

**From:** [REDACTED]  
**To:** [Norfolk Boreas](#)  
**Subject:** Norfolk Boreas Project EN10087. Comments on the Applicant's Comments on Deadline 10 Submissions Plus  
**Date:** 27 July 2020 17:59:00

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Dear Planning Inspectorate,

The applicant's comments on my continued concerns over the accuracy of their visualisations in my deadline 10 submission in part refers to their comments and documents, which unsurprisingly are no more revealing now, than they were when they were issued.

Apart for one comment from their comments on Relevant Representations, page 153, Table 24, No4, which explains:

***" A 3D model of the onshore substation has been used to give an indication of what the substation will look like and a blue dotted box represents the Rochdale envelope, within which the substation elements can move. By showing the blue Rochdale envelope alone, we may overestimate the extents to which the development could be visible. By showing just the substation model alone, we may underestimate visibility. Hence, the use of both techniques in the visualisations."***

This I find misleading: 1. The blue dotted lines look like an indication of the extremities of the site footprint, not the maximum possible size of the infrastructure.  
2. The images of the converter halls may be an underestimation.  
3. The images of the converter halls are an underestimation, as on close inspection the front facade of the halls are set on the back boundary line, meaning the halls are being shown how they would look, built off site, behind the furthest boundary.

This is disappointing when the applicant has explained that they position the halls in the visualisations with great care and attention using landmarks, (but not as far as we know, using vectors and vertices from OS Terrain 5 DTM) and results in a degree of inaccuracy, on its own, making the visualisations less than reliable and useful to gauge the required mitigation.

The applicant states ***" However, any inaccuracies that do occur in Terrain 5 DTM will not affect the height of the substation as shown in the models or the photo montages."***

I agree, the height of the substation is determined by the careful discretion of the applicant and not from data provided by Terrain 5 DTM.

The applicant also suggests that the 2D diagrams do not represent the effect of perspective and the photo montages do. Perspective, distance, visual angle, field of view, depth of field etc. cannot alter how much of the halls are hidden behind landforms or mitigating trees. A scale 2D diagram including all factors eg. ground level and contours, distances, mitigation and the object in question, with a straight line of view, demonstrates how much of the halls would be in view very well.

Perspective is then how this amount of visible hall fits in with the surrounding features, visible to the average human field of view, at the distance of the viewpoint. I notice that the applicant used a 50mm focal length lens on a full frame camera, to produce their baseline photographs, as this combination is recognised to produce something like a human field of view.

Regarding the noise limit of the operational substation, I still cannot understand how Vanguard/ Boreas have the same noise limit as Dudgeon, with its higher background noise, or how only 2.14 monitoring points results, out of the intended 12 can be considered satisfactory. It seems the results were pretty much ignored, in favor of choosing Dudgeon's limit in any case.

I would suggest there is a further oversight which much of the applicants extensive calculations and documents are based on, and that is no allowances or adjustment are made regarding the existing nature of an area. This is apparent in the Receptor Sensitivity

Classification, where residential classification carries a medium rating, whether the residence is next to a main road, in a busy village, town, commercial, industrial area, or in a quiet hamlet. The existing environment is mentioned and considered in the ES. chapter 25, with no explanation or evidence of how these considerations have any bearing on the noise limit set.

The culmination of all this work, based on limited monitoring results, is to copy Dudgeon's limit, which is totally unsuitable.

I consider the substation project as it stands, with the degree of mitigation, more suited to an already industrial area. The Dudgeon substation does not turn Necton and the surrounding area into an industrial environment, rather a rural area already playing its part in renewable energy. The presence of Dudgeon, does not make Necton any less sensitive to the proposed projects, or their presence any less impactful. The total opposite is true, we can see the limitations of planted mitigation, we can gauge how poorly a total development 6.4 times larger than the existing one will fit in. This is borne out by the comment made by the Vanguard ExA that:

***"4.5.50. The substation extension: The existing substation is framed by the A47 hedgerows on its northern boundary but otherwise sits in relatively open land. The Necton National Grid substation and Dudgeon substation are prominent within the localised area and the existing large-scale building and associated infrastructure is somewhat at odds with the rural landscape. The extension would substantially increase the existing footprint and would significantly add to the impression of a large-scale energy development in this locality."***

The cumulative effect multiplies the impact, only correctable by more positive mitigation methods. The Director of Planning & Building Control, Breckland Council, on a visit to our farm could not understand how earth bunding has been ruled out, and thought it should remain an option. I feel it should have been part of the HVDC proposal. This is now even more relevant considering the Vanguard ExA did not consider cumulative effects, and deferred the considerations on to the Boreas examination. This situation would seem to suggest that Boreas would have to correct the cumulative effects on its own, resulting in an inconsistent and disjointed total construction (scenario 1).

The Environmental Audit Committee meeting on the 4 June 2020 clearly demonstrated that the Offshore wind generating capacity has grown faster than the capability of connecting this output to the grid. A method of connecting to the grid, that is efficient and acceptable to communities, is industry recognised as one of the largest problems to be resolved, before the further proposed expansion can go ahead.

In the Environmental Audit Committee meeting, Benj Sykes, Industry Chair of the Offshore Wind Industry Council, and Head of UK Market Development, Consenting and External Affairs, Orstead, said ***"I think we all recognise that this point to point regime is past its sell by date really, that offshore wind has become much more successful and therefore much more prevalent and widely deployed than anyone would have envisaged." "There is a real sense of urgency to find this new strategic solution." "We do have a transmission review program now running, and we managed to bring the electricity system operator part of National Grid and Ofgem and BEIS and CLG and others into that conversation." "We need a solution quickly." "There is a time lag, so we need to work with communities as we come through the last set of projects." "If we had started this work with the benefit of hindsight 5 years ago, great, we would now be in a very different place and particularly those in East Anglia would be happy for that."***

Rebecca Williams, head of policy and regulations, Renewable UK said ***"The barrier really is we are trying to use a regime that just isn't fit for purpose any more, it is not working for the industry, I don't think it sounds like it is working for communities right now."***

This all suggests that a new method of connecting offshore wind generation to the grid

at the new scale required to meet obligations is imminent. If Vanguard and Boreas are not included in this new regime, they will stand out in the future as examples of the largest substations built in a rural area, allowed on the premise of renewable energy, before the new connection methods were implemented. They could be looked upon as a mistake, a result of the imbalance between the offshore wind generating technology developing faster and overtaking the planned method of grid connection.

If these substations are built, bearing in mind:

1. The industry now recognises that they are the wrong way to connect this generation of offshore wind farm. (point to point)
2. The underestimation of the visual impact.
3. The underestimation of the noise impact.
4. The poor track record of Breckland Council in stipulating and providing effective visual mitigation in the much smaller Dudgeon substation project, post consent.

They need positive lowering and planted earth bunding, as Benj Sykes said "*we need to work with communities as we come through the last set of projects.*"

I notice in the Thanet Recommendation Report, it was mentioned that the LVIA was carried out with a Rochdale Envelope: "*The LVIA has been carried out with a Rochdale Envelope whose maximum design parameters are considered by the LIR to be acceptable in planning terms. As noted at para 5.4.56 above, DDC has no further concerns in this regard. The ExA notes that the technology for the substation has not yet been selected and this would have an influence on the visual impact of the substation. However in view of the character and context of the substation site and adjacent land uses (which as observed on USI 3a and 3b [EV-040] and ASI1 [EV-010]) are primarily port, commercial, industrial and energy-related, the ExA considers on the Rochdale Envelope basis, the foreseeable effects from either of the alternative technology strategies presented in the application can be accommodated at the proposed substation site without any breach of policy in relation to landscape or visual effects.*"

The use of a Rochdale Envelope at Necton with regard to the ground level of the converter halls, and whether substantial bunding is to be used in the mitigation, is inappropriate as adjacent land is rural, agricultural, not commercial, industrial, creating a situation much more sensitive to variations in landscape and visual effects. In fact the amount of variance allowed by a Rochdale Envelope and shown in the applicants visualisations, which show an image of minimal possible size and presence of the converter halls, and demonstrates a maximum possible size and presence with a dotted blue line, is again inappropriate to make a visualisation on which mitigation is planned. Notwithstanding the halls are shown behind the site's far boundary.

In general, when using a Rochdale Envelope in a rural area I feel it should be borne in mind that: Originally it arose from two cases of outline planning applications for proposed business parks in Rochdale, an already urban, industrial area.

EN-1 and EN-2 both stress the need to ensure that the significant effects of the proposed development are properly assessed, and the Rochdale Envelope Advice Notes state: "*The assessment should be based on cautious 'worst case' approach: "such an approach will then feed through into the mitigation measures envisaged [...] It is important that these should be adequate to deal with the worst case, in order to optimise the effects of the development on the environment"* (para 122 of the Judgement);"

Basing visual impacts, and mitigation effectiveness on visualisations that are underestimations, and adding dotted lines to show over estimations, is not working to the aforementioned requirements. I suggest not specifying a ground level, and the use of bunding also falls short of the Rochdale Envelope requirements to fully assess the project.

Again this must apply to the effects of noise, and the importance of appreciating the existing character of the area, to judge the sensitivity to operational noise levels.

Looking back to the consultation, I feel it was always too complicated for the host

community to properly take part in. I am thinking back to the Vanguard consultation, and as an example I am not sure now whether I can discuss it in this examination, but as the projects are so linked? In an early drop-in in Necton, the community came out thinking the project could be anywhere in a 3km radius of Necton, so nothing to worry about. Then it might be one project or two, it could be half the size or double, the community thinks "let's hope for the best, it wouldn't be so bad." Then it might be HVAC or HVDC, this takes the community's attention, finding out what the difference is, and the implications, again the community thinks it wouldn't be so bad if it's HVAC. Then we are asked our preference out of 4 footprints, all in the same area on private land, with which people are totally unfamiliar, and no way of knowing how each footprint would actually affect them, and as I have said before, at Necton the HVAC/HVDC decision was always regarded as the applicant's decision, that we had to wait for. Another point, at the Swaffham, invited drop-in, the computer generated 3D visualisations had no image of the National Grid substation, Dudgeon, or the proposed extensions, to judge cumulatively.

It would have been quite different if it was a consultation on one project, with defined parameters, and defined accurate visualisations.

From the start of the Vanguard examination in my Relevant Representation I have contested the choice of Necton over Norwich Main for the connection point of Vanguard/Boreas, causing Hornsea 3 to connect at Norwich Main, resulting in longer cable corridors. With the release of the Vanguard ExA Recommendation Report, it transpires that the ExA considered the suggestion was outside the scope of the examination.

***" 4.4.26. The development of an onshore ring main to facilitate the bringing onshore of electricity generated offshore is something which appears to require co-ordination between projects. As such it is not an alternative which can be considered within the confines of the examination of a single offshore wind farm project. Similarly, arguments that if the connection points of Norfolk Vanguard and Hornsea Three Project were exchanged, then the total onshore cable routes would be reduced, appear sensible propositions but are suggestions which are outside the scope of this Examination."***

It appears the ExA believes it took coordination to decide the connection point and therefore outside of the scope of the examination, or it would take coordination to change the situation, but considering the available information, Vattenfall had first choice of Norwich or Necton. As it was Vattenfall's decision for the connection of their Vanguard/Boreas projects, I consider it should be part of both examinations.

Thank You For Your Attention Colin King 20022983.