# Concerns grow over wake losses at Dudgeon Offshore Wind Farm



The Dudgeon Offshore Wind Farm, which features 67 turbines situated 32 kilometres off the coast of Norfolk, has become embroiled in a significant controversy regarding the impact of neighbouring offshore wind projects on its revenue stability. Equipped with a generating capacity of 402 megawatts, the Dudgeon facility began operations in 2017 and is capable of supplying electricity to approximately 430,000 homes.

Equinor, the Norwegian state-owned energy company and Dudgeon’s largest shareholder, has raised concerns about the Outer Dowsing Offshore Wind project, which is proposed by a consortium of Corio Generation, TotalEnergies, and Gulf Energy Development. This upcoming project, boasting a capacity of 1.5 gigawatts and located more than 13 km distant from Dudgeon, is expected to potentially diminish Dudgeon's earnings by an estimated £66 million to £206 million over its operational lifetime. In a submission to inspectors, Equinor highlighted the financial ramifications of potential "wake losses" due to the Outer Dowsing development.

Wake losses occur when wind speeds are reduced for turbines located downwind of existing projects, creating a source of contention in an industry that is sought after for its renewable energy contributions. These losses have become an increasing concern among wind farm operators, as many express apprehensions regarding the viability of their existing and future projects due to the complex interplays of wind flows. The crowded seabed in the UK, which is home to the largest offshore wind market in Europe, contributes to these complications. The UK government aims to significantly expand its offshore wind capacity, targeting an increase from about 15 gigawatts to between 43 and 50 gigawatts by the year 2030, as a key element in its strategy to decarbonise its electricity supply.

A report by consultancy Aegir Insights indicated that wake losses might have been “massively underestimated,” suggesting potential production deficits of between 15 and 30 per cent in extreme cases. Equinor remarked to the Financial Times, "These effects are too often underestimated," drawing attention to the financial implications of wake effects in high-density offshore wind areas.

As the issue unfolds, various industry experts have expressed caution. Nicola Crawford-Percival, who oversees regulatory affairs for the UK and Ireland at German power utility RWE, warned that efforts to modify wind farm designs to alleviate wake issues could result in reduced overall electricity output. "Modelling to date has shown that attempting to mitigate the wake effect across two or more wind farms… always results in a net negative impact on the collective output of those wind farms," she highlighted.

The complexities of wake effects have been acknowledged for several years, including warnings from Ørsted, the world's largest offshore wind developer, regarding the adverse impact of turbine spacing leading to reduced electrical output. Ørsted now expresses concerns about the influence of new projects on their facilities in the Irish Sea, recognising that wake effects could extend as far as 100 km from the source.

Scott Urquhart, Aegir Insights’ CEO, noted the pressing nature of financial sustainability in offshore wind, remarking that even a marginal percentage reduction in power output could translate to significant losses for developers. “If you lose 1 per cent of your production, it’s a massive part of your business case,” he stated, with a loss of 5 per cent having the potential to create a "financial disaster."

In response to the growing complexities surrounding offshore wind development, regulatory bodies in Germany have adjusted their capacity targets to ensure adequate spacing between facilities, a strategy to mitigate the likelihood of wake effects. This approach is mirrored in the UK, where recent licensing rounds have implemented buffer zones ranging from 5 km to 7.5 km to limit interference between projects.

Industry discussions continue to evolve, with discussions around learning from practices in the oil and gas sectors highlighted as a potential pathway for addressing these challenges. Meanwhile, the UK government is currently assessing expert opinions to navigate and address the implications of wake effects in the wind industry.

As the situation develops, there remains a recognition among industry insiders that cooperative solutions may be on the horizon. The Department for Energy Security and Net Zero has stated that it is committed to expediting offshore wind deployment in the UK, aiming to meet its ambitious targets for clean energy production. As experts seek a return to discussions about long-term solutions, the broader implication of wake effects on future offshore projects remains a significant point of contention.

Source: [Noah Wire Services](https://www.noahwire.com)

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