NORTH FALLS

Offshore Wind Farm

Addendum to Environmental Statement Chapter 33 Climate Change

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Glossary of Acronyms

BEIS	Department for Business, Energy and Industrial Strategy
CCC	Climate Change Committee
CO_2	Carbon dioxide
CO_2e	Carbon dioxide equivalent
EIA	Environmental Impact Assessment
ES	Environmental Statement
GHG	Greenhouse Gas
GW	Gigawatt
MW	Megawatts
NFOW	North Falls Offshore Wind Farm Limited
O&M	Offshore Wind Farm
UK	United Kingdom

Glossary of Terminology

CO_2e	Carbon dioxide equivalent is a metric measure that is used to compare emissions from various greenhouse gases (GHGs) on the basis of their global warming potential by converting amounts of other GHGs to the equivalent amount of carbon dioxide.
The Applicant	North Falls Offshore Wind Farm Limited (NFOW).
The Project or 'North Falls'	North Falls Offshore Wind Farm, including all onshore and offshore infrastructure.

1 Introduction

1.1 Purpose of this document

1. The 7th Carbon Budget was published by the Climate Change Committee (CCC) on 26th February 2025, which sets a maximum level of emissions ('the net United Kingdom (UK) carbon account') covering the period from 2038 to 2042.

2. In Environmental Statement (ES) Chapter 33 Climate Change **[APP-047]**, the significance of effect of the Project's Greenhouse Gas (GHG) emissions was evaluated for each phase of the Project and undertaken in accordance with the approach detailed in IEMA (2022) guidance. This was carried out by comparing the magnitude of emissions generated by the Project with the relevant UK Carbon Budget and determining the effect on the UK's ability to meet its future Carbon Budgets, and by proxy, the emission reduction needed to achieve the UK's international climate commitments and transition towards net zero.

3. In ES Chapter 33 Climate Change **[APP-047]**, the emissions total released during the construction phase of the Project is compared with the 5th UK Carbon Budget (2028 to 2032), given construction will commence within the next five years and likely occur during that Budget period.

4. At the time of production of ES Chapter 33 Climate Change **[APP-047]**, the UK Carbon Budgets relevant to the whole of the Operation and Maintenance (O&M) and decommissioning phases had not yet been set, as the Project's operational lifetime extends beyond both 2037, (being the latest date that the 6th Carbon Budget extends to, which was the latest Carbon Budget at the time of writing the relevant chapter), and 2050, the year which the UK commits to achieving net zero.

5. Following the publication of the 7th Carbon Budget, the first ten years of the Project's O&M phase now aligns with the 6th (2033-2037) and 7th (2038-2042) Carbon Budgets. This document provides an update to ES Chapter 33 Climate Change **[APP-047]** by comparing the Project's O&M emissions with the most recent 7th UK Carbon Budget. Previously, ES Chapter 33 Climate Change **[APP-047]** compared the Project's O&M emissions with the 6th Carbon Budget. This Addendum provides an update to Table 33.5 and Section 33.6.1.2.2, found within ES Chapter 33 Climate Change **[APP-047]**.

2 Carbon Budgets

6. The Carbon Budgets are set by the CCC and provide a legally binding five-year limit for GHG emissions in the UK. The seven Carbon Budgets that have been established will run up to 2042 and are identified in Table 2.1, which provides an update to Table 33.5 in ES Chapter 33 Climate Change **[APP-047]**. Table 2.1 demonstrates the phased reduction in future permissible GHG emissions, therefore, any emission sources will have an increasing impact on the UK's ability to meet its Carbon Budget, the further they are in the future.

Table 2.1 The Seven UK Carbon Budgets

Budget	Carbon Budget Level (Mt CO_2e)	Reduction below 1990 level	
		UK Targets	Achieved by UK
1st Carbon Budget (2008 to 2012)	3,018	26%	30%
2nd Carbon Budget (2013 to 2017)	2,782	32%	38%
3rd Carbon Budget (2018 to 2022)	2,544	38%	44%
4th Carbon Budget (2023 to 2027)	1,950	52%	-
5th Carbon Budget (2028 to 2032)	1,725	58%	-
6th Carbon Budget (2033 to 2037)*	965	77%	-
7th Carbon Budget (2038 to 2042)*	535	87%	-
Net Zero Target		At least 100% by 2050	
*The 6th Carbon Budget, and subsequent budgets, include international aviation and shipping			

7. In February 2025, the UK set a 7th Carbon Budget, recommending a reduction in UK GHG emissions of 87% by 2042, relative to a 1990 baseline (CCC, 2024a). This target, which has already been enshrined in UK law, has been set in line with the UK commitments in relation to the Paris Agreement and with the goal of achieving a target of reaching net zero GHG emissions by 2050.

8. As part of the 7th Carbon Budget, the role of the offshore wind sector and the construction industry are both the focus of action to contribute to meeting these targets. ES Chapter 2 Need for the Project **[APP-016]** provides further details on the need for the Project in contributing to meeting these targets.

9. The CCC publishes annual progress reports on the UK's progress against GHG emissions reduction targets to 2050. The most recently published report '*Progress in reducing emissions 2024 Report to Parliament*' (CCC, 2024b) identifies that UK GHG emissions (including the UK's share of international aviation and shipping) were 423.3 Mt carbon dioxide equivalent (CO_2e), which is 49.5% lower than 1990 levels. Emissions fell by 4% between 2022 and 2023, the largest annual percentage reduction outside the COVID-19 pandemic since 2016.

10. The report highlighted key challenges in achieving net zero targets, including the need for a substantial increase in the rates of reduction in most sectors outside of electricity supply, such as agriculture, waste and land use sectors. Currently, only a third of the emission reductions required to achieve the 2030 target are covered by credible plans.

11. The report also highlighted that annual installations of offshore wind will need to at least treble to get the UK on track to meet its 2030 emissions targets. Furthermore, achieving at least 50 Gigawatt (GW) of total operational capacity for offshore wind by 2030 will now require more than 5 GW to be added each

year on average; at least 0.5 GW more than the average annual deployment rate listed in the 6th Carbon Budget.

3 Assessment of Effects: Greenhouse Gas Assessment

12. Sections 3.1 and 3.2 of this document summarise the GHG assessment of effects described in ES Chapter 33 Climate Change **[APP-047]** for the O&M phase emissions of the Project. Section 3.3 then compares the O&M emissions of the Project to the new 7th Carbon Budget, and Section 3.4 summarises the significance of effect of O&M phase emissions for the Project, once the 7th Carbon Budget has been taken into account.

13. The methodology used in the updated assessment described in Section 3.3 and Section 3.4 of this document follows that outlined in Section 33.6.1.2 of ES Chapter 33 Climate Change **[APP-047].** The receptor for the GHG assessment is the global atmosphere, which is defined as a high sensitivity receptor. The magnitude of impact is not defined in Environmental Impact Assessment (EIA) terms but represented by the magnitude of GHG emissions released or saved as a result of Project activities.

14. As noted in ES Appendix 33.1 Greenhouse Gas Assessment Methodology **[APP-172]**, conservative assumptions are adopted for the assessment with respect to the activity data and emission factors used, such as assuming the most GHG-intensive construction materials and the worst-case distance for vessel round trips. In addition, wider decarbonisation trends are not considered within the assessment, as the utilised emission factors are representative of present-day conditions. Specifically, the manufacturing of products and the movement of marine vessels are likely to be less GHG intensive over the Project's timeframe, as the UK electricity grid decarbonises, and organisations adopt emission reduction measures in line with their sectoral decarbonisation trajectories. Therefore, the calculated GHG emissions are likely to present an overestimate of actual emissions, particularly during the O&M and decommissioning phases.

3.1 Operation and Maintenance GHG emissions

15. Table 2.2 below, which has been replicated from Table 33.22 of ES Chapter 33 Climate Change **[APP-047]**, shows the GHG emissions calculated for each source group in the O&M phase.

Table 2.1 Operation and maintenance GHG emissions from the Project

Source	Project location	GHG emissions (tonnes CO_2e)	% of O&M GHG emissions
Marine vessels	Offshore	1,335,557	89.7%
Helicopters	Offshore	103	0.0%
Road traffic vehicles	Onshore	10.4	0.0%
Spare parts	Onshore and offshore	153,034	10.3%*
Total (over 30-year operational lifetime)	**Onshore and offshore**	**1,488,704**	
Annual total (average per year O&M)	**Onshore and offshore**	**49,623**	

Source	Project location	GHG emissions (tonnes CO_2e)	% of O&M GHG emissions
*Calculated as 3.7% of total construction and O&M emissions			

16. Total O&M emissions are estimated to be approximately 1.5 million tonnes CO_2e over the 30-year operational lifetime of the Project, and on average, approximately 49,600 tonnes CO_2e per year. Marine vessels emissions constitute the majority of O&M emissions, accounting for approximately 90% of the total. As noted in Section 33.4.6 of ES Chapter 33 Climate Change **[APP-047]**, the approach to calculating emissions from marine vessels is considered to be conservative, as it assumes there would be no decarbonisation in the shipping industry over the temporal scope of the assessment. Therefore, the figures presented in Table 2.2 are likely to be an overestimation.

3.2 Operational GHG Intensity and Emission Savings

17. Based on the Project's anticipated lifetime electricity output and GHG emissions during the O&M phase, the operational GHG intensity per unit of electricity generated by the Project is calculated to be 10.8 g CO_2e per kWh. This figure assumes an installed wind farm capacity of 850 Megawatts (MW)[1] and a capacity factor of 61.5%.

18. Electricity generated by the Project is less GHG intensive than other forms of generation such as natural gas or alternative non-renewable energy sources considered in the future UK grid mix, leading to avoided GHG emissions and thus savings over its operational lifetime. Table 2.3, which has been replicated from Table 33.23 of ES Chapter 33 Climate Change **[APP-047]**, presents the quantity of emissions which would have been produced under the 'Do Nothing' scenario in the Project's absence, which assumes that the electricity would otherwise be generated from natural gas. These figures are used to determine the emissions saved with the Project in operation, accounting for the O&M emissions detailed in Table 2.2.

19. Further details regarding the 'Do Nothing' scenario adopted for the assessment are provided in ES Chapter 33 Climate Change **[APP-047].**

Table 2.2 Electricity generation and GHG intensity for the Project

Project	Project's total O&M GHG emissions (tonnes CO_2e)	GHG emissions from 'Do Nothing' Scenario (tonnes CO_2)	GHG emissions saved (tonnes CO_2e)
North Falls	1,488,704	50,967,498	49,478,793

[1] In ES Chapter 33 Climate Change **[APP-047]**, an indicative capacity figure of 850 MW has been used as a realistic worst case scenario. In practice the generating capacity may be higher, e.g. the Applicant's connection agreement with NESO is for 1,000 MW (1GW).

20. Adopting the assumptions specified above, the Project would result in a saving of approximately 49.5 million tonnes CO_2e over the 30-year O&M phase. The Project would therefore support the UK's transition to a low to zero-carbon energy generation mix.

3.3 Comparison to UK Carbon Budgets

21. The first ten years (2031-2040) of the Project's O&M phase broadly falls under the 6th and 7th Carbon Budget period (2033-2037 and 2038-2042). O&M emissions that would be released from activities associated with the Project over the period 2038-2042 would constitute around 0.3% of the 7th Carbon Budget. Previously, Section 33.6.1.2.2 of ES Chapter 33 Climate Change **[APP-047]** concluded that the Project's O&M GHG emissions would, over the first five years of the Project's O&M phase, constitute around 0.03% of the 6th Carbon Budget. Although O&M GHG emissions would occur continuously over the Project's operational lifetime, the magnitude of emissions would be negligible in comparison to the 6th and 7th Carbon Budgets.

22. In addition, when considering the emissions saved by the Project from the provision of renewable energy to the grid, the Project would result in an avoidance of emissions when compared to the 'Do Nothing' scenario considered in Table 2.3.

3.4 Significance of Effect

23. There is no change to the conclusions in the GHG Assessment of the significance of effect in relation to O&M phase emissions, as reported in ES Chapter 33 Climate Change **[APP-047]**. The magnitude of emissions released by the Project over the O&M phase are negligible in comparison to the 6th Carbon Budget and remain negligible in comparison to the 7th Carbon Budget. The Project will contribute to the UK meeting the projected increase in electricity demand over the years due to population and economic growth (Department for Business, Energy and Industrial Strategy (BEIS), 2022), as well as the supply of renewable energy to decarbonise the power sector and support emission reductions in other economic sectors. Given the low GHG intensity of electricity generation, and emission savings associated with the Project's operations, the significance of effect of the Project on GHG emissions during the O&M phase is considered to be beneficial, which is significant in EIA terms. Any O&M emissions released by the Project over its lifetime would be negligible and offset by the emissions it avoids.

4 Summary

24. This document provides an update to the GHG Assessment presented in ES Chapter 33 Climate Change **[APP-047]**, comparing the O&M emissions of the Project to the recently published 7th Carbon Budget. The Project would result in a saving of approximately 49.5 million tonnes CO_2e over the 30-year O&M phase, therefore supporting the UK's transition to a low to zero-carbon energy generation mix. The O&M emissions released by the Project over its lifetime would be negligible and offset by the emissions it avoids. Overall, there is no change to the significance of effect as reported in ES Chapter 33 Climate

Change **[APP-047]**, and the magnitude of O&M phase emissions remain negligible in comparison to the 7th Carbon Budget.

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HARNESSING THE POWER OF NORTH SEA WIND

North Falls Offshore Wind Farm Limited

A joint venture company owned equally by SSE Renewables and RWE.

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