

From: [NectonSubstationAction Messenger](#)
To: [Norfolk Boreas](#)
Subject: Boreas Final Deadline
Date: 02 October 2020 14:58:11

Dear ExA

We would like to take this opportunity to reiterate those of our concerns which have not been adequately addressed. We rely with some confidence on the ExA for Boreas to give robust attention to the following inadequately or incompletely addressed (by the applicant) issues in their recommendations to the SoS.

1. Cumulative effects must not be underestimated. The Vanguard team rightly said that cumulative effects must be considered in the Boreas examination. We agree with this, however, we also believe that Vanguard creates cumulative effects with the existing Dudgeon infrastructure, and that Boreas must therefore consider (as the third part of the puzzle), the cumulative effects of Boreas with both Dudgeon and Vanguard. The addition of Boreas to the already beleaguered countryside in the Necton area is unthinkable for those of us that live here. The addition of Boreas to the offshore area and the cable corridor are also unthinkable. By the time Boreas (if approved) is added to Dudgeon and Vanguard the harm will irreparable. We note that the Prime Minister has recently stated that protecting the British countryside is to become a priority, yet we see no sign of that protection here in Norfolk. Wind farms are all very well but it beggars belief that at least 4 more massive infrastructure blights must be accepted before the very sensible and very necessary steps are taken to bring in a new strategy. We at Necton are very proud that we seem to have moved this matter along for the sake of rural Norfolk, but it would be a cruel twist of fate indeed, if this area was to miss out on the benefits of this new strategy.
2. Mitigation Why is it that we are constantly fobbed off with the promise of saplings when it's perfectly obvious to everyone that infrastructure of this magnitude requires joined up thinking and mature minds to come up with very robust mitigation indeed? This should include the substations being sunk into the ground (such as promised to us way back in 2016 by the Vanguard Project Manager and his minions) high earth banks, such as are seen on the Northern Distributor Road, mature trees on top of these banks. Instead we are promised a few low earth banks (max 2 metres) and saplings that after 30 years will together reach perhaps 3/4 of the way up the convertor halls. A lot of retired folk in Necton and Ivy Todd will be dead by then.
3. Fire & Toxic Smoke Dangers On top of the hideous visuals of this project (including a new pylon, which will not even be one of the new T design ones) we are expected to live with the danger of life-threatening fire and smoke hanging over the rest of our lives. Vattenfall have shown not an ounce of duty of care over our concerns about this.

4. **Alternative connections** There is a danger that these massive projects (including Orsted and Vanguard) might become obsolete by 2030. If the National Grid follows the proposals to have options available for projects coming on line from 2025, they could have some very large wind farms connected in the outdated way, and others coming online with the new strategy, and this will surely involve great complications with the security of supply.
5. **Fitting in with the landscape** The applicant has stated that they can't use high earth banks as mitigation, as have been requested, because they would not fit in with the surrounding landscape. This is nonsense, since this part of Norfolk is undulating in nature, and many high earth banks have been used to hide the Northern Distributor Road in the close area because they DO fit in with the natural landscape. In addition to this it seems the applicant is perfectly happy to raise ground levels when it suits them. a) to level the substation site to the high point instead of the low point, and b) to raise the ground level for National Grid substation extensions.
6. **Wildlife** The applicant admits to being unaware that Red Kites nest in the general area of Necton/Ivy Todd, and that in fact many pairs can be observed in the immediate area of the substation sites. There are also several species of rare bats in the area which the applicant has acknowledged. Installing one massive industrial site in such an area is bad enough - two would be unconscionable.
7. **Enhancement of Areas** It appears that most local authorities expect the applicant to leave their areas enhanced by their presence. We in Breckland have never been told of any enhancements whatsoever that will be done with local river/stream crossings/mature hedge removal/fire risk/terrorist risk/flood risk/road disruption/wildlife disruption/disruption of lives and way of lives/loss of landscapes, or in fact with any aspect at all regarding the substations area which might in any way be construed as 'enhancement'. We seem to be expected to just accept worse case scenarios.
8. **Traffic** There have already been complaints from residents regarding the applicants' traffic arriving for surveys etc with them taking incorrect routes, turning round in inconvenient and improper places, and this is before developments have even started. With Dudgeon we had in excess of FIFTY road signs within a quarter of a mile stretch of the A47 and at the entrance to Necton village and to the site, and still traffic was a real nuisance, and disrupted local businesses and residents both within Necton and surrounding areas. We have no expectation that this applicant will do any better as they seem to have not one ounce of concern for residents.

We implore the ExA to use these points to give the SoS robust reasons to reject the Boreas project.

NSAG

From: [NectonSubstationAction Messenger](#)
To: [Norfolk Boreas](#)
Subject: Important Considerations in Decision Making
Date: 03 October 2020 11:13:02

Dear ExA

We respectfully draw your attention to the following information, which is all in the public domain, as it could impact greatly on whether or not you and the SoS are mindful to refuse permission for projects currently under consideration, including Norfolk Boreas.

<https://www.nationalgrid.com/national-grid-and-tennet-jointly-develop-vision-link-offshore-wind-farms-britain-and-netherlands>

<https://www.nationalgrideso.com/document/177296/download>

<https://briefingsforbritain.co.uk/the-costs-offshore-wind-power-blindness-and-insight/>

Gordon Hughes is Professor of Economics at the University of Edinburgh

Dr John Constable is Director of the Renewable Energy Foundation

In summary, analysis of the data reveals unequivocal findings:

1. **The actual costs of onshore and offshore wind generation have not fallen significantly over the last two decades and there is little prospect that they will fall in the next five or even ten years.**
2. While some of the components which feed into the calculation of costs have fallen, the overall costs have not. For example, the weighted return for investors and lenders has declined sharply, especially for offshore wind, because of a fall in *perceived* In addition, the average output per MW of new capacity may have increased, particularly for offshore turbines. However, these gains have been offset by higher operating and maintenance costs (O&M).
3. **Far from falling, the actual capital costs per MW of capacity to build new wind farms *increased* substantially from 2002 to about 2015 and have, at best, remained constant since then.** Reports of the costs of building new offshore wind farms in the early 2020s imply that their costs may fall by 2025, but such reports are consistently unreliable as well as being incomplete. Final costs tend to be significantly higher, so little weight can be attached to forecasts of future costs.
4. **Far from falling, the operating costs per MW of new capacity have increased significantly for both onshore and offshore wind farms over the last two decades.** In addition, operating costs for existing wind farms tend to grow even more rapidly as they age. The increase for new capacity seems to be due to the shift to sites that are more remote or difficult to service. Much of the increase with age is due to the frequency of equipment failures and the need for preventative maintenance, both of which are strongly associated with the adoption of new generations of larger turbines – both onshore and offshore.
5. Turbine manufacturers and wind operators appear to be relying on an increase in load factors (a measure of the generator's energy productivity) via (i) an increase in hub heights to take advantage of higher wind speeds, and (ii) changes in the engineering balance between blade area and generator capacity.

However, the inferior reliability of new turbine generations leads to a more rapid decline in performance with age, so that the ultimate effect on average performance over the lifetime of new turbines is not clear.

6. **The combination of increasing operating and maintenance costs with the decline in yields due to ageing means that at current market prices the expected revenues from electricity generation will be less than expected operating costs after the expiry of contracts guaranteeing above-market prices.** The length of these contracts has been reduced, implying a need to recover capital costs over a shorter economic life which pushes up the effective capital charge.

There is an important corollary to these findings. The current set of offshore projects being constructed and planned in North Western Europe are closely akin to speculative property development. They are high risk projects that will only be able to repay lenders and offer a return to equity investors if the average wholesale market prices of power rise to at least three to four times their current level throughout North West Europe. Such a price surge would require either a large and permanent increase in the market price of gas, which experience suggests is very unlikely, or carbon taxation at 8 to 10 times current levels, rising to at least €200 per tonne of carbon dioxide at 2018 prices in 2030. Such a tax would place a heavy burden on the rest of the economy

This has consequences for financial regulation. To discharge their responsibilities financial regulators ought to impose a heavy risk weighting on loans to offshore wind farm operators, while also advising that green equity investments are too risky for pension funds and small investors. Instead, the chiefs of the European Central Bank (ECB), the Bank of England and other regulators have urged more investment in green assets without acknowledging the risks involved.

This leads to the prospect of what is not so much a car crash as a motorway pile up in the fog of ignorance. The looming crisis will require that those who finance wind power and its related ecosystem of companies are bailed out by either taxpayers or electricity consumers. The scale of the bailout would be large: about £30 billion is at risk in the UK wind sector alone, with significantly more in Germany, the Netherlands and Denmark.

BEIS.....

if BEIS had examined a financial model for any of the offshore wind CfD projects in Allocation Round 2 (AR2) or Allocation Round 3 (AR3), they would have discovered that every project would be a financial disaster on the cost of capital assumptions made in the Europe Economics analysis. It would be impossible for Hornsea 2, Moray East or Triton Knoll – all AR2 projects which we have examined in detail – even to cover debt service costs on the BEIS assumptions, let alone produce a reasonable return on equity, if their CfD strike prices are taken at face value. The cost of capital for each project would have to be close to zero simply to cover the announced levels of debt that have been incurred for each project, and even that may not be possible.....

- **The offshore wind sector is dominated by large companies, often state-controlled, that can deploy large cash flows from existing generation and/or network businesses and are under little pressure to cut costs for their customers or, if state entities, to return cash to their shareholders.** Three Scandinavian state-controlled companies – Equinor (formerly Statoil), Ørsted and Vattenfall – are responsible for more than half the

current UK offshore wind fleet and have ambitious plans for new projects.

- **Operators expect to be able to sell on a large portion of the shares in their projects to over-optimistic investors with little appreciation of the risks involved.** In addition, projects rely heavily on debt provided by equally naïve lenders.
- **Operators and financial investors are aware of the risk but expect to be bailed out.**

Once economic reality becomes undeniable, there will be a huge lobby to pass on the full costs of offshore wind to either electricity consumers or taxpayers. The obvious instrument is carbon taxation, but the increase required would be very large, and the economic harm would be politically contentious to say the least. Vast bailouts to an industry that has misrepresented its economics, whether knowingly or not, will be extremely unpopular. A government trapped between intense political opposition and the ever-widening ramifications of the financial collapse of the offshore wind sector will behave in ways that cannot be predicted confidently, but investors in renewables should be very nervous.

Regards
NSAG