

R. S. PEARCE

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PINS Reference: 20010156

WRITTEN REPRESENTATION - HORNSEA PROJECT THREE OFFSHORE WIND FARM

Other References:

1. Hornsea Project Three Preliminary Environment Information Report (PEIR) dated 27th July 2017.
2. Property [REDACTED]: Property Title: [REDACTED], Grid Reference: [REDACTED]
3. The Biological Effects of Weak Electromagnetic Fields - [REDACTED] 2007.
4. DECC Power Lines: Demonstrating compliance with EMF public exposure guidelines –March 2012.

Dear Planning Inspectorate,

Please find below our Written Representation regarding the Hornsea Project Three Offshore Wind Farm. Whilst we acknowledge that we have had face to face meetings with the Project Manager, Stakeholder Relations Advisor and Project Engineer we still have grave and unprecedented concerns for the future of our home, health and business precipitated by the proposed plans for the project. However, questions relating to the crossing point of the Hornsea Project Three cables with those for Vattenfall's Vanguard and Boreas Projects are primary to our concerns, and, have been inadequately addressed during the consultation, especially in the PEIR (Other Reference 1). Ørsted (formally DONG Energy) have notified us that they cannot discuss how their cables will cross with those proposed by Vattenfall, as the details are subject to a commercial 'None Disclosure Agreement' (NDA). We contend that: the imposition of an NDA is neither in the public's interest, nor acceptable in any public consultation, as many issues will not be suitably discussed, not least, the environmental impact of the proposed cable crossing point. Therefore, some of the questions we have previously submitted to Ørsted remain unanswered by: the PEIR, the public consultation and the project personnel we have met. We hope the Planning Inspectorate will consider our representation.

Cable Routing

We have discussed this issue with Ørsted's representatives and National Grid plc but their answers were either elusive or inadequate. The PEIR does not sufficiently explain why the connection point at Walpole was disregarded and the Public has been presented with a "fait accompli" regarding the allocated connection point, being at Norwich Main. The allocation of Norwich Main to the Hornsea Project Three would cause the cables to have to cross other projects' cables also in consultation, namely those of Vattenfall's Vanguard and Boreas projects. We hereby contest, through the Planning Inspectorate, that the allocation of connection points under a historic licence, made by National Grid plc, are neither co-ordinated nor adequate for the future development of off-shore wind farms. We consider that: either, a national co-ordinating body separate to the 'for profits' company currently responsible for NETS connections is established, or, the current licence issued to National Grid plc is urgently reviewed to reflect the current UK National requirements for renewable energy, especially when considering the consequential increase in NETS connection applications.

The PEIR discusses the National Grid connection offer at Volume 1, Chapter 4, 4.8.3. A copy of our email

to National Grid regarding the connection point is at Attachment 1; National Grid's reply is at Attachment 2. Consequently, we do not accept that the allocation of Norwich Main is the best and most commercially viable connection point for Hornsea Three. Also, with the aim being to consult and inform the Public, the options have neither been explored nor discussed sufficiently during the consultation. We contest that Walpole is closer to Hornsea Three than Norwich Main, and, save for a short 6-mile land cable, would provide for a mainly off-shore cable with a minimal environmental impact; there is the precedent of the Race Bank Project routeing cables through the Wash (Race Bank is also one of Ørsted's projects). Therefore, we contend that the decision on the connection point for this project was made for other reasons which have not been disclosed.

As a 'Public Limited Company' National Grid has a vested interest to make a profit for its shareholders; the Company makes money from its owned assets. Therefore, as the company will be able to bid for the operating licence of the transmission system from the Hornsea Three Project via the 'OFTO' process, and increase its asset base, it could be argued that the allocation of connection points, albeit with potentially adverse consequential environmental impacts, are made primarily for commerciality and profitability. Connecting to the NETS at Norwich Main, via a 55km trench, 60 metres wide and up to 1.5 metres deep across the Norfolk countryside cannot be less expensive than a marine cable to Walpole and cannot have less impact on the environment. The consultation for the Hornsea Project Three does not fully qualify how the decision to utilise the Norwich Main connection point came about, and, offers no alternatives for the public to consider.

Property

Our property (Reference 2), is in a unique position with regards to the project as it is situated within 80m of the proposed cable route and, more importantly, adjacent to the position where the Hornsea Project Three cables cross the Vanguard and Boreas cables. Unfortunately, in accordance with the PEIR Volume 6 Annex 4.6 regarding the 'Cumulative Effects Assessment', our property was not included for assessment and the Project managers have not informed us why? The design, engineering and construction of the crossing point has not been considered and should not be underestimated as having a permanent impact on our residential property and Furnished Holiday Let (FHL) business. The project has already had a 'High Impact' on our property which has been 'blighted' by the proximity of the plans, and, our business will suffer going forward by being disrupted with a prolonged and intrusive construction phase. The consultation makes no reference to our situation despite other residences and businesses being individually referenced.

Construction Compounds

A 'Construction Compound' is proposed to be located adjacent to our property in accordance with the PEIR's Onshore Key Plan Map 5. This was not communicated to us until the publication of the PEIR. Coupled with the location of the cable crossing point, the additional disruption of locating a construction compound adjacent to our property will have a severe and negative impact upon us. The cumulative effects of the location of construction compounds on private residents and members of the public has not been discussed. The disruption we will experience if the planned construction compound is located thus will be untenable and could be for a prolonged period. Clearly, there will also be an environmental impact on the location of construction compounds, not least on Oulton Airfield, for which the consultation, thus far, is deficient. There will undoubtedly be an impact upon the local population which needs to be disclosed.

The proposed construction compounds, in general, will also have an impact on the appearance and character of the planned areas with implications in respect of agriculture during a prolonged construction phase which is not evident in the PEIR. A prolonged period of disruption could ensue as the construction phase for the project is not time limited. More importantly, the construction phase could also be concurrent with those for Vattenfall's Vanguard and Boreas projects which, without co-ordination, could disrupt the Norfolk countryside and environment for over a decade.

Cumulative Effects Assessment

There will be a cumulative effect from the Hornsea Project Three cables crossing the Vanguard and Boreas cables. The cumulative effects of co-locating multiple High Voltage (HV) cables, carrying up to 6 GW of electrical energy, should not be underestimated; to quantify, 6GW is five times the maximum output of Sizewell B Nuclear Power Station! Ørsted have not addressed the environmental issues or local heating effects, for example. Notwithstanding the potential cumulative EMF, the PEIR Volume 4 Annex 5.1, only acknowledges that there are other projects in 'Planning Application'; this is despite acknowledgement from Ørsted that there have been specific discussions with Vattenfall regarding their projects. These discussions have purposefully not been included in the consultation due to an NDA.

By its own admission, the consultation process should discuss the cumulative impact of projects, plans and activities with which Hornsea Project Three may interact. Regarding the crossing point, it is absolutely deficient. We contest that the Project does not have a design proposal for the crossing of the Hornsea Three cables with those of Vanguard and Boreas. The minimum depth of the proposed HV cables will be 1.2m and the maximum 2.0m. Therefore, considering the significant number of cables, and, the limited depth to which HV cables can be buried before they are unable to efficiently dissipate heat, there will be a significant and potentially detrimental impact on the local environment for soils, principle and secondary aquifers, substrates and groundwater, especially with respect to any thermal effects. Considering the depth and comprehension of the cumulative effect assessment for the off-shore environment, we question why the on-shore environment has not been afforded the same level of detail, during the consultation, detail which could have been reported in the PEIR? Accordingly, there is a requirement for there to be a co-ordinated plan which will affect the relative depth of either Hornsea Three's cable trench or indeed that of Vanguard and Boreas', which will have a consequence for the environment especially regarding Hornsea Three's lack of decision regarding HVAC versus HVDC.

From the Planning Inspectorates directive, as follows:

"... the Overarching NPS [National Policy Statement] for Energy (EN-1) paragraph 4.2.5 states that: 'When considering cumulative effects, the ES [Energy Supplier] should provide information on how the effects of the applicant's proposal would combine and interact with the effects of others already in existence'."

We contest that the crossing of the Hornsea Project Three cables with the Vanguard and Boreas cables, will have detrimental effects on the environment, the ecology, the population and potentially human health (see EMFs). However, most importantly, there will be '*cumulative effects*.' Astonishingly, the PEIR states that the overall effect will solely be from the Hornsea Three cables, with the environmental impact grading of the cables being no worse than "minor adverse".

Non-Disclosure Agreement (NDA)

We are aware that Ørsted and Vattenfall have agreed a commercial NDA which will undoubtedly restrict what can be placed in the public domain. We insist that the NDA cannot be in the best interest of the environment, the residents of Norfolk, or the consultation process as a whole.

We contest that the imposition of an NDA is limiting the Hornsea Project Three managers from providing information on the design engineering of how the cables will cross and interact. The Project's representatives have claimed that they have had: "regular and detailed discussions" with Vattenfall on the crossing issue. However, without the imposition of an NDA, these discussions could have, and should have, been made public within the respective public consultations, as exemplified by the discussions with other inter-related bodies, such as: the Marine Environment report contained in the PEIR. Therefore, for the on-shore environment, the PEIR alone is an incomplete and elusive document and we contest that the Hornsea Project Three consultation has failed in its duty of care to the Public.

We also question why the location and construction of cable bonding pits and their interaction with the environment is not evident in the PEIR. Due to the length of the proposed transmission system, there will be a significant number of bonding pits, with a significant impact on the environment during the construction, operational, and post operational phases.

Cross Referencing

We contest that the cross referencing and detail within the PEIR document is misleading and fundamentally flawed. For instance, PEIR Volume 3, Chapter 1 - 1.14.1.2 states that: "A description of the likely inter-related effects arising from Hornsea Three geology and ground conditions is provided in volume 3, chapter 12: Inter-Related Effects (onshore)" ... but there is no chapter 12 and the onshore inter-related effects in chapter 11 do not mention Vanguard or Boreas.

Further, in PEIR Volume 3, Chapter 1, Table 1.3 (Page 7), as a result of the Scoping Opinion, Dong Energy (Ørsted) was directed by the Planning Inspectorate as follows:

"Careful consideration should be given to the potential for overlapping cable corridors with the Norfolk Vanguard offshore wind farm and any resultant cumulative impacts."

The response in the PEIR to the issue of overlapping with Vanguard being as follows:

"Cumulative impacts are discussed in section 1.12."

However, there is no mention within Section 1.12 of the PEIR, whatsoever, of the "...overlapping cable corridors..." despite having been specifically directed by the Planning Inspectorate to take it into "careful consideration". We reiterate, any "careful consideration" is shrouded in secrecy by the NDA previously discussed.

Electro-Magnetic Fields (EMFs)

The EMF issue is difficult, highly technical and open to conjecture. We have discussed, at length, the EMF issues with the Hornsea Project Three representatives and their selected specialists from National Grid plc., especially regarding the crossing point. Despite the depth of our discussion with the representatives, and theoretical provision of figures from National Grid plc, we still have reservations about the amount of exposure we will have to the Extra Low Frequency (ELF) EMFs generated by the Hornsea Three Project cables if they opt for the HVAC option. There would be no public health issue whatsoever if both Hornsea Three and Vanguard/Boreas were to adopt the HVDC option. It was not until 6th May 2018 that any theoretical figures were provided, and not before considerable, significant effort direct campaigning from us to gain any details regarding proposed EMFs from either Company; these details should have been contained within the respective PEIRs. Vattenfall have decided that Vanguard will employ a HVDC transmission system which will allow a significant reduction in harmful EMFs (Other Reference 3). We contest that Ørsted should also utilise HVDC as it will have less environmental impact with no ongoing public health implications regarding EMFs. That said, we, as members of the public, should not have to seek information from the Project's representatives, the details should have been provided within the consultation documents and raises suspicions of what else is being hidden by the NDA.

The DECC Code of Practice is a 'Voluntary Code of Practice' which means it holds no legal substance. Should Ørsted install a transmission system that 'theoretically' meets the "voluntary guidelines" but, in practice, the measured field strengths exceed them, how would we, as members of the public, be able to challenge the developer? By way of example, the cladding on Grenfell Tower was installed with the installers and the developers following a "Voluntary Code of Practice" but the cladding was sadly, in all likelihood, the cause of grievous harm and death. Furthermore, the Code of Practice requires the developer to provide: "A calculation or measurement of the maximum fields directly above the cable." That is a 'calculation' and not just a list of figures which are not open to scrutiny. Without the specific design of the cable crossing point and a study of the interaction between both the Hornsea Three cables and those from Vanguard and Boreas this calculation can neither be concluded nor supposed.

In conclusion to the EMF issue, the PEIR lacks any detail or acknowledgement for the effect of magnetic fields at the crossing point of the Hornsea Three, Vanguard and Boreas cables. The theoretical figures subsequently provided are not open to scrutiny. The 'Code of Practice' is voluntary and therefore not necessarily legally binding. We reiterate that: where there is doubt, and importantly, lack of scientific evidence to support the argument, the Definitions of Precautionary Principle should be invoked. Within the principle, the World Commission on the Ethics of Scientific Knowledge and Technology under the auspices of UNESCO (amongst other World and European bodies) states: "*When human activities may lead to morally unacceptable harm that is scientifically plausible but uncertain, actions shall be taken to avoid or diminish that harm ...*" and goes on to say that: "*The judgement of plausibility should be grounded in scientific analysis.*" Therefore, planning to create a potentially harmful environment, without plausible scientific research and analysis, could be deemed to be unethical and we will continue to challenge Ørsted on this principle.

Environmental Impact Assessment

"The EIA Directive states that Environmental Statements should include a description of "interrelationships" between environmental aspects likely to be significantly affected by a proposed development. The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (Paragraph 5) states that "the EIA must identify, describe and assess in an appropriate manner, in light of each individual case, the direct and indirect significant impacts of the proposed development on the following factors: a) population and human health; b) biodiversity.....; c) land, soil, water, air and climate; d) material assets, cultural heritage and the landscape; e) the interaction between the factors referred to in sub-paragraphs a) to d)." "

By omitting the interrelationship of routing the Hornsea Three transmission cables across those of Vanguard and Boreas the conditions of EIA Directive have not been met during the consultation. We ask that the Planning Inspectorate seriously considers why the crossing point was omitted from the PEIR. Also, why are the discussions between Ørsted, Vattenfall and National Grid plc regarding a nationally significant UK infrastructure project, are not fully divulged for public scrutiny?

Conclusion

The Hornsea Project Three consultation is incomplete and flawed. The allocation of the connection point for the developer to connect to the UK NETS is arbitrary and has been left to another 'for profit' company, namely National Grid plc, to make a nationally important decision which has far reaching consequences and dubious commercial intent. There is a lack of detail and discussion surrounding how and why it is necessary for two competing projects to cross their transmission systems. Most importantly, the Hornsea Project Three consultation allows insufficient consideration for any cumulative effects, interrelated effects, or, more importantly, any environmental impact for the cable crossing point. We implore the Planning Inspectorate to reconsider and co-ordinate the routing of off-shore wind farm transmission cables before rural Norfolk is subjected to a prolonged, damaging and disruptive programme of cable laying by successive developers intent on profiteering from permissive legislation.

Yours sincerely,

Ray & Diane Pearce

Attachments:

1. Email to National Grid – Hornsea 3 Project Connection Points – 7 August 2017.
2. Email reply from National Grid – Hornsea 3 Project Connection Points – 4 September 2017.
3. Email to Dong Energy – Proposed Cable Routing – Hornsea 3 Project – 18 July 2017.

Attachment 1 - Email to National Grid – Hornsea 3 Project Connection Points – 7 August 2017.

Dear [REDACTED]

We are now in possession of the Preliminary Environmental Impact Report (PEIR) for Dong Energy's Hornsea Three Project. We find the process unclear whereby the Norwich Main connection point was allocated to the developer.

In your previous email on the issue, you described the selection process as follows:

"Vattenfall applied first and through that joint assessment Necton was identified as their connection location. Norwich Main and Walpole were also considered. Necton was favoured over Norwich Main because of the comparative engineering and environmental challenges of routing connecting cables either north around Norwich close to the city or south through the National Park. Walpole was discounted because the longer connecting cables make that a less economic and efficient option for the Vattenfall projects. DONG Energy then subsequently applied and the same joint evaluation process was undertaken, with Norwich Main being identified for that connection through that process. The agreements for those connections could only be re-opened and options re-evaluated if the wind farm developers were to request that."

The PEIR discusses the National Grid connection offer at Volume 1, Chapter 4, 4.8.3 as follows:

"The aim of the CION is to provide an assessment of the options to connect a project to the National Electricity Transmission System (NETS). The process facilitates an appraisal of a variety of options and identifies the preferred onshore connection points and offshore transmission network configuration for the project. The CION is developed to initially make a representative Connection Offer to an applicant and subsequently develop the most economic and efficient design option for the connection of a project. This is assessed by both National Grid and the Developer from an economic and strategic perspective, in terms of the additional costs and investments required for the connection, based on the capacity requested and the timing of when the developer predicts that the connection will be required. An important element of this assessment is the cost that will be passed on to the consumer (the public and businesses) as a result of the works which will be required to ensure the network can accommodate the project. As part of the economic assessment, the CION considers the total life cost of the connection – assessing both the capital and projected operational costs to the onshore network (over a project's lifetime) to determine the most economic and efficient design option. Whilst a developer inputs into this process in terms of the comparative costs for different options which National Grid may consider, the eventual offer is determined by National Grid. "

Therefore, contrary to your previous assertion that the connection offer is on a "first come, first served non-discriminatory" basis, for any connection point, Dong Energy assert that "the eventual offer is determined by National Grid"? Also, please clarify, who makes the decision on where the connection point is made, National Grid or the Developer?

The Hornsea Three Project explored five options: Norwich Main, Walpole, Newton, Bicker Fen and Eye (See attached). Accepting that Necton had been previously offered to Vattenfall, why was Walpole so easily discounted? Dong's Race Bank Project is routed through the Wash to Walpole and sets a precedence for any environmental impact. There is nothing in either the PEIR, or the details provided by yourself, that would discount Walpole as not being more cost effective than Norwich Main. The cable length would be approximately the same when considering the need to route an on-shore cable around Norwich from landfall at Weybourne, and, would be primarily a Marine Cable with approximately a 6 mile on-shore requirement. We contest that the cost of excavating 55km's of land, with a 60m trench, 1.5m deep, as in the current plan, will be significantly more expensive than routing the cables through the Wash to connect at Walpole. We

do not accept that this decision was made on comparative costs and believe that there is a different underlying issue which is not being placed for scrutiny in the public consultation process.

We respectfully ask on what criteria was Norwich Main offered by National Grid as the only connection point for the Hornsea Three project?

Yours sincerely,

Ray & Diane Pearce

- ▲ Grid Connection Options
- - - Indicative Cable Route Options
- Hornsea Three**
- Turbine Array Area
- - - Former Hornsea Zone Boundary
- - - Jurisdictional Boundaries
- - - Jurisdictional Boundaries



Reference System: ETRS89
 Projection: UTM Zone 31N
 Scale: 1:1,250,000
 Vertical reference: LAT

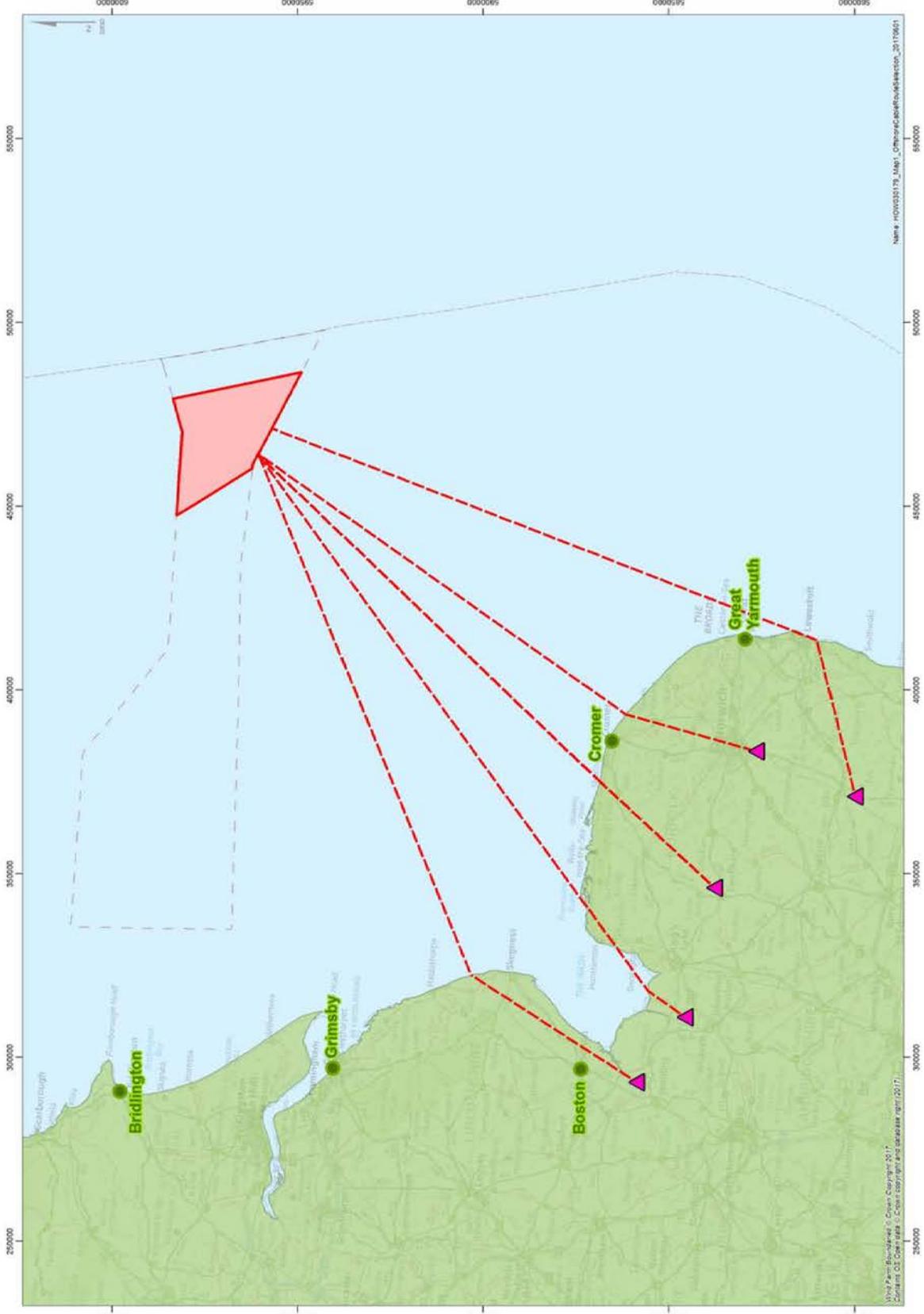


REV	REMARK	DATE
00	Initial Issue	01/08/17

**Hornsea Project Three
 Grid Connection and Indicative Route Options**



Doc no: HOW030179_Map1
 Created by: MAMU
 Checked by: KIEBE
 Approved by: JUCA



File name: \\H0V030179_Map1_CableRouteOptions_20170601

Wind Farm Boundaries © Crown Copyright 2017
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Attachment 2 - Email reply from National Grid – Hornsea 3 Project Connection Points – 4 September 2017.

Dear Mr and Mrs Pearce,

Thank you for your email of 7 August and apologies for not getting back to you sooner.

The assessment of connection options for an offshore wind farm is a joint assessment. The offshore wind farm developer inputs to that assessment with offshore and onshore cable routeing considerations for the wind farm connection cables. National Grid looks at the onshore transmission network implications of connecting at different locations. Ultimately National Grid does have to make an offer in response to the connection application, but the assessment of options is a collaborative one whereby the connection point is agreed between the parties. The connection offer is then made by National Grid reflecting the outcome of the joint assessment process. The assessment of options and connection offer for the Vattenfall projects was made first because Vattenfall made their application first. The connection application process is a first come, first served process.

For the Hornsea Three project, a range of options were jointly considered with DONG Energy, including Walpole amongst others as you point out. Connecting at Walpole would involve a longer cable connection and consenting challenges for DONG Energy, that they are best placed to expand on. A new substation would also be needed somewhere in the vicinity of the existing Walpole substation. We wouldn't be able to simply extend the existing Walpole substation because that would give rise to system issues. Norwich Main was identified as the preferred connection option by DONG Energy and National Grid as it presented the shortest overall cable route and the lowest environmental risk.

I hope that's helpful to you. Thank you again for your questions. I will forward a copy of my response to the DONG Energy project team should you wish to discuss any aspects with them.

Yours sincerely



Regional External Affairs Manager

Attachment 3 - Email to Dong Energy – Proposed Cable Routing – Hornsea 3 Project – 18 July 2017.

From: Ray Pearce <[REDACTED]>
Sent: 18 July 2017 12:20
To: Hornsea Three
Cc: [REDACTED]
Subject: Re: Proposed cable Routing - Hornsea 3 Project.

Dear Hornsea Three Project Team,

Thank you for your email.

We would have preferred a point of contact to discuss our concerns with your Company. You continue to fail to acknowledge that our situation, within both Dong's and Vattenfall's plans, is unique in so much as the project cables are planned to cross within close proximity to our home / house / residence. Nevertheless, we have the following response to your reply which, incidentally, is inadequate and still hides behind permissive legislation without exploring the full issue within the scientific studies you have provided for reference.

In your FAQ's (5), you claim that: "Very extensive scientific research has been carried out to investigate potential for health risks from EMF." This is not a true statement as the SCENIHR study (1) and ICNIRP (3) documents you refer to, indicate that further research must be carried out before any conclusions can be made regarding the "chronic" effects on human health from EMFs in the ELF band. Furthermore, the UK's National Radiology Protection Board (NRPB) supports further research into ELF EMFs. For instance:

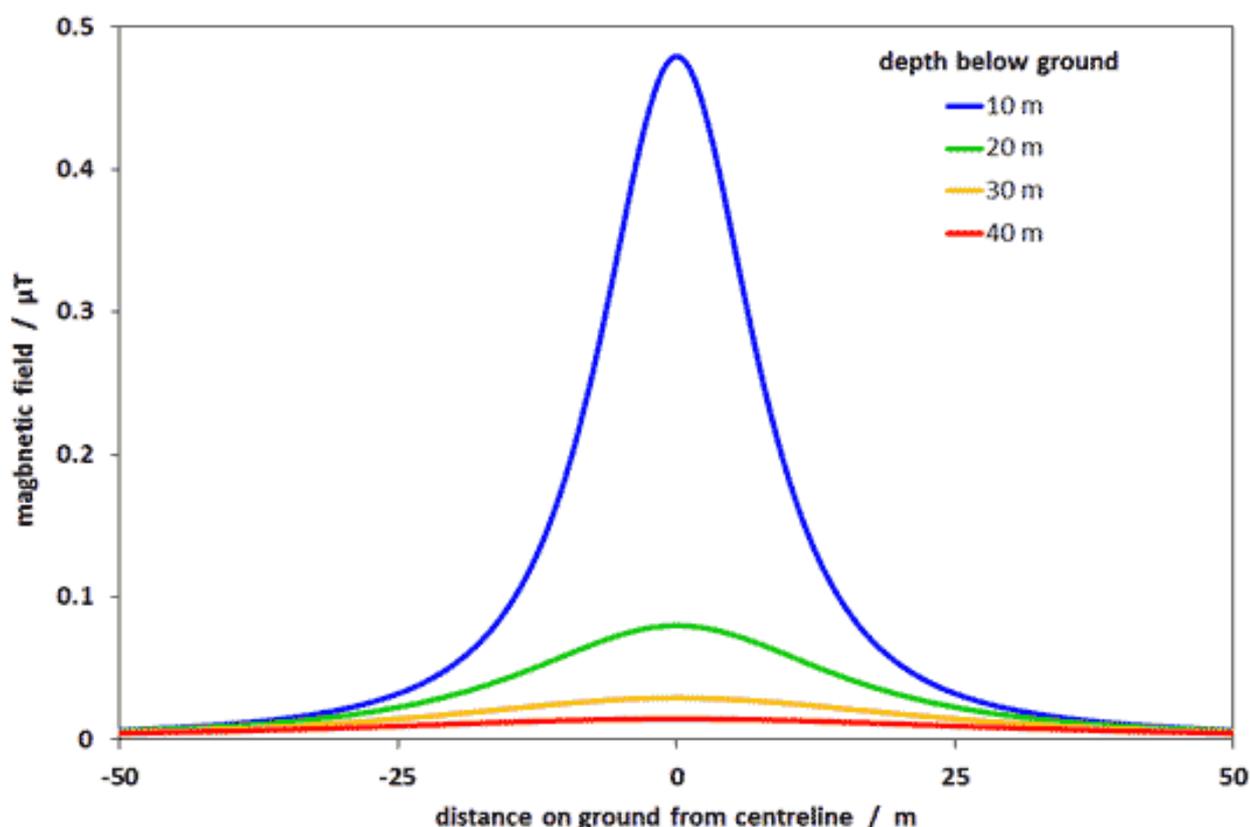
- a. NRPB Document (6) Para 97 (Static electric and magnetic fields) acknowledges that: "There is insufficient evidence from animal and cellular studies to determine long-term health effects due to chronic exposure to static magnetic fields."
- b. The European Council at Page 219, 3.13.2 - ELF fields requests a "High Priority" study into the effects of the EMF you are proposing with regards to lymphoblastic leukaemia.
- c. The ICNIRP Document (3) you refer to actually states it cannot set any scientific guidelines without further research, as follows: "It is the view of the ICNIRP that the results from the epidemiological research on EMF field exposure and cancer, including childhood leukemia, are not strong enough in the absence of support from experimental research to form a scientific basis for setting exposure guidelines."

Therefore, why do you consider a buried depth of 1.2 metres and a distance from public residences of 75 metres as safe? The ICNIRP Guidelines (3) do not state the safety parameters in distance from the source of any EMF but quotes H field and B field limits; limits which will not be able to be quantifiably measured until the cables are installed. Even theoretically, you have yet to prove that you will be able to meet

the code of practice and guidelines.

Your claim that: "EMF from electricity transmission has not been shown to adversely affect livestock or wildlife" is fatuous; livestock and wildlife can move away from the EMF unlike the habitation of humans, and, animals have a much shorter longevity than humans forced to live in a static longterm (chronic) EMF environment. Furthermore, the European Council's research (1) showed some dramatic effects of EMF on small mammals. Therefore, please provide the research showing, categorically, the strength of the EMF from your cables carrying up to 2.4 giga watts of HVAC power; convention would be at 1 metre above the trench and to a distance of 100 metres.

Your FAQs only graphically show that the EMF from an underground cable dissipates with distance, and, most importantly to anybody else reading this reply, you have removed the values from the x and y axis. Presumably you would agree with the following graph (for a 500A circuit) provided by the NRPB (7)? What is the amperage of your cables? For multiple cables, what is the cumulative EMF?



Clearly, without the scale the information you have provided in your FAQ graph is almost meaningless.

The scientific papers you refer to indicate some defined limitations if you are to ensure the maximum field strengths (magnetic and electric) from your cables, in accordance with your agreed 'Code of Practice.' Therefore, please could you answer the following:

- a. At what distance away from your cable trench, with cables buried at 1.2 metres and carrying 2.4 giga-watts of power, will the measured magnetic field strength be equal to $0.4 \mu\text{T}$?
- b. What will be the cumulative EMF where your cables and the Vattenfall cables cross?
- c. What would be the cumulative effect of your cables' EMF with the Earth's local static field in a North - South, East- West orientation?
- d. What will be the multiplying effect on the EMF of having both cable trenches, as per current plans, either side of our property (i.e. with our residence at the centre of the field)?
- e. What is your reference document for the effects of an aligned EMF from the crossing of cables carrying 2.4 giga-watts and 3.6 giga-watts with a potential combined cumulative field strength from up to 6 giga-watts of power? Quantifiably, 6 giga-watts of power is sufficient to power approximately 5 million homes which is around 18% of the UK's demand which will be in close proximity to our home!

We accept that you may have a dialogue between yourselves and Dong Energy but you have yet to prove or publicise any co-ordination for the planning of your transmission cables. We have approached the National Grid for information on the decision process which allocated the connection points (Necton and Swardeston) to your respective companies and do not see why a shared trench away from the area where the cables are planned to cross and human habitation, cannot be utilised; subject to meeting safe EMF's! Importantly, swapping the connection points would make the most common sense but, we presume, making changes at this stage of the development would effect the overall profit from your scheme. We understand that both projects are subject to separate 'Development Consent Order Process,' but both have similar requirements, ergo: it is just not necessary to dig separate trenches a few meters apart and for them to cross, within 75 metres of our home. Therefore, please advise which Company, body or organisation we should contact to discuss this issue or tell us who has primacy? We know that you are 'for profit' Company (profit of DKK 19.1 Billion / GBP 2.29 Billion in 2016) and consider that you are more interested in your profits than so called 'Green Energy.' Despite your protestations, the provision of renewable energy will still come at a considerable cost to the environment in North Norfolk and its inhabitants.

The UK Government (8) acknowledges that: *"It is estimated that 2 to 5 cases from the total of around 500 cases of childhood leukaemia per year in the UK could be attributable to magnetic fields."* Therefore, with that knowledge, should your plan go ahead as currently published, it would be immoral for us to sell our property to any unsuspecting people who may have, or be planning, a young family without divulging that they could be living in a relatively increased EMF; our potential for ever selling our property for a fair market value would also be diminished. Doubtless you will argue that the overall evidence is not strong enough to conclude that EMFs can have a detrimental effect on public health. However, we

ask whoever is reading this, would you subject your children to a potential risk of contacting leukaemia without the knowledge from further research as called for in the World Health Organisation, the European Scientific Council, the NRPB et al?

There is strong proof that neither Dong nor Vattenfall have carried out any research into the EMF effects that their cables will have when they cross close to our home. Also, without evidence, the statement that: "... *the Hornsea Project Three Offshore Wind Farm grid connection will comply with the recommended government EMF guidelines.*" (FAQs (5)) cannot be upheld as your Company does not know the cumulative effect; it has not been scientifically researched thereby leaving an element of doubt. However, where there is doubt, and importantly, lack of scientific evidence to support the argument, the Definitions of Precautionary Principle (9) should be invoked. Within the principle, the World Commission on the Ethics of Scientific Knowledge and Technology under the auspices of UNESCO (amongst other World and European bodies) states: "*When human activities may lead to morally unacceptable harm that is scientifically plausible but uncertain, actions shall be taken to avoid or diminish that harm ...*" and goes on to say that: "*The judgement of plausibility should be grounded in scientific analysis.*" Therefore, planning to create a potentially harmful environment, without plausible scientific research and analysis, could be deemed to be unethical and subject to a legal challenge. We will take this up with our Government but you should now provide the scientific facts that your plans will not harm humans living near to your cables, in any capacity whatsoever. You need to remove the doubts surrounding the epidemiological evidence of increased childhood leukaemia for those living near HVAC/DC cables, and, you have a moral duty to do so. Why have you conducted extensive and costly research into the marine environment but left the human environment to other's research? Also, please do not hide behind the 'Voluntary Code of Practice' as recent tragedies have exposed, merely adopting a 'Code of Practice' could have a devastating effect (Glenfell Tower - 14 June 1917).

We are aware that the end of the period for the PEIR is rapidly approaching but, through lack of communication from your Company, we have not been fully included in that process. Due to the unique situation of our home between your's and Vattenfall's planned transmission cables, we would urge you to commence a direct dialogue with us and cease from wasting time providing meaningless FAQ documents. This issue is so deeply important to our way of life, continued health and prosperity that we have arranged our own meetings with various stakeholders. Therefore, we respectfully request you answer our questions, in full, at your soonest opportunity.

Yours sincerely,

Ray & Diane Pearce

¹ SCENIHR, "Potential health effects of exposure to electromagnetic fields (EMF)," European Commission, Luxembourg, 2015. WHO, "Environmental Health Criteria 238. Extremely Low

Frequency Fields.," WHO, 2007. A. McKinlay, S. Allen, R. Cox, P. Dimbylow, S. Mann, C. Muirhead, R. Saunders, Z. Sienkiewicz, J. Stather and P. Wainwright, "Review of the scientific evidence for limiting exposure to electromagnetic fields (0-300 Ghz)," *Documents of the NRPB*, vol. 15, no. 3, 2004.

IARC, "IARC Monographs on the Evaluation of Carcinogenic Risks to Humans, Volume 80 Non-ionising Radiation, Part 1: Static and Extremely Low-Frequency (ELF)," IARC Press, 2002. ² A.

McKinlay, S. Allen, R. Cox, P. Dimbylow, S. Mann, C. Muirhead, R. Saunders, Z. Sienkiewicz, J. Stather and P. Wainwright, "Advice on limiting exposure to electromagnetic fields (0-300 Ghz)," *Documents of the NRPB*, vol. 15, no. 3, 2004. Department of Health; Department for Communities and Local Government; Department of Energy and Climate Change, "Government response to the SAGE recommendations," Department of Health, 2009.

³ ICNIRP, "Guidelines for Limiting Exposures to Time-Varying Electric, Magnetic and Electromagnetic Fields (Up to 300 GHz)," *Health Physics*, vol. 74, no. 4, pp. 494-522, 1998. ICNIRP, "Guidelines for Limiting Exposure to Time-Varying Electric and Magnetic Fields (1 Hz to 100 kHz)," *Health Physics*, vol. 99, no. 6, pp. 818-836, 2010. European Council, "Council recommendation of 12 July 1999 on the limitation of exposure of the general public to electromagnetic fields (0 Hz to 300 GHz)," OJEU L199/59, 1999/519/EC, 1999.

⁴ DECC, "Power Lines: Demonstrating compliance with EMF public exposure guidelines. A voluntary Code of Practice," Department of Energy and Climate Change, 2012.

