

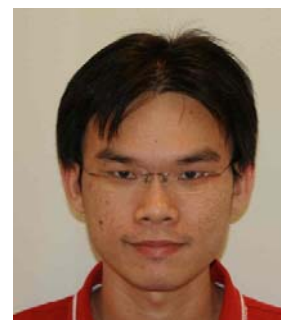
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Topic: Development of Market Models incorporating Offshore Wind Farms and Offshore Grids

In recent years, the development of offshore wind farms has become increasingly interesting. For instance, the Offshore Center Denmark (www.offshorecenter.dk) has mentioned in their On/Off Yearbook (2012) that Denmark will soon achieve 1GW of power production from offshore wind farm in autumn 2012, as the result of power delivery from the Anholt offshore wind farm. This is a remarkable milestone after Her development of the world's first offshore wind farm that delivers power to the public grid around 20 years ago.

Meanwhile, the development of the infrastructural supports and electricity market models that facilitate the trading of this renewable energy source in the existing marketplace remain as an open and active topic of research. As for this work, the primary scope is on the establishment of a robust economic model (viewed from the power system engineering perspective) that connects the electricity production from the offshore wind farms and offshore grids to the liberalized market.

The research involves the following tasks: i.) creation of an analytical model for offshore wind power grids which will be used to support technical reasoning related to the development of market model, ii.) development of a power flow model for offshore grid, which connects the offshore wind energy sources, the local power demand (load profile), and the market model, and iii.) development of market model for offshore wind farms and offshore grids that includes the following topics: economic dispatch, electricity pricing, coupling between market models (day-ahead, intra-day and balancing), and interactions between players within the de-regulated market structure.

The major focus of this work will be to gain insight and develop strategies for large-scale integration of intermittent generation in the European Power Market.