

MULBARTON PARISH COUNCIL

East Anglia One North and East Anglia Two

21st May 2021

Introduction

Mulbarton Parish Council is an interested party for several offshore wind farm projects, and is also a participant in the government's Offshore Transmission Network Review.

This paper shows how the Round 3 offshore wind farm projects are closely related, and highlights some of the benefits of integrated offshore transmission. It also outlines some of the implications if the integrated approach is not used for East Anglia One North and Two.

The Examining Authority is asked to accept this representation at its discretion.

Key points

Several studies over the last ten years, such as National Grid's IOTP (East) feasibility study of 2015, and its OTNR Phase 1 report of September 2020, have shown that offshore transmission leads to very large cost savings for consumers, and potentially much reduced levels of renewable energy curtailment. This is a benefit for climate change mitigation.

The IOTP (East) report and its three appendices are widely available. It was submitted by the applicant and accepted as relevant for the DCO examinations for Norfolk Vanguard and Norfolk Boreas. The East Coast Pathfinder scheme shown in Figure 1 was submitted to the Offshore Transmission Network Review in December 2020 and is being reviewed.

Two alternative schemes of integrated offshore transmission are now being proposed by Equinor for the Dudgeon and Sheringham Shoal extension projects. Whilst these are smaller scale Round 2 extensions, the technical and regulatory principles are very similar. The two projects, with different legal ownership structures, will use one of the following:

(a) Two grid connections, two offshore substations, and an offshore HVAC transmission link between the two projects (i.e. a ring or loop configuration). This increases the reliability of power transmission and may reduce the scale and impact of onshore infrastructure.

(b) One grid connection, and one offshore substation, shared between the two projects on a commercial basis (i.e. a spine configuration). This may reduce offshore impacts and project costs, but may not improve onshore impacts or power transmission reliability.

In the absence of integrated transmission, the fragmented approach shown in Figure 2 applies. This appears to introduce higher costs, larger onshore transmission infrastructure, less efficient energy transfer, and much reduced out-of-region transmission capacity.

Conclusion

In view of the conclusions from a variety of studies over the last ten years, it is no longer realistic to propose multiple, separated point-to-point connections for offshore wind farm projects. The point-to-point approach has been shown to lead to unnecessarily high costs for final consumers and, due to higher levels of curtailment, is likely to be less effective for climate change mitigation. It is difficult to see how a compelling public interest, sufficient to offset the negative impacts of the projects, can be shown to exist on such a basis.

Mulbarton Parish Council therefore objects to the onshore elements of the two projects.

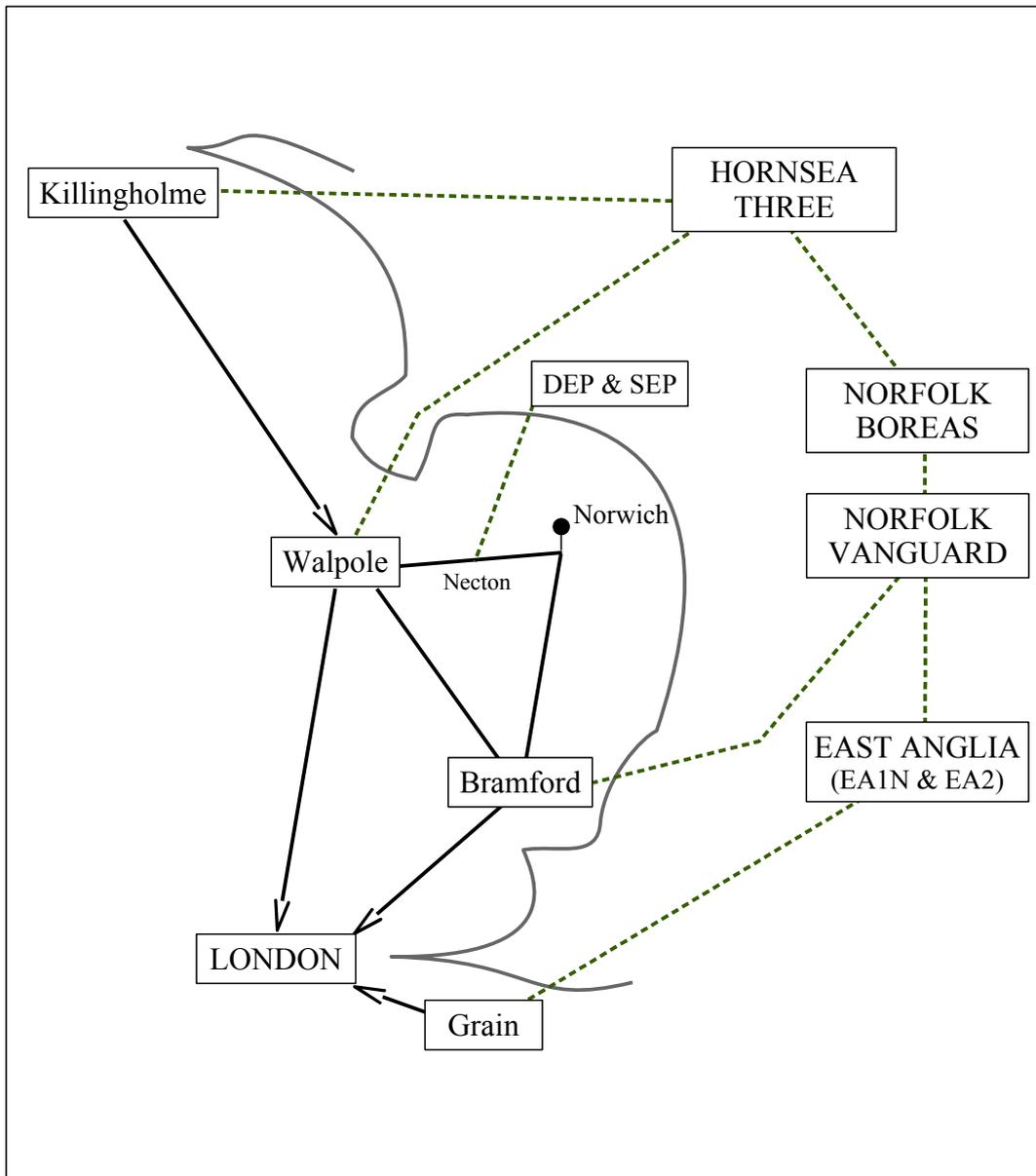


Figure 1: East Coast Pathfinder

Notes:

Each offshore project is initially connected with a radial link, thus reducing risk and speeding up delivery. Additional offshore transmission links are added between project zones, and the Bramford to Twinstead Tee capacity upgrade towards London is brought forward for an immediate start.

Hornsea Three is restored to its original connection at Walpole; Norfolk Vanguard and Boreas are connected at Bramford; and East Anglia One North and Two (EA1N & EA2) are connected at Isle of Grain. Offshore transmission links provide significant additional north-to-south capacity and alternative pathways in the event of export cable failure or interruption for maintenance. The scale of onshore infrastructure is reduced by up to 20% and environmental impacts are minimised.

The Round 4 East Coast offshore wind leases are readily accommodated by increasing the size of the offshore transmission links between the Dogger Bank, Hornsea, and East Anglia zones.

This design approach ensures that as much renewable energy as possible reaches the main centres of demand in London and the south east. It speeds up progress towards the UK's binding climate change mitigation targets, and minimises costs for final consumers.

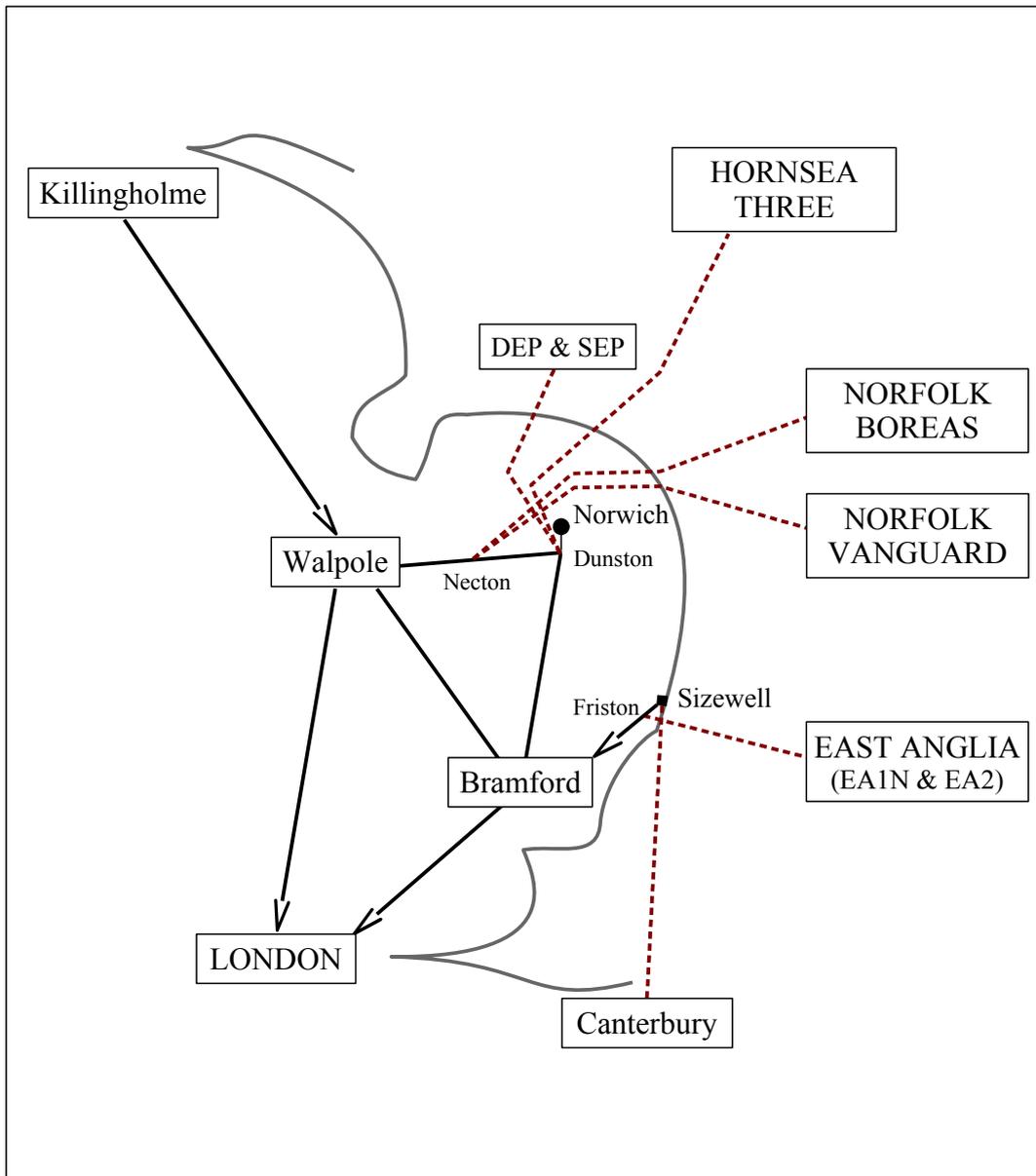


Figure 2: Point-to-point links

Notes:

After the publication of National Grid’s IOTP (East) feasibility study in 2015, the grid connection agreements were modified to introduce a large number of separate point-to-point links:

- The Hornsea Three grid connection agreement was moved from Walpole to Dunston;
- The Norfolk Vanguard and Boreas projects were moved from Bacton and Lowestoft to Necton;
- The Dudgeon and Sheringham Shoal extension projects (DEP & SEP) were diverted to Dunston.

The grid connections for East Anglia One and Three were left at Bramford, but the agreements for East Anglia One North and East Anglia Two (EA1N & 2) appear to have then been moved from Bramford to Friston. A new 2.0GW offshore transmission link has been proposed between Sizewell and Canterbury North to increase out-of-region transmission capacity towards London.

This approach has been shown to be significantly more costly, with potential for consenting and construction delays, and less efficient transfer of renewable energy to the main centres of demand. It would tend to delay progress towards the UK’s binding climate change mitigation targets.