

Sofia Offshore Wind Farm Non-Material Change Application

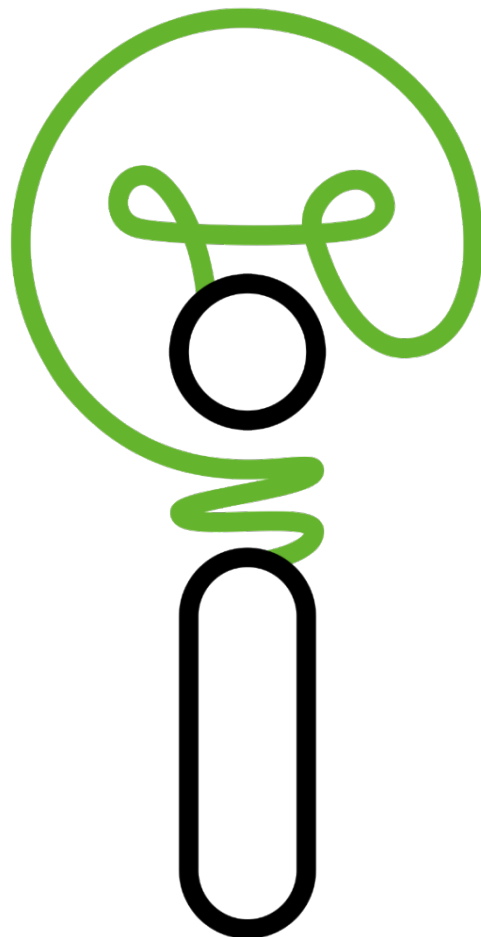
Environmental Report

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Revisions

Revision 1

No revisions present in the original document.

1 Introduction

1.1 Background Dogger Bank Teesside A and B

The Dogger Bank Teesside A and B Offshore Wind Farm Order 2015 (“the DCO”) (SI 2015 No. 1592) was granted on the 4 August 2015 and came into force on 26 August 2015. The Order granted development consent to two individual project companies and projects: “Bizco 2” for Project A (“Teesside A”) and “Bizco 3” for Project B (“Teesside B”). The DCO grants development consent for each project (A&B) for an offshore wind farm with a maximum installed capacity of 1.2 GW comprising up to 200 wind turbine generators as well as associated onshore and offshore development.



Figure 1 - Dogger Bank Teesside A and B

In August 2017, the Forewind Limited consortium, owning Bizco 2 and Bizco 3, was split:

- SSE and Statoil now own 50% each of Dogger Bank Teesside A (“**Teesside A**”) under a new consortium, Doggerbank Offshore Wind Farm Project 3 Projco Limited (“Project 3 Projco”).
- Innogy now owns 100% of Dogger Bank Teesside B (“**Teesside B**”) under a new subsidiary, the Sofia Offshore Wind Farm Limited (“SOWFL”).

The ownership status is summarised in Figure 2.

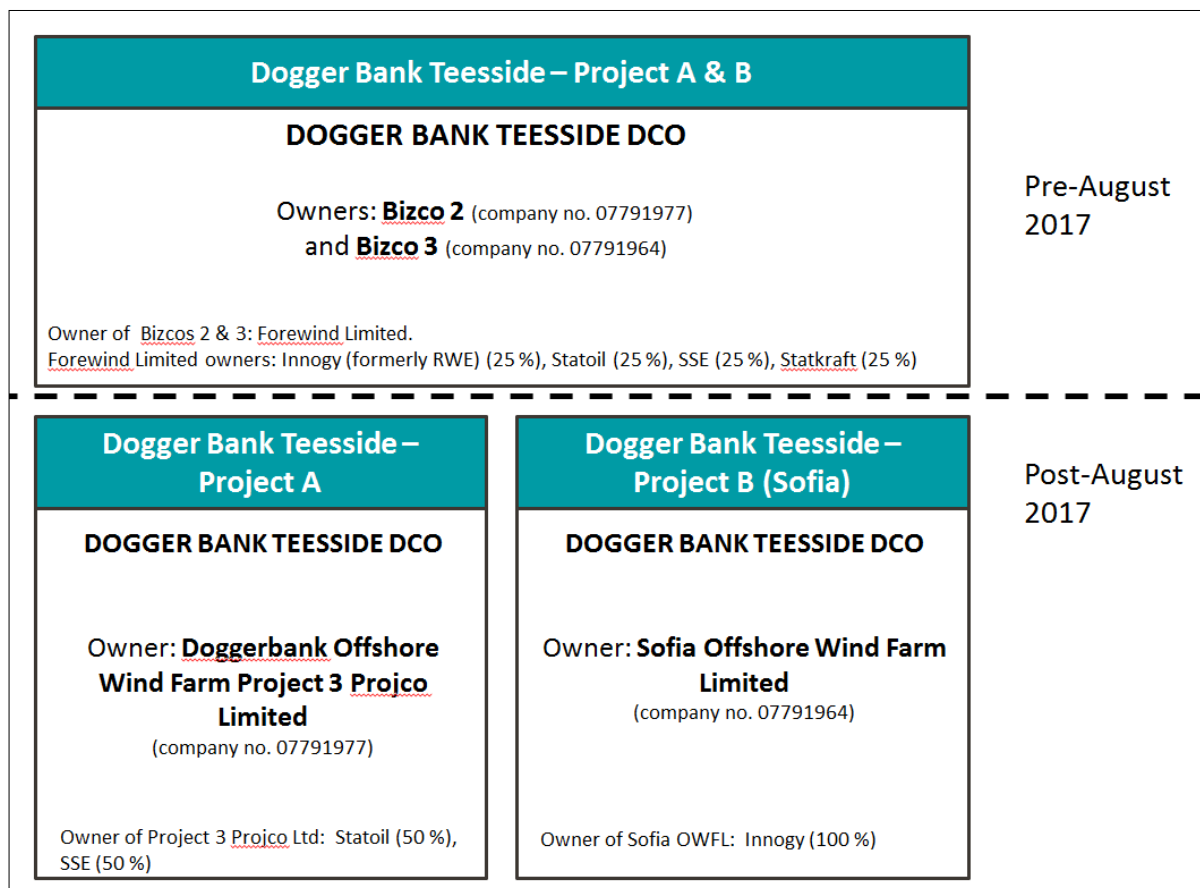


Figure 2 – Changes in ownership of the Dogger Bank Teesside projects

1.2 Sofia Offshore Wind Farm (formerly Teesside B)

In August 2017 Innogy, previously one of four partners in the Forewind consortium, which obtained consent for the project, secured 100% ownership of Teesside B and the project has since been renamed the Sofia Offshore Wind Farm (SOWF).

SOWF is located 165 km east of Teesside and has consent for up to 200 wind turbines with a total installed capacity of 1.2 GW. The export cable will reach landfall along the Teesside coastline between Redcar and Marske-by-the-Sea.

Sofia Offshore Wind Farm Limited has been reviewing the parameters of the consented Teesside B offshore wind farm in relation to up to date and projected wind turbine and construction technology. It has been determined that some amendments to the DCO are necessary to allow for the use of the most up to date technology and therefore SOWFL has submitted a non-material change application (“NMC Application”). Detailed discussions have been held with Natural England and the Marine Management Organisation (MMO) on these proposed amendments.

1.3 Purpose of this Report

SOWFL is submitting an application for a non-material change to the DCO (“the NMC Application”) in accordance with the Infrastructure Planning (Changes to, and Revocation of, Development Consent Orders) Regulations 2011 (as amended) (“the 2011 Regulations”). This document has been prepared

to support the NMC Application, which comprises those changes listed in Table 1. The proposed changes will affect the SOWF offshore works only (Work No. 1B) and no changes are proposed to Teesside A or any shared works.

Sections 2, 3 and 4 of this report summarise the impacts assessed as part of the Environmental Statement submitted with the DCO application (“the ES”). Those Sections also consider the extent to which the proposed changes to the DCO could alter the conclusions within the ES and (where appropriate) the conclusions reached by the Secretary of State (SoS) for Energy and Climate Change within its Habitats Regulation Assessment Report published with its decision on the DCO (“the DECC HRA”). Section 5 of this report uses the conclusions reached in Sections 2, 3 and 4 to determine whether any of the proposed changes could be considered material in accordance with the Department for Communities and Local Government (DCLG's) “Planning Act 2008: Guidance on Changes to Development Consent Orders” (December 2015) (“the 2015 Guidance”).

Table 1 –Revised parameters for the SOWF Non-Material Change Application

SOWF Component	As Consented	Refined Project Design Non-Material Application
Wind Turbine Rotor Diameter	215 metres	288 metres
Wind Turbine Hammer Energy	3,000 kJ	5,500 kJ
Offshore Platforms Foundation type	Gravity base or multileg foundations	Gravity base, multileg or monopole foundations. Monopole foundations may be up to 12m in diameter
Offshore Platform Monopole Foundations Hammer energy	n/a	5,500 kJ
Maximum number monopoles Combined number of WTG and offshore platform monopoles	200	200 (i.e. no change)
Generating capacity Increase of maximum generating capacity up to 1.4 gigawatts (GW)	1.2 GW	1.4 GW

2 Wind Turbine Generator Blade Diameter Amendment

2.1 The Proposed Amendment

Due to changes in wind turbine design anticipated in the near future SOWFL request that the blade diameter of wind turbines allowed under the DCO is increased from 215 metres to 288 metres. The increase in blade diameter will allow SOWFL more choice in the turbines which will be selected for the project and, in particular, will allow the installation of larger wind turbines with higher installed capacity.

The proposed increase in blade diameter will require a change to Requirement 3 of the DCO to allow each SOWF WTG to have a maximum rotor diameter of “up to 288 metres” rather than “up to 215 metres”.

It should be noted that no amendment is being requested to change the other DCO parameters relating to the proposed turbines, i.e. highest and lowest rotor tip heights, distance to other turbines and total rotor swept area will all be in accordance with the existing limits set out in the DCO.

A detailed technical assessment of the potential impacts on key bird species has been carried out by SOWFL and is included in Appendix A to this report. This report looks at the potential for changes to the impacts assessed and the conclusions reached in the ES, during the examination of the DCO and within the DECC HRA. A summary of this technical appendix is included in the following section. The assessments undertaken within the ornithology report are undertaken on a like for like basis using the methodology and criteria that informed the EIA, HRA and the grant of the DCO but applied to the new project parameters that are subject to this Application.

2.2 Disturbance and displacement

2.2.1 Construction / Decommissioning

The potential for seabirds to be disturbed and displaced during construction and decommissioning is related to vessel movements and construction activities and the number of simultaneous operations. An increase in WTG blade diameter will result in fewer WTGs being allowed under the amended DCO as the maximum total rotor swept area for SOWF will remain as consented under the original DCO. For example, if WTGs with 288m blade diameter are installed a maximum of 66 WTGs (out of the up to 200 WTGs consented under the DCO) would be allowed.

Fewer WTG installations will not increase vessel movements and construction activities and is likely to result in fewer vessel movements and construction activities during the construction and decommissioning phases. Therefore, the potential magnitude of construction effects will be at worst the same and in practice almost certainly smaller than that originally assessed. There will therefore be no change in the significance of any effect on seabirds during construction and decommissioning from those identified within the ES and no change to the conclusions of either no likely significant effect (LSE) on a protected species or, where relevant, no Adverse Effects on Integrity (AEol) of designated sites within the DECC HRA.

2.2.2 Operation

The potential for seabirds to be disturbed and displaced during operation is related to the total area containing WTGs. The proposed amendment does not change the total area to be covered by WTGs and therefore there is no change in impacts assessed nor the conclusions on significance of effects in the ES or no LSE or no AEol in the DECC HRA.

2.3 Collision Risk

The potential for collision mortality of seabirds is assessed using a quantitative approach estimated using the Band collision risk model (CRM). This model uses three suites of data as input parameters:

- Site specific seabird activity (densities and, depending on the CRM version, flight heights),
- Seabird biometrics (standard values for wing span, flight speed, etc.), and
- Turbine dimensions.

The collision risk modelling undertaken for this NMC Application compares the results in the ES and DECC HRA with the results of the updated modelling for the larger 288m WTG blade diameter. The modelling carried out for this NMC Application used the Band CRM Option 2 as accepted by Natural England.

Gannet, kittiwake, lesser black-backed gull and great black-backed gull were previously identified by Natural England as species for which the predicted levels of mortality raised concern, the first two species for both Environmental Impact Assessment (“EIA”) and Habitat Regulations Assessment (“HRA”) purposes, the two gull species for EIA only. In the ES and during the examination of the DCO it was agreed by Natural England that no project alone collision impacts were considered to give rise to significant impacts for either EIA or HRA. The only impact for which a significant impact could not be ruled out was cumulative gannet collisions. However, Natural England acknowledged that this conclusion was based on a precautionary approach and that the contribution from Dogger Bank Teesside A & B was insufficient to affect this conclusion (i.e. the risk existed even without mortality at these wind farms). In their recommendations to the Secretary of State, the examining authority panel made no reference to this remaining concern, but instead focussed on the absence of predicted Adverse Effect on Integrity for all Special Protection Areas.

For this NMC application, the collision estimates have been recalculated for the proposed alternative turbine blade diameter (and other increased diameters) using Band CRM option 2 and the parameter values extracted from the original assessment. The mean annual collision mortalities for turbines with increased blade diameters (288 m, 250 m and 220m) have been calculated and compared with the results assessed for the consented turbine parameters for the worst case scenario (WCS) assessed in the ES and during the examination as shown in Table 1.

Table 2 - Consented and revised total annual collision mortalities for Teesside A and B and SOWF, calculated using the basic Band model (option 2)

Species	Avoidance rate (%)	Consented (WCS)				
		Teesside A & B Error! Reference source not found.	Teesside B Error! Reference source not found. (SOWF)	Alternative turbine 1, SOWF	Alternative turbine 2, SOWF	Alternative turbine 3, SOWF
Blade Diameter				220m	250m	288m
Gannet	99	33	18	13	11	9

	98.9	N/A	N/A	14	12	10
Kittiwake	99	404	245	181	154	129
	98.9	N/A	N/A	199	169	142
Lesser black-backed gull	99.5	12	6	5	4	3
Great black-backed gull	99.5	37	19	14	12	10

The calculated collision mortalities for the alternative turbines are all lower than those for the consented turbines, with declines of between 19% and 50% when compared to the consented totals (including allowance for the slightly lower avoidance rate now recommended for gannet and kittiwake).

A comparison has also been made for gannet and kittiwake populations which can be apportioned to the Flamborough and Filey Coast (FFC) pSPA (gannet and kittiwake) and the Farne Islands SPA (kittiwake) (see Table 3).

Table 3. Consented and revised annual collision mortalities for SOWF apportioned to FFC pSPA and Farne Islands SPA, (from Appendix A Table 8)

Table 3 - Consented and revised annual collision mortalities for SOWF apportioned to FFC pSPA and Farne Islands SPA, (from Appendix A Table 8)

Species	Designated site	Consented value (WCS)	Alternative turbine 1 (220m)	Alternative turbine 2 (250m)	Alternative turbine 3 (288m)
Gannet	FFC pSPA	4	3.1	2.7	2.2
Kittiwake	FFC pSPA	26.2	21.2	18.0	15.1
Kittiwake	Farne Islands	1.9	1.5	1.3	1.1

The collisions apportioned to designated sites with connectivity to SOWF are reduced for all of the alternative turbines assessed. The proposed amendment to increase the maximum wind turbine blade diameter does not therefore alter the conclusions of the ES or DECC HRA with regards to the significance of the project alone and cumulatively or with regards to either no LSE or no AEoI.

2.4 Barrier Effects

The potential for seabirds to experience barrier effects due to the presence of offshore wind farms was assessed at two different scales in the ES, daily (e.g. if the wind farm is located between a colony and a foraging location) or seasonally (e.g. if the wind farm lies on a migration route). Amending the DCO to allow an increase in the maximum allowed turbine blade diameter, whilst maintaining the overall swept area limit and maximum number of turbines (200), will not change the assessment in the ES as the barrier effect can be expected to reduce, if fewer larger turbines are constructed.

2.5 Indirect Effects

The potential for seabirds to be indirectly affected by offshore wind farms was assessed in the ES as being related to whether offshore wind farms affect their prey species through changes to habitat. The potential impact was assessed as negligible for all seabirds considered in the ES.

An increased WTG blade diameter would result in fewer WTGs being allowed under the amended DCO as the maximum total rotor swept area for SOWF will remain as consented under the original DCO. In addition the DCO requirement limiting the total footprint of wind turbines remains unchanged if the DCO is amended as requested so there would be no change in the amount of habitat lost for prey species. The potential impacts of increased wind turbine blade diameter is therefore unchanged to that assessed in the ES and there will therefore be no change in the significance of any effect on seabirds during construction and decommissioning from those identified within the original ES.

3 Offshore Platform Monopole Foundation Amendment

3.1 The Proposed Amendment

To accommodate the potential for new techniques to install offshore platform foundations SOWFL propose to amend the DCO to allow the installation of platforms on monopole foundations. At the time of the DCO submission such foundation types were not envisaged. However, it has come to the attention of SOWFL that suppliers are actively investigating monopole foundations for offshore platforms. At present SOWFL cannot confirm the maximum size such monopole foundations would be but it is considered unlikely that these will be in excess of the 12 m diameter utilised for wind turbines. To allow construction of these foundation types, SOWFL therefore requests that the DCO is amended to allow for offshore platforms to be installed using monopoles up to a maximum 12m diameter using a maximum hammer energy of 5500 kJ.

It should be noted that no amendment is being requested to change the other DCO parameters relating to the offshore platforms, i.e. footprint, area of scour allowed or maximum hammer energy allowed for non-monopole foundations. It should also be noted that the NMC application limits the total number of monopole foundations to be used on the project for the offshore platforms and the WTGs to 200, i.e. the same number of monopole foundations allowed for wind turbines under the existing DCO.

The following changes to the DCO are therefore required:

- 1 Amendments to the description of Work No. 1B in Part 1 of Schedule 1 and to Requirements 5(2) and 5(7) to add an option for the SOWF offshore platforms to be fixed to the seabed using monopole foundations as well as multi-leg or gravity base type foundations;
- 2 Requirement 5(8) to specify that pile diameter for offshore platforms using monopole foundations must not exceed 12 metres; and
- 3 A new Requirement 8A to restrict the number of monopole foundations to be used to install SOWF WTGs and offshore platforms to 200.

SOWFL has carried out a review of the scenarios assessed in the ES to determine whether the use of monopole foundations for the offshore platforms changes the assessment undertaken in the ES. This includes consideration of the potential changes to the effects on suspended sediment concentrations/sediment deposition from plume and changes in waves and tidal currents.

3.2 Construction effects

3.2.1 Increased suspended sediment concentrations / Sediment deposition from plume

The scenario considered in the ES (Chapter 9 Table 5.1) for increased sediment concentrations was modelled on 24 x 12m-diameter drilled monopole foundations, a set of inter-array cables connecting them and one export cable (within and outside the Dogger Bank Zone) installed together over a 30-day period. The NMC Application will not increase the total number of monopoles that can be installed under the DCO and will not change Requirement 5(15) which restricts the number of vessels that can actively carry out impact piling at any one time to 2. The model of 24 x 12m-diameter drilled monopole foundations will not be changed by the proposed amendment and remains the realistic worst case scenario. Therefore there will be no change to the effects assessed in the ES.

3.3 Operational effects

3.3.1 Changes in waves and tidal currents due to operation

The scenario considered in the ES (Chapter 9 Table 5.1) for increased sediment concentrations was modelled on conical gravity bases installed for the wind turbines. The NMC Application proposes a new requirement to limit the total number of monopole foundations for WTGs and offshore platforms to 200 (the same amount as could currently be used for WTGs alone under the DCO). This ensures that there is no change to the worst case scenario assessed in the ES. Therefore there will be no change to the effects assessed in the ES.

3.3.2 Increase in suspended sediment concentrations due to operation

The potential for increases in suspended sediment concentrations due to operation of the offshore wind farm was assessed in the ES on the basis of 400 x 6MW conical gravity base foundations across Sofia and Teesside A wind farms.

Amending the DCO to allow for offshore platforms to be constructed on monopole foundations does not change the ES assessment as a further amendment is proposed which limits the total number of monopoles foundations (to be used to install WTGs and offshore platforms) to 200, thereby ensuring that there is no change to the maximum number of monopole foundations considered within the ES. The potential effects assessed in the ES based on gravity base foundations is therefore still valid and no change in relation to the ES impacts will occur.

3.4 Decommissioning effects

3.4.1 Decommissioning

The potential impacts in the decommissioning phase of the project on physical processes assumed the removal of foundations, export and inter-array cables and cable protection. Amending the DCO to allow monopole foundation types for offshore platforms does not materially change what was considered in the ES. The potential to allow offshore platforms to be installed with monopole foundations simply allows a different foundation type to be utilised. Amending the DCO to allow for offshore platforms to be constructed on monopole foundations will not therefore change the assessment included in the ES.

4 Increased Hammer Energy Amendment

4.1 The Proposed Amendment

The installation of larger WTGs could result in the need for an increase in hammer energy to install the WTGs to reduce the risk of pile refusal. SOWFL is therefore requesting that the maximum hammer energy allowed to install monopole foundations is increased to take into account the likely maximum hammer energy that could be required during installation of the WTGs from 3,000 kJ to 5,500 kJ. This is in line with the likely maximum hammer energy that will be possible during the SOWF construction phase, which has been derived from recent discussions with hammer suppliers.

As set out in sections 3.1 above, the use of monopole foundations for the offshore platforms may also require a hammer energy of up to 5,500 kJ.

The DCO Requirements which will change are as follows:

- 4 Amendment to Requirement 5(8) to enable SOWF offshore platforms using monopole foundations to employ a hammer energy of up to 5,500 kJ during installation; and
- 5 Amendment to Requirement 6 to enable single pile SOWF WTGs to employ a hammer energy of up to 5500 kJ during installation.

It should be noted that no amendment is being requested to change the maximum hammer energy allowed under the DCO for met masts. Similarly no change in the maximum hammer energy allowed for the installation of multi-leg or gravity base type foundations for wind turbines is requested in this NMC application. It is also noted that noise impacts from other construction activities (e.g. vessel engines) and other phases of the project's lifetime (e.g. operation and decommissioning) will be unaffected by an increase in maximum hammer energy.

A detailed environmental appraisal of the increased hammer energy including potential impacts on marine mammals and fish has been carried out by SOWFL and is included in Appendix B to this report. This report looks at the potential for changes to the impacts assessed in the ES and DECC HRA. A summary of this technical appendix is included in the following section.

4.2 Underwater Noise Modelling

The scenario considered in the ES for installation of WTG monopole foundations was assessed for a maximum hammer energy of 3,000 kJ. The environmental appraisal compares underwater noise modelling predictions that informed the ES and DECC HRA with new modelling undertaken for the increased hammer energy as summarised in the sections below. The environmental appraisal also compares the increased hammer energy using new criteria (which have been published since the SOWF ES) developed by the US National Marine Fisheries Service (NMFS).

4.2.1 Fish and Shellfish Resources

The potential for fish and shellfish resource to be impacted was assessed in the ES (Chapter 13) on the basis of maximum duration of piling events and not the noise associated with a single piling event. In the ES, the maximum duration of piling events (202 days) was based on the piling duration for pin-pile (multi-leg) foundations. This is significantly greater than the 71 day piling duration required for 200 WTG monopole foundations. The proposed hammer energy amendments do not

change the piling durations previously assessed in the ES and therefore there is no change in impacts assessed in the ES or DECC HRA.

4.2.2 Marine Mammals

The potential for marine mammals to be impacted was assessed in the ES (Chapter 14) on the basis of maximum hammer energy for monopole foundations as this produces the largest impact risk footprint for marine mammals. The marine mammals considered within the ES for potential impacts of noise associated with pile driving - grey seal (*Halichoerus grypus*), harbour porpoise (*Phocoena phocoena*), minke whale (*Balaenoptera acutorostrata*) and white-beaked dolphin (*Agenorhynchus albirostris*) - were assessed for potential impacts associated with the increase in maximum hammer energy.

The updated modelling results carried out for this NMC application demonstrate that an increase in hammer energy does not change the predicted impact effect significances for any species of marine mammal assessed when compared to levels predicted in the ES assessment.

The results of the updated modelling for a maximum hammer energy of 5,500 kJ showed an increase in the predicted impact areas and number of individuals that could possibly be injured/disturbed for all species. However, this increase was in most cases small and did not increase the magnitude of effect for any species assessed. Furthermore, the implementation of a Marine Mammal Mitigation Protocol (MMMP) (as required by DCO Requirement 16 (e)) (including the use of Acoustic Deterrent Devices) would ensure no impact risk would exceed the range of mitigation. It should also be noted that the assessment was based on 100 % of individuals within the maximum predicted range of possible disturbance potentially being impacted but that this is unlikely given the size of the area. The assessment can therefore be considered precautionary and, as such, the significance of impact would realistically be anticipated to be lower.

In conclusion, no increase in the significance of effect on marine mammal receptors is considered to arise from the use of the larger 5,500 kJ hammer in comparison to the 3,000 kJ hammer assessed in the ES.

In addition to comparing the predicted effects of a maximum 5,500 kJ hammer energy against the criteria used to assess impacts in the ES, SOWFL has considered the potential effects against newer impact criteria, specifically the thresholds and criteria of noise for auditory injury to marine mammals developed by the US National Marine Fisheries Service (NMFS). These updated criteria set out new thresholds for impacts based on Permanent Threshold Shift (PTS) and Temporary Threshold Shift (TTS). The assessed impacts based on these new criteria are set out in Section 6.4 of Appendix B and show that overall, no increase in the significance of effect on marine mammal receptors is considered to arise from the use of the larger 5,500 kJ hammer in comparison to that assessed in the original application. There are some increases evident in terms of areas affected at relevant thresholds for minke whale. However, the proportions of the populations potentially subject to noise exposure remain small and ensures that no exceedance of the ES significance findings would occur. Furthermore, the implementation of a MMMP with a standard 500m mitigation zone would reduce this impact risk range for those receptors which exceed 500m.

The environmental appraisal also considers whether the proposed increase in hammer energy would alter the SoS's assessment and conclusions within the DECC HRA, particularly with regards to the Southern North Sea Candidate Special Area of Conservation ("the SNS cSAC"). It concludes that the

proposed increase in hammer energy would not alter any of the findings relating to no AEoI of either the SNS cSAC or any other designated site.

5 Increase in generating capacity amendment

5.1 The Proposed Amendment

Works No. 1B of the DCO is defined as “an offshore wind turbine generating station with a gross electrical output of up to 1.2 gigawatts (GW)....”. SOWF has been designed with a single High Voltage Direct Current (HVDC) circuit, connecting the offshore wind farm into the national grid onshore. At the time of submission of the application in early 2014, 1.0 GW was considered to be the maximum rating that could be accommodated by a single HVDC circuit and the wind farm installed capacity was consented with an additional 200MW to ensure this available capacity was fully utilised (by accounting for array cable losses, less than 100% availability and the wind climate), resulting in a wind farm capacity of 1,200 MW (1.2 GW).

Technological advances have now been made which increases the maximum rating of a single HVDC cable circuit to 1.2 GW so that SOWFL is now seeking a maximum generating capacity specified in the definition of Works 1B to be amended to up to 1.4 GW in order to maintain the same 200 MW difference between the wind farm and connection capacity.

Similarly, as described above, wind technology is advancing rapidly increasing the generating capacity of individual wind turbines. As such, taking into account the amendments to rotor diameter and hammer energy described above, it is possible to accommodate a wind farm with a total generating capacity of up to 1.4 GW within the consented parameters described in the DCO.

SOWFL is seeking to minimise the cost of energy for consumers by adopting the more cost effective increased capacity HVDC connections now available on the market.

This amendment necessitates amending the definition of Work No. 1B in the Authorised Development section of the DCO. The definition of Work No 1B would read:

- (a) an offshore wind turbine generating station with a gross electrical output capacity of up to 1.4 gigawatts comprising up to 200 wind turbine generators each fixed to the seabed by monopole, multi-leg or gravity base type foundations situated within the area enclosed by the points whose co-ordinates are set out in Table 1B (the “array area”);

5.2 Effects of this amendment

As described above, taking into account the amendments to rotor diameter and hammer energy described in sections 2 and 4 of this report above, it is possible to accommodate a wind farm with a total generating capacity of up to 1.4 GW within the consented parameters described in the DCO. As such, there are no material changes to the environmental effects of the scheme as a result of this change to increase the maximum generating capacity to up to 1.4 GW.

6 Materiality of Changes

There is no statutory definition of what constitutes a 'material' or 'non material' change to a DCO. However, criteria for determining whether an amendment should be material or non-material is outlined in the 2015 Guidance, which states that the following characteristics will indicate that an amendment is more likely to be considered 'material':

1. The change would require an updated Environmental Statement (from that at the time the original DCO was made) to take account of new, or materially different, likely significant effects on the environment.
2. The change would invoke a need for a Habitats Regulations Assessment. Similarly, the need for a new or additional licence in respect of European Protected Species is also likely to be indicative of a material change.
3. The change would require authorisation of the compulsory acquisition of any land, or an interest in or rights over land that was not authorised through the existing DCO.
4. The change has a potential impact on local people and businesses.

6.1 Characteristics 1 – EIA Considerations

SOWFL has undertaken a review of the potential environmental impacts resulting from the proposed changes which have been set out in sections 2-5 above.

Section 2 concludes that the proposed change to allow for larger blade diameters for WTGs does not result in any change to the significance of any disturbance or displacement effects predicted on seabirds during construction operation and decommissioning from those identified within the ES. In addition, it concludes that deploying WTG with larger blade diameters would decrease the number of collisions for each of the key bird species and designated sites. Therefore there would be no change to the significance of collision risk assessed in the ES arising from the proposed blade diameter amendment

Section 3 concludes that the use of monopole foundations for the offshore platforms does not require a change to the scenarios used in the ES to assess the effects on suspended sediment concentrations/sediment deposition from plume and changes in waves and tidal currents. This is because Requirement 5(15) will be retained and SOWFL is proposing a new requirement to limit the total number of monopole foundations to be used for WTGs and offshore platforms to a maximum of 200.

Section 4 concludes that as the proposed hammer energy amendments do not change the piling durations previously assessed in the ES, there is no change to the significance of any effect on fish and shellfish resources from those identified in the original ES. With regards to marine mammals, it also concludes that the updated modelling results demonstrate that an increase in hammer energy does not change the predicted impact effect significances for any species of marine mammal when compared to levels predicted in the ES assessment.

Section 5 concludes that there are no additional environmental effects that arise as a result of the increase in maximum generating capacity to up to 1.4 GW.

Overall, it can therefore be concluded that there would be no change in the significance of any effect assessed in the ES as a result of any of the proposed changes. No new or additional impacts would arise and therefore SOWFL do not consider that any update is required to the ES as a result of the proposed changes to the development consent for SOWF.

6.2 Characteristics 2 – HRA and EPS Considerations

Consideration has also been given to the conclusions of the DECC HRA. Sections 2 and 4 conclude that there would be no change to the conclusions within the DECC HRA with regards to the SoS's findings that there would be either no LSE or no AEoI of any designated sites, including the SNS cSAC.

SOWFL does not consider therefore that a further HRA is specifically required for SOWF as a result of the changes proposed by the NMC Application.

In addition, as the conclusions of the original ES and DECC HRA remain unchanged, SOWFL does not consider that there is a need for any new or additional licences in respect of European Protected Species.

6.3 Characteristic 3 – Compulsory Acquisition Considerations

The proposed amendments relate to offshore works only and will not result in any change to the Order Limits of the DCO. There is therefore no requirement for any compulsory acquisition of land or interests over land as a result of the NMC Application.

6.4 Characteristic 4 – Potential Impacts on business and residents

The proposed changes are restricted to the offshore environment and therefore SOWFL does not consider that they will have any discernible impacts on local people or businesses over and above what has already been assessed and considered during the examination of the DCO.

6.5 Conclusion - Non-Material Change

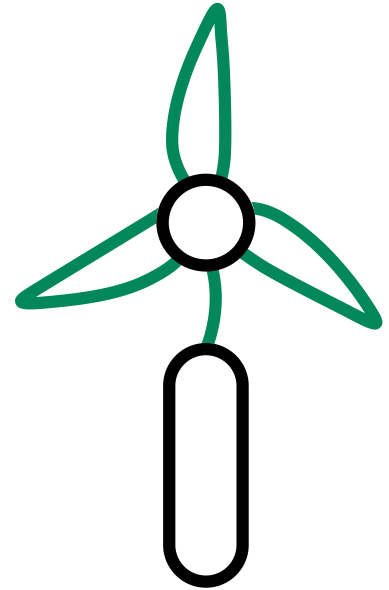
Overall, SOWFL does not consider that the proposed changes meet any of the above criteria. Therefore, the proposed changes are not considered to constitute a 'material' amendment and can be taken forward under the non-material change application process.

Appendix A

Offshore ornithology: Updated impact assessment for increased wind turbine blade diameter

Appendix B

Environmental appraisal of increased hammer energy



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