FOREWIND
DELIVERING YOUR ENERGY FUTURE

Dogger Bank Stakeholder Event

Questions & Answers
Consolidated Constraint Maps

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Dogger Bank
Stakeholder Event

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1.0 Introduction

Forewind is a joint venture consortium comprising four leading international energy companies which joined forces to bid for Zone Development Agreements as part of The Crown Estate's third licensing round for UK offshore wind farms (Round 3).

In order to provide further information about their development objectives to stakeholders Forewind organised a series of stakeholder workshops which were held on the 21st, 27th and 28th of April 2010 in Hull, Newcastle and London respectively.

Forewind recognises effective stakeholder engagement as a critical part of the development strategy and is essential to achieve the delivery of safe, economic projects which are sympathetic to the impacts to the environment, human activities and stakeholder concerns.

The stakeholder workshops held in April were an opportunity for us to engage and to start to build relationships with as many stakeholders as possible at an early stage of our development process.

This document describes how the key questions & answers have been grouped into themes. The report also shows consolidated maps highlighting potential constraints identified by the stakeholders at the workshops.

This report is now in its final version, having incorporated comments received by workshop attendees who reviewed the previous draft version and provided input.

2.0 The Stakeholder Event Themes

2.1 Questions and Burning Issues

A large volume of questions and burning issues were raised during the suite of stakeholder workshops. Forewind has answered the questions raised in this document. These questions overlap with a large number of the burning issues but there are some issues we are unable to answer at this early stage in the project. These issues have been recorded and will be addressed later in the development process when the relevant information is available.

2.2 Themes Arising from the Events

During the course of each workshop the questions and burning issues posted on the display boards were reviewed by the facilitators. The comments were grouped into themes that were broadly consistent across all three workshops. These themes are described below in sections 2.2.1 – 2.2.7 and have been used in the Question & Answer Section 2.3 and the individual event reports to summarise the outcomes.

2.2.1 Environmental Issues

The environment, in the context of the events, was considered to include comments relating to the physical, biological or human environment. This included conservation issues and designations, terrestrial implications such as erosion and flood risk, archaeology and visual effects.

2.2.2 Supply Chain and Job Opportunities

Supply chain and job opportunities was a consistent theme across all events and was considered to include all comments and questions relating to procurement, investment, regional development, training opportunities, local and regional businesses and industries. This theme also included questions relating to the development timescale and the implications on the ability of the local region to engage with the process and react accordingly.

2.2.3 Cabling and Grid

Cabling and grid connection issues were considered to be those comments relating to the offshore and onshore infrastructure in terms of export cables, offshore converter stations and substation, cable landing points, substation development and the location of grid connection points. Discussion relating to the regulatory framework in terms of the Offshore Transmission Owner agreements, security of supply and the potential European super grid structure were included in this theme.

2.2.4 Sectoral Co-existence

Sectoral co-existence was considered to encompass all issues relating to the interaction between the offshore renewables industry with other sectors and sea users including the fishing industry, oil and gas developments and the shipping industry. Any comments involving the issue of coexistence with other sectors were included here.

2.2.5 Construction and Operation

This theme comprised of those issues specifically relating to construction and operation of the offshore wind farm.

2.2.6 Licensing and Consents

Issues raised by the stakeholders concerning regulatory requirements, consent and license applications, statutory commitments and industry specific guidance were included here.

2.2.7 General Issues

Where the stakeholder posed questions or comments that could not fit within the broad themes above they were gathered together in the general issues theme.

3.0 Questions & Answers

The responses included below have been provided by Forewind to answer the questions that were raised. Most questions are copied as they were recorded but in some cases where a number of similar questions were asked these have been grouped together under a generic header and a single response provided.

Theme 1: **Environmental Issues**

How will existing and proposed environmental designations be taken into account?

Forewind will undertake detailed environmental studies for each of the projects it identifies at the Dogger Bank zone. This will provide a baseline against which to assess the range of potential impacts the wind farm would have, including on wildlife (such as birds and marine mammals), habitat and users of the sea. The studies will comprise the Environmental Impact Assessment (EIA) and this will feed into an Environmental Statement (ES), which will be submitted in support of any planning applications made.

Forewind is aware of the proposed designation of Dogger Bank as a draft Special Area of Conservation (dSAC). In the expectation that the draft SAC will be taken forwards to a formal recommendation to the European Commission, Forewind intends to ensure that our development proposals give proper consideration to the relevant provisions of the Habitats Regulations. Our survey works shall collect data to inform our EIA and any Appropriate Assessments that may be required.

As an organisation with interests in the marine environment Forewind is a stakeholder of the Marine Conservation Zone (MCZ) process. We have provided information about our development objectives to NetGain (the organisation tasked with coordinating the process along most of the east coast) and will keep up to date with their proposals through the lines of consultation that they have established. As information relating to proposed designations is made available it will become a consideration of our development process. The measurement of any effects of our activities to those areas will be undertaken following analysis of our own survey data and concluded in our Environmental Statements.

How will Forewind identify marine environmental impacts?

The Environmental Impact Assessment (EIA) process will consider the potential for impacts to a broad range of marine environmental aspects including: marine ecology, cultural heritage, birds, aviation, shipping and fisheries. These studies will comprise the EIA and this will feed into an Environmental Statement (ES) which will be submitted in support of any planning applications made. The EIA process will take around two years per project application.

What is the risk of bird mortality caused by the turbines?

A number of surveys are being carried out to inform the assessment of any potential impacts to birds. These include high definition aerial surveys (undertaken by Hi-Def using high definition video recording technique) and boat based surveys (undertaken by Gardline Environmental Services using the MV Sea Profiler). The data collected by these surveys will be assessed to define characteristics of the bird population and to establish any likely impacts associated with the development and operation of the wind farm projects.

What are the issues of the potential effects of electromagnetic fields (EMF) on fish species?

Although some studies have been undertaken to try to establish the likelihood of EMF effects on fish species the results have largely been inconclusive. Forewind bury their subsea cables wherever this is possible. The combination of the cable burial depth and cable shielding are likely to remove the potential for EMF effects on sensitive fish species.

The Dogger Bank site is considered to be an area of very high water quality; will turbine installation cause a detrimental effect on the water quality?

Disturbance of sediment and discrete and localised disturbance to geology can be expected during the turbine installation phase. Likely impacts to water quality will be assessed as part of the EIA process and informed through the geophysical, geotechnical and metocean studies which Forewind will undertake during the development process. At this time it is considered unlikely that the development will have anything more than a temporary, minor and very localised effect on water quality.

Have any studies been undertaken on the effects of the proposed wind farm on local weather conditions or wave patterns?

Forewind has yet to start any studies looking at possible effects the Dogger Bank development might have on wave patterns. A wave rider buoy will be installed during summer 2010 and meteorological masts in 2011, which will collect data for both the environmental impact assessment process, and the technical development of the site.

Will the EIA change with advancing technologies i.e. will the assessment be made on technology available today even though construction is not due to commence until 2015? Will the environmental statement (ES) incorporate technological advances?

At this stage, the technical input to the EIA needs to be based on known technologies for cables, foundations and turbines. However it will take into account a range of potential options and their assessments to cater for advancing technologies. Forewind will work to keep a flexible approach to our project development when it comes to specific locations and turbine design, allowing for possible advances in technology.

Theme 2: **Supply Chain and Job Opportunities**

How will you choose consultants and contractors?

We will select consultants and contractors primarily via a competitive tendering process. Our requirements will be defined and interested companies will go through a pre-qualification process or else invited to participate in an open tender.

Forewind recently attended all 12 of The Crown Estate's supply chain events where contractors were invited to learn about the industry and how they could enter the supply chain.

Forewind, together with The Crown Estate and assistance from UK-wide Regional Development Agencies, launched a web-based Supply Chain Contacts Directory which provides a snapshot of all the companies which attended the series of countrywide supply chain events. This can be found by following this link:
http://www.forewind.co.uk/news/article/supply_chain_contacts_directory_launched/

Is the Forewind consortium committed to using British companies?

The rapidly developing offshore wind farm industry in the UK offers a significant opportunity for British companies to get involved in the supply chain. Locally-based companies should be well placed – both in terms of geography and manufacturing experience – to provide competitive bids in order to secure contracts.

Experience is vital but, given the size and scope of Dogger Bank, there will also be a focus on the continuing innovation and new technology that is integral to many UK companies. As plans for Dogger Bank progress, Forewind will monitor advances in these areas for potential inclusion in the development.

Theme 3: **Cabling and Grid**

How will the development be connected to the National Grid and where will these locations be?

The grid connection points will be defined by National Grid plc (NGET) through a grid connection application process and so are not within the control of developers. Once the onshore points of connection have been determined, Forewind will determine the optimum onshore cable corridor and coastal cable landfall points for connecting the offshore wind farms to the electricity network.

Is Forewind considering using interconnectors to link the Dogger Bank to other proposed wind farms?

The National Grid jointly owns the 2GW England-France interconnector with Réseau de Transport-d'Electricité (RTE), and together with NLink, it has started the construction of BritNed to the Netherlands. It is also in discussion with Statnett regarding a possible interconnector to Norway. Forewind will monitor all European interconnection projects and would welcome consultation with the key parties if the developments may be relevant to the Dogger Bank zone.

Is there an opportunity to create a decentralised local network, independent of the National Grid which could then power local homes and businesses?

Due to the size and distance from shore of the Dogger Bank zone, it is very likely that the power will be transmitted to shore utilising High Voltage Direct Current (HVDC) technology. Utilising HVDC technology will minimise the power losses through the export cables, to ensure optimum efficiency. Typically this power will be transmitted at approximately 300,000V. Domestic distribution networks typically operate at a voltage of 400V, which is transformed down to 240V to supply to the home.

Given that the power from Dogger Bank will be transmitted at a very high voltage, it is not technically feasible to convert directly down from the transmission voltage to a voltage suitable for local use. The Dogger Bank power will be connected directly to National Grid's Main Interconnected Transmission System (MITS), through which it will be transmitted to local distribution-level electricity networks, and from there supplied to homes and businesses.

What are the potential impacts the cable connections may have to the National Grid?

The grid connection points for the Dogger Bank zone will be defined by National Grid plc (NGET) through an application process and so are not within the control of developers. National Grid has an obligation under its transmission license to connect any generator who requests to the

transmission network. National Grid is further charged with ensuring that each generator is connected to the Main Interconnected Transmission Network (MITS) efficiently and economically.

Connecting large volumes of wind to the transmission network does pose some technical challenges to NGET in its role as GB System Operator (GBSO). However, it should be remembered that, although wind is variable and hence the generation on to the MITS varies over time, the impact of a reduction in generation from wind power is far less dramatic on the stability of the system than at present, when a conventional generating power station trips off the system, causing an instantaneous loss of power for the MITS to cope with.

The UK electricity network already ensures that there is sufficient generation capacity on each circuit to act as "spinning reserve" – i.e. generation capacity that can cut in at short notice and stabilise the system when a large generator trips. An increased level of wind on the system may require a larger amount of spinning reserve to be available, or for current generators to alter their pattern of generation, but would not pose any larger inherent risk than presented by conventional generators today.

National Grid is planning for operating the MITS in 2020, with a large penetration of wind generation. NGET's "Gone Green" scenario envisages 29,400MW of wind power on the UK system by 2020/21. National Grid conducted a consultation in June 2009 on its plans for operating the grid in this scenario, and concluded: "The [Gone Green] scenario helps us to quantify these challenges [as System Operator of the UK transmission networks] and establish the timescales over which they are likely to transpire. At this point we believe they can be addressed by building on our experience in operating transmission networks and by seeking innovative solutions which allow more parties, including electricity consumers, to play a role in securing the nation's energy supply."

How will access to the cables and pipelines be managed?

Access rights for crossing existing buried infrastructure "assets", such as cables for power export, telecommunications, and pipelines used for water, oil and gas is a matter for commercial negotiation between the existing asset owners and the development partner.

Existing asset owners will have easement rights relating to their assets, Forewind will engage with these asset owners, together with any associated land owners, throughout the development and Environmental Impact Assessment (EIA) process to achieve a mutually satisfactory solution for co-existence.

Is there the potential to share infrastructure being developed by E.ON in the local area and through that, reduce the potential for seabed displacement?

The Round 2 offshore wind farms in the Humber area, E.ON's Humber Gateway and DONG's Westermost Rough, are relatively close to shore, and hence will export their power utilising

High Voltage Alternating Current (HVAC) technology, in comparison to the HVDC technology planned for Dogger Bank. Due to this difference in technology there is no opportunity to share export infrastructure before connection to the National Grid MITS.

Ultimately it will be the offshore transmission owners (OFTO) role to define what infrastructure will be used and whether the transmission lines will be overhead or underground. Forewind will consult with the potential OFTOs throughout the development process and will ensure that cabling options are fully defined and assessed in the EIA. Forewind will make a detailed assessment of offshore cable routes and onshore cable landfall points, to minimise impact on the environment. Through this process, Forewind will assess whether there are any potential benefits from utilising cable landfall areas that have previously been selected by other wind farm developers.

Why are the connection points presented for discussion centred around Hull and no points considered further north?

The connection points discussed at the workshops were those illustrated in National Grid Offshore Development Information Statement (ODIS) Report. This report was written to provide a view on what would be needed to connect all Round 3 projects to the current National Grid. National Grid identified potential points of connection based on where it was anticipating upgrading the networks in particular locations and at particular times. This report is however indicative and these connection points are not necessarily those being offered to Forewind.
See the report here: http://www.nationalgrid.com/uk/Electricity/ODIS/

Are all Round 3 Zones effectively competing for connection points?

National Grid, as the GB System Operator (GBSO) and Transmission System Owner (TSO) for England and Wales has a licence obligation to connect any generation project which applies for connection. Therefore, all Round 3 developers will be able to gain access to the transmission network in time.

The size of Round 3 means that the transmission network will potentially require significant reinforcements and upgrades to create capacity for these projects (though capacity on the network may be freed up by conventional power generation being decommissioned and dropping off the network). There is a potential compromise required between the Round 3 zones in terms of timing of access to the transmission network.

Has the decision been made to install overhead or underground lines at the cable landfall points and who is responsible for deciding this?

Forewind will undertake a full EIA along the cable corridors to the onshore HVDC converter stations and to the National Grid's electricity substations. Ultimately it will be the offshore

transmission owners (OFTO) role to define what infrastructure will be used and whether the transmission lines will be overhead or underground. Forewind will consult with the potential OFTOs throughout the development process and will ensure that cabling options are fully assessed in the EIA.

How many cables will be required per tranche?

The final design of the connections to the UK transmission network is the responsibility of the OFTO which will be appointed for each project in a competitive tender process. The OFTOs will make the final decision on the design and cabling requirements, but it is likely that up to four cables will be required per 1000MW connection. Although the OFTO will ultimately be responsible for the cables, Forewind will be looking to gain consent for a cable corridor to allow the wind farm to be connected to the national grid.

What is the connection point capacity?

The connection point capacity at the transmission network will be set by National Grid, based on the available capacity in the local transmission network at the connection point and the constraints in the wider network to take power to where it is required.

Will the offshore cables be buried?

Yes, all offshore cables will be buried wherever this is possible along the cable route.

What is the offshore cable burial depth expected to be?

Forewind anticipates that the offshore cables will be buried to approximately 1m, but depths will depend on the geology.

What will the cables be made of?

Two types of cable are technically feasible for use with VSC HVDC technology. These are extruded XLPE cable and mass impregnated cable. There are a number of suppliers for this cable at the voltages (around 300,000V) required.

Theme 4: **Sectoral Co-existence**

How does Forewind intend to approach the issue of cumulative impacts to multiple users throughout the lifetime of the project?

As part of the development consent process, Forewind will undertake an assessment of the cumulative and in-combination effects of multiple wind farm sites across the Dogger Bank zone and where relevant across the North Sea. This process will involve very detailed discussions with key stakeholders, authorities and groups having a particular interest in the developments. The output of these consultations and discussions will be addressed within the Environmental Statement (ES), in topic-specific chapters e.g. ornithology, navigation, marine ecology.

Parts of the Dogger Bank are licensed for oil and gas exploration, how will Forewind manage any potential future conflict with the oil and gas industry while allowing for future development? Forewind aims to work closely with the operators of oil and gas licenses within the Dogger Bank zone and the cable corridor to promote co-existence of the two industries wherever possible. As part of the Forewind stakeholder engagement process we are in contact with the operator of the existing licensed blocks within the zone and will continue to consult with them throughout the development process. As with all stakeholders Forewind will continue to engage with oil and gas operators who identified an interest in the Dogger Bank zone and also encourage those that are speculating in the area to contact us to establish a relationship from an early stage of their development activities.

What are the impacts of the potential wind farm on the existing fishing effort in the Dogger Bank Zone?

The potential impacts on the fishing activities in the Dogger Bank zone are not yet fully known. This will be assessed as part of the EIA process and ongoing stakeholder engagement for each project. Initial information is also being gathered as part of the Zone Appraisal and Planning (ZAP) process which will help identify the first tranche. Further information collection through the EIA will inform the location and design of the individual projects. Forewind would like to work towards coexisting with the fishing industry in the zone and will undertake to explore how this could be achieved in consultation with those fishermen who could be affected.

How does Forewind propose to collate fishing information and mitigate against impacts caused as a result of the development?

Forewind will cooperate with the fishing industry to collate as much current data as possible to inform their EIAs. Two fisheries liaison coordinators have recently been appointed to support engagement with the fisheries industry and their initial task is to produce a liaison strategy which will outline how Forewind should identify and consult with affected fishermen. Forewind believes that avoiding and reducing impacts is a more sustainable approach to the development

of offshore wind than an alternative of mitigating impacts and hence aims to develop a sustainable coexistence with the fisheries. Should mitigation be needed, the appropriate form will be established through close dialogue with the industry. Working together to identify the best overall mitigation strategy will be beneficial to both fisheries and Forewind.

How does Forewind intend to assess the current shipping activity in and around the Dogger Bank zone?

Forewind is currently collecting Automatic Identification System (AIS) vessel data across the Dogger Bank Zone. This will be considered alongside any available historical data for the area. An assessment of the shipping activity in and around the zone will be made, which will feed into the ZAP process to aid site selection. Once sites have been selected, additional shipping surveys will be carried out for that site as part of the EIA and the scope of these surveys will be agreed through consultation with the statutory bodies.

Will angling charter vessels be permitted access to the wind farm?

Forewind does not currently propose to exclude any activities from being undertaken within its wind farm sites. This position will be reassessed through consultation with the relevant stakeholders when further information on project design and navigational safety becomes available.

Will each turbine be clearly identified (both night and day) in a logical sequence to aid navigation?

Yes – turbines will be identified by number and charted on hydrographic charts. Certain turbines and/or navigational buoys around the perimeter and within the wind farm will also be lit for identification at night. The use of navigational marking and lighting will be agreed with the relevant stakeholders as part of the consultation process for each project.

How can port and harbour management best interact with Forewind to promote their existing facilities and best support offshore wind in the future?

A "Ports and Logistics Manager" starts with Forewind during August 2010. As apart of his role he will be contacting port owners and operators directly to explore the potential for their facilities to service either the construction and/or the operational requirements of the wind farms on Dogger Bank.

What are the effects / benefits of the Dogger Bank scheme to local coastal authorities?

Local authorities will be consulted with throughout the development process to ensure their views are taken into account.

This is a major opportunity for British companies to be involved in a competitive tendering process. Locally-based companies should be well placed to provide competitive bids and therefore secure contracts.

Experience is vital but, given the size and scope of Dogger Bank, there will also be a focus on the continuing innovation and new technology that is integral to many UK companies. As plans for Dogger Bank progress, Forewind will monitor advances in these areas for potential inclusion in the development.

What are the impacts to aviation in general and how will they be investigated?

Potential impacts on aviation will be investigated through collation of existing data and consultation with NATS, CAA and the MOD and will be presented in the project ES.

Is Forewind intending to operate to similar offshore helicopter rules as the North Sea Oil and Gas Industry?

Health and Safety will always come first and the extent to which helicopters may be used will be evaluated according to this principle which will include the identification of the most appropriate operating regime. No decisions have been taken at this stage.

What methods will be used to integrate concerns/issues from different industry sectors (including environmental)?

Stakeholder engagement is a key part of the ongoing planning process. Through this and from the relevant guidance notes already established for the offshore wind farm industry Forewind hope to identify and address stakeholder opinions and concerns.

Theme 5: **Construction and Operation**

What is the proposed construction schedule?

Construction of turbine foundations offshore will commence in 2015 at the earliest. This will depend on a number of variables including:

- availability of suitable vessels
- the contract sanction from the owners
- profitability of projects
- supply chain
- timing of the consenting process
- timing and grid connection

How will the sites be chosen?

Forewind has begun its Zone Appraisal and Planning (ZAP) process that aims to characterise the zone through a series of studies, consultations and surveys, and building on the desk-based assessments undertaken to date. Through this characterisation process Forewind expects to identify individual projects that will be taken forward to development. This process is intended to maximise the development opportunity of the zone, identify an effective consenting strategy and inform cumulative and in-combination effects within the zone. It will also increase efficiency by reducing duplication of effort and easing pressure on developers, consenting authorities, stakeholders and industry resources.

Sites will be identified over a number of years allowing the zone to be developed in stages with each stage being subject to its own application process with the relevant regulator. EMU Limited has been appointed to the role of ZAP Co-ordinator and will assist in the identification of sites for development.

In terms of spatial positioning, what is the proposed turbine layout and the number of turbine arrays?

There are many different options for turbine layout and it is not yet possible to say for certain what the preferred layout will be. This is partly due to the size and scale of the project as well as ongoing developments in the understanding of how wind is affected by the layout of turbines. Various options are being considered including a standard array shape to a doughnut shape to many small doughnut shapes. The layout design will evolve as the project progresses and Forewind learns more about the constraints at site and the likely performance of the infrastructure options.

How many turbines can be installed simultaneously?

It depends on how many vessels are employed and how fast the turbines are manufactured in the yard. The maximum number likely to be able to be installed in a day is probably one per vessel.

How many turbines are necessary to generate 9GW of power?

The number of turbines will depend on their size, we anticipate a range to be 3.6MW to 10MW per wind turbine. Based on a 5 MW machine 9 GW could be achieved with 1800 turbines.

What are the turbine installation methods and would the installation be carried out by Forewind or by the turbine manufacturer?

There are various offshore wind turbines installation methods, all are directly linked to the type of foundation used. These include piling, which has been used extensively for existing offshore wind farms, to new methods under development such as tethered floating turbines in deeper water. Forewind cannot yet confirm what method will be used for turbine installation. This will depend on many factors including, but not limited to, geological conditions, the level of environmental impact of the foundation type and the future development of new methods for installation. Forewind will not install the turbines but will use specialised contractors.

How will continuity of supply be maintained when the wind resource was not of sufficient strength?

The UK generation portfolio has evolved to include a diverse range of generation types (including hydroelectric power, nuclear generation, coal-fired, gas-fired, and oil-fired generation), to ensure there is no over-dependence on any one source of generation. At present in the UK, there is plant capable of generating around 79,000MW. A typical electricity demand for a winter day will vary from around 35,000MW at night to a peak demand of around 58,000MW at tea time. Therefore the UK system has been designed to cope with large variations in demand and to ensure there is significantly more generation capacity than the peak demand, even on a winter day (so called “back-up generation”).

Will there be power loss from the 9GW produced during export to land?

Power transmission over large distances will inherently result in some power loss. For HVDC, this mainly comes in two forms: losses in conversion of power from AC to DC, and heat losses through the export cables. To minimise losses through cabling, the export voltage is typically selected to be as high as possible within technical constraints

Questions were raised as to Forewind's intention to build turbines in the UK or alternatively source the turbines for Dogger Bank from Europe.

Forewind will not develop its own turbines, or other components, but rather will look to source them from manufacturers under contract. Members of the Forewind team will work closely with UK industry and others to help realise the supply chain needed for the scale of development planned for Dogger Bank. At present the UK has facilities to manufacture cables, vessels and foundations for the offshore wind industry but no existing wind turbine plants. However, several manufacturers have indicated their intentions or interest in developing wind turbine production here so this will change. With the UK's ambitious offshore wind targets, the situation is favourable for innovative manufacturers to set up and become part of the local offshore wind industry supply chain. Forewind will engage in competitive tendering for all its contracts.

How is Forewind dealing with the Health and Safety issues of working in the offshore environment, specifically related to emergency response?

Forewind is committed to the Zero Harm mind-set as originally developed by DuPont, mitigating risks to the principle of As Low As Reasonably Practicable (ALARP). Our aspiration is to become an industry leader in H&S management in the offshore wind industry. Our aim is to seek solutions to hazards at the source, and preferably to design out hazards to ALARP. We aim to support the development of, and adhere to common industry standards. This will support the needs of exposed workers who might travel between operators and sites. Standardisation and common practice will enhance general H&S performance and stimulate cost effective solutions. When common standards are seen as insufficient, we will develop extended standards and requirements.

Any operator this far offshore will need to provide an effective emergency response organisation that is independent of public resources. Forewind will look for cooperative agreements in reasonable proximity to our sites and all equipment, vessels, aircrafts, turbines and possible "hub"-platforms and their outfitting will be carefully evaluated over the coming years. Although we have gained a lot of experience on Emergency Response Plan (ERP) from the oil and gas industry from both the UK and Norwegian Continental Shelf, the two industries are not readily comparable. Forewind will define a strategy to address the remoteness of Dogger Bank, the sensitivity to adverse weather conditions, ability to access each turbine which may be host to people in distress, qualified technology and neighbouring activities. The set up of an ERP will depend on multiple factors yet to be defined.

Theme 6: **Licensing and Consents**

What is the timescale for the project application and consents?

Forewind is currently expecting to submit consent application(s) for its first projects at the end of 2012. Under the current Government regime, the decision for this type of application will take approximately 12 months. Therefore Forewind would gain consent for the first projects at the end of 2013. Forewind is working on the premise that subsequent tranches of projects will be submitted at 12 month intervals.

Additional information was requested on the whole application process and regulatory framework for the offshore renewables industry.

The Planning Act 2008 will be the foundation of the application process. Currently any application would be submitted to the Infrastructure Planning Commission (IPC) but this is under review due to the new coalition Government. Forewind will ensure any application is compliant with the new policy if this is required but until then, it will work within the IPC regime.

Theme 7: **General Issues**

What are the longer term timeframes and implications outside of the project boundary?

Forewind has agreed with The Crown Estate a target installed capacity of 9GW. We believe that there is potential for the zone to provide up to 13GW of capacity.

In addition to the wind turbines Forewind will need to install offshore converter stations, subsea cables and onshore converter stations to transform and transmit the electricity generated and to connect it into National Grid's electricity transmission network.

The locations and timing of the onshore points of connection into the electricity grid are not currently known and will be determined through a Grid Connection Application Process with National Grid. Once these locations are established cable corridors joining the onshore points of connection to the offshore wind farm will be determined.

Under the existing planning regime this infrastructure is classed as "Associated Development" to the offshore wind farm and the likely environmental, economical and human effects associated with it will be assessed and reported in the Environmental Statement (ES) used to support any planning applications to the relevant regulator.

Has a decommissioning programme been developed? If so, is this intended to be progressive or phased?

An outline decommissioning plan will be developed as part of the consent application. It is very likely to follow the same timescale pattern as installation, which will take place over several years.

What can politicians do and not do to support the development?

All the major political parties have publicly stated their support for wind power – particularly offshore wind. Politicians should individually be up-to-date with the latest wind industry developments, focussing on projects planned for their area, both in terms of the wind farm itself and onshore works. They should also ensure they meet face-to-face with developers on a regular basis, so they are aware of the progress, challenges and areas where they could offer direct assistance, and attend relevant industry events. Politicians must ensure the onshore grid is capable of receiving offshore wind in time to allow confidence in investment in development. They should foster the development of the supply chain, employment and other opportunities from the wind farms being planned, or under construction, in their constituency and facilitate platforms for information sharing between key stakeholders where appropriate. They should make known their support, educate on the benefits when possible and understand what the majority of their constituents feel about wind power, helping correct misconceptions as appropriate.

How is Forewind intending to engage with international stakeholders and how can stakeholders contribute suggestions regarding mitigation measures?

Forewind will produce a Stakeholder Engagement Plan (StEP) that will be informed initially by the stakeholder engagement workshops. Forewind will consult with all stakeholders, including those based internationally, on the StEP for an agreed consultation methodology for the Dogger Bank development process. The StEP will evolve throughout the development process through further consultation with the stakeholders.

Will the potential effects on the local tourism industry be investigated?

Yes they will. Forewind will undertake a thorough socio-economic study as part of our environmental impact assessment. This study will focus on the effects the development may have on local and regional economy, including the tourism industry. Additionally Forewind will assess the potential effects offshore and onshore cables and converter stations will have on biodiversity, cultural heritage and landscape.

Will the transmission costs be paid by Forewind? If so, will they have a bearing on the development decisions?

Offshore wind farms will pay for the use of the transmission system and the transmission assets dedicated to them. By default, Forewind will act as the developer of the offshore transmission assets that Dogger Bank wind farms will need. As such, we do have influence in this early stage of development. However, European law prohibits vertical integration of generation and transmission assets and at some time we expect to transfer or sell the necessary transmission asset developments.

One stakeholder questioned the future ownership of the projects and whether they would be operated as one large field or whether each project would be considered as a single entity?

The operation and maintenance model has not yet been selected. Forewind will evaluate a range of alternatives, and included in this will be the search for synergies across the whole zone.

Please provide further information on the Forewind consortium, the office location and previous experience in developments of this size and type?

Forewind brings together the respective expertise, know-how and financial capacity of four leading international energy companies combining international offshore project delivery and renewables generation experience with UK utility expertise spanning the complete electricity value chain.

SSE (Scottish and Southern Energy plc) is one of the largest energy companies in the UK, leading in offshore wind, Statoil is a world leading offshore oil and gas operator, Statkraft is Europe's largest generator of renewable energy and RWE npower renewables is one of the UK's leading onshore and offshore wind farm developers and operators.

The Forewind development team currently sits in an office in Reading. Further information on the four partners involved in the Forewind consortium can be found on the website:
www.forewind.co.uk

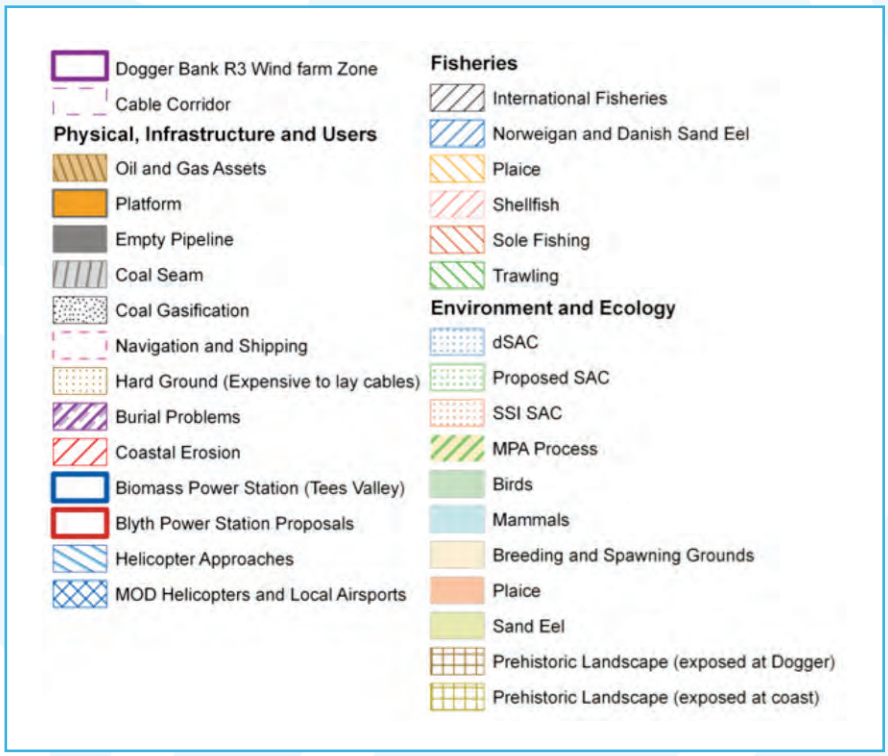
4.0 Consolidated Constraint Maps

The maps in this section are the potential consolidated constrains identified and drawn by the stakeholders from the three workshops. The information collected has been fed into the ZAP data collection process for verification and is being used in the process of identifying the project tranches.

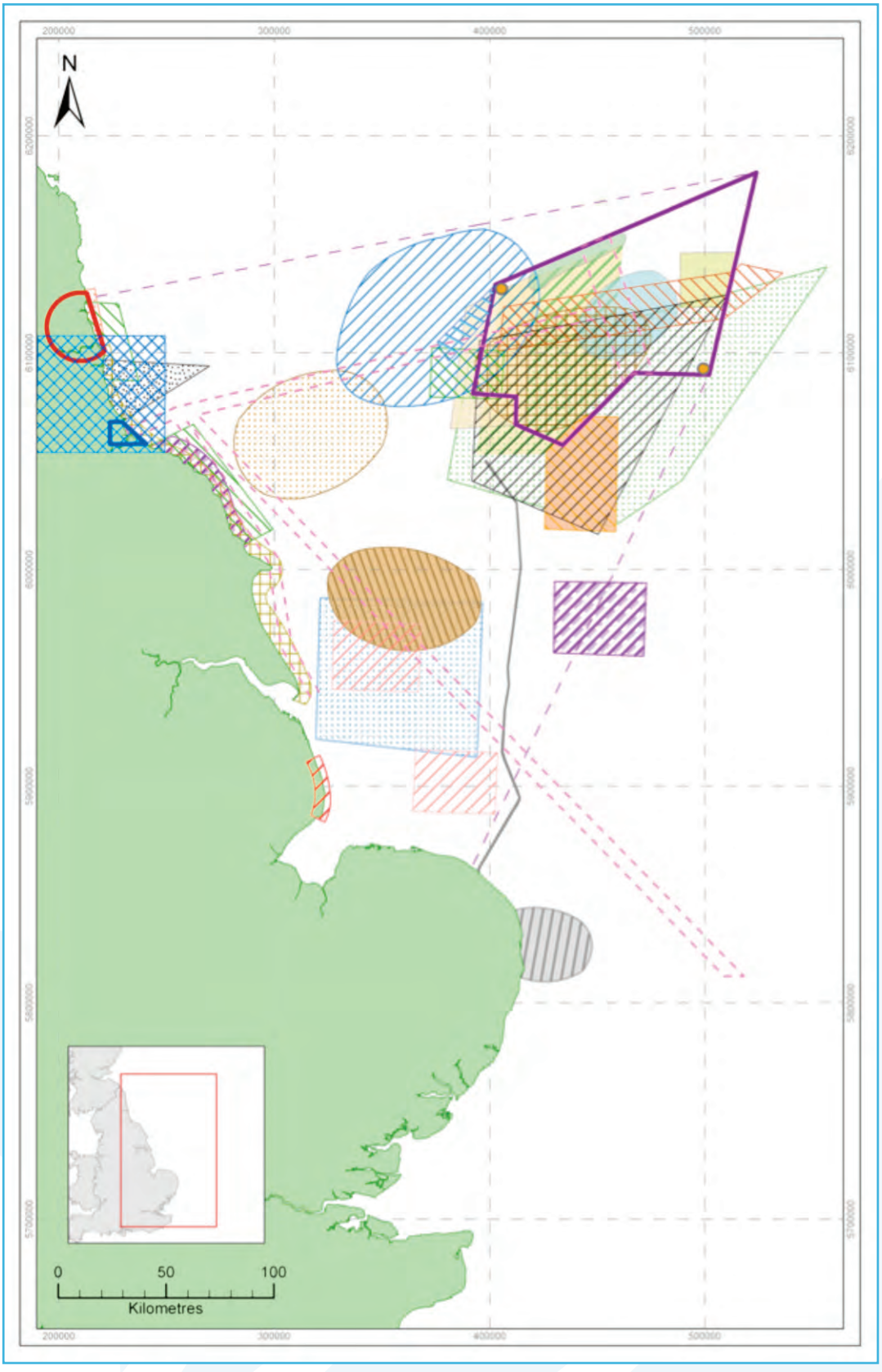
4.1 All Constraints as drawn

The following map shows all the combined potential constraints as drawn and captured at the three stakeholder workshops help in April 2010.

Key:

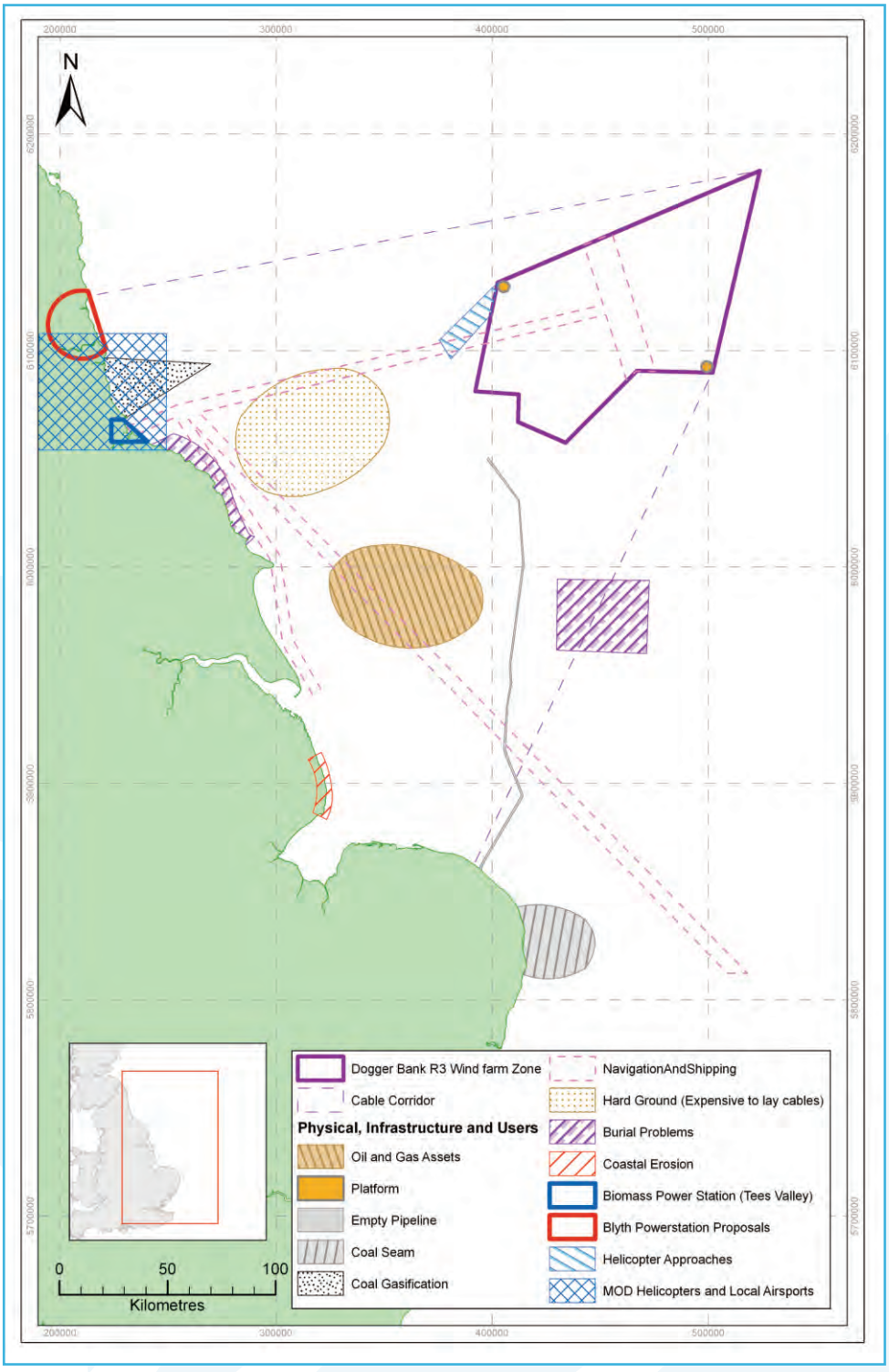


4.1 **All Constraints as drawn**



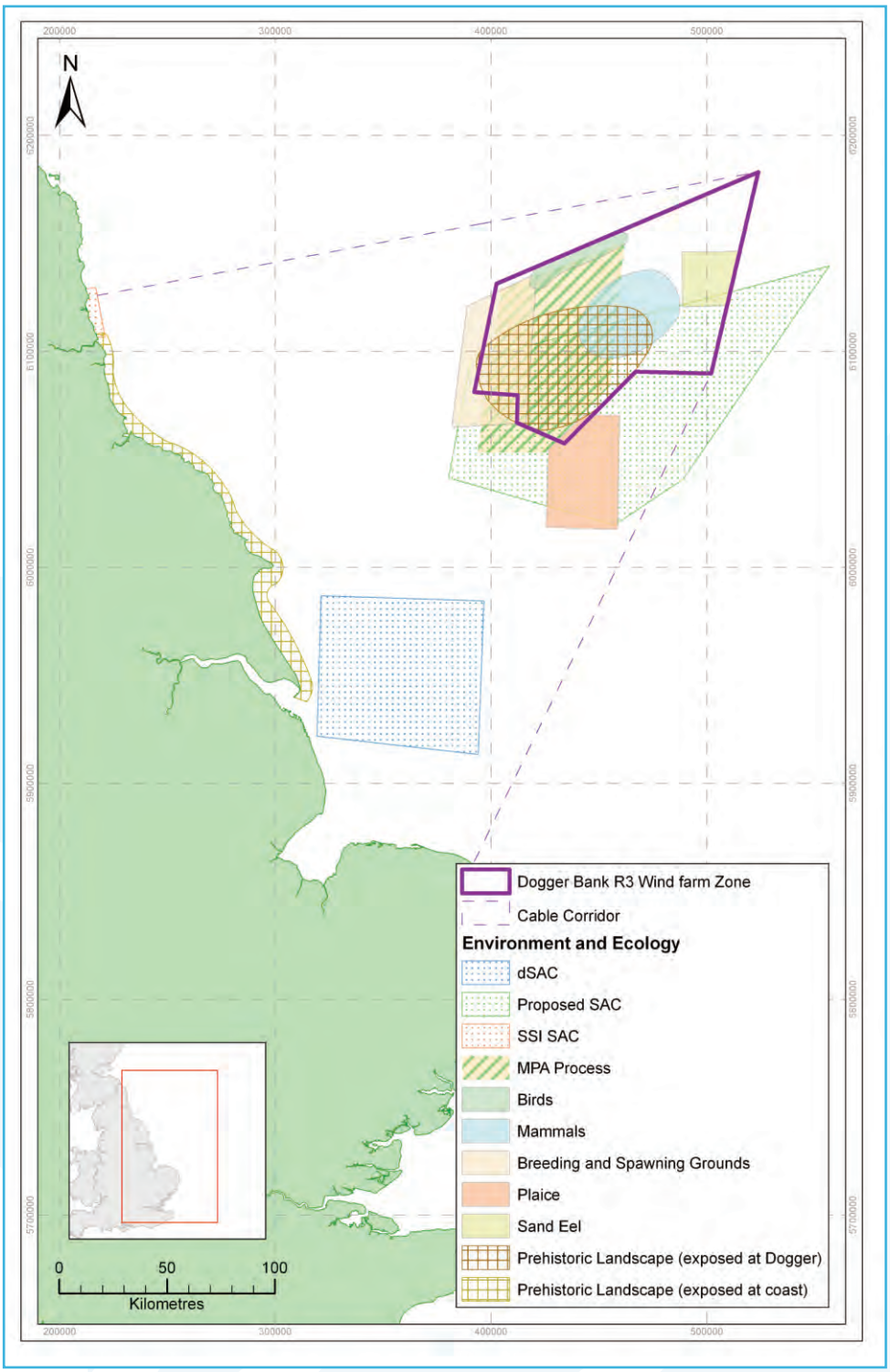
4.2 Physical and Infrastructure Constraints as drawn

The following map shows all the combined potential constraints as drawn and captured at the three stakeholder workshops help in April 2010.



4.3 Environment and Ecology as drawn

The following map shows all the combined potential constraints as drawn and captured at the three stakeholder workshops help in April 2010.



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