Addendum to the Environmental Impact Assessment Report

NISA

North Irish Sea Array

Volume 5 - Wider Schemes Chapters

Chapter 28
Climate

Statkraft

CIP
Copenhagen Infrastructure Partners

GoBe
APEM Group

ARUP

Contents

Tables

28. Climate

North Irish Sea Array Windfarm Ltd (NISA, hereafter referred to as 'the Developer') has been considering the Request for Further Information (RFI) issued by An Bord Pleanála (now An Coimisiún Pleanála) as well as the third-party submissions received following public consultation. At An Coimisiún Pleanála's behest, the Developer has also continued to consult with stakeholders in respect of the 2024 planning application throughout 2024-2026. The Developer has refined elements of the design to respond to the third-party submissions, the continued public and stakeholder consultation and the RFI (further details on the design refinements are provided in Appendix A5.1: Design Refinements). Amendments are therefore required to Chapter 28: Climate of the 2024 Environmental Impact Assessment Report (EIAR). Full details of consultation undertaken can be found in Appendix A1.2 in the Addendum to the EIAR.

For the purposes of clarity, this document shall be read in conjunction with the Chapter 28 submitted as part of the 2024 EIAR.

Any cross reference to a chapter, section, table, image, figure or appendix within this document is to another location within the Addendum to the EIAR unless explicitly stated otherwise. Any cross reference to anything included in the 2024 EIAR will be clearly labelled as such.

Text in bold is only used throughout this document to indicate where changes are required, and why they are required. Text in italics is text from a section of the 2024 EIAR which is deleted, or quotations from other documents (as explicitly stated). Replacement text is in normal font.

Tables which have been updated from the 2024 EIAR, or entirely new tables, have been included in the Addendum to the EIAR. These tables can be identified by the "A" prefix in the table caption. Any changes within the updated table, in comparison to tables within the 2024 EIAR, are indicated by grey shading in the relevant cell, column or row, as necessary. The exception here is where a table has been replaced in its entirety.

The sections relevant to Chapter 28 in the RFI are included below.

RFI Section	RFI	Relevance to Chapter
1 (b)	The scientific information provided as part of the planning application documentation should be based on up-to-date survey reports and data. Accordingly, the applicant is requested to confirm/provide justification/verification that the information submitted in support of the planning application remains relevant and appropriate at the point of submitting further information or to update same as required.	The timeframes associated with the RFI have necessitated a review of the datasets previously used in the 2024 EIAR to ensure any necessary updates to the baseline environment are captured. Therefore, a review of the Climate baseline has been undertaken to comply with RFI 1 (b). The update to this chapter in relation to this, is provided in Sections 28.2, 28.3 and 28.5.
2 (a)	The Irish Coast Guard (IRCG), through the Department of Transport, has raised concerns in relation to the layout of the proposed development with respect to search-and-rescue (SAR) access. The applicant is requested to consult with the IRCG, in addressing these concerns, and provide further information and clarification on such matters.	Design refinements have been made in response to this RFI (which are detailed in Appendix A5.1 Design Refinements). This has resulted in a change in resource quantities associated with the offshore elements of the proposed development. The update to this chapter in relation to this, is provided in 28.5.2.
5	The Marine Institute in their observation raises concerns in relation to the methodology applied in the submitted cumulative effects assessment and the manner in which the information is presented, noting the lack of a standard Irish methodology in relation to CEA. The applicant is advised that guidance exists in the UK, namely Nationally Significant Infrastructure Projects: Advice on Cumulative Effects Assessment - GOV.UK, September 2024 (NSIP, 2024).	A revised CEA, which considers the methodology and template provided in the Nationally Significant Infrastructure Projects: Advice on Cumulative Effects Assessment – GOV.UK, September 2024 (NSIP, 2024), has been prepared.

RFI Section	RFI	Relevance to Chapter
	The applicant is requested to revise the submitted cumulative assessment in line with NSIP (2024) and submit a standalone document to clearly demonstrate the CEA conclusions. In the interests of consistency and transparency, the applicant is requested to complete the assessment in accordance with the templates provided in the NSIP (2024), namely "Appendix 1: Matrix 1 – Identification of 'other development' for CEA" and "Appendix 2: Matrix 1 – Assessment matrix" (see attached Appendix B)…	The revised CEA is provided in Chapter 38 Cumulative and Inter-Related Effects, Appendix 38.1 – Onshore Long List and Appendix A38.2 Offshore Long List. The update to this chapter in relation to this, is provided in Section 28.9.
10 (a)	Having regard to information submitted in the EIAR, the NPWS underwater noise guidelines (NPWS, 2014), the strict protections afforded to marine mammals under the Wildlife Act 1976, as amended, in addition to observations from prescribed bodies and observers, the Board requires a comprehensive suite of noise abatement measures to be proposed and assessed in addition to the existing mitigation measures referenced in the planning application documentation.	As a result of RFI Section 10 (a), the design of the wind turbine generator (WTG) and Offshore Substation Platform (OSP) foundations have changed from monopiles or jackets to suction bucket jacket (SBJ) foundations for the WTGs, and SBJ or jacket foundations with drilled pin piles for the OSP (which are detailed in Appendix A5.1 Design Refinements). This has resulted in a change in resource quantities associated with the offshore elements of the proposed development. The update to this chapter in relation to this, is provided in Section 28.5.2.
13 (e)	The applicant is requested to review the draft [Flemington] LAP (or adopted LAP, where updated at time of this observation) and update the submitted application documentation accordingly, having regard in particular to potential for visual impacts from the substation on the draft LAP lands, potential traffic implications given the proposed access to the LAP lands directly adjoins the proposed access to the substation, and potential noise implications from the substation on the adjoining residential zoned lands.	The Developer has updated the landscape plan at the grid facility to reduce the visual impacts of the grid facility on receptors associated with the Flemington LAP. This update also includes for the replacement of palisade fencing with concrete post and rail fencing for the perimeter boundary fence at the grid facility. This has resulted in a minor increase in resource quantities associated with the onshore elements of the proposed development. The update to this chapter in relation to this, is provided in Section 28.5.2.

28.1 Introduction

There are no changes required to this section. Refer to Section 28.1 of Chapter 28 in the 2024 EIAR.

28.2 Methodology

28.2.1 Introduction

There are no changes required to this section. Refer to Section 28.2.1 of Chapter 28 in the 2024 EIAR.

28.2.2 Study Area

There are no changes required to this section. Refer to Section 28.2.2 of Chapter 28 in the 2024 EIAR.

28.2.3 Relevant Guidance and Policy

The Developer notes that there was an administrative error resulted in incorrect numbering of the sub-sections of Section 28.2.3 in Chapter 28 of the 2024 EIAR. The section numbering has been amended in this report. Any reference to these sections in the 2024 EIAR maintains the original numbering.

There are no changes required to this section. Refer to Section 28.2.3 of Chapter 28 in the 2024 EIAR.

28.2.3.1 International Policy

In accordance with RFI Section 1 (b), a review of relevant policy documentation was undertaken. The change required to this section is the addition of reference to the July 2025 amendment to the European Climate Law.

Therefore, the following paragraph is added to Section 28.2.3.1 of Chapter 28:

In July 2025, the European Commission proposed an amendment to the European Climate Law. The Commission recommended reducing the EU's net greenhouse gas emissions by 90% by 2040 relative to 1990. The 2040 climate target reaffirms the EU's determination to tackle climate change and to ensure the EU reaches climate neutrality by 2050 (EC, 2025).

There are no other changes required to this section. Refer to Section 28.2.3.1 in Chapter 28 of the 2024 EIAR.

28.2.3.2 National Policy

In accordance with RFI Section 1 (b), the changes required to this section is the updating of a reference to policy.

Therefore, the following sentence from Section 28.2.4.1 in Chapter 28 of the 2024 EIAR is deleted:

"Ireland's first statutory National Adaptation Framework (NAF) which was published in 2018, sets out the national strategy, for government and society, to reduce the vulnerability of the country to the negative effects of climate change."

And replaced with:

Ireland's second statutory National Adaptation Framework (NAF), published in June 2024, sets out the national strategy, for government and society, to reduce the vulnerability of the country to the negative effects of climate change.

Similarly, the following sentence from Section 28.2.4.1 in Chapter 28 of the 2024 EIAR is deleted:

Ireland's 'Long-term Strategy on Greenhouse Gas Emissions Reductions' was published in April 2023.

And replaced with:

Ireland's 'Long-term Strategy on Greenhouse Gas Emissions Reductions' was revised in 2024.

Additionally, the following sentence is added in reference to updated policy:

CAP 2025 was published in April 2025 and builds on the targets set in CAP 2024. The updated plan focuses on how Ireland will reduce emissions and transition its energy system. Aligned with CAP 2024, there is a continued focus on accelerating renewable energy deployment, boosting energy efficiency in building and establishing energy security by 2030. CAP 2025 also aims for a 50% renewable energy share for electricity in 2025 and 80% by 2030, relative to 2005 levels.

Finally, there is a change to Table 28.4 following an update to the carbon reductions resulting from the proposed development (see Section 28.5). This change is indicated in grey in Table A28.1.

For the purposes of clarity, Table 28.4 from Chapter 28 of the 2024 EIAR shall be deleted and replaced with Table A28.1.

Table A28.1: NMPF Policy Point of Relevance to Climate

NMPF Policy Point	Policy Description	Where addressed
Climate Change Policy 2	For the lifetime of the proposal, the following climate change matters must be demonstrated: • estimation of likely generation of greenhouse gas emissions, both direct and indirect; • measures to support reductions in greenhouse gas emissions where possible; • likely impact of climate change effects upon the proposal from factors including but not limited to: sea level rise, ocean acidification, changing weather patterns;	The proposed development is an offshore wind energy project which will significantly contribute to the Government's target of achieving 5GW of offshore wind by 2030. The associated generation of greenhouse gas emissions as well as the calculation of the total embodied carbon of the proposed development is provided in Section 28.5.

NMPF Policy Point	Policy Description	Where addressed
	• measures incorporated to enable adaptation climate change effects; • likely impact upon climate change adaptation measures adopted in the coastal area relevant to the proposal and/or adaptation measures adopted by adjacent activities; • where likely impact upon climate change adaptation measures in the coastal area relevant to the proposal and/or adaptation measures adopted by adjacent activities is identified, these impacts must be in order of preference and in accordance with legal requirements: a. avoided, b. minimised, c. mitigated, d. if it is not possible to mitigate significant adverse impacts, the reasons for proceeding must be set out	The carbon assessment also demonstrates a net positive of carbon reductions equating to 12,620,748.6 tonnes of CO_{2eq} over the lifecycle of the proposed development. Mitigation measures relating to the construction of the proposed development to reduce greenhouse gas emissions are provided in Section 28.6.

There are no other changes required to this section. Refer to Section 28.2.4.1 in Chapter 28 of the 2024 EIAR.

28.2.3.3 Local Policy

In accordance with RFI Section 1 (b), the change required to this section is the updating of reference to Louth County Council's Climate Action Plan.

Therefore, the following sentence from Section 28.2.4.2 in Chapter 28 of the 2024 EIAR is deleted:

"Louth County Council's Climate Change Adaptation Strategy 2019 -2024 represents a proactive step by Louth County Council in the process of adaptation planning to build resilience and respond effectively to the threats posed by climate change."

And replaced with:

Louth County Council's Climate Action Plan 2024-2029 was adopted in February 2024. This represents a five-year strategy for Louth County to decarbonise and presents a unified approach for the county to reduce emissions, build resilience, fulfil national climate obligations at a local level and respond effectively to the threats posed by climate change.

There are no other changes required to this section. Refer to Section 28.2.4.2 in Chapter 28 of the 2024 EIAR.

28.2.4 Data Collection and Collation

In accordance with RFI Section 1 (b), the change required to this section is the updating of reference to the Environmental Protection Agency's (EPA's) Ireland's Greenhouse Gas Emissions Projections.

Therefore, the following sentence from Section 28.2.5 in Chapter 28 of the 2024 EIAR is deleted:

"The EPA's Ireland's Greenhouse Gas Emissions Projections 2021-2040 was considered, which includes total projected emissions and a breakdown of projected emissions per sector under the "With Existing Measures" and "With Additional Measures" scenarios."

And replaced with:

The EPA's Ireland's Greenhouse Gas Emissions Projections 2024-2055 was considered, which includes total projected emissions and a breakdown of projected emissions per sector under the "*With Existing Measures*" and "*With Additional Measures*" scenarios.

There are no other changes required to this section. Refer to Section 28.2.5 in Chapter 28 of the 2024 EIAR.

28.2.5 Method for Assessment of Impacts

There are no changes to the introductory text in this section. Refer to Section 28.2.6 of Chapter 28 in the 2024 EIAR.

28.2.5.1 Construction Phase

The change required to this section is the update to the EPA's projected GHG emission date to reflect the change in the construction start date. As a result of the timeframes associated with responding to the RFI, the anticipated commencement of construction has changed from 2026/2027 to 2027/2028.

Therefore, the following sentence from Section 28.2.6.1 in Chapter 28 of the 2024 EIAR is deleted:

"The results of this assessment have been compared with the EPA's projected GHG emissions for Ireland's total projected emissions for 2026 (assumed construction year as outlined in Chapter 9: Onshore Construction Methodology)."

And replaced with:

The results of this assessment have been compared with the EPA's projected GHG emissions for Ireland's total projected emissions for 2027 (assumed earliest construction year as outlined in Chapter 9).

There are no other changes required to this section. Refer to Section 28.2.6.1 in Chapter 28 of the 2024 EIAR.

28.2.5.2 Operational Phase

In accordance with RFI Section 1 (b), the change required to this section is an update to the carbon load and emissions factor data, and to reflect the update in the opening year (as a result of the timeframes associated with responding to the RFI, the anticipated opening year has changed to 2031).

Therefore, the following sentence from Section 28.2.6.2 in Chapter 28 of the 2024 EIAR is deleted:

"D. Carbon load in grammes per kWhr of electricity generated and distributed via the national grid. A value of 100gCO_2/kWhr is assumed for the opening year of 2028 on the basis that the current factor is 296gCO_2/kWh (SEAI emission factors 2022) and the ESB is projecting a value of 66 gCO_2/kWh for 2030."

And replaced with:

D. Carbon load in grammes per kWhr of electricity generated and distributed via the national grid. A value of 140gCO_2/kWhr is assumed for the opening year of 2031 in line with the latest ESB projected 2030 emission factor of 140 gCO_2/kWh for (ESB, 2024[1]).

There are no other changes required to this section. Refer to Section 28.2.6.2 in Chapter 28 of the 2024 EIAR.

28.2.5.3 Construction and Operational Phase Significance Criteria

There are no changes required to this section. Refer to Section 28.2.6.3 of Chapter 28 in the 2024. EIAR.

28.2.5.4 Vulnerability of the Proposed Development to Climate Change

There are no changes required to this section. Refer to Section 28.2.6.4 of Chapter 28 in the 2024. EIAR.

[1] Our Approach

28.3 Baseline Environment

28.3.1 Climate baseline for the purposes of the assessment of climate change vulnerability

In accordance with RFI Section 1 (b), the change required to this section is updating reference to the County Council's Climate Change Action Plans.

Therefore, the following sentence from Section 28.3.1 in Chapter 28 of the 2024 EIAR is deleted:

"Dublin City Council's Climate Action Plan 2019 - 2024, Fingal County Council's Climate Change Action Plan 2019 - 2024, Fingal County Council's Draft Climate Change Action Plan 2024 - 2029, Meath County Council's Climate Action Strategy 2019 - 2024 and Louth County Council's Climate Change Adaptation Strategy 2019 - 2024 were consulted."

And replaced with:

Dublin City Council's Climate Action Plan 2024-2029, Fingal County Council's Climate Change Action Plan 2024 – 2029, Meath County Council's Climate Action Plan 2024 – 2029 and Louth County Council's Climate Action Plan 2024 - 2029 were consulted.

There are no other changes required to this section. Refer to Section 28.3.1 in Chapter 28 of the 2024 EIAR.

28.3.2 Climate Pollutants

In accordance with RFI Section 1 (b), the changes required to this section comprise updating reference to policy and reports which have been revised since the 2024 EIAR.

Therefore, the following text from Section 28.3.2 in Chapter 28 of the 2024 EIAR is deleted:

"SF6 is listed under Section 3 of Annex 1 of the European F-Gas Regulations 2015. SF6 is also listed as a GHG and, according to the Intergovernmental Panel on Climate Change (IPPC), it is the most potent GHG that has been tested, with a greenhouse gas potential 23,000 times higher than that of CO_2.

Table 4.3 page 133 of the EPA Ireland's National Inventory Report 2020 shows that Ireland's total SF6 emissions from emission source category 2.G.1 Electrical Equipment in 2018, the latest year for which the information is provided, was 16.13 kt CO2 eq. This represented 0.026% of Ireland's total calculated emissions in 2018."

And replaced with:

"SF_6 is listed under Section 3 of Annex 1 of the European F-Gas Regulations 2015 repealed and superseded by Regulation (EU) 2024/573. SF_6 is also listed as a GHG and, according to the Intergovernmental Panel on Climate Change (IPPC), it is the most potent GHG that has been tested, with a greenhouse gas potential 24,300 times higher than that of CO_2[2].

Table 4.3 page 139 of the EPA Ireland's National Inventory Report 2025 shows that Ireland's total SF_6 emissions from emission source category 2.G.1 Electrical Equipment in 2023, the latest year for which the information is provided, was 2.12 kt CO_2 eq. This represented 0.0039% of Ireland's total calculated emissions in 2023."

There are no other changes required to this section. Refer to Section 28.3.2 in Chapter 28 of the 2024 EIAR.

28.3.3 Baseline Greenhouse Gas Emissions

In accordance with RFI Section 1 (b), the changes required to this section comprise updating of reference to policy and reports.

[2] Annex II. IPCC Global warming potential values | Sustainable developments Goals

Therefore, the following sentence from Section 28.3.3 in Chapter 28 of the 2024 EIAR is deleted:

"In June 2023, the EPA released the report Ireland's Greenhouse Gas Emissions Projections 2022-2040, which includes total projected emissions and a breakdown of projected emissions per sector under the "With Existing Measures" and "With Additional Measures" scenarios."

And replaced with:

In May 2025, the EPA released the report Ireland's Greenhouse Gas Emissions Projections 2024 – 2055, which includes total projected emissions and a breakdown of projected national emissions and emissions per sector under the "With Existing Measures" and "With Additional Measures" scenarios.

Similarly, the following text from Section 28.3.3 in Chapter 28 of the 2024 EIAR is deleted:

"Implementation of "Additional Measures" (including those in the 2024 Climate Action Plan) is projected to deliver 29% emission reduction by 2030 compared to the 2018 level, while the implementation of "With Existing Measures" can deliver 11% emission reduction over the same period. This represents a reduction of 3% per annum in emissions over the period with the implementation of the "Additional Measures".

And replaced with:

Implementation of "Additional Measures" (including those in the 2025 Climate Action Plan) is projected to deliver 22.9% emission reduction by 2030 compared to the 2018 level, while the implementation of "With Existing Measures" can deliver 8.8% emission reduction over the same period (EPA, 2025).

In addition, in accordance with RFI Section 1 (b), there is a change to the text below in Section 28.3.3 and Table 28.7 following an update to EPA projected emissions, and the construction and the opening year dates for the proposed development.

Therefore, the following sentence from Section 28.3.3 in Chapter 28 of the 2024 EIAR is deleted:

"Table 28.7 presents the EPA "With Existing Measures" and "With Additional Measures" scenarios for 2026 (assumed construction year) and 2028 (year of opening). 2026 is assumed as the construction year as the majority of construction emissions occur within the first year of construction."

And replaced with:

Table A28.2 presents the EPA "With Existing Measures" and "With Additional Measures" scenarios for 2027 (assumed earliest construction year) and 2031 (year of opening). 2027 is assumed as the construction year as the majority of construction emissions occur within the first year of construction.

Table 28.7 from Chapter 28 of the 2024 EIAR shall be deleted in its entirety and replaced with Table A28.2 due to the change in EPA projected emissions and the change to the construction and opening year dates for the proposed development. In addition, ETS Sector is now included in table title, which was missing due to an administrative error.

For the purposes of clarity, Table 28.7 from Chapter 28 of the 2024 EIAR shall be deleted and replaced with Table A28.2. The changes are highlighted in grey.

Table A28.2: Projected Emissions for the Energy (ETS and Non-ETS Sector) and Total Emissions (EPA, 2025)

Projections	Year	Energy Industries ($Mt\ CO_2\ eq.$)	National Total ($Mt\ CO_2eq$)
Projections (with existing measures)	2027	5.09	52.88
	2031	3.65	51.15
Projections (with additional measures)	2027	4.92	49.91
	2031	3.08	44.05

Finally, in accordance with RFI Section 1 (b), there is a change to the text below in Section 28.3.3 following the update to EPA projected emissions.

Therefore, the following sentence from Section 28.3.3 in Chapter 28 of the 2024 EIAR is deleted:

"The Energy sector contributed 17% of Ireland's total emissions in 2021 and is projected to reduce by 10% in 2030 (in the With Existing Measures scenario).

As outlined in the With Existing Measures scenario, emissions from the energy industries sector are projected to decrease by 50% from 10.3 to 5.2 Mt CO_2 eq. over the period 2021 to 2030. In terms of the renewable energy generated, this scenario projects Ireland reaching approximately 68% of electricity consumption from renewable energy by 2030. Renewable electricity generation capacity is dominated by wind energy, with solar and hydro sources also contributing to the mix.

As outlined in the With Additional Measures scenario, emissions from the energy industries sector are projected to decrease by 60% from 10.3 to 4.2 Mt CO_2 eq. over the period 2021 to 2030. In this scenario it is estimated that renewable energy generation increases to approximately 80% of electricity consumption by 2030. This is mainly a result of further expansion in wind energy (comprising 7.8 GW onshore and 5.0 GW offshore). Expansion of other renewables (e.g., solar photovoltaics increasing to 6 GW by 2030) also occurs under this scenario."

And replaced with:

Energy Industries contributed 14.3% of Ireland's total emissions in 2023 and is projected to reduce 8.4% of total emissions in 2030 (in the *With Existing Measures* scenario).

As outlined in the *With Existing Measures* scenario, national emissions from the energy industries sector are projected to decrease by 59% from 10.6 to 4.4 Mt CO_2 eq. over the period 2018 to 2030. In terms of the renewable energy generated, this scenario projects Ireland reaching approximately 60% of electricity consumption from renewable energy by 2030. Renewable electricity generation capacity is dominated by wind energy, with solar and hydro sources also contributing to the mix.

As outlined in the *With Additional Measures* scenario, national emissions from the energy industries sector are projected to decrease by 68% from 10.6 to 3.4 Mt CO_2 eq. over the period 2018 to 2030. In this scenario it is estimated that renewable energy generation increases to approximately 68.3% of electricity consumption by 2030.

This is mainly a result of further expansion in wind energy (comprising 7.1 GW onshore and 2.7 GW offshore). Expansion of other renewables (e.g., solar photovoltaics increasing to 6.3 GW by 2030) also occurs under this scenario.

Additionally, the following paragraph is added:

It should be noted, however, that according to the latest EPA projections published in May 2025, Ireland is projected to achieve emission reductions relative to 2005 levels of 10% *With Existing Measures* and 22% *With Additional Measures* by 2030. Thus, under both scenarios, a shortfall of approximately 42% against national reduction targets is expected.

There are no other changes required to this section. Refer to Section 28.3.3 in Chapter 28 of the 2024 EIAR.

28.4 Characteristics of the Proposed Development

There are no changes required to this section. Refer to Section 28.4 of Chapter 28 in the 2024 EIAR.

28.5 Potential Effects

28.5.1 Do-Nothing Scenario

There are no changes required to this section. Refer to Section 28.5.1 of Chapter 28 in the 2024 EIAR.

28.5.2 Construction Phase

The first change to this section is the update to the construction commencement date for the proposed development, and to correct an error which referenced EPA's Non-ETS Sector emissions rather than Ireland's Non-ETS carbon budgets.

Therefore, the following text from Section 28.5.1 in Chapter 28 of the 2024 EIAR is deleted:

"The carbon footprint of the proposed development during the construction phase is estimated, based on an assessment of carbon equivalents, outlined in Table 28.8 for onshore infrastructure and Table 28.9 for offshore infrastructure. The carbon assessment assumes no improvement in the carbon intensity of the production of cement and steel is achieved through time.

The predicted results are compared to the EPA's Projected Non-ETS Sector CO2 eq. emissions in 2026 assuming additional measures."

And replaced with:

The carbon footprint of the proposed development during the construction phase is estimated, based on an assessment of carbon equivalents, outlined in Table A28.3 for onshore infrastructure and Table A28.4 for offshore infrastructure. The carbon assessment assumes no improvement in the carbon intensity of the production of cement and steel is achieved through time. The predicted results are compared to the Ireland's Non-ETS carbon budgets for 2025 to 2035.

There is also an update of Table 28.8 and Table 28.9 in the 2024 EIAR to account for the change in the construction year and update in the guidance (as per RFI Section 1 (b)) and construction material revisions.

In addition, as noted in the introduction to this chapter, the design parameters of proposed development (Project Option 1 and Project Option 2) have been updated to account for the design refinements in relation to the RFI (see Appendix A5.1 for further information). As a result of this, monopile foundations are no longer an option for either project option, or the OSP. The foundation types have therefore been changed to include only suction bucket jacket (SBJ) foundations for the wind turbine generators (WTGs), and the option for SBJs or jacket foundations with drilled pin piles for the OSP. Therefore, the quantities of materials associated with the construction of Project Option 1 and Project Option 2 have changed.

In addition, the landscape plan for the Grid Facility has been updated in response to RFI Section 13 (e). This update includes for the replacement of palisade fencing with concrete post and rail fencing for the perimeter boundary fence at the grid facility, which has resulted in an increase in concrete.

Finally, there was a minor calculation error noted for the construction material imports in Table 28.8 and wind turbine generators in 28.9. For Table 28.8 this was a minor error in the 'CO$_2$e' value for 'Concrete (for joint bays, link boxes, comms chambers)'.

In Table 28.8, the 'Embodied Carbon Contribution' emission factor provided for 'Iron or Cast Iron' should have been the 'Copper' factor, and visa-versa. For clarity, these have been corrected and do not change the outcome of the overall assessment in terms of significance of effect.

Accordingly, Table 28.8 and Table 28.9 in Chapter 28 of the 2024 EIAR are updated to include the above changes. For the purposes of clarity, Table 28.8 and 28.9 from Chapter 28 of the 2024 EIAR shall be deleted and replaced with Table A28.3 and Table A28.4 The changes are indicated in grey.

Table A28.3: Estimated Embodied Carbon Associated with the Construction Phase of the Onshore Infrastructure

Element	Embodied Carbon Contribution - Emission Factor (tCO2eq/unit)	Quantity of material	Unit	Comment / Assumptions	Tonnes CO_2e	Additional tCO_2 from transport	Total CO_2 equivalent (tCO2e)	Sources (Circular Ecology (CE) / UKEA / TII / National Highways England / UK Government (2021) (BEIS))
Excavations								
Excavations Topsoil	0.0007	67,150	Tonnes	Assumed carbon factor of 0.731kgCO2eq./m3 - General Excavation - Topsoil (TII). Assumed Density 1.7t/m3	28.9	0	28.9	TII
Topsoil reused	0	38,080	Tonnes	No carbon associated with use of sitewon material, construction plant carbon captured elsewhere.	0	0	0	TII
Topsoil Exported off site	0.0012	29,070	Tonnes	Assumed carbon factor of 1.239kgCO2e/tonne - Aggregate and Soil exported to landfill (worst case) (TII). Assumed 50km additional transport, HGV Average - 1.073 kgCO2e/km (TII). Average road load 30t to calculate round trip.	36	104	140	TII
Excavations Subsoil	0.001	76,000	Tonnes	Assumed carbon factor of 1.04kgCO2eq/m3 - General Excavation - Other (TII). Assumed density 2t/m3	39.5	0	39.5	TII
Subsoil reused	0	7,400	Tonnes	No carbon associated with use of sitewon material, construction plant carbon captured elsewhere.	0	0	0	TII
Subsoil Exported off site	0.0012	68,600	Tonnes	Assumed carbon factor of 1.239kgCO2e q./tonne - Aggregate and Soil exported to landfill (worst case) (TII). Assumed 50km additional transport, HGV Average - 1.073 kgCO2eq./km (TII). Average road load 30t to calculate round trip.	85	245.4	330.4	TII
Excavations Surface Course (Asphalt)	0.001	4,080	Tonnes	Assumed carbon factor of 1.04kgCO2eq./m3 - General Excavation - Other (TII). Assumed Density 1t/m3	4.2	0	4.2	TII

Element	Embodied Carbon Contribution - Emission Factor (tCO2eq/unit)	Quantity of material	Unit	Comment / Assumptions	Tonnes CO_2e	Additional tCO_2 from transport	Total CO_2 equivalent (tCO2e)	Sources (Circular Ecology (CE) / UKEA / TII / National Highways England / UK Government (2021) (BEIS))
Surface Course (Asphalt) Reused	0	2,880	Tonnes	No carbon associated with use of sitewon material, construction plant carbon captured elsewhere.	0	0	0	TII
Surface Course (Asphalt) Exported off site	0.0012	1,200	Tonnes	Assumed carbon factor of 1.239kgCO2eq./tonne - Aggregate and Soil exported to landfill (worst case) (TII). Assumed 50km additional transport, HGV Average - 1.073 kgCO2eq./km (TII). Average road load 30t to calculate round trip.	1.5	4.3	5.8	TII
Excavations Base/Binder Course (Asphalt)	0.001	16,080	Tonnes	Assumed carbon factor of 1.04kgCO2eq./m3 - General Excavation - Other (TII). Assumed Density 1t/m3	16.7	0	16.7	TII
Base/Binder Course (Asphalt) reused	0	11,280	Tonnes	No carbon associated with use of sitewon material, construction plant carbon captured elsewhere.	0	0	0	TII
Base/Binder Course (Asphalt) Exported off site	0.0012	4,800	Tonnes	Assumed carbon factor of 1.239kgCO2eq./tonne - Aggregate and Soil exported to landfill (worst case) (TII). Assumed 50km additional transport, HGV Average - 1.073 kgCO2eq./km (TII). Average road load 30t to calculate round trip.	5.9	17.2	23.1	TII
Excavations Sub-base (Crushed Stone)	0.0010	18,260	Tonnes	Assumed carbon factor of 1.04kgCO2eq./m3 - General Excavation - Other (TII). Assumed Density 2.2t/m3	8.6	0	8.6	TII
Sub-base (Crushed Stone) reused	0	12,980	Tonnes	No carbon associated with use of sitewon material, construction plant carbon captured elsewhere.	0	0	0	TII
Sub-base (Crushed Stone) Exported Offsite	0.0012	1,760	Tonnes	Assumed carbon factor of 1.239kgCO2eq./tonne - Aggregate and Soil exported to landfill (worst case) (TII). Assumed 50km additional transport, HGV Average - 1.073 kgCO2eq./km (TII). Average road load 30t to calculate round trip.	2.2	6.3	8.5	TII

Element	Embodied Carbon Contribution - Emission Factor (tCO2eq/unit)	Quantity of material	Unit	Comment / Assumptions	Tonnes CO_2e	Additional tCO_2 from transport	Total CO_2 equivalent (tCO2e)	Sources (Circular Ecology (CE) / UKEA / TII / National Highways England / UK Government (2021) (BEIS))
Excavated Capping (Crushed Stone)	0.001	27,500	Tonnes	Assumed carbon factor of 1.04kgCO2eq./m3 - General Excavation - Other (TII). Assumed Density 2.2t/m3	13.0	0	13.0	TII
Capping (Crushed Stone) Exported Offsite	0.0012	27,500	Tonnes	Assumed carbon factor of 1.239kgCO2eq./tonne - Aggregate and Soil exported to landfill (worst case) (TII). Assumed 50km additional transport, HGV Average - 1.073 kgCO2eq./km (TII). Average road load 30t to calculate round trip.	34.1	98.4	132.5	TII
Excavations Road Subgrade	0.001	66,220	Tonnes	Assumed carbon factor of 1.04kgCO2eq./m3 - General Excavation - Other (TII). Assumed Density 2.2t/m3	31.3	0	31.3	TII
Road Subgrade Exported off site	0.0012	66,200	Tonnes	Assumed carbon factor of 1.239kgCO2eq./tonne - Aggregate and Soil exported to landfill (worst case) (TII). Assumed 50km additional transport, HGV Average - 1.073 kgCO2eq./km (TII). Average road load 30t to calculate round trip.	82	236.8	318.8	TII
HDD Bore Material Excavation Activity	0.001	25,200	Tonnes	Assumed carbon factor of 1.04kgCO2eq./m3 - General Excavation - Other (TII). Assumed Density 2t/m3	13.1	0.0	13.1	TII
HDD Bore Material Exported offsite	0.0012	25,200	Tonnes	Assumed carbon factor of 1.239kgCO2eq./tonne - Aggregate and Soil exported to landfill (worst case) (TII). Assumed 50km additional transport, HGV Average - 1.073 kgCO2eq./km (TII). Average road load 30t to calculate round trip.	31.2	90.1	121.4	TII
Construction Material Imports								
Surface Course (Asphalt)	0.0542	1,900	tonnes	Assumed carbon factor of 54.2kgCO_2eq./tonne - Asphalt (5% Binder Content as average - CE). Assumed 50km additional transport, HGV Average - 1.073 kgCO2eq./km (TII). Average road load 30t to calculate round trip.	103.0	6.9	109.8	CE/TII

Element	Embodied Carbon Contribution - Emission Factor (tCO2eq/unit)	Quantity of material	Unit	Comment / Assumptions	Tonnes CO_2e	Additional tCO_2 from transport	Total CO_2 equivalent (tCO2e)	Sources (Circular Ecology (CE) / UKEA / TII / National Highways England / UK Government (2021) (BEIS))
Base/Binder course (asphalt)	0.0542	7,700	tonnes	Assumed carbon factor of 54.2kgCO_2eq./tonne - Asphalt (5% Binder Content as average - CE). Assumed 50km additional transport, HGV Average - 1.073 kg$CO_{2eq.}$/km (TII). Average road load 30t to calculate round trip.	417.3	27.6	444.9	CE/TII
Sub-Base (crushed stone)	0.0049	18,920	tonnes	Assumed carbon factor of 10.85 kgCO2/m^3 - Aggregates and sand, general, virgin mixture of land won and marine, bulk, loose (TII). Assumed density 2.2t/m^3. Assumed 50km additional transport, HGV Average - 1.073 kg$CO_{2eq.}$/km (TII). Average road load 30t to calculate round trip.	42.4	67.6	110.0	ICE v4. ICE DB Advanced V4.0 - Dec 2024
Capping (crushed stone)	0.0049	64,900	tonnes	Assumed carbon factor of 10.85 kgCO2/m^3 - Aggregates and sand, general, virgin mixture of land won and marine, bulk, loose (TII). Assumed density 2.2t/m^3. Assumed 50km additional transport, HGV Average - 1.073 kg$CO_{2eq.}$/km (TII). Average road load 30t to calculate round trip.	145.4	232.2	377.6	ICE v4. ICE DB Advanced V4.0 - Dec 2024
Cement Bound Granular Material (CBGM)	0.058	68,400	tonnes	Assumed carbon factor of 0.058tCO_2eq./t - Stabilised Soil-Cement (National Highways). Assumed 50km additional transport, HGV Average - 1.073 kg$CO_{2eq.}$/km (TII). Average road load 30t to calculate round trip.	3,967	245	4,212	National Highways carbon tool version 2.5
Water (for HDD)	0.0001	37,800	m^3	Assumed Carbon factor of 0.000149 kg CO_2eq./litre - Water use - UK average (TII).	5.6	0	5.6	TII
Bentonite (for HDD)	0.24	1,900	tonnes	Assumed carbon factor of 0.24tCO_2eq./t (CE - clay). Assumed 50km additional transport, HGV Average - 1.073 kgCO_2eq./km (TII). Average road load 30t to calculate round trip.	456	6.9	462.9	CE/TII

Element	Embodied Carbon Contribution - Emission Factor (tCO2eq/unit)	Quantity of material	Unit	Comment / Assumptions	Tonnes CO_2e	Additional tCO_2 from transport	Total CO_2 equivalent (tCO2e)	Sources (Circular Ecology (CE) / UKEA / TII / National Highways England / UK Government (2021) (BEIS))
Concrete for HDD anchor block (per HDD compound)	0.2640	3,100	tonnes	Assumed carbon factor of 263.75kgCO_2eq./m^3 (Concrete Average-TII). Assumed density of 2.4t/m^3. Assumed 50km additional transport, HGV Average - 1.073 kgCO_2eq./km (TII). Average road load 10m^3 to calculate round trip.	341.0	13.9	354.5	ICE DB V4.1 Oct 2025
Concrete (for substation foundation/slabs)	0.264	4,800	tonnes	Assumed carbon factor of 263.75kgCO_2eq./m^3 (Concrete Average-TII). Assumed density of 2.4t/m^3. Assumed 50km additional transport, HGV Average - 1.073 kgCO_2eq./km (TII). Average road load 10m^3 to calculate round trip.	528	21.5	549.0	ICE DB V4.1 Oct 2025
Concrete (for grid facility site boundary post and rail fencing)	0.26	132	tonnes	Assumed carbon factor of 263.75kgCO2eq./m3 (Concrete Average-TII). Assumed density of 2.4t/m3. Assumed 50km additional transport, HGV Average - 1.073 kgCO2eq./km (TII). Average road load 10m^3 to calculate round trip.	14.5	0.6	15.1	ICE DB V4.1 Oct 2025
Steel reinforcement (for substation foundations/slabs)	1.72	150	tonnes	Assumed Plain round steel bar reinforcement – world average Steel, Rebar carbon factor 1.72 kgCO2eq/kg (ICE). Assumed 50km additional transport, HGV Average - 1.073 kgCO2eq./km (TII). Average road load 30t to calculate round trip. **[Note: incorrectly stated as 10m^3 in 2024 EIAR but correct number (30t) was used in the 2024 calculation, thus no change to the final figures is observed].**	258	0.5	258.5	ICE DB V4.1 Oct 2025/TII
Structural steel (for substation foundations/slabs)	1.64	300	tonnes	World average steel - Steel Section carbon factor 1.64tCO2eq./t. Assumed 50km additional transport, HGV Average - 1.073 kgCO2eq./km (TII). Average road load 30t to calculate round trip.	492	1.1	493	ICE DB V4.0 Dec 2024/TII

Element	Embodied Carbon Contribution - Emission Factor (tCO2eq/unit)	Quantity of material	Unit	Comment / Assumptions	Tonnes CO_2e	Additional tCO_2 from transport	Total CO_2 equivalent (tCO2e)	Sources (Circular Ecology (CE) / UKEA / TII / National Highways England / UK Government (2021) (BEIS))
Steel cladding (for substation buildings walls/roofs)	2.9	10,500	m^2	World average steel organic coated sheet ICE carbon factor 2.88 $kgCO_2eq./kg$. Assumed density $8t/m^3$ (CE). Assumed 50km additional transport, HGV Average - 1.073 $kgCO_{2eq.}/km$ (TII). Average road load 30t to calculate round trip.	241.9	0.3	242.2	CE/ICE DB V4.1 Oct 2025
HDPE ducting	0.011	317,000	m	Assumed carbon factor of 10.644$kgCO_2eq./m$ - HDPE duct 225mm diameter (Highways England). Assumed 50km additional transport, HGV Average - 1.073 $kgCO_2eq./km$ (TII). The cables will be supplied to site on large reels (c.600m) to calculate round trip.	3374	56.8	3,431	TII
Power cables (onshore export circuit)	0.0014	15,000	m	Assumed carbon factor of 1.3764$kgCO_2eq./m$ - armoured power cable (Highways England). Assumed 50km additional transport, HGV Average - 1.073 $kgCO_2eq./km$ (TII). The cables will be supplied to site on large reels (c.600m) to calculate round trip.	20.7	2.7	23.4	TII
Power cables (onshore cable route)	0.0014	214,800	m	Assumed carbon factor of 1.3764$kgCO_2eq./m$ - armoured power cable (Highways England). Assumed 50km additional transport, HGV Average - 1.073 $kgCO_2eq./km$ (TII). The cables will be supplied to site on large reels (c.600m) to calculate round trip.	296.1	38.4	334.5	TII
Earthing cable	0.0014	78,600	m	Assumed carbon factor of 1.3764$kgCO_2eq./m$ - armoured power cable (Highways England). Assumed 50km additional transport, HGV Average - 1.073 $kgCO_2eq./km$ (TII). The cables will be supplied to site on large reels (c.600m) to calculate round trip.	108.3	14.1	122.4	TII

Element	Embodied Carbon Contribution - Emission Factor (tCO2eq/unit)	Quantity of material	Unit	Comment / Assumptions	Tonnes CO_2e	Additional tCO_2 from transport	Total CO_2 equivalent (tCO2e)	Sources (Circular Ecology (CE) / UKEA / TII / National Highways England / UK Government (2021) (BEIS))
Fibre Optic cable	0.0014	78,600	m	Assumed carbon factor of 1.3764kgCO_2eq./m - armoured power cable (Highways England). Assumed 50km additional transport, HGV Average - 1.073 kgCO_2eq./km (Highways England). The cables will be supplied to site on large reels (c.600m) to calculate round trip.	108.3	14.1	122.4	TII
Concrete (for joint bays, link boxes, comms chambers)	0.264	21,600	tonnes	Assumed carbon factor of 263.75kgCO_2eq./m^3 (Concrete Average-TII). Assumed density of 2.4t/m^3. Assumed 50km additional transport, HGV Average - 1.073 kgCO_2eq./km (TII). Average road load 10m^3 to calculate round trip.	2,374	96.6	2,470.6	TII
Temporary access tracks/contractor compound bases	0.439	4.73	Ha	General site clearance - 439.36kgCO_2eq./ha (TII).	2.1	0	2.1	TII
Construction Stage Carbon								
Employee Commuting Construction Site - Onshore	3.5	156	weeks	Very large size construction site, 3.5 tonnes CO_2eq per week, 156-week duration (3 years)	546	0	546	TII
					Total		**15,922.6**	**tCOeq**

Table A28.4: Estimated Embodied Carbon Associated with the Construction Phase of the Offshore Infrastructure

Element	Embodied Carbon Contribution - Emission Factor	Quantity of material Project 1	Quantity of material Project 2	Unit	Comment / Assumptions	Project 1 Tonnes $CO_{2eq.}$	Project 2 Tonnes $CO_{2eq.}$	Source	Rationale for the project option with the greatest magnitude of impact
Wind Turbine Generators									
Primary Steel (t)	1.9	73,500	70,000	Tonnes	A Carbon Factor 1.9tCO_2eq./t - Steel (global seamless tube)	139,650	133,000	ICE DB V4.1 Oct 2025	**Project 1 represents the greatest magnitude of impact in relation to this impact.** The greatest likely significant effect for WTG construction results from the greater quantity of material required for Project Option 1.
Fiberglass, Resin or Plastic (t) (Turbine Blades, Fibre Reinforced Plastic)	4.26	11,025	9,625	Tonnes	Polyurethane Rigid Foam Carbon Factor (4.26tCO_2eq./t) used for Wind turbine blades.	46,967	41,003	ICE DB V4.1 Oct 2025	
Iron or Cast Iron (t)	2.71	7,840	8,750	Tonnes	Carbon Factor Copper (EU tube and sheet) 2.71tCO_2eq./t	21,246.4	23,712.5	ICE DB V4.1 Oct 2025	
Copper (t)	2.03	1,470	1,295	Tonnes	Carbon Factor Copper Iron 2.03tCO_2eq./t	2,984.1	2,628.9	ICE DB V4.1 Oct 2025	
					Total	210,847	200,343.9		
Foundations and Substructures									
Primary Steel (t)	1.9	210,700	168,000	Tonnes	A Carbon Factor 1.9 tCO_2eq./t - Steel (global seamless tube)	400,330	319,200	ICE DB V4.1 Oct 2025	**Project 1 represents the greatest magnitude of impact in relation to Foundations and Substructures.** The is as a result of the large quantity of grouting and steel required for this option.
Grouting (m^3)	0.62	173,180	123,700	m^3	Assumed density 1.86t/m^3. Average embodied carbon factor Grout Materials - Cement 0.620kgCO_2eq./kg	199,711.2	142,650.8	ICE DB V4.1 Oct 2025	

Element	Embodied Carbon Contribution - Emission Factor	Quantity of material Project 1	Quantity of material Project 2	Unit	Comment / Assumptions	Project 1 Tonnes $CO_{2eq.}$	Project 2 Tonnes $CO_{2eq.}$	Source	Rationale for the project option with the greatest magnitude of impact
Secondary Steel (t) - (access platforms, boat landing platforms, ladders, cable trays)	2.71	160	160	Tonnes	Steel, hot-dip galvanized steel Carbon factor 2.71tCO_2eq./t	433.6	433.6	ICE DB V4.1 Oct 2025	
GACP Anodes (t) Zinc/Aluminium	6.67	20	20	Tonnes	Carbon factor Aluminium (general, European mix, Inc Imports) 6.67tCO_2eq./t	133.4	133.4	ICE DB V4.1 Oct 2025	
Scour Protection (m^3)	0.175	842,270	601,620	m^3	Assumed Rock Placement (graded stones/rock filled mesh fibre bags). Assumed Density 2t/m^3. Carbon Factor Rock Armour 0.175tCO_2eq./t	295,620.0	211,156.6	TII	
					Total	896,228.1	673,574.4		
Offshore Substation Platform (topside)									
Steel (t)	2.71	1,000	1,000	Tonnes	Steel, hot-dip galvanized steel Carbon factor 2.71tCO_2eq./t	2,710	2,710	ICE DB V4.1 Oct 2025	The design of the OSP is consistent across both project options. Therefore, there is no difference in impacts between the two.
Copper (t)	2.71	150	150	Tonnes	Carbon Factor Copper (EU tube and sheet) 2.71tCO_2eq./t	407	407	ICE DB V4.1 Oct 2025	
Transformer Oil (t)	3.229	200	200	Tonnes	Carbon Factor Assumed Fuel Oil 3.229tCO_2eq./t	646	646	BEIS (2025) Greenhouse gas reporting: conversion factors	

Element	Embodied Carbon Contribution - Emission Factor	Quantity of material Project 1	Quantity of material Project 2	Unit	Comment / Assumptions	Project 1 Tonnes $CO_{2eq.}$	Project 2 Tonnes $CO_{2eq.}$	Source	Rationale for the project option with the greatest magnitude of impact
					Total	3,762	3,762		
Offshore Substation Platform (Foundation/Substructure)									
Jackets on Suction Buckets									
Steel (t)	1.9	4,000	4,000	Tonnes	A Carbon Factor 1.9 $tCO_2eq./t$ - Steel (global seamless tube)	7600	7600	ICE DB V4.1 Oct 2025	The design of the OSP is consistent across both project options. Therefore, there is no difference in impacts between the two. However, of the foundation options considered for the OSP, jackets with suction buckets have the greater magnitude of impact due to the increased quantity of materials
Grouting (m^3)	0.62	3,530	3,530	m^3	Assumed density 1.86t/m^3. Average embodied carbon factor Grout Materials - Cement 0.620$kgCO_2eq./kg$	6,113.1	6,113.1	ICE DB V4.1 Oct 2025	
					Total	11,670.8	11,670.8		
Cables									
Offshore Inter Array Cables (m)	0.001	111,000	91,000	m	Cable Dimension 3x1x1200mm. As the inter array cable is a triple core cable, multiply length cable x3. Carbon factor of 1.3764$kgCO_2eq./m$ - armoured power cable (TII)	460	377	TII	Project Option 1 represents the greatest magnitude of impact due to the greater quantity of materials required for cable installation and protection.
Offshore Export Cables (m)	0.001	36,000	36,000	m	Cable 270mm OD. As the export cable is a triple core cable, multiply length cable x3. Carbon factor of 1.3764$kgCO_2eq./m$ - armoured power cable (TII)	149	149	TII	
Inter Array Cable protection volume (m^3)	0.175	133,200	109,200	m^3	Assumed Rock Placement. Assumed Density 2t/m^3. Carbon Factor Rock Armour 0.175$tCO_2eq./t$	46,620	38,220	TII	

Element	Embodied Carbon Contribution - Emission Factor	Quantity of material Project 1	Quantity of material Project 2	Unit	Comment / Assumptions	Project 1 Tonnes $CO_{2eq.}$	Project 2 Tonnes $CO_{2eq.}$	Source	Rationale for the project option with the greatest magnitude of impact
(rock/concrete mattress)									
Export Cables Cable protection volume (m^3) (rock/concrete mattress)	0.175	43,200	43,200	m^3	Assumed Rock Placement. Assumed Density 2t/m^3. Carbon Factor Rock Armour 0.175tCO_2eq./t	15,120	15,120	TII	
					Total	62,348.7	53,864.4		
					Total	**1,184,856.9**	**943,215.8**	**Project 1 represents the greatest magnitude of impact.**	

It should be noted that the overall increase in tCO_{2eq} resulting from the proposed development outlined above in comparison to the 2024 EIAR are primarily due to increases in projected factors (based on updated guidance) and increases in material quantities associated with substructures (primarily grouting and steel materials).

In line with the revised assessments outlined in Table A28.3 and Table A28.4, the following paragraph from Section 28.5.2 in Chapter 28 of the 2024 EIAR is deleted:

"The total embodied carbon predicted to be generated during the construction phase of the proposed development is c.657,000 tonnes of CO_2 equivalent based on Project Option 2 greatest magnitude of impact. Assuming a three-year construction period, this amounts to c. 219,000 tonnes of CO2eq per annum. In accordance with Table 28.5, the level of impact during the construction phase is considered to be minor adverse as the project's GHG impacts are mitigated through 'good practice' measures. This aligns with an impact rating of slight adverse impact which is not significant in EIA terms in accordance with the EPA guidelines. However, overall, the project is fully in line to achieve Ireland's trajectory towards net zero."

And replaced with:

The total embodied carbon predicted to be generated during the construction phase of the proposed development is c.1,200,779.4 tonnes of CO_2 equivalent based on Project Option 1 greatest magnitude of impact. Assuming a three-year construction period, this amounts to c. 400,259.8 tonnes of CO_2eq per annum. In accordance with Table 28.5, the level of impact during the construction phase is considered to be minor adverse as the project's GHG impacts are mitigated through 'good practice' measures. This aligns with an impact rating of slight adverse impact which is not significant in EIA terms in accordance with the EPA guidelines. However, overall, the project is fully in line to achieve Ireland's trajectory towards net zero.

There are no other changes required to this section. Refer to Section 28.5.2 in Chapter 28 of the 2024 EIAR.

28.5.3 Operational Phase

28.5.3.1 Greenhouse Gas Emissions

In line with the revised assessments outlined in Tables A28.3 and A28.4, Section 28.5.3.1 in Chapter 28 of the 2024 EIAR is updated. A reference correction to Section 28.2.6.2 has also been made.

Therefore, the following text from Section 28.5.3.1 in Chapter 28 of the 2024 EIAR is deleted:

"Based on the data provided in Section 28.2.5.2, the proposed development has the potential to displace circa 282,072 tonnes of CO_2eq from the largely carbon-based traditional energy mix in the national grid per annum (based on projected 2028 (opening year) emission factors), as follows:

$$Tonnes\ CO2eq = \frac{700x0.46x8{,}760x100}{1000}$$

Over the lifetime of the project (circa 35 years), the displacement amounts to 9,872,520 tonnes of CO2eq based on assumed 2028 emission factors. The total lifecycle of the proposed development is considered in Table 28.10 relative to Ireland's carbon budgets assuming construction takes place from 2025 to 2027 inclusive, and the development becomes operational in 2028.

And replaced with:

Based on the data provided in Section 28.2.6.2, the proposed development has the potential to displace circa 394,900.8 tonnes of CO_2eq. (354 kt of CO_2eq) from the largely carbon-based traditional energy mix in the national grid per annum (based on projected 2031 (opening year) emission factors), as follows:

$$\text{Tonnes CO2eq} = \frac{700\text{x}0.46\text{x}8{,}760\text{x}140}{1000}$$

Over the operational lifetime (circa 35 years), the displacement amounts to 13,821,528 tonnes of CO_2eq (13,822 kt of CO_2eq) based on assumed 2031 emission factors. The total lifecycle of the proposed development is considered in Table A28.5 relative to Ireland's carbon budgets. This assessment assumes earliest timeframe such that construction takes place from 2027 and the development becomes operational in 2031.

In addition, Table 28.10 has been changed to include third carbon budgets (2026 – 2035) in line with the revised timings of construction and operational phases.

For the purposes of clarity, Table 28.10 from Chapter 28 of the 2024 EIAR shall be deleted and replaced in its entirety with Table A28.5.

Table A28.5: The Proposed Development in the context of Ireland's Carbon Budgets

Carbon Budget Period	Lifecycle stage	Carbon budget ($tCO_{2eq.}$)	Proposed Development Total GHG emissions ($tCO_{2eq.}$)	Percentage of carbon budget emissions (%)
2nd carbon budget (2026 to 2030)	Construction and operation	200,000,000	+ 1,200,779.4 (construction stage)	0.6
3rd carbon budget (2031 to 2035)	Operation	151,000,000	-1,974,504 (operation between 2031 and 2035)	-1.3

Finally, in line with the revised timings of construction and operational phases the following text from Section 28.5.3.1 in Chapter 28 of the 2024 EIAR is deleted:

In accordance with the TII Standard as outlined in Table 28.5, the proposed development will have a net significant beneficial impact on climate during its life cycle. Note that further future carbon budgets beyond 2030 are not included as emission factors are not applicable. Nonetheless, it can be concluded that the proposed development aligns with the sectoral carbon budgets and will continue, post-2030, to assist Ireland in achieving carbon neutrality by 2050 in accordance with the Climate Act 2021."

And replaced with:

In accordance with the TII Standard as outlined in Table 28.5, the proposed development will have a net significant beneficial impact on climate during its life cycle. Note that further future carbon budgets beyond 2035 are not included as emission factors are not applicable. Nonetheless, it can be concluded that the proposed development aligns with the sectoral carbon budgets and will continue, post-2030, to assist Ireland in achieving carbon neutrality by 2050 in accordance with the Climate Act 2021.

There are no other changes required to this section. Refer to Section 28.5.3.1 in Chapter 28 of the 2024 EIAR.

28.5.3.2 Vulnerability to Climate Change

The only change required to this section is an administrative error to correct the referencing of Section 28.2.5.5 in the 2024 EIAR. Thus, the following text is deleted:

"The risk assessment considered the likelihood and consequence of potential impacts occurring and then provided an evaluation of the significance of the impact using the framework set out in Section 28.2.5.5."

And replaced with:

The risk assessment considered the likelihood and consequence of potential impacts occurring and then provided an evaluation of the significance of the impact using the framework set out in Section 28.2.6.4.

No further changes are required. Refer to Section 28.5.3.2 of Chapter 28 in the 2024 EIAR. Therefore, the significance of effect has not changed and is a not significant.

28.5.4 Decommissioning

There are no changes required to this section. Refer to Section 28.5.4 of Chapter 28 in the 2024 EIAR.

28.6 Mitigation and Monitoring Measures

28.6.1 Construction Phase

In line with the revised type and quantity of construction materials associated with the design refinements of the proposed development, the quantification of CO_2eq emission savings expected as a result of mitigation measure implementation during construction has been updated.

Therefore, the following text from Section 28.6.1 in Chapter 28 of the 2024 EIAR is deleted:

A series of mitigation measures have been incorporated into the construction design with the goal of reducing the embodied carbon associated with the construction phase of the proposed development. These mitigation measures include:

- *The substitution, where feasible, of concrete containing Portland cement with concrete containing ground granulated blast furnace slag (GGBS). This measure has led to an estimated saving of c.2,800 tonnes of CO_2eq in the current design of the proposed development;*
- *The proposed development will minimise wastage of materials due to poor timing or over ordering on site thus helping to minimise the embodied carbon footprint of the proposed development; "Where practicable, opportunities for materials reuse will be incorporated within the extent of the proposed development including the use of reclaimed asphalt and recycled aggregate. This measure has led to an estimated saving of 2,545 tonnes of CO_2eq; and*
- *Where practicable, materials will be sourced locally to reduce the embodied emissions associated with transport.*

The combined measures, including the incorporation of GGBS, recycled and reused material where practicable has led to an estimated saving of 5,340 tonnes of CO_2eq."

And replaced with:

A series of mitigation measures have been incorporated into the construction design with the goal of reducing the embodied carbon associated with the construction phase of the proposed development. These mitigation measures include:

- The substitution , where feasible, of concrete containing Portland cement with concrete containing ground granulated blast furnace slag (GGBS). This measure has led to an estimated saving of c.1,200 tonnes of CO_2eq in the current design of the proposed development;
- The proposed development will minimise wastage of materials due to poor timing or over ordering on site thus helping to minimise the embodied carbon footprint of the proposed development;
- Where practicable, opportunities for materials reuse will be incorporated within the extent of the proposed development including the use of reclaimed asphalt and recycled aggregate. This measure has led to an estimated saving of 4,215 tonnes of CO_2eq; and
- Where practicable, materials will be sourced locally to reduce the embodied emissions associated with transport.

The combined measures, including the incorporation of GGBS, recycled and reused material where practicable has led to an estimated saving of 5,414 tonnes of CO_2eq.

There are no other changes required to this section. Refer to Section 28.6.1 in Chapter 28 of the 2024 EIAR.

28.6.2 Operational Phase

There are no changes required to this section. Refer to Section 28.6.2 of Chapter 28 in the 2024 EIAR.

28.6.3 Decommissioning

There are no changes required to this section. Refer to Section 28.6.3 of Chapter 28 in the 2024 EIAR.

28.7 Residual Effects

There are no changes required to this section. Refer to Section 28.6.3 of Chapter 28 in the 2024 EIAR. Therefore, the potential effect remains unchanged which is not significant for climate vulnerability and significant beneficial in relation to GHG emissions.

28.8 Transboundary Effects

There are no changes required to this section. Refer to Section 28.8 of Chapter 28 in the 2024 EIAR.

28.9 Cumulative Effects

The Cumulative Effects Assessment (CEA) is presented in Volume 6, Chapter 38: Cumulative and Inter-Related Effects. In response to RFI Section 5, the CEA has been updated to align with the UK Guidance document *Nationally Strategic Infrastructure Projects (NSIP) Advice on Cumulative Effects Assessment*. However, it should be noted that the overall conclusions of the CEA from a climate perspective remain unchanged from the 2024 EIAR (as stated below).

Therefore, the entirety of Section 28.9 of Chapter 28 of the 2024 EIAR shall be deleted and replaced with the text herein:

A long list of "other existing and/or approved developments" which were deemed to be potentially relevant for inclusion in the cumulative impact assessment was compiled (refer to Volume 6, Chapter 38: Cumulative and Inter-related Effects (hereafter referred to as 'Chapter 38')). A screening exercise of the "long list" was carried out in order to determine whether each of those "other existing and/or approved developments" has the potential to give rise to likely significant cumulative effects with the proposed development from a climate perspective. Many of the "other existing and/or approved developments" were screened out for a number of reasons including their location, scale and nature of the project. Those projects which were "screened in" were carried forward for assessment. The results of the assessment are presented in Section 38.2.3.19 of Chapter 38.

The assessment concluded that a significant beneficial effect on climate due to the proposed development alone is predicted to occur over its lifecycle. Thus, there is no potential for any adverse cumulative impacts associated with a project identified on the "long list". For identified projects relating to renewable energy, a significant beneficial cumulative effect is anticipated primarily due to the substantial combined reduction in greenhouse gas emissions.

Overall, no likely significant adverse residual cumulative effects on climate are anticipated during the lifecycle of the proposed development

28.10 References

The change required to this section is additional references used in the updating of Chapter 28 of the 2024 EIAR.

Therefore, the following additional references are added:

BEIS (2025). Greenhouse gas reporting: conversion factors 2025. Available at: Greenhouse gas reporting: conversion factors 2025 - GOV.UK

DCC (2024). Dublin City Council Climate Action Plan 2024 – 2029.

EPA (2025). Ireland's Greenhouse Gas Emissions Projects. Available at: Ireland's Greenhouse Gas Emissions Projections 2023-2050.

ESB (2024). Our Approach. Available at: Our Approach.

European Commission (2023). European State of the Climate 2023.

European Commission (2025). 2040 Climate Target. Available at: 2040 climate target - Climate Action - European Commission.

European Union (2024). Regulation (EU) 2024/573 of the European Parliament and of the Council of 7 February 2024 on fluorinated greenhouse gases, amending Directive (EU) 2019/1937 and repealing Regulation (EU) No 517/2014. Available at: Regulation - EU - 2024/573 - EN - EUR-Lex.

FCC (2024). Fingal County Council's Climate Action Plan 2024 – 2029.

GHG Management Institute (2025). *IPCC AR6 Methane GWP Tables.* Available at : IPCC AR6 Methane GWP Tables | GHG Management Institute.

LCC (2024). Louth County Council's Climate Action Plan 2024 – 2029.

MCC (2024). Meath County Council's Climate Action Plan 2024 – 2029.

Met Éireann (2020). New Climate Projections 2020. Available at: New Climate Projections 2020 - Met Éireann - The Irish Meteorological Service.

Met Éireann (2023). TRANSLATE. Available at: TRANSLATE - Met Éireann - The Irish Meteorological Service.

Met Éireann (2023). 2023 confirmed as Ireland's wettest year on record. Available at: 2023 confirmed as Ireland's wettest year on record - Met Éireann - The Irish Meteorological Service.

Met Éireann (2025). Provisionally Warmest Summer on Record for Ireland. Available at: Provisionally Warmest Summer on Record for Ireland - Met Éireann - The Irish Meteorological Service.

SEAI (2024). Emission Factors for Electricity. Available at: Conversion Factors | SEAI Statistics | SEAI.

There are no other changes required to this section. Refer to Section 28.10 in Chapter 28 of the 2024 EIAR.