

EDF RENEWABLES



Neart na Gaoithe

Section 36 Consent Variation Report

DOCUMENT REFERENCE: NNG-0504-935-NnG-S36 CONSENT VARIATION-RPT-A2

Document Control

SIGN OFF		
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DOCUMENT CONTROL					
Document Number	NNG-0504-935-NnG-S36 CONSENT VARIATION-RPT-A2				
Document Title	Section 36 Consent Variation Report				
Rev.	Date [dd mmm yyyy]	Description	Prepared	Checked	Approved
1.0	23 Dec 2018	For approval	Ewan Walker	David Sweenie	Matthias Haag
2.0	7 Jan 2019	Minor updates	Ewan Walker	David Sweenie	Matthias Haag

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1 Introduction

1. This report supports an application under section 36C of the Electricity Act 1989 to vary the consent granted under section 36 of the Electricity Act 1989 to Neart na Gaoithe Offshore Wind Limited (NnGOWL) on the 3 December 2018 (“the section 36 consent”).

2 Description of the Proposed Development

2. The section 36 consent authorises NnGOWL to construct and operate the Neart Na Gaoithe Offshore Wind Farm, an offshore wind turbine generating station with a maximum output of 450 MW located within the Firth of Forth approximately 15.5km from East Fife Ness (as shown in the figure in Appendix 1).
3. The proposed development will comprise a maximum of 54 wind turbine generators (WTG), associated jacket foundations and ancillary equipment, piles, inter-array cabling, scour protection, cable protection and a meteorological mast.

3 Summary of Proposed Variation

4. This variation application seeks to make the following variations to the section 36 consent:
 - removal of references to transmission infrastructure (i.e. offshore substation platforms, interconnector cables and offshore export cables) from the Description of the Development in Annex 1 and from conditions 12 and 22 of Annex 2;
 - amendment of minimum blade tip clearance from 35 to 36 metres (measured from LAT); and
 - amendment of maximum blade width in Annex 1 from 4.5m to 5.5m.
5. The first variation is to remove the transmission works from the Section 36 consent. NnGOWL’s application for section 36 consent sought section 36 consent for the generation works. The transmission works are covered by a separate Marine Licence (Licence Number: 06678/18/0) and there is no requirement for section 36 consent for the transmission works. It is therefore requested that the section 36 consent be varied to remove reference to the transmission works.
6. It is also necessary for the transmission works to be removed from the section 36 consent in order to facilitate divestment of the transmission works to an offshore transmission operator (OFTO) in due course.
7. The second variation is to amend the maximum blade width specified in Annex 1 from 4.5m to 5.5m. This is necessary to enable the optimum WTG model to be used for the project.
8. In addition to the requested variations, this application also includes a commitment to increase the minimum rotor height by one metre, within the design envelope assessed by the March 2018 Environmental Impact Assessment (EIA).

4 Implications of Variation

9. This section of the report considers the potential implications of the proposed variation on the receptor topics covered by the EIA, Habitats Regulations Assessment (HRA) and Appropriate Assessment.
10. The removal of reference to transmission infrastructure has no implications for any environmental topic. Transmission infrastructure was assessed as part of the EIA and consented via a marine licence. No physical changes are proposed.
11. The table below notes the implications of the increase in maximum blade width and minimum rotor height on each receptor topic. The following points regarding proposed changes should be noted:
 - **Maximum blade width:** the EIA, HRA and Appropriate Assessment are based on a maximum blade width of 5m. Whilst the Section 36 states 4.5m, the difference between the proposed variation and the environmental

assessments supporting the December 2018 consent is just 50cm. The maximum blade width is towards the nacelle end of the blade.

- Minimum rotor height:** the design envelope assessed for the application allowed for a range of rotor heights. The minimum rotor height or 'air gap' between sea level and lowest blade tip, was 35m LAT, however it is possible to raise the rotor by up to several metres before the maximum tip height of 208m LAT is reached. This variation application seeks to increase the minimum rotor height, which is within the range assessed in the application documents.

Table 1 : Implications of the Variation on Receptor Topics

Receptor Topic	Implication
Fish and shellfish ecology, including diadromous fish	All aspects of the project relevant to potential effects on fish and shellfish ecology remain unchanged compared with the application and consent documents. The number of turbines, parameters of foundations and installation methods are the same as assessed in the EIA therefore the conclusions of the EIA remain valid. Similarly there is no change which would affect the conclusions of the HRA or Appropriate Assessment.
Marine mammals	All aspects of the project relevant to potential effects on marine mammals remain unchanged compared with the application and consent documents. The number of turbines, parameters of foundations and installation methods are the same as assessed in the EIA therefore the conclusions of the EIA remain valid. Similarly there is no change which would affect the conclusions of the HRA or Appropriate Assessment.
Ornithology	See section 4.1
Commercial fisheries	All aspects of the project relevant to potential effects on commercial fisheries remain unchanged compared with the application and consent documents. The number of turbines, parameters of foundations and installation methods are the same as assessed in the EIA therefore the conclusions of the EIA remain valid.
Shipping and navigation	All aspects of the project relevant to potential effects on shipping and navigation remain unchanged compared with the application and consent documents. The number of turbines, parameters of foundations and installation methods are the same as assessed in the EIA therefore the conclusions of the EIA remain valid.
Military and civil aviation	All aspects of the project relevant to potential effects on military and civil aviation remain unchanged compared with the application and consent documents. The number of turbines and the worst case turbine parameters (including maximum tip height) are the same as assessed in the EIA therefore the conclusions of the EIA remain valid.
Cultural heritage	All aspects of the project relevant to potential effects on cultural heritage remain unchanged compared with the application and consent documents. The number of turbines, parameters of foundations and installation methods are the same as assessed in the EIA therefore the conclusions of the EIA remain valid.
Seascape, landscape and visual impacts	All aspects of the project relevant to potential seascape, landscape and visual effects remain unchanged compared with the application and consent documents. The number of turbines and the worst case turbine parameters (including maximum tip height) are the same as assessed in the EIA. An increase in maximum blade width of 50cm is not considered to be perceptible from the closest viewpoint, over 15km from the wind farm. The increase in minimum rotor height of 1m is still lower than the worst case maximum rotor height assessed in the EIA. The conclusions of the EIA therefore remain valid.
Socio-economics	All aspects of the project relevant to potential socio-economic effects remain unchanged compared with the application and consent documents. The number of turbines, parameters of foundations and installation methods are the same as assessed in the EIA therefore the conclusions of the EIA remain valid.
Geology and water	Geology and water quality were scoped out of the EIA in agreement with the Scottish Ministers. All aspects of the

quality	project relevant to potential effects on geology and water quality remain unchanged compared with the NnG Scoping Report (Mar 2018) and Scottish Ministers' Scoping Opinion (Sep 2018), therefore no further consideration is required.
Physical processes	Effects on physical processes were scoped out of the EIA in agreement with the Scottish Ministers. All aspects of the project relevant to potential effects on physical processes remain unchanged compared with the NnG Scoping Report (Mar 2018) and Scottish Ministers' Scoping Opinion (Sep 2018), therefore no further consideration is required.
Air quality	Air quality was scoped out of the EIA in agreement with the Scottish Ministers. All aspects of the project relevant to potential effects on air quality remain unchanged compared with the NnG Scoping Report (Mar 2018) and Scottish Ministers' Scoping Opinion (Sep 2018), therefore no further consideration is required.
Benthic ecology	Benthic ecology was scoped out of the EIA in agreement with the Scottish Ministers. All aspects of the project relevant to potential effects on benthic ecology remain unchanged compared with the NnG Scoping Report (Mar 2018) and Scottish Ministers' Scoping Opinion (Sep 2018), therefore no further consideration is required.

4.1 Seabirds

4.1.1 Displacement and Barrier Effects

12. Should displacement or barrier effects occur, they are considered to be caused by the presence of a wind farm plus associated activity and effects may be influenced by the spacing between turbines. No change to the wind farm footprint, number of turbines or spacing between turbines is proposed as part of this variation. A minor increase of 50cm to the maximum blade width at the nacelle end of the blade is considered to have no effect on the potential for displacement or barrier effects, compared with those already assessed in the EIA, HRA and Appropriate Assessment.
13. Regarding rotor height, the minor increase of 1m in the minimum height is within the parameters already described in the application documents and assessed in the EIA, HRA and Appropriate Assessment. It is also not considered likely to have any influence on the potential for displacement or barrier effects to occur.
14. As a result, no further assessment of displacement or barrier effects was considered necessary for inclusion in this variation application.

4.1.2 Collision Risk

4.1.3 Implications of variation for different species

15. The NnG EIA Report submitted in March 2018 considered collision risk for ten species: gannet, kittiwake, herring gull, lesser black-backed gull, great black-backed gull, black-headed gull, common gull, little gull, Arctic skua and great skua.
16. For this variation application, collision modelling outputs for gannet, kittiwake and herring gull are presented for the varied design, allowing for a comparison with consented outputs.
17. It was not considered necessary to present collision modelling for all ten species as predicted impacts were very low for seven species. For lesser black-backed gull, modelling predicted one collision per breeding season with no collisions in the non-breeding season (Table 9.67, NnG EIA Report). For great black-backed gull, modelling predicted no collisions in the breeding season, with three collisions (one adult and two immature birds) in the non-breeding season (Table 9.68, NnG EIA Report).
18. For the five additional species (black-headed gull, common gull, little gull, Arctic skua and great skua), collision risk modelling presented in the NnG EIA Report, based on 1,000 birds passing through the development area in a north-south/south-north direction two times a year predicted that there would be no collisions in the breeding and non-breeding seasons for any of these species (Table 9-70).

19. Based on these low numbers and an absence of significant effects, it was considered that the minor changes to the design proposed by this variation would also not result in significant effects. Revised collision estimates have therefore not been presented for these species.
20. Collision modelling outputs are summarised below for gannet, kittiwake and herring gull.

4.1.4 Collision modelling outputs

21. Tables 2, 3 and 4 below summarise the collision risk modelling outputs for the consented design and the amended parameters which this application seeks to vary. The consented design is as per the NnG EIA Report, HRA and Appropriate Assessment (issued 3rd December 2018). All model outputs are based on 54 turbines using Option 2 of the Band collision model.
22. Collision spreadsheets for the updated parameters are provided in Appendix 2 of this report, comprising workings for gannet, kittiwake and herring gull, plus a summary spreadsheet comparing consented with varied collision modelling outputs.
23. Please note that the totals in the table below do not all appear to sum correctly from the monthly totals, however this is due to rounding. The more detailed numbers on which these totals are summed can be viewed in the spreadsheets in Appendix 2.
24. The Band model refers to sea level using 'Mean Sea Level' (MSL) and all engineering information and previous consent documents have used 'Lowest Astronomical Tide' (LAT). Both are presented below for clarity.
25. For gannet and kittiwake, collision modelling outputs are slightly lower for the varied design compared with consented design. For herring gull there is no change between the consented and varied designs.
26. As the potential effects of the variation are the same or lower than previously described, the conclusions of the EIA, HRA and Appropriate Assessment remain valid.

Table 2: Comparison of gannet collision modelling outputs (all ages), 98.9% avoidance rate

Design	Minimum rotor height (MSL and LAT)	Maximum blade width	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Breeding season	Non-breeding		Total
																Autumn	Spring	
Consented	32m MSL / 35m LAT	5.0m	0	3	8	5	19	14	21	15	16	7	1	0	93	7	7	108
Varied	33m MSL / 36m LAT	5.5m	0	3	7	4	18	13	20	15	15	6	1	0	89	7	7	103

Table 3: Comparison of kittiwake collision modelling outputs (all ages), 98.9% avoidance rate

Design	Minimum rotor height (MSL and LAT)	Maximum blade width	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Breeding season	Non-breeding		Total
																Autumn	Spring	
Consented	32m MSL / 35m LAT	5.0m	0	0	1	1	3	1	4	1	2	3	2	10	9	17	2	28
Varied	33m MSL / 36m LAT	5.5m	0	0	1	1	3	1	4	1	2	3	2	9	8	17	2	27

Table 4: Comparison of herring gull collision modelling outputs (all ages), 99.5% avoidance rate

Design	Minimum rotor height (MSL and LAT)	Maximum blade width	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Breeding season	Non-breeding	Total
Consented	32m MSL / 35m LAT	5.0m	1	0	1	0	1	1	0	0	0	0	1	1	2	4	5
Varied	33m MSL / 36m LAT	5.5m	1	0	1	0	1	1	0	0	0	0	1	1	2	4	5

Appendix 1: Site Location

500000

525000

550000

575000



Project

Neart na Gaoithe

Map Title

Figure 1-1: Site Location

Drawing Number

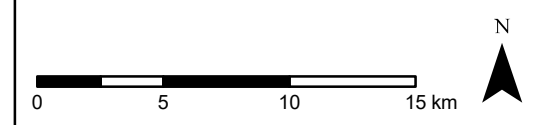
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Legend

- Wind Farm Area
- Offshore Export Cable Corridor
- Landfall Location

Map Details

Scale: 1:300,000
 Reference: WGS 1984 UTM Zone 30N
 Date: 22 December 2017



Credits

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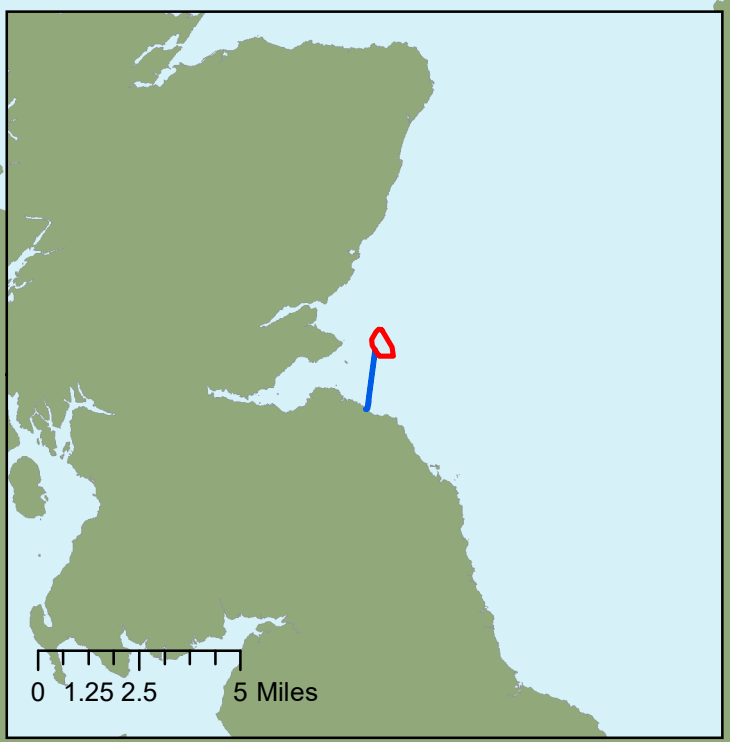
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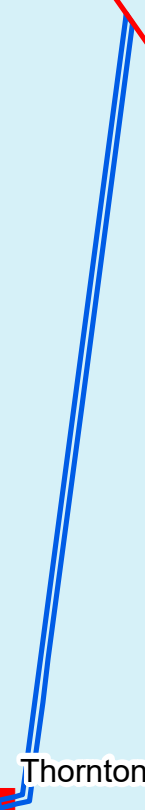
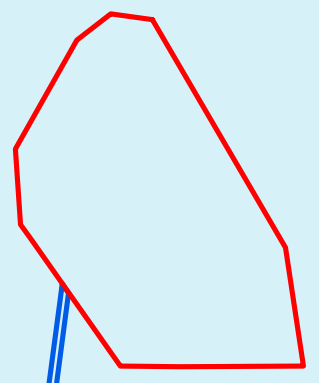
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Appendix 2: Collision Modelling Spreadsheets
