocated on the Danish Finance Act for 2020 for the project. Funds are allocated both to preliminary studies of the energy island itself and to the development of technologies to store and convert the large amounts of electricity an energy island will produce. It must help to realize the potential of the energy island.

----- 00 -----

For questions or comments to this newsletter or energy and offshore in general, please contact Bo Sandroos on +45 4088 5422 or bos@wsco.dk.

The information in this newsletter is for information only and cannot replace legal advice.

WSCO is a leading law firm with a special focus on energy and offshore, transportation and shipping, global trade, insurance and dispute resolution. www.wsco.dk.