

REPORT



HOW01 - Technical Note - Variation to the DCO

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1. Hornsea Project One Offshore Wind Farm

Project One is the first project to be developed in the Hornsea Zone, with a total generation capacity of 1,200 MW. The Development Consent Order (DCO) was granted on the 10th of December 2014 and was corrected on 30th April 2015 by the Hornsea One Offshore Wind Farm (Correction) Order 2015. DONG Energy Wind Power A/S (“DONG Energy”) took over ultimate ownership of the project on the 4th of February 2015 and will take the project through into construction and operation. Project One was one of the first eight projects to receive a Contract for Difference from the Department of Energy and Climate Change (DECC). This document outlines the need for non-material variations to the DCO/Deemed Marine Licence (DML) to the three consented Offshore High Voltage Alternating Current (HVAC) Collector Substations (OSS) and the Offshore HVAC Reactive Compensation Substation (RCS) platform layout structures. This document also outlines the need to amend terminology relating to the decommissioning programme requirements within the DCO, which is also considered to be a non-material change.

2. Offshore HVAC Substation and Offshore HVAC Reactive Compensation Substation

The offshore infrastructure required for the project includes the offshore array, comprising wind turbine generators (WTGs) and foundations, inter-array cabling, offshore converter stations, offshore collector stations and all associated infrastructure (RPS, 2013). Two integral parts of this offshore infrastructure include the OSS and RCS. The purpose of the three OSS are to provide a centralised collection point for the inter-array cables, and to transform the voltage of the electricity generated at the WTGs to a higher voltage, suitable for transporting bulk power flows (RPS, 2013). In order to limit the electrical losses which occur with HVAC transmission over long distances, it is necessary to use shunt reactors to provide reactive compensation at a point close to the midway point along the export transmission cables. The electrical reactors will be housed in an offshore RCS (RPS, 2013).

3. Consented Envelope for OSS and RCS platform layouts

The Environmental Statement (ES) as submitted with the DCO stated the following with regard to the OSS worst case parameters (Chapter 3 – Project Description, Table 3.14 of ES) and RCS (Chapter 3 – Project Description, Table 3.23 of ES). These worst case parameters are detailed in **Tables 3.1** and **Table 3.2** respectively.

Table 3.1 HVAC OSS design worst case parameters (as detailed within the Hornsea Project 1 ES)

Element	Minimum	Maximum	Comments
Number of HVAC Substations	1	5	
Height of main building	25m	40m	Relative to MHWS.
Height of tallest element, e.g. crane, helipad, lightning mast	28m	60m	Relative to MHWS.
Width of topside	15m	40m	
Length of topside	25m	45m	
Area of topside	375m ²	1800m ²	
Voltage	33kV	400kV	
Foundation Type	Monopile, Jacket, Gravity Base (including mono, suction caisson).		
Seabed area affected per platform	-	12,723m ²	Includes scour, based on Jacket (Suction Piles).

Element	Minimum	Maximum	Comments
Total seabed area affected	-	63,617m ²	Includes scour, based on Jacket (Suction Piles).
Spoil volume per platform	-	19,242m ³	Includes scour, based on GBF.
Total spoil volume	-	96,211m ³	Includes scour, based on GBF.

Table 3.2 Offshore HVAC RCS design worst case dimensions (as detailed within the Hornsea Project 1 ES)

Element	Minimum	Maximum	Comments
Number of Reactor Substations	-	1	
Height of main building	-	50m	MHWS
Height of tallest element, e.g.: crane, helipad, lightning mast	-	63m	MHWS
Width of topside	-	45m	MHWS
Length of topside	-	40m	MHWS
Area of topside	-	1800m ²	
Voltage	132kV	400kV	
Foundation Type	Monopile, Jacket, Gravity Base, or Suction Caisson		
Seabed area affected per platform	-	6,362m ²	Includes scour, based on Jacket (Suction Piles).
Total seabed area affected	-	6,362m ²	Includes scour, based on Jacket (Suction Piles).
Spoil volume per platform	-	19,242m ³	Based on GBF
Total spoil Volume	-	19,242m ³	Based on GBF

4. Required Changes to the OSS and RCS platform layouts

Subsequent to the DCO being granted it has been assessed that the OSS platform layouts may potentially need to exceed the consent envelope (i.e. the maximum dimensions of elements of the development imposed by the Requirements in the DCO within the overall red line area) due to helideck overhang. The helideck design must be suitable to accommodate large search and rescue (SAR) helicopters. The RCS platform layout may also be required to exceed the consented envelope due to helideck overhang and the need for a Radar Beacon (RaCon) to be installed. RaCons alert shipping traffic to the location of the substation to avoid collision. The installations of RaCons will require small cantilevers to extend out from the gangway. The DCO Requirements relevant to the OSS and RCS design are located in **Appendix 1** of this document, and the location plan and new indicative layouts of the RCS and OSS platforms are located in **Appendix 2** of this document. **Table 4.1** details the consented and the new required design envelopes for the OSS and RCS.

The amendments that will be required to the DCO to reflect these proposed changes are shown in the track changed version of the DCO which is enclosed within **Appendix B** of this application. A draft Amendment Order to give effect to the proposed changes is enclosed within **Appendix C** of this application.

Table 4.1: Consented and required design envelope for the OSS and RCS

OSS: Current envelope			
Width	Length	Area	Height
40m	45m	1800m ²	60m (MHWS)
OSS: Required envelope			
Width	Length	Area	Height
40m	60m	2400 m ²	60m (MHWS)
RCS: Current envelope			
Width	Length	Area	Height
45m	40m	1800m ²	63m (MHWS)
RCS: Required envelope			
Width	Length	Area	Height
50m	50m	2500m ²	63m (MHWS)

The changes required to the dimensions and layout of the OSS and RCS platforms sit outside the Hornsea Project One original Design (“Rochdale”) Envelope, as assessed within Chapter 3 – Project Description, Tables 3.14 and 3.23, of the Hornsea Project One ES, and; therefore, a variation to the relevant sections of the DCO/deemed Marine Licence (DML) will be required.

5. Materiality of Changes

There is no statutory definition of what constitutes a material or non-material amendment for the purposes of Schedule 6 to the Planning Act 2008 and Part 1 of the 2011 Regulations.

However, the Government has recently confirmed that it will be issuing guidance on this point. Criteria for determining whether an amendment should be material or non-material is outlined in the Department for Communities and Local Government (DCLG's) “Government response to the consultation on making changes to Development Consent Orders” (November 2014). Paragraph 8 of this document sets out three characteristics which the Government has confirmed will be contained in future guidance to indicate whether a proposed change is material or non-material. The following characteristics are stated to indicate that an amendment is more likely to be considered ‘material’.

- 1) Where any new or significant effects on the environment as a result of the change mean that an update to the original Environmental Statement (from that at the time the original DCO was made) is required (to take account of those effects);
- 2) Where the impact of the development to be undertaken as a result of the proposed change introduces the need for a new Habitats Regulations Assessment, or the need for a new or additional licence in respect of European Protected Species (EPS) (in addition to those at the time the original DCO was made); or
- 3) Where the change would involve compulsory acquisition of any land that was not authorised through the existing DCO.

In the absence of any other statutory guidance or definitions, the proposed variation to the DCO in relation to the changes to the OSS and RCS platform layout has been considered in light of these three characteristics as follows.

1) Where any new or significant effects on the environment as a result of the change mean that an update to the original Environmental Statement (from that at the time the original DCO was made) is required (to take account of those effects).

Table 5.1 compares the environmental topics and the potential effects and impacts that were identified within the Hornsea Project One ES with the changes proposed to OSS and RCS platform layout designs. Consideration has been given to the effects of the proposed changes and whether these changes could result in impacts of significance (in EIA terms) or greater significance to those identified in the existing assessment as submitted to the Secretary of State in July 2013.

Table 5.1 concludes that the potential impacts associated with the proposed changes to the OSS and RCS platform layouts are of no greater significance than those identified in the original Hornsea Project One ES. The previously identified impacts are a consequence of the physical presence, and footprint of the substations i.e. the interaction with the foundations and scour protection with the seabed, aspects which are not affected by the change in the platform topside dimensions. In addition the worst case scenario for the number OSS substations that was assessed within the ES was five. Only three are now required for Hornsea Project One.

Table 5.1: Assessment of the changes to the OSS and RCS platform design parameters and their effect on EIA topic impact significance

EIA Topic	Change in Project Parameters	Changes in Effect	Change in Impact Significance
Marine Processes	Increases in the length and area of the OSS platforms and the length, width and area of the RCS platform.	<p>Effects identified on marine processes associated with the construction, operation and decommissioning of Hornsea Project One within the ES included:</p> <ul style="list-style-type: none"> • increased suspended sediment concentrations and deposition of material on the seabed • changes to seabed morphology hydrodynamics and sediment regime. • changes to tidal and wave regime <p>There will be no change in the magnitude of these effects as a result in the change in the project parameters.</p>	<p>The impacts identified are caused by the physical presence of the substations and their below sea level infrastructure (namely their foundations), not the precise plan form of the above sea level platform structure. The increased platform size does not require a change in the foundation size as the weight of helideck and RaCon cantilevers are limited. The dimensions of the platforms are not referred to as part of the worst case in the assessment undertaken within this chapter of the Environmental Statement.</p> <p>There will therefore be no change in impact significance.</p>
Benthic Subtidal and Intertidal Ecology	Increases in the length and area of the OSS platforms and the length, width and area of the RCS platform.	<p>Effects identified on benthic subtidal and intertidal ecology associated with the construction, operation and decommissioning of Hornsea Project One within the ES included:</p> <ul style="list-style-type: none"> • increased suspended sediment concentrations and deposition • temporary habitat disturbance and loss • long term habitat loss • introduction of new habitat • habitat disturbance via scour and vessel activities during operation <p>There will be no change in the magnitude of these effects as a result in the change in the project parameters.</p>	<p>The impacts identified are caused by the physical presence of the substations and their below sea level infrastructure (namely their foundations), not the precise plan form of the above sea level platform structure. The increased platform size does not require a change in the foundation size as the weight of helideck and RaCon cantilevers are limited. The dimensions of the platforms are not referred to as part of the worst case in the assessment undertaken within this chapter of the Environmental Statement.</p> <p>There will therefore be no change in impact significance.</p>
Fish and Shellfish Ecology	Increases in the length and area of the OSS platforms and the length, width and area of the RCS platform.	<p>Effects identified on fish and shellfish ecology associated with the construction, operation and decommissioning of Hornsea Project One within the ES included:</p> <ul style="list-style-type: none"> • underwater noise • increased suspended sediment concentrations • sediment deposition • temporary habitat disturbance • long term habitat loss 	<p>The impacts identified are associated with the physical presence of the substations, the below sea level infrastructure (namely the foundations), and the piling activities required to install these foundations, not the precise plan form of the above sea level structure. The increased platform size does not require a change in the foundation size as the weight of helideck and RaCon cantilevers are limited. The dimensions of the platforms are not referred to in the worst case assessment undertaken within this chapter of the Environmental Statement.</p>

EIA Topic	Change in Project Parameters	Changes in Effect	Change in Impact Significance
		<ul style="list-style-type: none"> • electric and magnetic field emissions from subsea cables • introduction of new habitat • potential for reduced fishing pressure during operation <p>There will be no change in the magnitude of these effects as a result in the change in the project parameters.</p>	<p>There will therefore be no change in impact significance.</p>
Marine Mammals	Increases in the length and area of the OSS platforms and the length, width and area of the RCS platform.	<p>Effects identified on marine mammals associated with the construction, operation and decommissioning of Hornsea Project One within the ES included:</p> <ul style="list-style-type: none"> • underwater noise • increased vessel traffic • increased suspended sediments • changes to prey resources • accidental release of contaminants and electric and magnetic effects from subsea cables <p>There will be no change in the magnitude of these effects as a result in the change in the project parameters.</p>	<p>The impacts identified are associated with the physical presence of the substations the below sea level infrastructure, (namely the foundations), and the piling required to install these foundations, not the precise plan form of the above sea level structure. The increased platform size does not require a change in the foundation size as the weight of helideck and RaCon cantilevers are limited. The dimensions of the platforms are not referred to in the worst case assessment undertaken within this chapter of the Environmental Statement.</p> <p>There will therefore be no change in impact significance.</p>
Ornithology	Increases in the length and area of the OSS platforms and the length, width and area of the RCS platform.	<p>Effects identified on ornithology associated with the construction, operation and decommissioning of Hornsea Project One within the ES included:</p> <ul style="list-style-type: none"> • disturbance-displacement impacts • habitat loss • collision mortality • barrier effects • indirect effects associated with impacts on prey items <p>There will be no change in the magnitude of these effects as a result in the change in the project parameters.</p>	<p>The impacts identified are caused by the physical presence and spatial layout of the substations not the precise plan form of the above sea level structure. The dimensions of the above sea level substation platforms are not referred to in the worst case assessment undertaken within this chapter of the Environmental Statement.</p> <p>There will therefore be no change in impact significance.</p>
Nature Conservation	Increases in the length and area of	The construction, operation, and decommissioning phases of Project One were predicted to result in no significant	The impacts on the nature conservation sites and their interest features

EIA Topic	Change in Project Parameters	Changes in Effect	Change in Impact Significance
	the OSS platforms and the length, width and area of the RCS platform.	<p>effects on any UK designated sites with benthic ecology, fish and shellfish, marine mammal or ornithological features within the Hornsea Project One ES.</p> <p>There will be no change in the magnitude of these effects as a result in the change in the project parameters</p>	<p>are associated with the physical presence of the substations, and the impact of underwater noise resulting from piling activities. No impact is associated with the plan form of above sea level substation structure. The dimensions of the above sea level substation platforms are not referred to in the worst case assessment undertaken within this chapter of the Environmental Statement.</p> <p>There will therefore be no change in impact significance.</p>
Commercial Fisheries	Increases in the length and area of the OSS platforms and the length, width and area of the RCS platform.	<p>Effects identified on commercial fisheries associated with the construction, operation and decommissioning of Hornsea Project One within the ES included:</p> <ul style="list-style-type: none"> • exclusion from fishing grounds • displacement • gear snagging • ecological effects upon targets species <p>There will be no change in the magnitude of these effects as a result in the change in the project parameters.</p>	<p>The impacts are associated with the physical presence and spatial layout of the substations. No impact is associated with the planform of above surface level substation structure. The dimensions of the above sea level substation platforms are not referred to in the worst case assessment undertaken within this chapter of the Environmental Statement.</p> <p>There will therefore be no change in impact significance.</p>
Shipping and Navigation	Increases in the length and area of the OSS platforms and the length, width and area of the RCS platform.	<p>Effects identified on shipping and navigation associated with the construction, operation and decommissioning of Hornsea Project One within the ES included:</p> <ul style="list-style-type: none"> • displacement of commercial shipping, fishing vessels and recreational vessels leading to an increased vessel to vessel collision risk. <p>There will be no change in the magnitude of these effects as a result in the change in the project parameters.</p>	<p>The impacts identified include the physical presence of the substations and their spatial layout, not the planform design of the above sea level substation structure. The dimensions of the above sea level substation platforms are not referred to in the worst case assessment undertaken within this chapter of the Environmental Statement.</p> <p>There will therefore be no change in impact significance.</p>
Aviation, Military and Communications	Increases in the length and area of the OSS platforms and the length, width and area of the RCS platform.	<p>Effects identified on aviation, military and communications associated with the construction, operation and decommissioning of Hornsea Project One within the ES included:</p> <ul style="list-style-type: none"> • interference with operations within MOD Danger Areas • disruption to Helicopter Main Routes (HMR) 	<p>The impacts identified include the physical presence of the substations and their spatial layout, not the planform design of the above sea level substation structure. The dimensions of the above sea level substation platforms are not referred to in the worst case assessment within this chapter of the Environmental Statement</p> <p>There will therefore be no change in impact significance</p>

EIA Topic	Change in Project Parameters	Changes in Effect	Change in Impact Significance
		<ul style="list-style-type: none"> • disruption to cross-zone transit helicopter traffic • disruption of instrument approach procedures and Missed Approach Procedures (MAPs) to and from, offshore oil and gas platforms • disruption to civil and military radar cover, obstruction to Search And Rescue helicopter operations • interference with microwave and other communication links <p>There will be no change in the magnitude of these effects as a result in the change in the project parameters.</p>	
Marine Archaeology and Ordinance	Increases in the length and area of the OSS platforms and the length, width and area of the RCS platform.	<p>Effects identified on marine archaeology and ordnance with the construction, operation and decommissioning of Hornsea Project One within the ES included:</p> <ul style="list-style-type: none"> • removal or disturbance of sediments of geoarchaeological significance or the disturbance • destruction of wrecks and/or crashed aircraft <p>There will be no change in the magnitude of these effects as a result in the change in the project parameters.</p>	<p>The impacts identified are caused by the below sea level infrastructure of the substations (namely their foundations) and not the above sea level infrastructure. The dimensions of the substation platforms are not referred to in the worst case assessment undertaken within this chapter of the Environmental Statement.</p> <p>There will be no change in impact significance.</p>
Seascape and Visual Resources	Increases in the length and area of the OSS platforms and the length, width and area of the RCS platform.	<p>Effects identified on seascape and visual resources, operation and decommissioning of Hornsea Project One within the ES included</p> <ul style="list-style-type: none"> • a change to the existing present day seascape character and Historic Seascape Character (HSC) • a change to the current visual and night-time scenario experienced by visual receptors <p>The increases in the length, width and areas of the RCS and OSS platforms are marginal. There will be no increases in the height of any structure. As a result there will be no change in the magnitude of these effects as a result of these changes in the project parameters.</p>	<p>It is necessary to increase the width and length of the RCS substation platform by 5m and 10m respectively, and the length of the OSS platform by 15m. The required increases will not have an impact on the seascape character and HSC as the fundamental nature of the structure will be unchanged.</p> <p>In visual terms, there will be no increase in the height of any of the structure. The width and length of the RCS is already 40m and 45m. The length of the OSS platform is 45m. The increases in the length and width of the platforms do not deviate extensively from the assessment ES and will not result in a change in the significance of the impact on any visual receptors assessed within this chapter of the Environmental Statement.</p>

EIA Topic	Change in Project Parameters	Changes in Effect	Change in Impact Significance
			There will therefore be no change in impact significance.
Infrastructure and Other Uses	Increases in the length and area of the OSS platforms and the length, width and area of the RCS platform.	<p>Effects identified on infrastructure and other uses with the construction, operation and decommissioning of Hornsea Project One within the ES included:</p> <ul style="list-style-type: none"> • displacement of recreational vessels • disturbance to cables and pipelines and aggregate areas • disruption to oil and gas operations including the interference with Radar Early Warning Systems (REWS) on gas platforms • increase in airborne noise <p>There will be no change in the magnitude of these effects as a result in the change in the project parameters.</p>	<p>The impacts identified include the physical presence and the spatial layout of the substations and not the planform designs of the substation structures. The dimensions of the above sea level substation platforms are not referred to in the worst case assessment undertaken within this chapter of the Environmental Statement.</p> <p>Therefore there will be no change in impact significance.</p>
Air Quality and Waste Management	Increases in the length and area of the OSS platforms and the length, width and area of the RCS platform.	<p>Effects identified on air quality and waste management with the construction, operation and decommissioning of Hornsea Project One within the ES included</p> <ul style="list-style-type: none"> • release of atmospheric contaminants • the accidental release of non-hazardous and hazardous materials • an increase in pressure upon onshore waste receiving facilities <p>There will be no change in the magnitude of these effects as a result in the change in the project parameters.</p>	<p>The impacts identified are related to the physical presence of the substations and not to their planform structure. The dimensions of the above sea level platforms are referred to in the worst case assessment undertaken within this chapter of the Environmental Statement.</p> <p>Therefore there will be no change in impact significance.</p>
Inter-Related Effects (Offshore)	Increases in the length and area of the OSS platforms and the length, width and area of the RCS platform.	<p>The overall significance of any inter-related effects was not judged to increase the individual effects assessed in the topic-specific chapters within the Hornsea Project One ES.</p> <p>There will be no change in the magnitude of these effects as a result in the change in the project parameters.</p>	<p>There is no change in the impact significance of any parameter within the Environmental Statement topic chapters and therefore there are no changes to any inter-related effects.</p> <p>There will therefore be no change in impact significance.</p>

2) *Where the impact of the development to be undertaken as a result of the proposed change introduces the need for a new HRA, or the need for a new or additional licence in respect of EPS (in addition to those at the time the original DCO was made).*

The changes to the OSS and RCS platform layouts will not introduce the need for a new HRA or EPS. This flows from the same reasons as those which have led to the conclusion that there is no change to the EIA impact significance (see **Table 5.1**). In particular, the key potential for impact arises from the physical presence of the substations and their below sea level infrastructure, rather than their precise, above sea level platform dimensions. The changes give rise to no additional impact in HRA or EPS terms.

3) *Where the change would involve compulsory acquisition of any land that was not authorised through the existing DCO.*

The proposed change applies to activities being undertaken within the existing DCO Order limits and on land that will be leased to the project by The Crown Estate. As such, the possible requirement for compulsory acquisition does not arise.

6. Decommissioning Programme

The Project One companies will also be applying for a non-material amendment to alter DCO Requirement 10 which refers to no part of the authorised development below **Mean High Water Springs (MHWS)** commencing without an approved decommissioning programme, to instead refer to the **mean low water mark** as per the requirements of Section 105 of the Energy Act and stipulated within DECC guidance for industry on the decommissioning of offshore wind farms (DECC, 2011). The DECC (2011) guidance explicitly states that the decommissioning scheme does not cover the inter-tidal zone. The inaccuracy in the terminology is likely to have been a result of a previously unrecognised clerical error within the DCO and has no implications for any environmental assessment parameter or topic.

7. Stakeholder Engagement

The Project One companies have conducted a programme of informal pre-application consultation in order to brief stakeholders on the nature of the proposed DCO variations. In addition to a pre-application meeting with The Planning Inspectorate, who advised on the content and scope of the application, pre-application meetings have been conducted with:

- Department of Energy and Climate Change (DECC);
- Natural England;
- Marine Management Organisation (MMO);
- Civil Aviation Authority (CAA);
- Maritime and Coastguard Agency (MCA);
- Trinity House (TH);
- National Federation of Fishermen's Organisations (NFFO);
- Danish Fish Producer's Organisation; and
- VisNed (Dutch Fisheries)

No concerns over the proposed changes were raised by these organisations during the course of these discussions. The minutes of these meetings are contained within **Appendix 3** of this document.

8. Conclusion

Taking into account the above responses to the three tests, as set out in the DCLG document, it is the opinion of the Hornsea Project One companies that the proposed changes to the DCO in relation to the OSS and RCS platform layouts should be regarded as non-material amendments. As laid out in Section 6 of this document, the amendment to the decommissioning programme statement within the DCO is to comply with the requirements of Section 105 of the Energy Act, as advised within DECC guidance on the decommissioning of offshore wind farms, and it is also considered that this should be regarded as a non-material amendment for the reasons stated above.

9. References

Department of Climate Change (2011) Decommissioning of offshore renewable energy installations under the Energy Act 2004. Guidance Note for Industry. January 2011 (revised).

Department for Communities and Local Government (2014) Government response to the consultation on making changes to Development Consent Orders. November 2014

Infrastructure Planning (Changes to, and revocation of, Development Consent Orders) Regulations 2011 (“the 2011 Regulations”).

Infrastructure Planning (Changes to, and Revocation of, Development Consent Orders) (Amendment) Regulations 2015

RPS (2013) Hornsea Offshore Wind Farm Project One Environmental Statement Volume 1. – Introductory Chapters. Chapter 3 -Project Description PINS Document Reference: 7.1.3. July 2013.

Appendices

Appendix 1: DCO/DML Conditions Relevant to OSS and RCS

DCO / DML
Condition reference
<p>SCHEDULE 1 Authorised Project PART 1 Authorised development</p> <p>Work No 4 & Work No 5</p>
<p>Up to five offshore HVAC collector substations and, in the event that the mode of transmission is HVDC, up to 2 offshore HVDC converter stations together with a network of electrical circuits connecting the structures within Work No. 4.</p>
<p>SCHEDULE 1 Authorised Project PART 3 Requirements</p>
<p>Detailed design parameters</p> <p>2 (2) Each offshore HVAC collector substation forming part of Work No. 4 must not—</p> <p>(a) exceed 60 metres in height above MHWS;</p> <p>(b) have a platform which at its greatest extent exceeds 1,800 m² or 40 metres in width.</p> <p>2 (5) The offshore reactive compensation substation comprised in Work No. 5 must not—</p> <p>(a) exceed 63 metres in height above MHWS; or</p> <p>(b) have a platform which at its greatest extent exceeds 1,800 m² or 45 metres in width.</p> <p>Foundation Methods</p> <p>4 (5) The following parameters apply in respect of the foundation methods used to fix offshore HVAC collector substations to the seabed—</p> <p>(a) where monopile foundations are used—</p> <p>(i) the area occupied by the foundations and the scour protection for each individual structure must not exceed 1,419 m²;</p> <p>(ii) the diameter of each foundation must not exceed 8.5 metres;</p> <p>(b) where jacket foundations (driven/drilled piles) are used—</p> <p>(i) the area occupied by the foundations and the scour protection for each individual structure must not exceed 1,924 m²;</p> <p>(ii) the number of piles per jacket must not exceed eight;</p> <p>(iii) the diameter of each pile must not exceed 3.5 metres;</p> <p>(c) where jacket foundations (suction piles) are used—</p> <p>(i) the area occupied by the foundations and the scour protection for each individual structure must not exceed 12,723 m²;</p> <p>(ii) the number of piles per jacket must not exceed eight;</p> <p>(iii) the diameter of each pile must not exceed 15 metres;</p> <p>(d) where gravity base foundations are used—</p> <p>(i) the area occupied by the foundations and the scour protection for each individual structure must not exceed 6,362 m²;</p> <p>(ii) the seabed levelling diameter must not exceed 70 metres;</p> <p>(iii) the cone diameter must not exceed 50 metres at its base.</p>

DCO / DML**Condition reference**

(7) The following parameters apply in respect of the foundation methods used to fix the offshore **reactive compensation substation** to the seabed—

(a) where monopile foundations are used—

(i) the area occupied by the foundations and the scour protection must not exceed 1,419 m²;

(ii) the diameter of each foundation must not exceed 8.5 metres;

(b) where jacket foundations (driven/drilled piles) are used—

(i) the area occupied by the foundations and the scour protection must not exceed 1,414 m²;

(ii) the number of piles per jacket must not exceed eight;

(iii) the diameter of each pile must not exceed three metres;

(c) where jacket foundations (suction piles) are used—

(i) the area occupied by the foundations and the scour protection must not exceed 6,362 m²;

(ii) the number of piles per jacket must not exceed eight;

(iii) the diameter of each pile must not exceed 15 metres;

(d) where gravity base foundations are used—

(i) the area occupied by the foundations and the scour protection for each individual structure must not exceed 6,362 m²;

(ii) the seabed levelling diameter must not exceed 70 metres;

(iii) the cone diameter must not exceed 50 metres at its base.

SCHEDULE 11 Deemed Marine Licences under the Marine and Coastal Access Act 2009 – Deemed Marine Licence 4

PART 1 Licensed marine activities

Work No. 4 — up to five **offshore HVAC collector substations** and, in the event that the mode of transmission is HVDC, up to two offshore HVDC converter stations together with a network of electrical circuits connecting the structures within Work No. 4. The limits of deviation for Work No. 4 are specified in Table 1.

Work No. 5 — in the event that the mode of transmission is HVAC, an **offshore reactive compensation substation** fixed to the seabed at latitude point 53° 37′ 39.284″ N and longitude point 0° 56′ 9.841″ E, subject to deviation within the limits of deviation specified in Table 2.

SCHEDULE 11

Licence Conditions Design Parameters

1.—(1) Each offshore **HVAC collector substation** forming part of Work No. 4 must not—

(a) exceed 60 metres in height above MHWS;

(b) have a platform which at its greatest extent exceeds 1,800 m² or 40 metres in width.

1. — (3) The **offshore reactive compensation substation** comprised in Work No. 5 must not—

(a) exceed 63 metres in height above MHWS;

(b) have a platform which at its greatest extent exceeds 1,800 m² or 45 metres in width.

(3) The following parameters apply in respect of the foundation methods used to fix offshore **HVAC collector substations** comprised in Work No. 4 to the seabed—

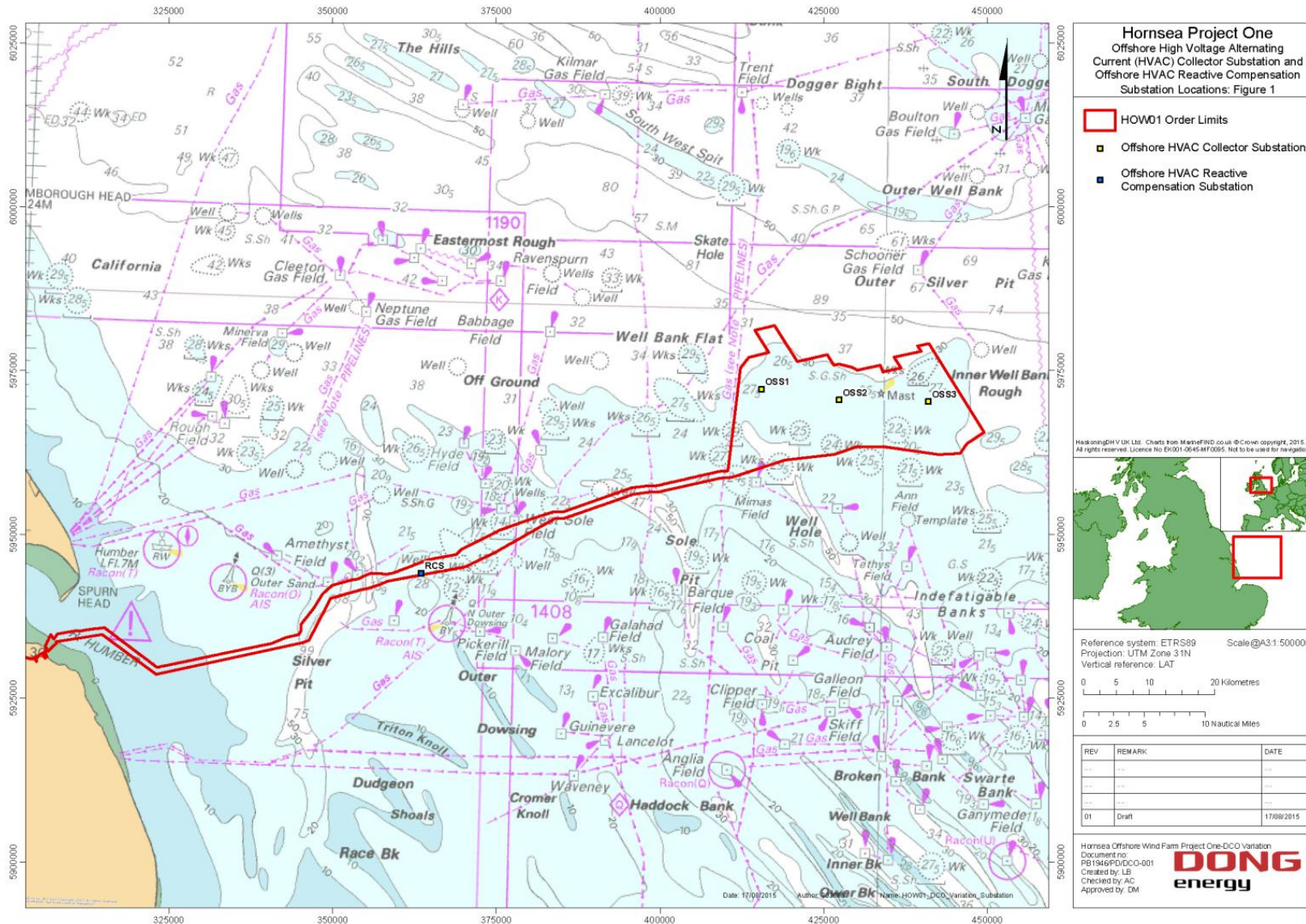
(a) where monopile foundations are used—

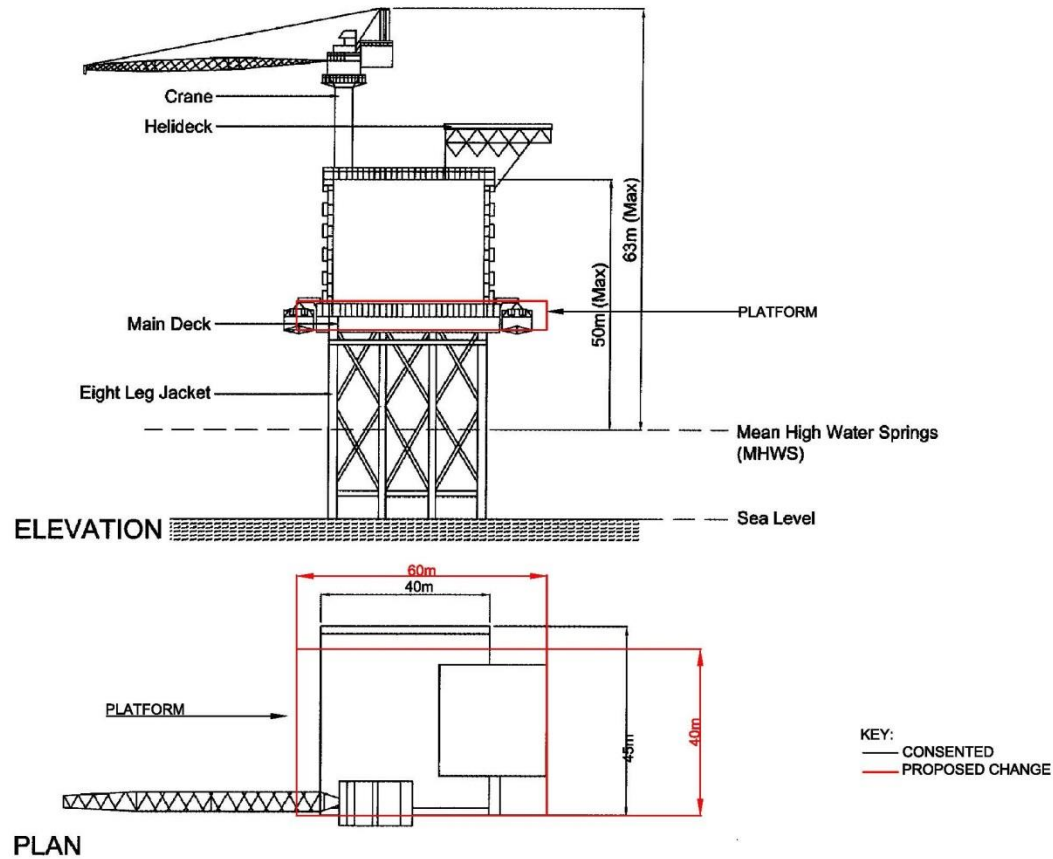
(i) the area occupied by the foundations and the scour protection for each individual structure must not exceed 1,419 m²;

DCO / DML**Condition reference**

- (ii) the diameter of each foundation must not exceed 8.5 metres;
 - (b) where jacket foundations (driven/drilled piles) are used—
 - (i) the area occupied by the foundations and the scour protection for each individual structure must not exceed 1,924 m²;
 - (ii) the number of piles per jacket must not exceed eight;
 - (iii) the diameter of each pile must not exceed 3.5 metres;
 - (c) where jacket foundations (suction piles) are used—
 - (i) the area occupied by the foundations and the scour protection for each individual structure must not exceed 12,723 m²;
 - (ii) the number of piles per jacket must not exceed eight;
 - (iii) the diameter of each pile must not exceed 15 metres;
 - (d) where gravity base foundations are used—
 - (i) the area occupied by the foundations and the scour protection for each individual structure must not exceed 6,362 m²;
 - (ii) the seabed levelling diameter must not exceed 70 metres;
 - (iii) the cone diameter must not exceed 50 metres at its base.
- 5) The following parameters apply in respect of the foundation methods used to fix the offshore **reactive compensation substation** comprised in Work No. 5 to the seabed—
- (a) where monopile foundations are used—
 - (i) the area occupied by the foundations and the scour protection must not exceed 1,419 m²;
 - (ii) the diameter of each foundation must not exceed 8.5 metres;
 - (b) where jacket foundations (driven/drilled piles) are used—
 - (i) the area occupied by the foundations and the scour protection must not exceed 1,414 m²;
 - (ii) the number of piles per jacket must not exceed eight;
 - (iii) the diameter of each pile must not exceed three metres;
 - (c) where jacket foundations (suction piles) are used—
 - (i) the area occupied by the foundations and the scour protection must not exceed 6,362 m²;
 - (ii) the number of piles per jacket must not exceed eight;
 - (iii) the diameter of each pile must not exceed 15 metres;
 - (d) where gravity base foundations are used—
 - (i) the area occupied by the foundations and the scour protection for each individual structure must not exceed 6,362 m²;
 - (ii) the seabed levelling diameter must not exceed 70 metres;
 - (iii) the cone diameter must not exceed 50 metres at its base.

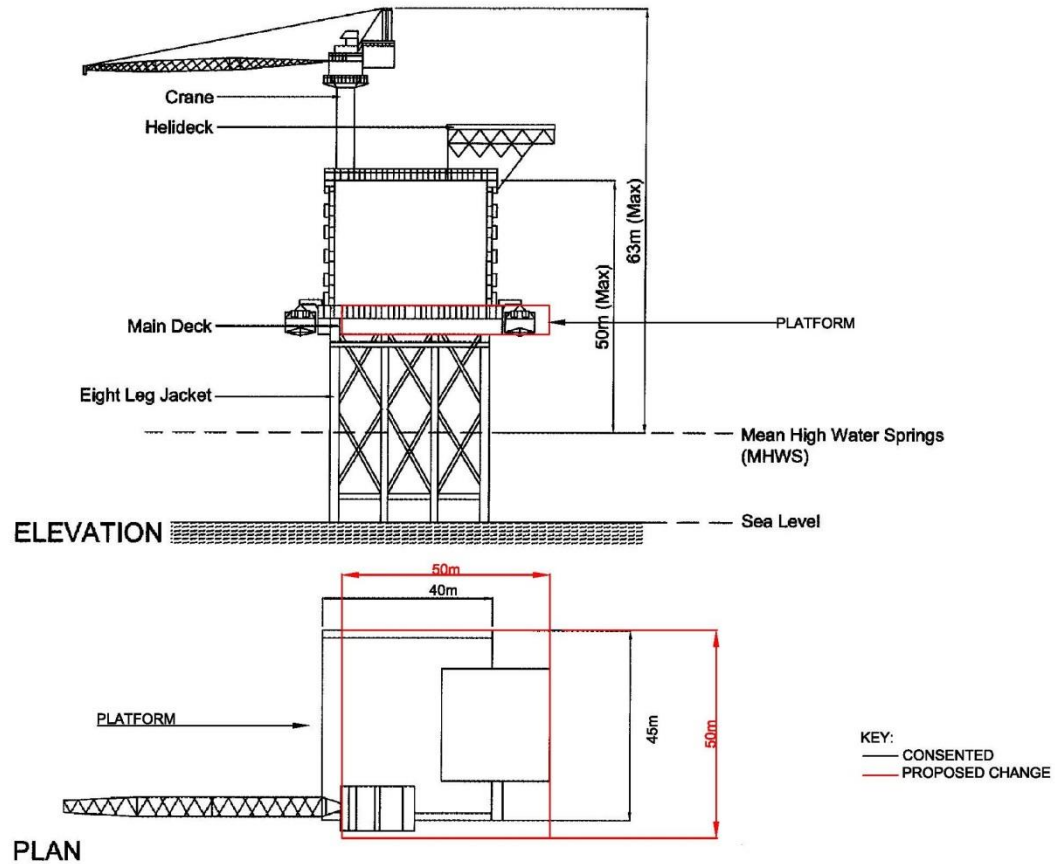
Appendix 2: Location Plan and Indicative Layouts of the RCS and OSS





	Kraftværkvej 53 - 7000 Fredericia - Denmark Tel. +45 6655 1111 www.dongenergy.com	OFFSHORE HVAC COLLECTOR SUBSTATION		File name	Drawn by	Checked	Approved
		INDICATIVE LAYOUT		SIDE11A.dwg	17-08-2015 KIRSO		
		Scale	Size	Plant/project	Drawing no.	Sheet	Rev.
			A3	1-01114		SIDE11A	a

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OFFSHORE HVAC
REACTIVE COMPENSATION SUBSTATION
INDICATIVE LAYOUT

File name
SIDE13A.dwg

Scale
A3

Plant/project
1-01114

Drawn by
17-08-2015 KIRSO

Checked

Approved

Approved

SIDE13A

Sheet

Rev.

a

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Appendix 3: Pre-Application Consultation Meeting Minutes

Department of Energy and Climate Change (DECC)

Minutes of meeting

Meeting HOW01 - 150724 - Meeting - DECC - DCO variations
Meeting Date 24 July 2015 - 14:00 - 15:00
Place 3 Whitehall PI, London SW1A 2AW
Participants Naomi Williams (DECC) (NW)
 Gareth Leigh (DECC) (GL)
 Robert Staniland (Haskoning)
 Marc Browne (DONG Energy) (MB)
 Bronagh Byrne (DONG Energy) (BB)

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Absent

Copy Claus Fridtjof Christensen (DONG Energy)
Next meeting N/A

07 October 2015

Our ref. MBROW/MBROW
 Doc. no. 2238699
 (ver. no.)
 Case no. 200-12-0444
 Approved: MBROW

Minutes

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1. Introductions

Introductions were made for those that had not previously met. BB thanked all for making the time to meet and discuss the proposed variations in relation to the Decommissioning Programme and to the parameters of the Offshore Substation (OSS) and Reactive Compensation Station (RCS) in relation to Hornsea Project One (HOW01), Development Consent Order (DCO) and deemed Marine Licences (DMLs).

2. Project Update

BB provided a brief update on the project, indicating that the DCO had been granted on 10th December 2014. DONG Energy (DE) took over the project in its entirety on 4th February 2015 and that the project had been awarded Contracts for Difference (CFD) from the Department of Energy and Climate Change (DECC).

3. Project Status & Timelines

BB also discussed the proposed dates for commencement of offshore and onshore installation/construction and internal timelines. Key dates discussed included: Onshore export cable to commence Q4 2016; Onshore substation Q1 2016; Offshore installation to commence Q1 2018, with intertidal works for the Horizontal Directional Drill to commence Q1 2017; Cable corridor geotech summer 2015.

4. Decommissioning Programme

BB set out HOW01 concerns regarding the statement that no part of the works below MHWS shall commence without an approved decommissioning programme and requested clarification that it should refer to MLWS, as per Section 105 of the Energy Act and requested that the DCO is varied accordingly.

DECC agreed that this is likely to represent a non-material change and suggested making a request for a variation together with any other such requests being made.

Action: HOW01 to make request for variation to DCO wording together with OSS and RCS application.



5. Platform Engineering Requirements

MB discussed the "Product Line" principle measures for cost of energy reduction and described that there is a template for substations that necessitate a minor change to the structural dimensions described and consented for in the DCO and DMLs.

MB explained that additional structures (RACONS) maybe required by stakeholders for safety purposes and that this would require small cantilevers out from the gangway.

6. Update on meetings with MMO/MCA/TH/CAA

MB provided an update from recent consultation with the MMO, MCA, Trinity House and more recently the CAA. MB went on to say that all the stakeholders consulted to date had stated no issues with the proposed changes in dimensions to the OSS and RCS and indicated that the expectation would be for a non-material change to the DCO and DML.

7. Variation to OSS/RCS

MB and RS described the current and proposed changes to the OSS and RCS (Detailed below).

OSS: Current envelope		
Width	Area	Height
40m	1800m ² (*required length to achieve this area is 45m. Likely omitted from DCO due to a clerical oversight)	60m (*specified height relates to the tallest element, inclusive of crane, helipad, lightning mast etc.) (MHWS)
OSS: Required envelope		
Length	Width	Height
60m	40m	60m (MHWS) (Area of 2400 m ²)
RCS: Current envelope		
Width	Area	Height
45m	1800m ²	63 (MHWS)
RCS: Required envelope		
Length	Width	Height
50m	50m	63m (MHWS) (Area of 2500 m ²)

- RS provided an overview of the proposals and justification for the variation request, demonstrating that there are no environmental concerns and that none of the criteria for determining a material change, in accordance with Department for Communities and Local Government's (DCLG) guidance, have been met.
- RS requested that DECC confirm its agreement with HOW01 position that the change to the substations represents a non-material amendment.
- DECC stated that it cannot comment on materiality. It is the responsibility of the applicant to make the application and that DECC will make a ruling in due course.
- DECC confirmed that consultation to date had been appropriate, but requested that HOW01 consults with Natural England and local authorities for completeness.
- DECC confirmed that there is no requirement to consult with all stakeholders originally affected.



- DECC confirmed that the Planning Inspectorate (PINS) is undertaking the administrative duties for changes to the DCO and requested that HOW01 liaise with the original HOW01 Case Manager in order to progress the application.
- DECC confirmed that PINS will confirm consultation requirements and will Co-ordinate any responses, sharing them with DECC and HOW01.

Action: HOW01 to ensure Natural England and Local Authorities are included in the consultation.

Action: HOW01 to consult with PINS in respect of the variation application ASAP.

BB thanked all again for attending and brought the meeting to a close with no further comments.

Natural England

Minutes of meeting

Meeting HOW01 – Meeting - NE - DCO variations
Meeting Date 25 September 2015 13:00 – 14:00
Place Telecon Call
Participants Marc Browne DONG Energy
 Ashley Carton RHDHV
 Tom Manning Natural England

Absent Bronagh Byrne DONG Energy

Copy Robert Staniland RHDHV
 Claus Fridtjof Christensen DONG Energy

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08 October 2015

Next meeting TBC

Our ref. MBROW/MBROW
 Doc. no. 2276548
 (ver. no.)
 Case no. 200-12-2174
 Accepted: MBROW

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1. Introductions (MB)

Introductions were made between TM (Natural England), MB (DONG Energy) and AC (RHDHV).

2. Project update / project status and timelines (MB)

MB provided a brief update on the project, indicating that the Development Consent Order (DCO) had been granted on 10th December 2014. DONG Energy (DE) took over the project in its entirety on 4th February 2015 and that the project had been awarded Contracts for Difference (CFD) from the Department of Energy and Climate Change (DECC).

MB went onto say that the concept (layout) design had not been finalised and that the consent allowed for up to 240 turbines, although the figure is expected to be below this in the order of 170-180 turbines.

MB stated that the spacing between turbines would be considerable, above 1km.

MB also discussed the proposed dates for commencement of offshore and onshore installation/construction and internal timelines. Key dates discussed included: Onshore substation Q1 2016, Onshore export cable to commence Q3 2016; Offshore installation to commence Q1 2018, with intertidal works for the Horizontal Directional Drill to commence Q1 2017.

3. Proposed variation to wording in DCO relating to Decommissioning Programme (MB)

MB specified that current wording of the DCO states that no part of the authorised development below **MHWS** is to commence until a written decommissioning programme is submitted, and references Section 105 (2) of the 2004 Energy Act. On reviewing this section of the Energy Act it appears that Section 105 (2) of the Act has been misquoted and reference should be made to no part of the authorised development below the **mean low water mark** is to commence until a written decommissioning programme is submitted. AC stated that the decommissioning program does not cover the inter-tidal zone, as stated explicitly within DECC's 'Decommissioning of offshore renewable energy installations under the Energy Act 2004 Guidance notes for industry' report. MB stated that a proposed non-material amendment will be sought to amend the reference to MHWS to the mean lower water mark to correspond with the requirements of the Energy Act.



Doc. no. 2276548

TM stipulated that NE were happy to agree with this change in terminology, to accord with the stated legislation, and agreed that it was non-material, accepting that the timing of the submission of the decommissioning programme was, in effect, a procedural matter.

4. Proposed variation to offshore substation platforms & Materiality (MB/AC)

MB described the proposed changes to the HVAC Offshore Collector Substations (OSS) and HVAC Offshore Reactive Compensation Substation (RCS) substations platforms (detailed below) and how they differ from worst case scenario parameters given in the Environmental Statement.

OSS: Current envelope		
Width	Area	Height
40m	1800m ² (*required length to achieve this area is 45m. Likely omitted from DCO due to a clerical oversight)	60m (*specified height relates to the tallest element, inclusive of crane, helipad, lightning mast etc.) (MHWS)
OSS: Required envelope		
Length	Width	Height
60m	40m	60m (MHWS) (Area of 2400 m ²)
RCS: Current envelope		
Width	Area	Height
45m	1800m ²	63 (MHWS)
RCS: Required envelope		
Length	Width	Height
50m	50m	63m (MHWS) (Area of 2500 m ²)

MB set out the “Product Line” principle measures for cost of energy reduction and described that there is a template for substations that necessitate these minor changes to the structural dimensions. MB explained that additional structures (RACONS) may be required on safety grounds which also required these changes to be implemented.

AC discussed that the changes had been assessed in accordance with DCLG guidance on determining materiality and it had been concluded that there were no new or additional significant environmental effects. AC also went on to say that the changes did not meet any of the three criteria which would indicate that the amendments to the platform design would constitute a material change.

TM stated that the Technical Note NE had received prior to the meeting provided a well-reasoned audit trail of there being no new or significant environmental effects arising from the proposed changes which would affect any EIA topics or the conclusions of the HRA. TM stated that the technical note also made clear the need for the proposed changes.

TM asserted that NE was in agreement with the conclusions of the Technical Note and that the amendments to the substation platform dimensions represented a non-material change.

5. Consultation to date with MMO/MCA/TH/DECC/CAA/PINS/European Fisheries Stakeholders (MB)

MB provided an update from consultation with key stakeholders demonstrating no concerns with the proposals. MB stated that the Technical Note that NE had received was in draft format and that the final version which NE would receive during the statutory consultation period would be a slightly amended version consistent with advice recently received from PINS.



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6. Q&A / AOB

TM questioned what role NE would have in discussions and engagement on any possible future variations to the Hornsea Project One DCO. MB stipulated that NE were a key stakeholder and would be involved in the consultation on all future changes. Meeting brought to a close.

Marine Management Organisation

Minutes of meeting

Meeting HOW1 – 15/06/02 - Meeting Minutes – MMO
Meeting Date 02/06/2015 - 10:30-12:30
Place MMO Offices Newcastle
Participants Richard Green (MMO); Lisa Southwood (MMO);
 Bronagh Byrne; Marc Browne.
Absent
Copy
Next meeting TBC

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18 June 2015

Minutes

Our ref. MBROW/MBROW
 Doc. no. 2235268
 (Ver. no. 2206755B)
 Case no. 200-12-2174

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1. Introductions

Introductions were made for those that had not previously met. BB thanked all for making the time to meet and discuss the project update and specifically the issues relating to potential variations to the parameters of the Offshore Substation (OSS) and Reactive Compensation Station (RCS). In addition BB indicated this would be a good opportunity to discuss the proposed approach to the projects survey/monitoring requirements under the relevant Development Consent Order (DCO) and deemed Marine Licences (DMLs).

2. Project Update (BB)

BB provided a brief update on the project, indicating that the DCO had been granted on 10th December 2014. DONG Energy (DE) took over the project in its entirety on 4th February 2015 and that the project had been awarded Contracts for Difference (CFD) from the Department of Energy and Climate Change (DECC).

BB also discussed the proposed dates for commencement of offshore and onshore installation/construction.

3. Platform engineering requirements

MB briefly described the current and proposed changes to the OSS and RCS.

In relation to the Offshore Substation (OSS) the DCO/dML for the **HVAC – OSS**: allowed for 45m x 40m (width) totalling 1800 m² and height of 60m MHWS: The proposed design could be:

- 54m x 32m (including helideck) 1728 m², however to ensure further flexibility any application for variation would be 40m (width) by 60m (length)

In relation to the Reactive Compensation Station (RCS) the DCO/dML for the **HVAC – RCS**: allowed for 40m x 45m (width) totalling 1800 m² and height of 63m MHWS (Mean High Water Spring): The proposed design will be:

- 39m x 28m (excluding helideck)
- 39m x 45m (including helideck)



Doc. no. 2235268

- However as with the OSS and to ensure further flexibility any application for variation would be 50m (width) by 50m (length).

MB went on explain that the helideck was being moved to allow for access to the transformers, to enable servicing and if required change-out due to potential mechanical failure.

MB indicated that a meeting had been held with the MCA and Trinity House (TH) to discuss the same issues and that on the whole the feedback from both organisations was positive. No issues were raised in relation to these potential changes with the MCA and TH.

RG asked if the parameters of the substation were discussed/stated in the DCO.

BB replied yes.

RG Suggested that because of this a 'twin tracked' process for a variation would be advisable, with the MMO and DECC. RG also suggested to keep PINS informed and copied in and also to notify Natural England (NE). RG Suggested Dong contact DECC to advise on how they process variations to the DCO as a whole.

ACTION: DE to write short email in relation to potential changes to OSS and RCS and issue to stakeholders (MCA/TH/MMO/DECC/NE/PINS)

MB asked how long the variation would take.

RG indicated that it would most likely take the full 13 weeks, as standard variations and followed on to say that based on the figures discussed they could not envisage any significant issues with the application.

4. Outline of our plans for offshore environmental survey;

MB provided a brief overview of the proposed approach to the plans for offshore environmental surveys, and the key stakeholders that would be involved in the process, specifically:

Monitoring	Consultees	Note
Geophysical monitoring:	MMO, Natural England, Cefas and the Environment Agency (the latter in relation to dML 4 only)	Potential Synergy with Benthic survey and PSA survey
Ornithological monitoring:	MMO and Natural England	
Marine Mammal monitoring:	MMO and Natural England	
Benthic monitoring:	MMO, Natural England and Cefas	Potential Synergy with Benthic survey and PSA survey
Herring spawning (PSA) monitoring:	MMO, Natural England and Cefas	Potential Synergy with Benthic survey and PSA survey
Intertidal (Salicornia) monitoring:	MMO, Natural England, Cefas and the Environment Agency	Survey proposed August 2015 as part of EMP Condition DCO
Construction noise monitoring:	MMO, Natural England and Cefas	
Construction mammal presence monitoring:	MMO, Natural England and Cefas	



Doc. no. 2235268

MB went through each proposal in turn.

Geophysical (swath bathymetric) surveys relevant to dMLs 1-4

- Geophysical surveys will be required under each dML in relation to the areas within which works will take place, an associated buffer and, within named disposal areas;
- The survey proposal will focus on the monitoring of ecological receptors however these would be tagged on to the overarching engineering survey requirements;
- Monitoring would seek to identify (from evidence presented in the ES) extents of predicted secondary effects and areas where greatest potential for Annex I habitat exists within proximity to proposed work;
- From an ecological perspective the survey proposal will identify suitable buffers to provide necessary comfort with regard to Annex I reporting requirements.

Ornithological surveys relevant to dMLs 1-3

- MB indicated that there was an overarching mind-set of moving away from unnecessarily onerous comprehensive site specific monitoring to a more targeted type of monitoring that potentially had added value in answering specific questions;
- The project would seek to have informed discussion with regard to the merits of adopting a more targeted monitoring option. However the fundamental approach to the design any surveys would be to demonstrate:
 - Clear aims and objectives;
 - A robust and powerful approach to data analysis, addressing the aims and objectives; and
 - An efficient and reliable survey programme to deliver the required data in order to discharge the consent conditions.

Marine Mammal surveys relevant to dMLs 1-3

MB explained that during the examination phase of Hornsea Project One an Outline Marine Mammal Monitoring Plan was approved by stakeholders and framed the current wording within the dMLs. This OMMMP identified that no marine mammal monitoring will be required if DEPONS 'delivered to an appropriate standard'.

MB went on to say that a letter had been drafted and would be submitted this week seeking formal discharge of the condition with no further action required (Note – Letter submitted to MMO/NE on 05/06/2015 – with no response to date).

Benthic surveys relevant to dMLs 1-4

MB briefly discussed the proposed benthic surveys and indicated that any benthic monitoring would be targeted referring to information in the ES (and HRA where relevant) to establish the key areas where sensitivity existed (in baseline features). The approach to monitoring would be focused on answering targeted questions in relation to uncertainties in the ES.

Herring (PSA) surveys relevant to dML 4

MB stated that this condition was prescriptive enough not to require much more discussions as the proposed monitoring had already been defined to a location and therefore a fairly straightforward and pragmatic approach was expected. MB did state that given the nature of the herring, benthic and geophysical surveys that synergies would be identified in order to reduce mobilisation and demobilisation events.

Salicornia surveys relevant to dML 4

MB discussed the proposed survey intertidal Phase 1 surveys (Salicornia Annex I Habitat) indicating that the project proposed to carry out a survey in August 2015 to comply with the DCO. MB also indicated that there was an overlap between the DCO condition and the dML condition (pre-construction activities) and that the MMO may receive 2 survey proposals, the first to sign off the approach to the DCO condition and the



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second to work towards the dML condition. MB mentioned that the proposals would be very similar, although the dML would also focus on the reinstatement aspects of the condition.

Construction noise and marine mammal surveys dMLs 1-3

MB went through the condition "except to the extent agreed in writing by the MMO, measurements of noise generated by the installation of the first four foundations of each discrete foundation type to be constructed under this licence where driven or part-driven pile foundations are used".

MB went on to say that the potential approach to this condition would not be to undertake offshore monitoring but to assess the details of the construction technique for turbine installation in comparison with other projects to determine whether similar data would be available by the time of construction in order to validate the modelling/ES predictions with existing data. The approach would be to seek 'in-principle' support for the efficient discharge of this Condition via reference to existing information if available and relevant.

MB confirmed that should this approach not be deemed acceptable noise monitoring would be completed as required and a draft survey scope would be submitted for sign off in advance of installation.

Construction noise and marine mammal surveys dMLs 1-3 (if required) Marine mammal detection during construction

MB read the wording of the Condition "recording of any visual sightings or acoustic detection of marine mammals where required as part of the marine mammal mitigation protocol under condition 13(2)(e)."

MB discussed that the approach to this monitoring would need careful consideration as it may not be pragmatic to use standard visual observers from a boat (as multiple vessels may be required). MB also went on to say that there could also be HSE implications. MB went onto say that the ORJIP funded review "Use of Deterrent Devices and Improvements to Standard Mitigation during Piling" would also be reviewed.

Dates for Workshop

MB highlighted that he had sent the Environmental Survey strategy to all the key stakeholders on 22nd May with no response to date other than the MMO.

MB asked if the MMO could confirm suitable dates for the workshops and if they could facilitate rounding up the other stakeholders to attend the meeting.

RG confirmed they would follow up with the stakeholders.

Geotech Update

BB stated that the project had marked the successful completion of one of offshore wind industry's largest ever geotechnical campaigns. Continued work was expected summer 2015 on the cable corridor.

BB stated that the scope of works was being finalised and the expectation was that the investigations could be exempt as the majority of work would focus on Cone Penetrometer Test (CPT). NOTE: The applicant should decide whether or not they consider the proposed works to be exempt from requiring a marine licence and why. If the applicant wishes to carry out any exempt activity they can submit notification via the MCMS system.

MB indicated that exemption application would be submitted as soon as survey scope was known and finalised. MB asked in relation to marine licence applications and regarding the 1m³ limit of soil/seabed

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Doc. no. 2235268

removal, specifically: was the 1m³ limit, per borehole or for the entirety of works, for example up to 30 boreholes totalling more than 1m³ limit.

RG/LS confirmed that the 1m³ limit was per bore hole and that if one borehole exceeded this limit a marine licence would be required.

Decommissioning (condition 10 of DCO)

BB discussed the current wording of the decommissioning condition (DCO 10) stating "No part of the authorised development below MHWS is to commence until a written decommissioning programme in compliance with any notice served upon the undertaker by the Secretary of State pursuant to section 105(2) of the 2004 Act has been submitted to the Secretary of State for approval in relation to that part."

BB went on to say that the scheme, as set out in the Energy Act 2004, does not cover the inter-tidal zone (the area of the shore between the high and low waterlines). As such the project would seek to change the wording of this condition to correctly reflect the Energy Act, reason being because the intertidal HDD commencing in Q42016 / Q12017 would trigger the requirement for submission of a decommissioning programme at a point earlier than expected or required.

Phased submission of documents for discharge

BB indicated that the project programme was currently under review and the project was currently working on determining dates for submission of relevant plans in advance of installation. BB discussed a key concern regarding the phased approach to construction/installation of the HDD, triggering condition 13 of DML4, whereby the project would require to submit all required documentation as part of condition 13, such as environmental management plans that would not be in place before works commenced.

BB asked if it would be possible to submit a construction method statement for the HDD in advance of the other works, so that a phased approach to the discharge of this condition would be permitted. RG indicated that he would require further details to confirm the approach and asked if DE could supply the MMO with a detailed query.

Action: DE to draft letter regarding phased approach to discharge of consent conditions whereby works are phased, including HDD.

MB confirmed that once the project programme had been updated, the project would look to define when certain plans would be published and then submitted to the MMO to allow for future planning of resources. MB asked if the MMO had a preferred method for agreeing the sign off and submission of these documents?

Action: MMO to confirm if they have a proposed preferred process?

Meeting Close BB thanked LS and RG for making the time to meet and assured that future meetings would take place on a regular basis to ensure continued engagement.

Civil Aviation Authority (CAA)

Minutes of meeting

Meeting HOW01 - 150724 - Meeting CAA - Project Update
Meeting Date 24 July 2015
Place Civil Aviation Authority, 45-59 Kingsway London WC2B 6TE
Participants Mark Deakin (MD) - CAA
 Marc Browne (MB) - DE

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Absent
Copy Bronagh Byrne
 Hywel Roberts
 Claus Fridtjof Christensen

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Next meeting TBC – Once Concept Layout with TH has been signed off.

19 July 2015

Our ref. MBROW/MBROW
 Doc. no. 2238696
 (ver. no.)
 Case no. 200-12-0444
 Accepted: MBROW

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 Tel +44 (2) 0781 15747

1. Introductions

MB provided a brief update on the project, indicating that the Development Consent Order (DCO) had been granted on 10th December 2014. DONG Energy (DE) took over the project in its entirety on 4th February 2015 and that the project had been awarded Contracts for Difference (CFD) from the Department of Energy and Climate Change (DECC).

2. Project Update & Timelines

MB went onto say that although the concept (layout) design had not been finalised Hornsea Project One is considering the use of a 7MW turbine. The consent allows for up to 240 turbines, although the figure is expected to be below this in the order of 170-180 turbines.

MD noted that as such the dimensions of the 7MW would be within the Rochdale Envelope used in the Environmental Assessment (ES) and are within the parameters of the turbines would be within those assessed in the Environmental Statement.

MB also discussed the proposed dates for commencement of offshore and onshore installation/construction and internal timelines. Key dates discussed included: Onshore export cable to commence Q3 2016; Onshore substation Q1 2016; Offshore installation to commence Q1 2018, with intertidal works for the Horizontal Directional Drill to commence Q1 2017; Cable corridor geotech summer 2015.



MB discussed the Discharge of Consent conditions of specific relevance to the CAA, specifically:

Condition	Requirement	Lead	In Consultation With
DCO Requirement 3 Colour and lighting	Except as otherwise required by Trinity House under Condition 6A of the deemed marine licences set out in Schedule 8, the undertaker must exhibit such lights, with such shape, colour and character as required by Air Navigation Order 2009(a) or as directed by the Civil Aviation Authority or the Secretary of State for Defence.	CAA and Secretary of State	Trinity House

MD noted the specific condition and confirmed that once the concept layout had been finalised in consultation with Trinity House the project should seek to have another meeting with CAA to discuss the required lighting arrangements.

MD also briefly discussed the relevant Air Navigation Order and aspects associated with 2 stand-alone CAA policy statements on the lighting of offshore wind turbines and the failure of lighting on offshore wind turbines. These will be incorporated into the next Edition of the CAP 764 – the policy text.

3. Variation to OSS/RCS

MB also mentioned that the project were currently considering a variation to the Project parameters in relation to the Offshore Substation (OSS) and Reactive Compensation Station (RCS).

MB discussed the "Product Line" principle measures for cost of energy reduction and described that there is a template for substations that necessitate a minor change to the structural dimensions described and consented for in the DCO and Deemed Marine Licences.

MB explained that additional structures (RACONS¹) for the RCS had been requested by stakeholders for safety purposes and that this would require small cantilevers out from the gangway. In addition the MB confirmed that the helideck would be moved slightly to allow access to various OSS & RCS components such as transformer to enable servicing and if required change-out.

MD noted the lighting standards which have to be satisfied are given in the Civil Aviation Authority (CAA) publication CAP 437 'Offshore Helicopter Landing Areas – Guidance and Standards'. Lighting should be in accordance with the CAP 437. The HLA will certify the whole helideck including lighting.

MB also described the consultation to date with the MMO, MCA and Trinity House with a meeting planned with the DECC to discuss the proposed variation in more detail. MB went onto say that all the stakeholders consulted to date had stated no issues with the proposed changes in dimensions to the OSS and RCS and indicated that the expectation would be for a non-material (minor) change to the DCO and DML.

MB suggested that the Project proposes to submit the proposed variation to the Planning Inspectorate (PINS) towards the end of August/early September. As part of the consultation process the CAA may be consulted by DECC.

¹ RaCons is a radar beacon that can be identified and located by its response to a specific radar signal.



MB described the current and proposed changes to the OSS and RCS (Detailed below).

OSS: Current envelope		
Width	Area	Height
40m	1800m ² (*required length to achieve this area is 45m. Likely omitted from DCO due to a clerical oversight)	60m (*specified height relates to the tallest element, inclusive of crane, helipad, lightning mast etc.) (MHWS)
OSS: Required envelope		
Length	Width	Height
60m	40m	60m (MHWS) (Area of 2400 m ²)
RCS: Current envelope		
Width	Area	Height
45m	1800m ²	63 (MHWS)
RCS: Required envelope		
Length	Width	Height
50m	50m	63m (MHWS) (Area of 2500 m ²)

MD suggested that the changes in dimension to the OSS/RCS were minor and as long as structures are lit in accordance with the required legislation no issues would be foreseen.

4. Geotech 2 Update

MB gave a brief update on the windfarm geotechnical investigations (GI) indicating that the project had marked the successful completion of one of offshore wind industry's largest ever geotechnical campaigns. The work has been completed within four months by the Wallingford based Fugro GeoConsulting. Close to 2,800m of seabed cone penetration testing and more than 5,000m of boreholes had been undertaken on all potential future WTG and OSS positions as part of the detailed site investigation.

MB went on to say that further site investigation works would take place towards the end of August 2015 continuing into September.

5. AOB / General feedback / Actions

- Air Navigation Order 2009 Article 220, changes to policy statement including:
 - No intermediate lighting
 - Provision to ask for additional lighting or exemption
- Any lights on the RCS such as the crane and Helideck needs to be certified by the Helideck Licensing Agency
- The Defence Geographic Centre needs to be notified once the layout is confirmed – 10 weeks before build phase including notification of lighting on any structures above 300ft
 - dvof@MOD.co.uk

MB thanked MD for his time and confirmed that another meeting would be organised with the CAA once the concept layout was agreed with the MCA and TH.

The meeting was brought to a close.

Maritime & Coastguard Agency (MCA) & Trinity House (TH)

Minutes of meeting

Meeting HOW1 – 15/06/01 - Meeting Minutes – MCA/THHOW1 –
15/06/01 - Meeting Minutes – MCA/TH

Meeting Date 01/06/2015

Place Trinity House, Tower Hill, London, EC3N 4DH

Participants Nick Salter (NS) MCA

Captain Nick J Dodson Navigation (ND) TH
Stephen Vanstone (SV) TH

Bronagh Byrne (BB), Marc Browne (MB), Claus Fridtjof
Christensen (CFC), David Garner (DG), Chris Sherrington (CS)

Absent Roger Barker TH / David Turner MCA

Copy MMO

Next meeting July / August

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01 July 2015

Our ref. MBROW/MBROW
Doc. no. 2228291
(Ver. no. 2206095C)
Case no. 200-12-2174

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Minutes**Apologies**

Roger Barker TH / David Turner MCA

1. Introductions

Introductions were made for those that had not previously met. BB thanked all for making the time to meet and discuss the project update and any issues relating to potential variations to the parameters of the Offshore Substation (OSS) and Reactive Compensation Station (RCS) in relation to Hornsea Project One, Development Consent Order (DCO) and deemed Marine Licences (DMLs).

In addition BB also stated that this meeting would focus on the above topics, any discussions regarding wind farm layout would be discussed separately in forthcoming meetings once the project was nearing final concept layout. BB mentioned that the latest geotechnical investigations had only just been completed and that concept layout was still being investigated based on the geotechnical results.

2. Project Update (BB)

BB provided a brief update on the project, indicating that the DCO had been granted on 10th December 2014. DONG Energy (DE) took over the project in its entirety on 4th February 2015 and that the project had been awarded Contracts for Difference (CFD) from the Department of Energy and Climate Change (DECC).

BB also discussed the proposed dates for commencement of offshore and onshore installation/construction and internal timelines. Key dates discussed included:



Doc. no. 2228291

Onshore export cable to commence Q4 2016; Onshore substation Q1 2016; Offshore installation to commence Q1 2018, with intertidal works for the Horizontal Directional Drill to commence Q1 2017; Cable corridor geotech summer 2015.

In addition BB also briefly discussed the key consent requirements requiring input and sign off from the MCA and Trinity House:

Condition	Requirement	Lead	In Consultation With
DML 1, 2, 3, 4, Condition 9	Navigational Practice, Safety and Emergency Response Emergency Response Co-operation Plan	Secretary of State	MCA
DML 1, 2, 3, 4, Condition 13 (1) (a)	Locations, layouts, dimensions	MMO	Trinity House MCA
DML 1, 2, 3, 4, Condition 13 (2) (a)	Code of Construction Practice	MMO	Trinity House MCA
DML 1, 2, 3, 4, Condition 19 (1) (6)	Construction Monitoring AIS monitoring through construction	MMO	MCA
DML 1, 2, 3, 4, Condition 20 (2) (d)	Post Construction AIS monitoring 1 year post construction	MMO / MCA	MCA

ND discussed layouts and highlighted that Project 1 and Project 2 faced similar issues in relation to concept layouts. ND went on to say that the MCA and TH viewed both projects cumulatively and would be looking to work closely with both projects in order to progress agreements on concept layouts and cooperation agreements etc.

BB indicated that DE were fully aware of TH's position regarding Project 1 and Project 2's cumulative layout and that regular project meetings took place between Project 1 and Project 2 to ensure continued cooperation.

3. Platform engineering requirements

CFC described the current and proposed changes to the OSS and RCS. In relation to the RCS the DCO/dML for the **HVAC – RCS**: allowed for 45m x 40m (width) totalling 1800 m² and height of 63m MHWS (Mean High Water Spring): The proposed design will be:

- 39m x 28m (excluding helideck)
- 39m x 45m (including helideck)
- Jacket foot print 28m x 32m (within Engineering Envelope)
- 46m LAT (Lowest Astronomical Tide)
- 4 legged piled, jacket foundation

CFC indicated that in regards of the RCS the project expected that the RCS would be within the consent envelope of 1800 m² and in the worst case a small exceedance due to helideck



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overhang or additionally if RaCons were to be installed as this would require small cantilevers out from the gangway.

In relation to the OSS the DCO/dML for the **HVAC – OSS**: allowed for 45m x 40m (width) totalling 1800 m² and height of 60m MHWS: The proposed design will be:

- 54m x 32m (including helideck) 1728 m²
- 46m LAT (Lowest Astronomical Tide)
- 4 legged piled, jacket foundation
- 3 OSS (400MW capacity each)

CFC indicated that in regards to the OSS the project expected that the OSS would be within the consent envelope of 1800 m² however the dimensions of 54m x 32m were not in line with the Environmental Statement project description (40m x 45m). As a worst case there could be a small exceedance due to helideck overhang.

CFC went on explain that the helideck was being moved to allow for access to the transformers, to enable servicing and if required change-out due to potential mechanical failure.

ND asked how long the transformers were expected to last?

CFC stated that the transformers were expected to last for the lifetime of the project (25yrs) however, design requirements confirmed the need to have access points.

CFC asked if in the first instance there were any concerns relating to these potential changes to the topside surface area for the OSS/RCS?

Both NS and ND stated that based on the figures previously discussed that there would be no obvious issues to navigation and health and safety.

NS highlighted his concerns in relation to the height of the cellar deck from MHWS, and stated that for consistency he would like to know what the height would be from MHWS to the bottom section of the cellar deck. Ideally he felt this should be in line with best practice guidance for wind turbines and should be 22m.

ACTION: DE (CFC) to confirm height to cellar deck from water line (MHWS) and height to top structure (LAT and MHWS) to confirm compliance with consent conditions for both OSS and RCS. **NOTE:** Confirmation since meeting that both the OSS and RCS are 19.75m LAT to bottom of topside and the difference between LAT and MHWS is 2.94m for Hornsea which means that the topside will be in 16.81 MHWS. This height is similar to the access platform on the WTG's.

ND asked if the RCS and OSS would be manned?

CFC confirmed that the platforms would be unmanned apart from occasional maintenance.

ND confirmed that lighting and marking for RCS would be in line with Oil and Gas (O&G) developments and would follow this guidance. "*Department of Energy and Climate Change*

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04/11 STANDARD MARKING SCHEDULE FOR OFFSHORE INSTALLATIONS". ND asked if the proposed positions of the RCS had changed?

CFC stated no, the positions would be within the agreed location.

CFC discussed the navigational risk assessment as undertaken as part of the EIA process. Indicating that the evaluated risk for powered collision was 1 every 186 years and for drifting vessel was 1 every 15,687 years.

ND suggested that the project would need to bear in mind changing traffic patterns to those assessed as part of the EIA. Any changes to traffic patterns could result in different forms of mitigation being required.

BB/CFC noted this possibility and indicated that the DCO conditioned construction monitoring for vessel traffic monitoring by Automatic Identification System (AIS) for the duration of the construction period. In addition post construction vessel traffic monitoring by AIS was also required for 1 year.

As part of the discussions CFC proposed some potential mitigation measures in order to reduce potential risks associated with the RCS, including:

- Marking on sea charts in accordance with the requirements of UK Hydrography Office, the MCA and the Civil Aviation Authority (CAA) and Trinity House;
- Painting the topside yellow similar to what is done for the HVDC platforms in German waters. CFC Noted: Except as otherwise required by Trinity House under condition 7, the licence-holder must colour all structures comprised in Works Nos. 4 and 5 submarine grey (colour code RAL 7035);
- A 500m safety zone around the reactive compensation platform (can be marked with buoys in the construction phase); and
- Promulgation of Information (Notices to Mariners etc.).

Marking on sea charts

CFC explained that this process was standard practice. MB also stated that the requirement to notify the UKHO was a consent condition although no specific timelines were suggested.

All agreed that marking on sea charts was standard practice with the requirements UK Hydrography Office (UKHO).

ND suggested that early communication of construction/installation works and notification of UKHO could take place 6 months in advance of construction/installation to allow information to filter through, the local, national and international channels.

Painting the topside yellow

CFC indicated that offshore HVDC platforms in Germany were painted yellow and that this was an option DE would consider if the MCA/TH felt this was beneficial to reducing the risks associated with the RCS.

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MCA/TH agreed that there did not appear to be any added benefit of painting the whole topside yellow. ND indicated that the majority of new offshore oil and gas developments have a combination of yellow and grey colour codes. No further action was identified in relation to this option and it was agreed that the topside would be the standard grey colour as required.

500m safety zone around RCS

CFC indicated that 500m safety zones were a standard requirement for O&G platforms and that the RCS was similar to an O&G platform.

ND indicated that although this would be a standalone structure similar to an O&G platform the legislation for O&G was different to renewables. Specifically, O&G platforms are automatically allocated 500m safety zones under the Petroleum Act. Renewable Infrastructure developments would fall under the Energy Act 2004 and would need to apply for safety zones to DECC.

NS indicated that the MCA would have no issues with the application for a safety zone during construction, however had reservations about safety zones throughout operation. Specifically NS asked who would monitor and report back to DECC. NS suggested that should the project consider the need for an operational safety zone around the RCS the project would need to build a robust case, identifying clear navigational risks with quantifiable outcomes.

CFC-BB noted these points.

ND said that safety zones were a good idea, as it was a good safety measure throughout construction. However suggested the requirement for further consultation with other stakeholders (RYA/Fisheries) for operational safety zones, should the project be keen on taking this forward. ND also discussed reservations regarding the operational phase safety zone asking how it would be enforced.

CFC suggested that before and during installation the area could be marked with buoys for "education" of the ship traffic, most probably before commencement of construction-installation.

SV asked about the buoyage process and whether this would be for the construction/installation phase.

CFC confirmed that buoyage would only be used 6 months prior to construction/installation and throughout construction/installation.

Active marking

CFC indicated that in accordance with the requirements of TH, the MCA and the Civil Aviation Authority (CAA) AIS, lights and warning sounds would be used.

CFC briefly discussed the possibility of using RaCons .

ND mentioned that not many O&G installations use RaCons – only 3 at the moment.

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CFC commented that the project required to know as soon as possible if RaCons was required so that the Basis of Design included this parameter in the tendering process.

Action

ND stated that TH should look at the latest traffic analysis in order to make a decision on the requirements for RaCons .

DE to forward latest traffic analysis (inc. raw data).

TH to forward relevant guidance for Oil and Gas infrastructures in regard of lighting guidelines, as RCS would require to comply with similar requirements.

ND recommended the use of AIS on the RCS, and also noted the need for an Ofcom licence. ND also asked what communications were available between the RCS and the shore based.

CFC indicated that there would be communication through 3 connections to shore as there will be 3 export cables. Furthermore line of sight is still being investigated and if this is not possible satellite communication will be used in the preliminary phase until all 3 cables including the interlinks between the 3 OSSs are installed. The communication system is therefore very reliable.

Furthermore it was confirmed that that AIS (receiving) will be implemented. AIS will also be used in the construction phase where DONG Energy requires that all vessels have AIS so this can be used by the marine coordinator.

Note: The suggested AIS system is a AIS monitoring receiver. However, if requested by the authorities an AIS transmitting AtoN can be installed.

NS asked what monitoring would take place from the control rooms onshore. In addition NS also stated that should the project apply for an operational safety zone it would require detailed communication availability (to radio/contact nearby ships) and Radar.

DG stated that a 24hour operation centre was being developed in Copenhagen.

ND suggested that TH and MCA would need to consider cumulative effects for Hornsea Project Two (potentially 2 x RCS) regarding RCS, this would include the requirement for lighting and marking.

ACTION:

DE to confirm with MCA/TH details of the Operations Centre.

All agreed that AIS would be implemented for the RCS and no further consideration would be given to Radar/RaCons , unless TH review of shipping data suggested the potential requirement.

The type of AIS to be confirmed by MCA/TH.

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Navigational Risk and OSS

CFC briefly discussed the OSS and indicated that considering the OSSs location (i.e. in the middle of the windfarm) no additional mitigation measures were required.

ND mentioned that as long as orientation was in line with the turbines no additional mitigation would be required.

All agreed.

SV stated that the OSS would need to be lit and marked in accordance with the regulations throughout the construction phase, no lighting, other than 'down lighting' was required throughout operation.

ND stated that there was no expectation for working lights.

Variation to OSS/RCS

MB provided a brief recap of the discussions regarding the potential variations to the OSS and RCS and both MCA and TH indicated that they had no concerns over the potential changes to the parameters.

Geotech 2 update

BB gave a brief update on the windfarm geotechnical investigations (GI) indicating that the project had marked the successful completion of one of offshore wind industry's largest ever geotechnical campaigns. The work has been completed within four months by the Wallingford-based Fugro GeoConsulting. Close to 2,800m of seabed cone penetration testing and more than 5,000m of boreholes had been undertaken on all potential future WTG and OSS positions as part of the detailed site investigation.

BB went on to say that continuing on from the windfarm investigations the cable corridor to shore would be targeted for further GI work summer 2015. The main focus of these investigations would be seabed cone penetration testing no significant borehole sites.

Meeting Close

BB and DG thanked MCA and TH for making the time to meet and assured that future meetings would be held in order to discuss proposed site layout once details were known.

National Federation of Fisherman's Organisation (NFFO)

Minutes of meeting

Meeting HOW01 - 150807 - Meeting Minutes - NFFOHFIG Project Update

Meeting Date 07/08/2015 - 11:00 - 13:00

Place NFFO Offices, 30 Monkgate, York YO31 7PF

Participants Ian Rowe (NFFO)
Nick Garside (HOW01 - FLO)
Mike Cohen (HFIG)
Marc Browne (DONG Energy)

Absent

Copy Bronagh Byrne, Ninna Fevre Bertelsen (DONG Energy)
Alan Piggott (NFFO)

Next meeting TBC

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14 September 2015

Our ref. MBROW/MBROW
Doc. no. 2247200
(ver. no.)
Case no. 200-12-0456
Approved: MBROW

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1. Project Update

MB provided a brief update on the project, indicating that the Development Consent Order (DCO) had been granted on 10th December 2014. DONG Energy (DE) took over the project in its entirety on 4th February 2015 and that the project had been awarded Contracts for Difference (CFD) from the Department of Energy and Climate Change (DECC).

MB went onto say that although the concept (layout) design had not been finalised Hornsea Project One is considering the use of a 7MW turbine. The consent allows for up to 240 turbines, although the figure is expected to be below this in the order of 170-180 turbines. In addition spacing between turbines would be considerable, in some cases around 2km.

MB also mentioned that the project was currently considering a variation to the certain parameters in relation to the Offshore Substation (OSS) and Reactive Compensation Station (RCS).

MB explained that additional structures (RACONS¹) had been requested by stakeholders for safety purposes and that this would require small cantilevers out from the gangway.

MB also described the consultation to date with the MMO, MCA, Trinity House and more recently the CAA. MB went onto say that all the stakeholders consulted to date had stated no issues with the proposed changes in dimensions to the OSS and RCS and indicated that the expectation would be for a non-material (minor) change to the DCO and DML.

MB suggested that the project would propose to submit a variation to the Planning Inspectorate (PINS) towards the end of August/early September. As part of the consultation process the NFFO and commercial fisheries industry may be consulted.

¹ RaCons is a radar beacon that can be identified and located by its response to a specific radar signal.



Doc. no. 2247200

IR suggested that the changes in dimension to the OSS/RCS were minor.

MB described the current and proposed changes to the OSS and RCS (Detailed below).

OSS: Current envelope		
Width	Area	Height
40m	1800m ² (*required length to achieve this area is 45m. Likely omitted from DCO due to a clerical oversight)	60m (*specified height relates to the tallest element, inclusive of crane, helipad, lightning mast etc.) (MHWS)
OSS: Required envelope		
Length	Width	Height
60m	40m	60m (MHWS) (Area of 2400 m ²)
RCS: Current envelope		
Width	Area	Height
45m	1800m ²	63 (MHWS)
RCS: Required envelope		
Length	Width	Height
50m	50m	63m (MHWS) (Area of 2500 m ²)

MB also discussed the proposed dates for commencement of offshore and onshore installation/construction and internal timelines. Key dates discussed included: Onshore export cable to commence Q3 2016; Onshore substation Q1 2016; Offshore installation to commence Q1 2018, with intertidal works for the Horizontal Directional Drill to commence Q1 2017; Cable corridor geotech summer 2015.

IR commented on the potential for the export cable installation to start at the same time as foundation installation, in Q1 2018.

MB stated that the current programme suggested that these activities would run in parallel in Q1 2018. However, the planners were currently looking at the programme in order to de-risk the programme so that simultaneous operations would be reduced. This could mean some elements of the programme being brought forward or being pushed back.

2. Arranging meetings with European stakeholders

MB commented that he would like to continue engaging with European commercial fishery counterparts and asked out of the stakeholders listed below, who would be best placed to organise or assist in organising meetings with the European consultants.



Doc. no. 2247200

Organisation	Dates	Actionee
National Federation of Fishermen's Organisations (NFFO)	June / August ongoing	N/A
Holderness Coast Fishing Industry Group (HCFIG)	June / August ongoing	N/A
Danish Fishermen's Association	September MB to action	MB to action and IR to confirm contact details (completed)
VisNed (Dutch Producer Organisation)	September / October	IR to action (email to be sent and MB to be copied – completed)
Rederscentrale (Belgian Producer Organisation)	September / October	MB to action (email to be sent) (completed)
Eastern England Fish Producers Organisation (EEFPO)	September / October	MB to action (email to be sent)

3. Agreed approach regarding potential static gear in cable corridor

MB provided an overview of the planned works, although suggested that not all information was to hand regarding the geophysical proposal as the project was currently in contractual discussions. Key points were:

Geophys Kick Off (Aiming): 25th August
 Geotech Kick Off (Aiming): 26th August
Notice to Fishermen Issued: July 2015
Notice to Mariners to be issued: August 2015

The planned geotechnical investigations would include borehole locations with combined sampling & CPT testing up to 6m below the seabed level within the Proposed Site Boundary.

The planned geophysical investigations would most likely be deploying an array of towed equipment including, sub-bottom profiler, multi-beam echosounder and side scan sonar, although as discussed previously further confirmation was required.

MB provided a brief overview of what had been discussed and agreed with HFIG a few weeks earlier following the issue of the Notice to Fishermen:



Doc. no. 2247200

- The boundary illustrated on the notice to fishermen includes a 100m buffer either side, the zone illustrated is the extent of the geophysical survey.
- There will be a total of 3 survey lines sailed along the corridor length and turning will only take place at the most nearshore and offshore locations.
- Based on the current survey plan we do not require all fishing gear to be removed from the seabed, however as discussed we would like surface marker buoys and trailing ropes to be removed, while pots remain on the ground. The geophysical survey equipment should not go below 2m from the seabed, however, if it would be possible to ensure that all ropes (and between pots) are weighted that would be very much appreciated.
- A guard boat will not be used for this survey.
- 2 FLOs will be used, one for the geophysical survey and one for the geotechnical survey.

MC confirmed that he had spoken with the majority of HFIG members and that no issues had been raised with this request. Also confirming that some members would remove gear, or align gear in a manner that would straddle the corridor without causing any issues with the planned geophysical investigation.

MC also confirmed that he had to speak to a few more members who were operating in the area to ensure they were aware of the impending works.

All agreed that the short nature of the geophysical works, in the order of days would cause very little concerns to those operating in the area, as well as the corridor being fairly narrow.

IR suggested that we might want to consider a chase vessel, working in front of the geophysical vessel. MB said he would discuss this option with the package engineers to see if this would be beneficial.

Following on from this conversation it was confirmed that there was little static gear activity in the survey area and considering the agreed measures, of either straddling the corridor, removing buoys/trailing ropes and avoiding the area for the short time wouldn't warrant the need for a chase vessel in this instance. However this could be considered in future activities.

4. Update on requirement for offshore FLO's

MB confirmed that the following would be required from NFFO services:
 1 FLO Geotech – up to 5 weeks – KOM – 25th with Mob shortly afterwards
 1 FLO Geophys – up to 2 weeks – KOM – 26th with Mob shortly afterwards

Confirmation of the scope of works for offshore FLO and costs, names/details of proposed FLOs as well as confirmation of relevant tickets/training certs (survival, medical fitness, etc).

Action: IR indicated that he would action - Completed

MB confirmed that Geotechnical Investigations would be undertaken by Fugro and the vessel Markab. (TBC). The Geophys Vessel was still to be confirmed.

MB asked if the NTF should be reissued or if the impending NTM would suffice,



Doc. no. 2247200

All agreed that the updated NTM would suffice.

MB indicated that he would aim to issue the NTM by Friday 14th, 2 weeks in advance of planned investigations. MB confirmed that he would issue the NTM to a pre-defined list of marine contacts and that NG would issue to the fishermen and local fishery agencies as was done for the NTF.

5. General feedback

MB asked for feedback.

IR confirmed that 3-4 monthly update meetings would be useful. MB agreed. IR had also previously suggested that NG could attend some of the European stakeholder meetings, MB agreed and suggested he would look into this in more detail.

MC confirmed that unless there were specific requirements in relation to gear clearance he would be happy to be kept copied in on ongoing consultation.

MB stated that he would endeavour give as much notice as possible to planned works in order to reach early agreements.

Meeting was brought to a close.

Danish Fish Producer's Organisation

Minutes of meeting

Meeting HOW01 - Meeting - Danish Fisheries - Project Update
Meeting Date 22 September 2015 15:00 – 16:30
Place H.C. Andersens Boulevard 37, 1. 1553 København V.
Participants Henrik S. Lund
Absent
Copy Bronagh Byrne
Next meeting TBC

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22 October 2015

Our ref. MBROW/MBROW
 Doc. no. 2276358
 (ver. no.)
 Case no. 200-12-0456
 Accepted: MBROW
 Approved: MBROW

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 Tel +44 (2) 0781 15747

1. Project Update

MB thanked HL for making the time to meet, and explained that the purpose of the meeting was to provide the Danish Fishermen's Association an update of the project since DONG Energy (DE) took over full ownership of the Hornsea Wind Farm Project One (Project One).

HL indicated that the organisation was now named the Danish Fish Producer's Organisation.

MB provided a brief update on the project, indicating that the Development Consent Order (DCO) had been granted on 10th December 2014. DE took over the project in its entirety on 4th February 2015 and that the project had been awarded Contracts for Difference (CFD) from the Department of Energy and Climate Change (DECC).

MB went onto say that the concept (layout) design had not been finalised and that the consent allowed for up to 240 turbines, however the figure was expected to be below this in the order of 170-180 turbines. The minimum turbine spacing of 924 metres would be maintained on the boundary of Project One, with larger gaps within the internal array, in excess of 1km.

2. Hornsea Zone Update

Before discussing the agenda topics in more detail, MB mentioned that he was there to represent and discuss the topics in relation to Project One only. However MB went on to discuss the recent news that Project Two (P2) and the entire Hornsea development zone had been acquired by DONG Energy (DE). However, for the time being P2 is still being run as a separate Project, with a different timescale to Project One. MB stated that Project One had advanced timescales, with a Contract for Difference (CFD) and that Project One was working closely with P2.

3. Project One Update (potential OSS/RCS variations)

MB also mentioned that the project was currently considering a variation to the certain parameters in relation to the Offshore Substation (OSS) and Reactive Compensation Station (RCS).

MB described the consultation to date with the NFFO, MMO, MCA, Trinity House and more recently the CAA, and the Planning Inspectorate. MB went onto say that all the stakeholders consulted to date had stated no issues with the proposed changes in dimensions to the OSS and RCS and indicated that the expectation would be for a non-material (minor) change to the DCO and DML.



Doc. no. 2276358

MB suggested that Project One would submit a variation to the Planning Inspectorate (PINS) towards the end of September early October. As part of the consultation process the Danish Fish Producers Organisation and commercial fisheries industry may be consulted about the proposed change.

HL suggested that the changes in dimension to the OSS/RCS were minor.
MB described the current and proposed changes to the OSS and RCS (Detailed below).

OSS: Current envelope		
Width	Area	Height
40m	1800m ² (*required length to achieve this area is 45m. Likely omitted from DCO due to a clerical oversight)	60m (*specified height relates to the tallest element, inclusive of crane, helipad, lightning mast etc.) (MHWS)
OSS: Required envelope		
Length	Width	Height
60m	40m	60m (MHWS) (Area of 2400 m ²)
RCS: Current envelope		
Width	Area	Height
45m	1800m ²	63 (MHWS)
RCS: Required envelope		
Length	Width	Height
50m	50m	63m (MHWS) (Area of 2500 m ²)

MB also discussed the proposed dates for commencement of offshore and onshore installation/construction and internal timelines. Key dates discussed included: Onshore substation Q1 2016; Onshore export cable to commence Q3 2016; Offshore installation to commence Q1 2018, with intertidal works for the Horizontal Directional Drill to commence Q1 2017.

MB stated that the current programme had a number of simultaneous operations beginning in 2018 and that the planners were currently looking at the programme in order to de-risk the programme so that simultaneous operations would be reduced. This could mean some elements of the programme being brought forward or being pushed back.

4. Continued Engagement with European Stakeholders

MB commented that he would like to continue engaging with European commercial fishery counterparts.

MB confirmed that he had spoken with the NFFO, local inshore fishery groups and that he had a meeting with VisNed the following week. MB also mentioned that he was struggling to make contact with the Belgian fishery organisation. HL suggested that MB could ask VisNed for contacts at the Belgian fishery.

5. Company FLO, FIR

MB explained that he was the main point of contact (Company FLO) for Project One, his remit included the authority to fully represent the Project on fishing issues with the support of the Fishing Industry Representative (FIR). The Company FLO will be the primary point of contact for the fishing industry when direct communication with the developer is required.

In addition MB explained that Project One in line with best practice had employed a Fishing Industry Representative (Provided by NFFO services). The FIR was Nick Garside, Nick's remit as a counterpart to the CFLO and FLO, the FIR will support the CFLO in his duties. The FIR's remit was in line with FLOWWW guidelines, MB also mentioned that the FIR might attend future meetings. MB explained that Nick Garside was in fact acting as the FLO for the



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project and the term FIR was being used interchangeably at this stage of the Project until a detailed scope of work was established for the FLO.

6. Ongoing Site Investigation Works (Geotech and Geophys)

MB provided an overview of the site investigation works, key points to note, the geophysical site investigation works were complete and the geotechnical works were continuing for 2-3 more weeks. MB also indicated that in line with good practice the project had issued a Notice to Fishermen Issued: July 2015 and Notice to Mariners to be issued: August 2015. MB asked if HL had received these emails, HL replied that he was unsure of having received these notices.

HL indicated that currently there were very few ships in the area (windfarm) and that most activity would be in the summer months, April to June. HL also suggested that the area was a sandeel fishery and that the current quota for the area was low, so there was little fishing activity in the area.

HL asked if the cables would be buried within the windfarm, MB indicated that in line with the statements in the relevant EIA chapters the extent and method by which the inter-array cables would be buried is dependent on the result of a detailed seabed survey of the final cable route and associated cable burial risk assessment process. MB also confirmed that where cable burial would not be possible due to ground conditions, surface laying would be required, with cable protection measures employed, such as rock placement.

HL asked if fishing within the operational wind farm would be allowed and if trawling over the inter array cables would also be allowed. MB suggested that the assumption was for continued fishing within the wind farm for the lifespan of the offshore wind farm (approximately 25 years). Regarding trawling over buried inter array cables, MB suggested that it would be down to the relevant skippers working in the wind farm to determine if they wanted to fish over the inter-array cables. MB asked for specifics on the type of fishing gear used in targeting sandeels. HL responded and indicated that the vessels were generally between 40m and 80m in length, with relatively large demersal nets, and trawl doors between 500kg to 2000kg, between 100m and 200m apart depending on the size of vessel. HL went onto say that the gear (nets & hoppers) did not penetrate the seabed, however HL did mention that the trawl doors would penetrate the seabed between 10cm and 20cm depending on the size of the trawl doors.

MB indicated that the minimum spacing between the turbines was 924m and that some of the internal turbines would be over 1km apart, suggesting that these distances should facilitate the fishing operations within the windfarm.

7. Review of Statements of Common Ground (SOCG)

MB indicated that as part of the planning process statements of common ground had been agreed to, rather than discuss all the statements MB illustrated three key statements to illustrate how the project would be engaging with the industry going forward.

MB indicated that in line with the SOCG a Fisheries Liaison Officer (FLO) would be appointed at the start of the pre-construction phase. MB reiterated that through NFFO services it had appointed a FIR that was assisting the project in its consultation with the industry.

MB also suggested that in line with the SOCG a Fisheries Liaison Plan will be developed in consultation with the relevant fisheries stakeholders and in accordance with the Fisheries Liaison with Offshore Wind and Wet Renewables Group (FLOWW) "Recommendations for Fisheries Liaison - Best Practice guidance for offshore renewables developers" (FLOWW, 2013 in draft).

In addition MB also discussed the SOCG regarding cables, MB went onto say that in line with the project description, the method by which the inter-array cables would be buried is dependent on the result of a detailed seabed survey of the final cable route and associated burial risk assessment process. MB confirmed that where cable burial would not be possible due to ground conditions, surface laying would be required, with cable protection measures employed, such as rock placement.



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8. General feedback

MB asked for feedback.

HL confirmed that ongoing meetings would only be required when there were significant project updates. MB agreed and suggested the next meeting would likely be next year.

MB stated that he would endeavour to give as much notice as possible to planned works in order to keep the industry notified.

Meeting was brought to a close.

VisNed (Dutch Fisheries)

Minutes of meeting

Meeting HOW01 - 150930 - Meeting Minutes - Dutch Fisheries - Project Update
Meeting Date 30 September 2015, 10:30 – 12:30
Place NS International Lounge at Schiphol Airport. Room: Antwerpen
Participants Pim Visser – VisNed – Chief Executive
 Wouter van Broekhoven – Visned – Science and Policy Officer
 Marc Browne -DONG Energy – Offshore Environment Manager

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Absent

Copy Bronagh Byrne
 Hywel Roberts

05 October 2015

Next meeting TBC

Our ref. MBROW/MBROW
 Doc. no. 2282854
 (ver. no.)
 Case no. 200-12-0456
 Accepted: MBROW
 Approved: MBROW

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1. Project Update

MB thanked PV and WB for making the time to meet and explained that the purpose of the meeting was to provide VisNed with an update of the project since DONG Energy (DE) took over full ownership of the Hornsea Wind Farm Project One (Project One).

PV explained that VisNed represented local and regional Producer Organisations (POs) and 60-70% of the Dutch fishing industry. VisNed's remit was to focus on managing the representative's quotas, ensuring sustainability to ensure its members had stable and predictable conditions to work in. Their work also covers providing input to fishery policy, spatial planning, technical matters and safety training.

MB provided a brief update on the project, indicating that the Development Consent Order (DCO) had been granted on 10th December 2014. DE took over the project in its entirety on 4th February 2015 and that the project had been awarded Contracts for Difference (CFD) from the Department of Energy and Climate Change (DECC).

MB went on to say that the concept (layout) design had not been finalised and that the consent allowed for up to 240 turbines, however the figure was expected to be below this in the order of 170-180 turbines. The minimum turbine spacing of 924 metres would be maintained on the boundary of Project One, with larger gaps within the internal array, in excess of 1km.

PV indicated that Project One wind farm was not heavily fished, WB added that parts of the cable corridor were more heavily fished around the 'Silver Pit'.

2. Hornsea Zone Update

Before discussing the agenda topics in more detail, MB mentioned that he was there to represent and discuss the topics in relation to Project One only. However MB went on to discuss the recent news that Project Two (P2) and the entire Hornsea development zone had been acquired by DONG Energy (DE). However, for the time being P2 is still being run as a separate Project, with a different timescale to Project One. MB stated that Project One had advanced timescales, with a Contract for Difference (CFD) and that Project One was working closely with P2.

PV and WB both noted this point and thanked MB for clarifying who the main point of contact would be for Project One commercial fisheries.



Doc. no. 2282854

3. Project One Update (potential OSS/RCS variations)

MB also mentioned that the project was currently considering a variation to the certain parameters in relation to the Offshore Substation (OSS) and Reactive Compensation Station (RCS).

MB described the consultation to date with the NFFO, MMO, MCA, Trinity House and more recently the CAA, and the Planning Inspectorate. MB went on to say that all the stakeholders consulted to date had stated no issues with the proposed changes in dimensions to the OSS and RCS and indicated that the expectation would be for a non-material (minor) change to the DCO and DML.

MB suggested that Project One would submit a variation to the Planning Inspectorate (PINS) towards the end of September early October. As part of the consultation VisNed and the commercial fisheries industry may be consulted about the proposed change.

PV asked about safety zones around the OSS/RCS. MB mentioned that safety zones around the OSS's would be unlikely because they were within the windfarm. Regarding the RCS which will be mid-way between the windfarm and landfill, MB suggested that Project One were currently in discussions with the MCA and TH regarding this and other topics, the possibility of a safety zone around the RCS had been discussed however other mitigation measures appeared to be more favourable.

MB described the current and proposed changes to the OSS and RCS (Detailed below).

OSS: Current envelope		
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40m	1800m ² (*required length to achieve this area is 45m. Likely omitted from DCO due to a clerical oversight)	60m (*specified height relates to the tallest element, inclusive of crane, helipad, lightning mast etc.) (MHWS)
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Width	Area	Height
45m	1800m ²	63 (MHWS)
RCS: Required envelope		
Length	Width	Height
50m	50m	63m (MHWS) (Area of 2500 m ²)

PV suggested that the changes in dimension to the OSS/RCS were not significant.

MB also discussed the proposed dates for commencement of offshore and onshore installation/construction and internal timelines. Key dates discussed included: Onshore substation Q1 2016; Onshore export cable to commence Q3 2016; Offshore installation to commence Q1 2018, with intertidal works for the Horizontal Directional Drill to commence Q1 2017.

MB stated that the current programme had a number of simultaneous operations beginning in 2018 and that the planners were currently looking at the programme in order to de-risk the programme so that simultaneous operations would be reduced. This could mean some elements of the programme being brought forward or being pushed back.



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4. Continued Engagement with European Stakeholders

MB commented that he would like to continue engaging with European commercial fishery counterparts.

MB confirmed that he had spoken with the NFFO, local inshore fishery groups and that he had met with all the major fishery stakeholders however was struggling to make contact with Rederscentrale. WB suggested he would contact this organisation and make introductions so as to facilitate the process.

5. Company FLO, FIR

MB explained that he was the main point of contact (Company FLO) for Project One, his remit included the authority to fully represent the Project on fishing issues with the support of the Fishing Industry Representative (FIR). The Company FLO will be the primary point of contact for the fishing industry when direct communication with the developer is required.

In addition MB explained that Project One in line with best practice had employed a Fishing Industry Representative (Provided by NFFO services). The FIR was Nick Garside, Nick's remit as a counterpart to the CFLO and FLO, the FIR will support the CFLO in his duties. The FIR's remit was in line with FLOWWW guidelines, MB also mentioned that the FIR might attend future meetings. MB explained that Nick Garside was in fact acting as the FLO for the project and the term FIR was being used interchangeably at this stage of the Project until a detailed scope of work was established for the FLO.

PV commented that VisNed worked very closely with the NFFO and that they knew Nick Garside and that he had been acting in this capacity for a while. MB mentioned that Nick was a good asset to the company and was helping to support the Project as well as providing an independent point of contact for the fishing industry.

6. Ongoing Site Investigation Works (Geotech and Geophys)

MB provided an overview of the site investigation works, key points to note, the geophysical site investigation works were complete and the geotechnical works were continuing **Post Meeting Note** (Geotech vessel to demobilised 05/10/2015). MB also indicated that in line with good practice the project had issued a Notice to Fishermen Issued: July 2015 and Notice to Mariners to be issued: August 2015.

7. Review of Statements of Common Ground (SOCG)

MB indicated that as part of the planning process statements of common ground had been agreed to, rather than discuss all the statements MB illustrated three key statements to illustrate how the project would be engaging with the industry going forward.

MB indicated that in line with the SOCG a Fisheries Liaison Officer (FLO) would be appointed at the start of the pre-construction phase. MB reiterated that through NFFO services it had appointed a FIR that was assisting the project in its consultation with the industry.

MB also suggested that in line with the SOCG a Fisheries Liaison Plan will be developed in consultation with the relevant fisheries stakeholders and in accordance with the Fisheries Liaison with Offshore Wind and Wet Renewables Group (FLOWWW) "Recommendations for Fisheries Liaison - Best Practice guidance for offshore renewables developers" (FLOWWW, 2013 in draft).

WB commented that the ES for Project One confirmed that the inter-array cables would be buried to 1m or protected.

MB indicated that the SOCG regarding cables, suggested that the cables shall be installed using a best practice approach, where practicable minimising as far as possible effects on longer term fishing operations.

MB went on to say that in line with the project description, the method by which the inter-array cables would be buried is dependent on the result of a detailed seabed survey of the final cable route and associated burial risk assessment process. MB confirmed that where cable burial would not be possible due to ground conditions, surface laying would be required, with cable protection measures employed, such as rock placement. MB emphasized that the depth that cables would be buried to would be dependent on ground conditions and the cable burial risk assessment would determine the safe burial depth for the cables taking into consideration all the environmental and fishery interactions.



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PV showed a video of the new fishing gear being used by some of the Dutch beamer fleet, using electrodes to disturb the flatfish rather than using tickle chains that could snag on the sea bed. PV went on to say that the equipment was costly (£100k) therefore those using this equipment would look to avoid unburied cables or foundation structures. MB noted this point.

8. General feedback

MB asked for feedback.

PMWVB thanked MB for arranging the meeting.

MB stated that he would endeavour to give as much notice as possible to planned works in order to keep the industry notified.

Meeting was brought to a close.