

ENVIRONMENTAL IMPACT ASSESSMENT REPORT (EIAR) FOR THE PROPOSED COOM GREEN ENERGY PARK GRID CONNECTION

VOLUME 2 – MAIN EIAR

CHAPTER 7 - AIR QUALITY AND CLIMATE

Prepared for:

Coom Green Energy Park Limited



Date: April 2026

Document No:

P24308-FT-EGN-XX-RP-EN-0001

Core House, Pouladuff Road, Cork, T12 D773, Ireland

T: +353 21 496 4133 | E: info@ftco.ie

CORK | DUBLIN | CARLOW

www.fehilytimoney.ie

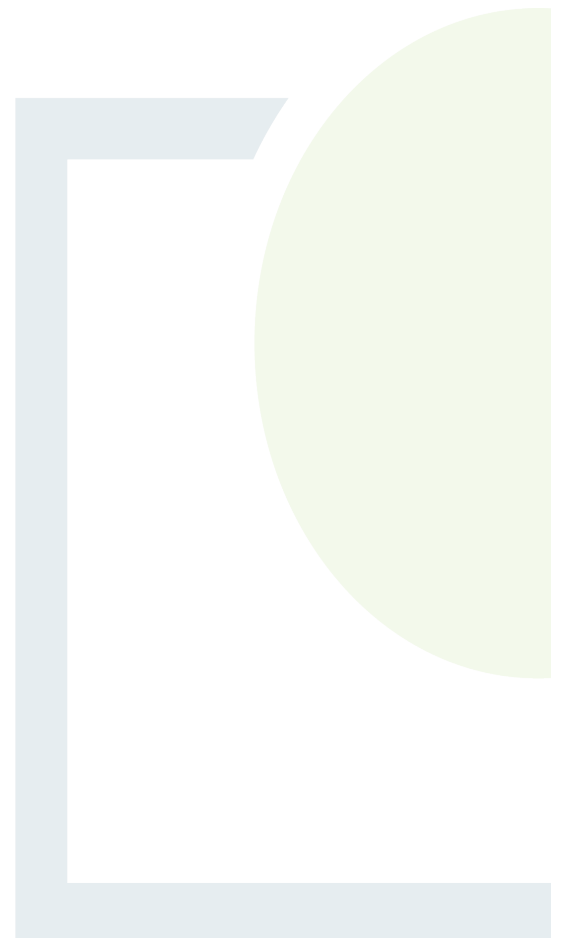


TABLE OF CONTENTS

7.	AIR AND CLIMATE	1
7.1	Introduction	1
7.1.1	Statement of Authority	1
7.1.2	Air Quality	1
7.1.3	Climate - Overview	4
7.1.4	Carbon Emissions	6
7.2	Methodology	8
7.2.1	Context	8
7.2.2	Air Quality	11
7.2.3	Climate	12
7.2.4	Technical Difficulties and Limitations	14
7.3	Receiving Environment	15
7.3.1	Air Quality	15
7.3.2	Climate	19
7.4	Impact Assessment	22
7.4.1	Do-Nothing Impact (and Likely Evolution of the Baseline)	22
7.4.2	Air Quality	22
7.4.3	Climate	26
7.4.4	Carbon Balance	27
7.4.5	Cumulative Impacts	29
7.5	Mitigation Measures	31
7.5.1	Air Quality	31
7.5.2	Climate	32
7.6	Residual Impacts	32
7.6.1	Air Quality	32
7.6.2	Climate	33
7.7	Conclusion	34
7.8	References	35

LIST OF PLATES

	<u>Page</u>
Plate 7-1: Greenhouse Gas Emissions Projections from the Energy Industries Sector under the WEM and WAM scenarios out to 2030 (EPA, 2025)	8
Plate 7-2: Classifications of Significance of Impacts (EPA, 2022)	10

LIST OF TABLES

	<u>Page</u>
Table 7-1: Limit Values of CAFE Directive 2024/2881/EC	2
Table 7-2: Target Values for Ozone	3
Table 7-3: Particulate Matter (PM10) Data from Station 82, 01/09/2025 – 01/02/2026	17
Table 7-4: Particulate Matter (PM2.5) data from Station 82, 01/09/2025 – 01/02/2026.....	17
Table 7-5: Ozone data from Station 82, 01/09/2025 – 01/02/2026	18
Table 7-6: Nitrogen Dioxide data from Station 82, 01/09/2025 – 01/02/2026	19
Table 7-7: Climate Records January 2023 – January 2026	20
Table 7-8: IAQM descriptions for the magnitude of an earthworks project.....	23
Table 7-9: Estimated Carbon Emissions from Proposed Development	28
Table 7-10: Cumulative Developments within 20km of the Proposed Development	29

LIST OF APPENDICES (Volume 3)

Appendix 7.1 – TII Carbon Calculation Inputs



7. AIR AND CLIMATE

7.1 Introduction

This chapter identifies, describes and assesses the potential significant direct and indirect effects on air quality and climate arising from the construction, operation and decommissioning of the Proposed Development.

The receiving environment is described in the context of air quality receptors and climate. Potential effects are identified and assessed with mitigation measures identified in Section 7.5. Residual effects are identified as well as potential cumulative environmental effects with the consented Coom Green Energy Park and other relevant developments.

A detailed description of the Proposed Development, for which consent is being sought by Coom Green Energy Park Limited (the Applicant), is contained in Chapter 2, Volume 2 of the EIAR.

7.1.1 Statement of Authority

This chapter has been prepared by Philip McDowell, and reviewed by Trevor Byrne, of Fehily Timoney and Company.

Philip McDowell is a Project Civil Engineer at Fehily Timoney and Company working in the Energy and Planning Department. He holds a First-Class Honours Bachelor's Degree and Master's Degree in Civil, Structural and Environmental Engineering from Trinity College Dublin. He is a member of Engineers Ireland (EI) and has experience working on residential, infrastructure and renewable energy projects at all stages from concept to construction. Philip provides technical and engineering support to the EIAR teams for a variety of commercial scale renewable energy projects.

Trevor is an Associate Director at Fehily Timoney and a chartered member of Engineers Ireland with over 15 years of industry experience and over 10 years' experience in the preparation of EIAR's for large scale renewable energy projects. Trevor holds a Master's degree in Sustainable Energy Systems and a first-class honours degree in Civil and Environmental Engineering. Trevor also holds an Advanced Diploma in Planning and Environmental Law from the Honourable Society of Kings Inns. Throughout his career to date, Trevor has provided technical advisory services through all stages of project delivery from feasibility assessment, impact assessment, design, expert witness, contract administration and construction.

7.1.2 Air Quality

To protect our health, vegetation and ecosystems, EU Directives have set out air quality standards for Ireland and the other member states for a wide variety of pollutants. These Directives include how we should monitor, assess and manage ambient air quality. The European Commission defined the principles to this approach in 1996 with its Air Quality Framework Directive (96/62/EC). Four "daughter" Directives set limits for specific pollutants:

- 1st Daughter Directive (99/30/EC): Sulphur dioxide, nitrogen dioxide and oxides of nitrogen, particulate matter and lead;
- 2nd Daughter Directive (2000/69/EC): Carbon monoxide and benzene;
- 3rd Daughter Directive (2002/3/EC): Ozone;
- 4th Daughter Directive (2001/107/EC): Polyaromatic hydrocarbons, arsenic, nickel, cadmium and mercury in ambient air.



The Ambient Air Quality and Cleaner Air for Europe (CAFE) Directive (2008/50/EC) was published in May 2008. It replaced the Framework Directive and the first, second and third Daughter Directives. The fourth Daughter Directive (2004/107/EC) will be included in CAFE at a later stage. The limit and target values for both Directives are outlined below.

The CAFE Directive was transposed into Irish legislation by the Air Quality Standards Regulations 2022 (S.I. No. 739/2022). It replaces the Air Quality Standards Regulations 2002 (S.I. No. 271 of 2002), the Ozone in Ambient Air Regulations 2004 (S.I. No. 53 of 2004) and the Environmental Protection Agency Act, 1992 (Ambient Air Quality Assessment and Management) Regulations, 1999 (S.I. No. 33 of 1999). The fourth Daughter Directive was transposed into Irish legislation by the Arsenic, Cadmium, Mercury, Nickel and Polycyclic Aromatic Hydrocarbons in Ambient Air Regulations 2009 (S.I. No. 58 of 2009) and the Air Quality Standards (Amendment) and Arsenic, Cadmium, Mercury, Nickel and Polycyclic Aromatic Hydrocarbons in Ambient Air (Amendment) Regulations 2016 (S.I. No. 659 of 2016). Table 7-1 details the limit values for pollutants as per the CAFE Directive.

Table 7-1: Limit Values of CAFE Directive 2024/2881/EC

Pollutant	Limit Value Objective	Averaging Period	Limit Value (ug/m3)	Limit Value (ppb)	Basis of Application of the Limit Value
SO ₂	Protection of human health	1 hour	350	132	Not to be exceeded more than 24 times in a calendar year
SO ₂	Protection of human health	24 hours	125	47	Not to be exceeded more than 3 times in a calendar year
SO ₂	Protection of vegetation	calendar year	20	7.5	Annual mean
SO ₂	Protection of vegetation	1 Oct to 31 Mar	20	7.5	Winter mean
NO ₂	Protection of human health	1 hour	200	105	Not to be exceeded more than 18 times in a calendar year
NO ₂	Protection of human health	calendar year	40	21	Annual mean
NO + NO ₂	Protection of ecosystems	calendar year	30	16	Annual mean
PM ₁₀	Protection of human health	24 hours	50		Not to be exceeded more than 35 times in a calendar year
PM _{2.5}	Protection of human health	calendar year	40		Annual mean
PM _{2.5} - stage 1	Protection of human health	calendar year	25		Annual mean
PM _{2.5} - stage 2	Protection of human health	calendar year	20		Annual mean
Lead	Protection of human health	calendar year	0.5		Annual mean



Pollutant	Limit Value Objective	Averaging Period	Limit Value (ug/m3)	Limit Value (ppb)	Basis of Application of the Limit Value
Carbon Monoxide	Protection of human health	8 hours	10,000	8620	Not to be exceeded
Benzene	Protection of human health	calendar year	5	1.5	Annual mean

There are no statutory limits for dust deposition, however, the TA Luft (German Government 'Technical Instructions on Air Quality') (TA Luft 2002) state a guideline value of maximum 350 mg/m²/day.

There are no limit values in relation to ozone, however, the 3rd Daughter Directive sets target values. These are detailed in Table 7-2 along with information threshold and alert threshold values.

Table 7-2: Target Values for Ozone

Objective	Calculation	Target Value for 2050
Protection of Human Health	Maximum daily 8-hour mean within a calendar year	100 µg/m ³ not to be exceeded on more than 3 days per calendar year (99 th percentile)
Protection of vegetation	AOT40*, calculated from 1-hour values from May to July	6,000 µg/m ³ -h
Information threshold	1-hour average	180 µg/m ³
Alert Threshold	1-hour average	240 µg/m ³
*The sum of the differences between hourly ozone concentration and 40 ppb for each hour when the concentration exceeds 40 ppb during a relevant growing season, e.g. for forest and crops.		

7.1.2.1 Air Quality and Health

According to the EPA¹, the number of deaths directly linked to air pollution is estimated at 1,600 premature deaths in Ireland annually due to poor air quality (predominantly due to PM_{2.5}), with a figure of 6.7 million premature deaths worldwide (UNEP, 2024)².

Ireland's most recent air quality monitoring indicates that we meet current EU standards (EPA, 2024)³. However, in the short term, when compared with WHO guideline values and EEA reference level values; ozone, particulate matter and PHAs are of concern and NO₂ is expected to increase as traffic on our roads increase.

The use of fossil fuel-based electricity generation leads to NO_x and SO_x emissions; however, wind generation does not produce any NO_x or SO_x emissions. An operational substation will not produce these emissions either.

¹ Ireland's State of the Environment Report 2024, EPA, 2024, Available at: [Ireland's State of the Environment Report 2024](#), Accessed: 24 Jul. 25

² Annual Report 2023, UNEP, 2024, Available at: [UNEP Annual Report 2023.pdf](#), Accessed: 29 Jul. 25

³ Air Quality in Ireland Report 2023, EPA, 2024, Available at: [Air Quality Report 23 v13 flat.pdf](#), Accessed: 29 Jul. 25



7.1.3 Climate - Overview

Carbon dioxide (CO₂) is a greenhouse gas which, if released in excessive amounts, can lead to increases in global temperatures known as ‘global warming’ which can influence climate change. Once the Proposed Development is constructed it will have a long-term positive impact by enabling a sustainable energy source. Should the Proposed Development not be developed, fossil fuel power stations will be the primary alternative to provide the required quantities of electricity. This will further contribute to greenhouse gas and other emissions, and hinder Ireland in its commitment to meet its target to increase electricity production from renewable sources and to reduce greenhouse gas emissions.

At the Paris climate conference (COP21) in December 2015 (‘the Paris Agreement’), 195 countries adopted the first-ever universal, legally binding global climate deal. The agreement sets out a global action plan to put the world on track to avoid dangerous climate change by limiting global warming to well below 2°C above pre-industrial levels and to limit the increase to 1.5°C. Under the agreement, Governments also agreed on the need for global emissions to peak as soon as possible, recognising that this will take longer for developing countries and to undertake rapid reductions thereafter in accordance with the best available science.

The International Panel on Climate Change (IPCC) has put forward its clear assessment (IPCC, 2011) that the window for action on climate change is rapidly closing and that renewable energy sources such as wind will have to grow rapidly if we are to limit global warming. In this regard the Government enacted the Climate Action and Low Carbon Development Act 2015 which provides for the approval of plans by the Government in relation to climate change for the purpose of pursuing the transition to a low carbon, climate resilient and environmentally sustainable economy.

Under the Kyoto Protocol and the Doha Amendment, during the first commitment period, 37 industrialized countries and the European Community committed to reduce GHG emissions to an average of five percent below 1990 levels. During the second commitment period, Parties committed to reduce GHG emissions by at least 18 percent below 1990 levels in the eight-year period from 2013 to 2020.

The revised Energy Efficiency Directive and the revised Renewable Energy Directive entered into force in October and November 2023 respectively. These recast directives include a binding renewable energy target for the EU for 2030 of at least 42.5% (and aiming for 45%), up from the 32% target put forward in the 2018 version of the legislation. This legislation will help the EU meet the Paris Agreement goals.

The main aims of this legislation in terms of renewable energy production are:

- Raise the EU's binding renewable target for 2030 to 42.5% (with a further indicative target of 2.5%), up from the 32% target on the previous Directive and almost doubling the existing share of renewable energy in the EU;
- Reaffirm the EU's determination to gain its energy independence through a faster deployment of home-grown renewable energy, and to meet the EU's 55% greenhouse gas emissions reduction target for 2030;
- A massive scaling-up and speeding-up of renewable energy across power generation, industry, buildings and transport will reduce energy prices over time and decrease the EU's dependence on imported fossil fuels;
- A financial framework for investors is to be established to facilitate investment in renewable energy projects;
- Increases competition and market integration of renewable electricity;
- Will reduce dependence on energy imports and increase energy security;
- Improves the design and stability of support schemes for renewables.



The Government published an updated Climate Action Plan 2024 (CAP24) in December 2023. This third updated action plan follows on from the inaugural plan of 2019 which was a result of the Irish Government declaring a climate and biodiversity emergency on 9th May 2019. As of April 2025, Climate Action Plan 2025 (CAP25) has been published, with the government's website stipulating that CAP25 is to be read in conjunction with CAP24.

The CAP provides a framework for delivering the Government's target of a 51% reduction (relative to 2018) in greenhouse gas (GHG) emissions by 2030. CAP24 follows the Climate Action and Low Carbon Development (Amendment) Act 2021, which commits Ireland to a legally binding target of net zero greenhouse gas emissions no later than 2050, and a reduction of 51% by 2030. The Act provides a governance framework for annual revisions of the Climate Action Plan and the development of a National Long-Term Climate Action Strategy at least once every ten years. As part of this plan, the Government is also committed to reducing emissions by an average 7% per annum by 2030. The CAP24 is underpinned by a series of sectoral emissions reduction ambitions and enabling actions.

CAP24 sets out an objective to more than double Ireland's onshore wind energy capacity to 9 GW by 2030 in order to meet new renewable energy targets and reduce emissions.

Key actions shown for the electricity sector include:

- The electricity system must achieve a 75% reduction in CO₂, reaching 3MtCO₂eq in the final year of 2026-2030 carbon budget period.
- Deliver 9 GW onshore wind by 2030 (with 6GW by 2025).
- Complete a revised version of Shaping our Electricity Future to define required new grid construction and reinforcements to achieve sectoral ceilings and carbon budgets.
- As an urgent priority, establish the investment framework and competitive market, arrangements needed to deliver zero carbon system services.
- Phase out and end the use of coal and peat in electricity generation.
- Ensure that the granting of consent for the development of renewable energy projects and the connection of same to the grid are presumed to be in the overriding public interest.
- Publish a regulatory decision on green electricity tariffs to incentivise people to use lower cost renewable electricity at times of high wind and solar generation.

The following actions regarding electricity within CAP24 include:

- Action EL/24/1: Accelerating Renewable Electricity Taskforce to publish programme of work.
- Action EL/24/3: Revision to the National Planning Framework to include regional capacities for the allocation of national targets at a regional level in order to inform local development plan policy.
- Action EL/24/4: Publish Regional Renewable Electricity Strategies.
- Action EL/24/5: Publish the Revised Wind Energy Development Guidelines for onshore wind.
- Action EL/24/6: Publish revised methodology for Local Authority Renewable Energy Strategies.
- Action EL/24/7: Publish new Electricity Generation Grid Connection Policy
- Action EL/24/8: Deliver onshore and offshore RESS auctions as per the annual RESS auction calendar.
- Action EL/24/13: Publish annual report setting out identifiable public benefits delivered by renewable energy sector.
- Action EL/24/15: Submit to DECC timelines of large-scale onshore grid development projects to be delivered in 2024 and publish an appropriate version.
- Action EL/24/18 Issue suite of recommendations papers on market options to incentivise low/no carbon flexible demand from the electricity sector.



CAP25 reiterates many of these objectives outlined in CAP24, including the need to double Ireland's onshore wind energy capacity to 9 GW by 2030 in order to meet new renewable energy targets and reduce emissions. The CAP25 comprises a number of new, strategic actions however much of the detail behind the actions is still contained within CAP24. The key CAP25 actions of relevance to this project include:

- It establishes a target for Carbon Budget 1 (2021-2025) of 40 MtCO₂eq, requiring a 75% across all sectors. Current EPA projections indicating an overshoot of over 1 MtCO₂eq.
- It establishes a target for Carbon Budget 2 (2026-2030): 20 MtCO₂eq requiring a 75% across all sectors. Current EPA projections indicating an overshoot of over 5MtCO₂eq.
- Align, as relevant, with the Accelerating Renewable Electricity Taskforce Implementation Plan which sets out a roadmap for the actions to be taken in the near-term to help meet our 2030 targets.
- Action EL/25/1: Manage the Renewable Electricity Support Scheme
- Action EL/25/2: Publish a long Duration Energy Storage Procurement recommendations paper
- Action EL/25/3: Development a data sharing framework regarding Low Carbon Technologies connection to the electricity grid
- Action EL/25/4: Develop Smart-flex standards roadmap
- Action EL/25/5: Develop consumer-led flexible demand processes

The policies and objectives of CAP24/CAP25 are reflected in the National Energy & Climate Plan (NECP) 2021-2030, which was published in July 2024.

The NECP was prepared to incorporate all planned policies and measures that were identified up to the end of 2019 and will collectively deliver a 30% reduction by 2030 in non-ETS (emissions trading system) greenhouse gas emissions (from 2005 levels). The NECP was drafted in line with the current EU effort-sharing approach, before the Government committed to its higher level of ambition and therefore does not reflect this higher commitment. Further iterations of the NECP will reflect the current government's stronger climate governance.

7.1.3.1 *Climate Change Performance Index*

The Climate Change Performance Index (CCPI) is an independent monitoring tool which tracks countries climate protection performance. It assesses individual countries based on climate policies, energy usage per capita, renewable energy implementation and Greenhouse Gas Emissions (GHG) and ranks their performance in each category and overall.

The 2024 CCPI was published in December 2023. While the 2024 CCPI indicated signs of potential reductions in global emissions, no country achieved a "very high" and therefore the first three places of the ranking system remain unoccupied.

Ireland has fallen 6 places from its 2023 rank to 43rd out of 64 globally ranked countries and remains at "low" in international performance.

7.1.4 Carbon Emissions

The Transport Infrastructure Ireland (TII) Carbon Tool was used to calculate whole life carbon emissions resulting from the Proposed Development. Input data used in the calculations is presented in Appendix 7.1, Volume 3 of this EIAR.



The Proposed Development will result in Carbon Emissions, from machinery usage in the construction process, embodied carbon in construction materials and through other means factored into the Carbon Calculation presented in Appendix 7.1, Volume 3 of this EIAR. While the Proposed Development itself will result in a net emission of carbon, it is necessary in connecting the consented Coom Green Energy Park (CGEP) (ACP Ref: 308885-20) to the national grid. Over its proposed thirty-year lifetime, the CGEP is projected to displace 6,508,140 tonnes of CO₂ through reduced fossil fuel usage in Ireland's Grid.

Ireland's Carbon Emissions

Ireland's greenhouse gas (GHG) emissions are tracked and projected by the EPA for submission to the EU UNFCCC annually. Carbon dioxide emissions are reported alongside methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulphur hexafluoride (SF₆), and nitrogen trifluoride (NF₃).

According to the EPA⁴, for 2023, national greenhouse gas emissions (excluding LULUCF) were estimated at 55.01 million tonnes carbon dioxide equivalent (Mt CO₂eq) which is 6.8% lower (or 4.00 Mt CO₂eq) than emissions in 2022 (59.00 Mt CO₂eq) and follows a 2.0% decrease in emissions reported for 2022.

Emissions in the Energy Industries sector showed a decrease of 21.6% in 2023 which is attributable to reduction in coal, fuel oil and natural gas use in electricity generation.

SEAI estimate that 41.3% of electricity generation was from renewable sources in 2024 (SEAI, 2024). The estimated amount of CO₂ avoided with the use of renewable electricity sources reached 5.8 Mt CO₂ in 2024. By the end of 2025, Ireland had an installed capacity for wind generation of 5.09GW.

The EPA's latest projections report, 'Ireland's Greenhouse Gas Emissions Projections 2024-2055' (EPA, 2025)⁵ projected Ireland's greenhouse gas emissions under two scenarios: The 'With Existing Measures' scenario and the 'With Additional Measures' scenario. The 'With Existing Measures' (WEM) scenario incorporates the anticipated impact of policies and measures that were in place (and legislatively provided for) by the end of 2023. The 'With Additional Measures' (WAM) scenario includes all policies and measures included in the WEM scenario but also includes Government plans not yet implemented. For example, the WAM scenario includes the target of 640,750 Electric Vehicles on the road by 2030 in CAP 2024. The full value of this ambition is not currently in the WEM scenario as actions remain to be taken that would deliver it. Plate 7-1 illustrates the WEM and WAM projected emissions in relation to Energy Industries.

According to 'Ireland's Greenhouse Gas Emissions Projections 2024-2055' (EPA, 2025), emissions from the energy industries sector are projected to decrease by 68% from 10.6 to 3.4 Mt CO₂eq over the period 2018 to 2030 under the "With Additional Measures" scenario.

⁴ <https://www.epa.ie/our-services/monitoring--assessment/climate-change/ghg/latest-emissions-data/>

⁵ Ireland's Greenhouse Gas Emissions Projections 2024-2055, EPA, 2025, Available at: [Ireland's Greenhouse Gas Emissions Projections 2023-2050](#)

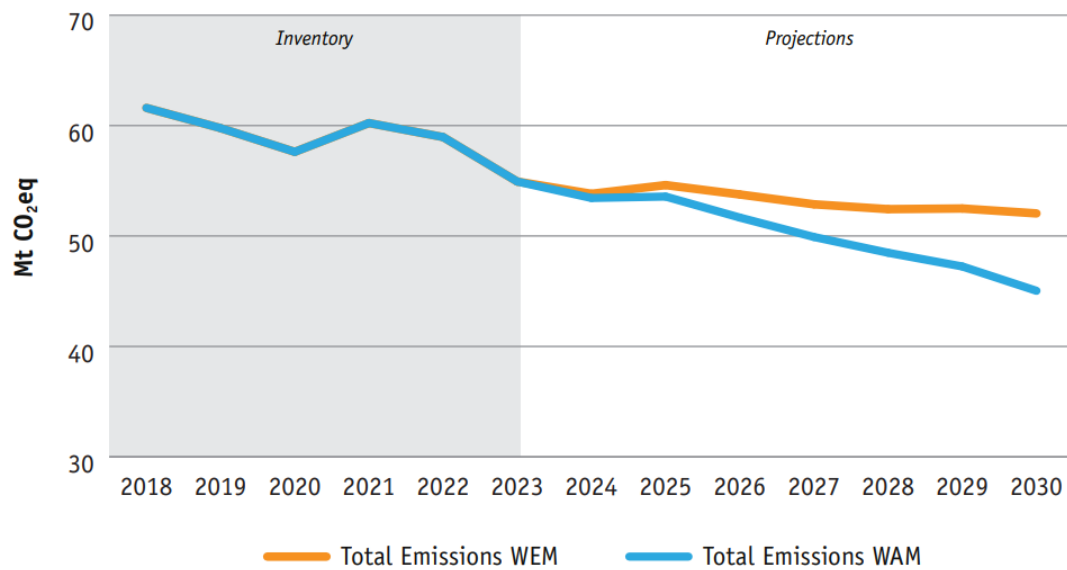


Plate 7-1: Greenhouse Gas Emissions Projections from the Energy Industries Sector under the WEM and WAM scenarios out to 2030 (EPA, 2025)

On 14th May 2018, the European Council adopted a regulation on greenhouse gas emission reductions, the Effort Sharing Regulation (2018/842). The regulation sets out binding emission reduction targets for Member States in sectors falling outside the scope of the EU emissions trading system for the period 2021- 2030. In the National Energy and Climate Plan 2020, the results of the government projections show that, Ireland will exceed the carbon budget over the period 2021–2030 by approximately 32 Mt CO₂ equivalent with full use of the ETS and LULUCF flexibilities (DoECC, 2020).

7.2 Methodology

7.2.1 Context

The Proposed Development is located in a sparsely populated rural context with the onsite 110kV substation located 600 m from the nearest residential property. The 110 kV GCR will be constructed within the existing public road corridor and 1.8 km constructed within private lands with a land use comprising primarily existing commercial forestry track. The 33 kV CNR is located in a predominantly agricultural area. The landcover is classified as pastures, coniferous forest and transitional woodland scrub.

Due to the non-industrial nature of the project and the general character of the surrounding environment, air quality sampling was deemed to be unnecessary for this EIAR. Based on the results of desk studies of land use in the area, air quality in the existing environment is expected to be good, since there are no major sources of air pollution (e.g. heavy industry) in the vicinity of the site.

Harnessing more energy by means of renewable sources will reduce dependency on fossil fuels, thereby resulting in a reduction in harmful emissions that can be damaging to human health and the environment. Renewable energies such as wind have no direct emissions as is the case for fossil fuel-based power stations. Some minor short term or temporary indirect emissions associated with the construction of the Proposed Development include vehicular and dust emissions.



The normal operation of the Proposed Development will not give rise to emissions, similar to the operation of the CGEP which it proposes to connect to the grid. In respect of air and climate, this chapter focuses on the potential emissions which may arise during the construction and decommissioning phases of the Proposed Development. The TII Carbon Tool⁶ was used to predict the carbon footprint of the Proposed Development for an operational period of 30 years.

This TII Carbon Tool calculation was used to ensure that the carbon produced by the Proposed Development is accounted for and minimised, however it does not account for the substantial carbon savings the development would be facilitating in connecting the consented Coom Green Energy Park (CGEP) (ACP Ref: 308885-20) to the national grid. Over its proposed thirty-year lifetime, the CGEP is projected to displace 6,508,140 tonnes of CO₂ through reduced fossil fuel usage in Ireland's Grid.

The significance of likely effects has been assessed in accordance with the Environmental Protection Agency's 'Guidelines on the information to be contained in Environmental Impact Assessment Reports' (EPA, 2022)⁷ through comparison of the character of the predicted effect to the sensitivity of the receiving environment.

The scale of effect is determined in relation to the sensitivity of the receptor and the potential magnitude of change from baseline conditions. Plate 7-2 presents how comparison of the magnitude of the predicted impact to the sensitivity of the receiving environment can determine the significance of the impact. Sensitivity of the receiving environment can be 'high', 'medium', 'low' or 'negligible'. Description of impact is defined by its character, magnitude, duration, probability and consequences (pre-mitigation). The magnitude of impact can be 'high', 'medium', 'low' or 'negligible'.

Receptors are classified as either human or ecological. A human receptor refers to any location where a person or property may experience the adverse effects of airborne dust or dust soiling, or exposure to PM₁₀. An ecological receptor refers to any sensitive habitat that may be affected by dust soiling.

The sensitivity of each receptor is assessed based on its characteristics and distance from the source. This approach ensures robust assessment of potential air quality impacts throughout the Proposed Development.

⁶ Transport Infrastructure Ireland Carbon Tool for Road, Greenway and Light Rail Projects, 2024, Available at: [GE-ENV-01106](#)

⁷ Guidelines on the information to be contained in Environmental Impact Assessment Reports, EPA, 2022, Available at: [Guidelines on the information to be contained in Environmental Impact Assessment Reports \(EIAR\)](#)

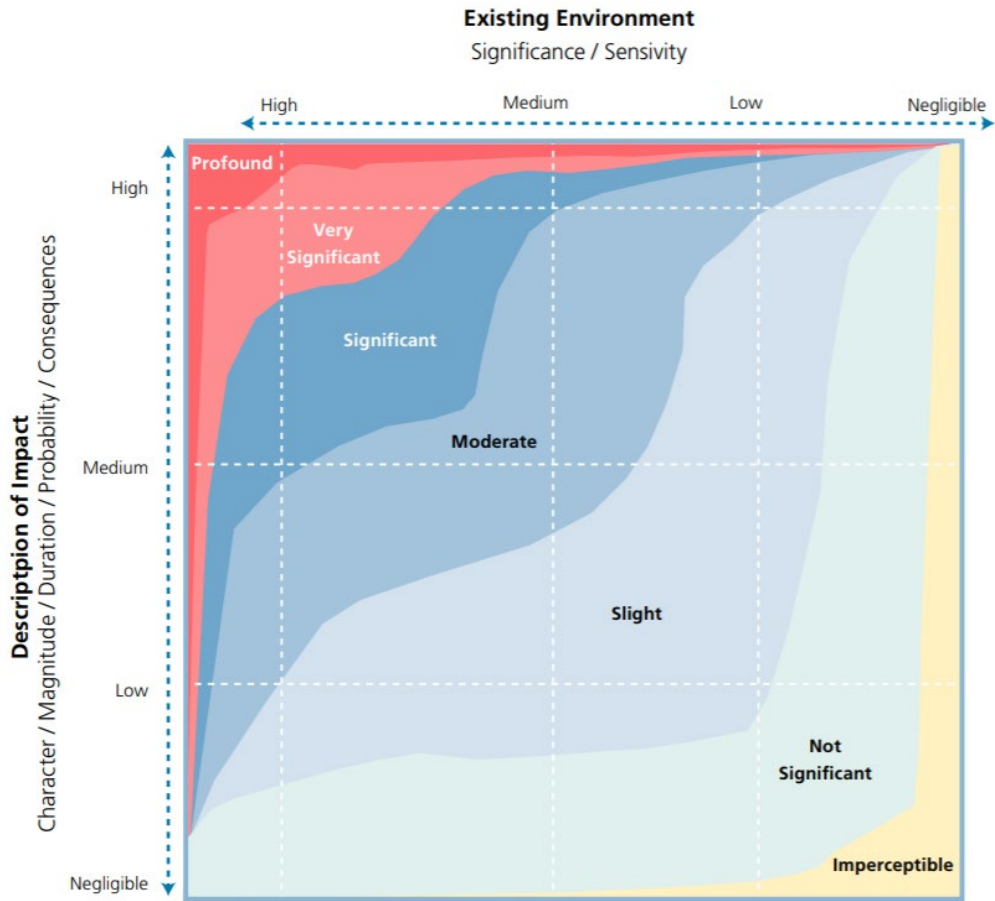


Plate 7-2: Classifications of Significance of Impacts (EPA, 2022)⁸

⁸ Guidelines on the information to be contained in Environmental Impact Assessment Reports, EPA, 2022, [Available at: Guidelines on the information to be contained in Environmental Impact Assessment Reports \(EIAR\)](#)



7.2.2 Air Quality

The impact assessment methodology involved the review and assessment of the construction methods for the Proposed Development, and the associated infrastructure to identify the potential for air emissions during construction and decommissioning. A review of existing air quality monitoring data undertaken by the Environmental Protection Agency (EPA) was reviewed on the EPA website (airquality.ie) in February 2026 and used to characterise the existing environment, this information is presented in section 0.

Dust Impact Assessment

The WHO⁹ defines dust as: “Airborne contaminants (which) occur in the gaseous form (gases and vapours) or as aerosols. In scientific terminology, an aerosol is defined as a system of particles suspended in a gaseous medium, usually air in the context of occupational hygiene, is usually air. Aerosols may exist in the form of airborne dusts, sprays, mists, smokes and fumes”.

In more general terms, dust is an airborne particulate matter ranging in diameter from 10 to 50 microns which is generated by organic and inorganic matter such as coal, grain, metal, ore, rock and wood. Dust can be generated by activities which process organic and inorganic matter. Dust can be stirred up from inert states through weather and wind conditions and deposit on all parts of the study area.

To assess the impacts of construction dust emissions, the Institute of Air Quality Management (IAQM) guidance document: ‘Guidance on the Assessment of Dust from Demolition and Construction’¹⁰ was used.

The steps involved in the dust impact assessment, as prescribed by the IAQM, are as follows:

1. Screen the requirement for a dust impact assessment;
2. Assess the risk of dust impacts by:
 - 2A The scale and nature of the works – the “magnitude” of the potential dust emission;
 - 2B The sensitivity of the surrounding area;
 - 2C Combining 2A and 2B into a risk matrix to assess the risk of dust impacts;
3. Identify site-specific mitigation measures;
4. Examine the residual impacts and assess if these are likely to have significant effects on air quality;
5. Prepare a Dust Assessment Report.

Step 1 in the screening process has been set out by the IAQM to be deliberately conservative. One of the threshold criteria which will trigger the requirement for a dust impact assessment, for example, is if a human receptor exists within 350 m of the site boundary. As this is the case for The Proposed Development, the screening process indicates that a dust impact assessment is required.

Step 2 of the process is described in the Impact Assessment section of this chapter (Section 7.4.2). Step 3 is outlined in Section 7.5.1 Mitigation Measures. Section 7.6.1 Residual Impacts provides a summary of Step 4. Step 5 has been addressed by writing the process and results of the dust impact assessment herein.

⁹ https://www.who.int/occupational_health/publications/en/oehairbornedust3.pdf

¹⁰ http://iaqm.co.uk/wp-content/uploads/guidance/iaqm_guidance_report_draft1.4.pdf



Air Quality Assessment

As the Proposed Development is located partially within the public road corridor, Transport Infrastructure Ireland's (TII) Air Quality Assessment guidance was also reviewed¹¹. TII guidance involves a stepped approach, where Step 1 is a screening assessment, where the Proposed Development is screened in or out for the requirement of a full air quality assessment (AQA). Per Step 1, the Proposed Development will require an AQA if it exceeds any of the below criteria:

- Road alignment change of 5 metres or more;
- Daily traffic flow changes by 1,000 AADT or more;
- HGVs flows change by 200 vehicles per day or more;
- Daily average speed changes by 10 km/h or more; or
- Peak hour speed changes by 20 km/h or more.

If any of the above criteria are met, the Air Quality Assessment proceeds to the further steps. The screening process will be completed in Section 7.4 of this chapter.

7.2.3 Climate

A desktop study assessment was undertaken of available climatic information to characterise the existing environment. The climatic conditions for the wider geographical area have been derived from historical meteorological measurements compiled by Met Éireann at Fermoy Moorepark weather station which is approximately 7 km north-east of the Site and associated infrastructure, this is the closest weather station to the Site. These meteorological measurements were accessed in February 2026¹². In terms of climatic impact, the appraisal considered the net impact that operating the Proposed Development will have in terms of CO₂ and its displacement of CO₂ from other energy sources over the carbon losses caused by its manufacturing, transportation, construction and decommissioning using the TII Carbon Tool.

The impact assessment considered the positive impacts the Proposed Development will have on contributing to national targets for the reduction of greenhouse gas emissions.

Monthly meteorological data from Met Éireann was reviewed in February 2026 to gain an understanding of the existing climatic condition of the site. These meteorological measurements provided measurements of total rainfall, mean temperature, and wind speed for Fermoy Moorepark weather station for the period of January 2023 – January 2026.

The long-term climate effect of the Proposed Development was determined using the TII Carbon Tool, which accounts for all stages of the Proposed Development, including the embodied carbon from the manufacturing and transportation of materials. The impact assessment also included activities associated with the construction, operational and decommissioning phases to determine impacts on both the micro- and macro-climates of the site.

¹¹ [PE-ENV-01107](#)

¹² Meteorological Measurements Source: www.met.ie/climate



7.2.3.1 Carbon Emissions

To provide a consistent approach to GHG assessment TII have developed the Carbon Assessment Tool for carbon accounting. The Climate Assessment of Proposed National Roads Standard¹³ states that the 'Climate Practitioner shall use the TII Carbon Tool for the calculation of emissions arising from the construction and maintenance of a proposed project.' TII provides guidance for the use of the tool in the below documentation:

- PE-ENV-01104: Climate Guidance for National Roads, Light Rail and Rural Cycleways (Offline & Greenways) – Overarching Technical Document¹⁴
- GE-ENV-01106: TII Carbon Assessment Tool for Road and Light Rail Projects and User Guidance Document¹⁵

The TII Carbon Assessment Tool was commissioned by TII to assess GHG emissions associated with infrastructure projects using Ireland-specific emission factors and data. The goal of the tool is to assist project development as a decision-making tool that drives lower carbon infrastructure and to facilitate the integration of environmental issues into transport infrastructure planning, construction, and operation.

The carbon emissions are calculated by multiplying the emission factor by the quantity of the material that will be used over the entire construction/maintenance phase. The land use change associated with the Construction Phase of the Proposed Development has also been quantified using the TII Carbon Assessment Tool which considers the loss or gain of carbon sinks. Loss of mixed forest, natural grassland, transitional woodland scrub and peat bogs has the potential to release GHGs, while increasing the amount of these land use types has the potential to absorb GHGs from the atmosphere.

A large proportion of the lands for the Proposed Development are located within the public road and does not fall into any of the aforementioned categories; there is no significant change to carbon sequestration in either the Construction or Operation of the Proposed Development. Some tree felling is proposed as part of the Development and this was accounted for, in addition to some other limited land use changes.

¹³ Climate Assessment of Proposed National Roads - Standard [PE-ENV-01105](#)

¹⁴ Climate Guidance for National Roads, Light Rail, and Rural Cycleways (Offline & Greenways) - Overarching Technical Document [PE-ENV-01104](#)

¹⁵Transport Infrastructure Ireland Carbon Tool for Road, Greenway and Light Rail Projects: User Guidance Document [GE-ENV-01106](#)



The Carbon Assessment Tool aligns with TII's project phases as well as Section 7 of PAS 2080 Carbon Management in Construction, which was published by the British Standards Institution (BSI), the Construction Leadership Council and the Green Construction Board in 2023 (BSI, 2023). The tool includes an emission factors library using factors developed by relevant industry bodies, including:

- Institution of Civil Engineers (Institution of Civil Engineers, 2013) Civil Engineering Standard Method of Measurement 4 (CESMM4) Carbon & Price Book 2013
- Sustainable Energy Authority of Ireland (Sustainable Energy Authority of Ireland, 2023), Conversion Factors
- European Commission (2010) Guidelines for the calculation of land carbon stocks (European Commission, 2010).
- Environment Agency, Carbon Calculator for Construction Activities (Version 3.6) (UK Environment Agency (UKEA), 2014) and
- (UK Government, 2021) Greenhouse Gas Reporting Conversion Factors

A copy of the outputs from the TII Carbon Tool Calculation is provided as Appendix 7.1, Volume 3 of this EIAR. A summary of the main CO₂ losses due to the Proposed Development are summarised in Table 7-9, Section 7.4.4 of this Chapter.

There are no statutory limits for dust deposition in Ireland. However, a maximum deposition rate of 350 mg/m²/day, applied as a monthly average with 95% compliance, is specified in the German TA Luft Standard (2002).

7.2.4 Technical Difficulties and Limitations

No major technical difficulties or limitations were encountered in the production of this EIAR chapter.



7.3 Receiving Environment

The Proposed Development for which consent is being sought will consist of the following:

- Installation of 13.9 km of permanent high voltage (110 kV) and communication cabling underground between the proposed onsite 110 kV electrical substation at Lackendarragh North and the existing Barrymore 110 kV substation and all associated ancillary works.
- Installation of approximately 15.8 km of underground medium voltage (33kV) electrical and communication cabling between the western and eastern arrays of the permitted CGEP and all associated ancillary works.
- A permanent onsite 110 kV electrical substation at Lackendarragh North and associated compound to meet current transmission network specifications;
- All associated infrastructure, services and site works including excavation, earthworks, soil management, drainage and sediment control to facilitate the works;
- Forestry felling of 17.8 ha to facilitate construction and operation of the Proposed Development.

7.3.1 Air Quality

European air quality legislation requires that each member state be defined in terms of Zones and Agglomerations for air quality, with Ireland divided into four zones. The EPA has designated four zones within Ireland:

- Zone A: Dublin City and its environs;
- Zone B: Cork City and its environs;
- Zone C: 24 cities and towns (such as Galway, Limerick and Waterford cities and towns such as Naas, Newbridge, Celbridge, Leixlip) with a population of greater than 15,000;
- Zone D: covers the remainder of the country.

These zones were defined to meet the criteria for air quality monitoring, assessment and management described in the Framework Directive and Daughter Directives. The Proposed Development is located in Zone D.

The air quality in each zone is monitored by the EPA and classified with respect to upper and lower assessment thresholds based on measurements over the previous five years. The number of monitoring locations required is dependent on population size and whether ambient air quality concentrations exceed the upper assessment threshold, are between the upper and lower assessment thresholds, or are below the lower assessment threshold.



The Air Quality in Ireland Report 2024¹⁶ noted that Ireland meets the current EU standards for air quality. However, Ireland is not meeting the stricter health-based air quality guidelines set out by the WHO. The Report also notes that Ireland is falling behind targets set in Ireland's Clean Air Strategy 2026¹⁷. The report showed that: particulate matter originating primarily from the domestic burning of solid fuels, and NO₂, primarily an emission from road transport; are the main threats to good air quality in Ireland.

The EPA undertakes continuous ambient air monitoring at various stations in Ireland. Although no data is available on-air quality within the Proposed Development site, it is expected that the air quality data from the nearest station to the Proposed Development, within Zone D, is representative of the air quality at the Site. In the case of the Proposed Development, the closest EPA monitoring station is Station 82 in Mallow, Co. Cork, approximately 10 km (straight line distance), northwest of the Site and measures PM₁₀, PM_{2.5}, NO₂ and O₃. The Air Quality Index for Health map on the EPA website, shows that the current air quality within the Proposed Development is classed as Good¹⁸.

A summary of data collected at these monitoring stations is found in the following sections. The EPA allows a maximum of 6 months of data to be exported to CSV files. Therefore, data for 1st September 2025 to 1st February 2026 has been used to create the summary tables below.

Particulate Matter (PM10)

Particulate matter are very small particles which can be either solid or liquid. Some of these particles occur naturally, while many are man-made. Particulate matter is referred to as PM. The number following the PM reflects the particle size. The EPA monitors PM₁₀ and PM_{2.5} and compares levels to the limit values in the CAFE (Clean Air for Europe) Directive and WHO guidelines.

Particulate matter (PM10) data for the 1st of September 2025 to the 1st of February 2026 monitoring period in Station 82 is presented in Table 7-3. During this time there were some periods of missing data. Readings were taken hourly, with 95.3% of readings available from the timeframe examined.

The CAFE directive's mean limit for PM₁₀ for a calendar year was not exceeded over the timeframe examined. The CAFE directive also has a limit of 50 µg/m³ not to be exceeded over a 24-hour period more than 35 times in a calendar year. This was not exceeded once during the timeframe examined. Therefore, it is assumed that the PM₁₀ concentrations throughout the year are compliant with the CAFE Directive.

The World Health Organisation (WHO) have set more restrictive limits for PM10 concentration with an annual mean limit value of 15 µg/m³, the mean daily value at Station 82 is 11 µg/m³.

¹⁶ [Air Quality in Ireland Report 2024](#)

¹⁷ [2023 02 24 NEW CAS WIP](#)

¹⁸ Air Quality Index for Health Map, EPA, Available at: [Home | AirQuality.ie](#), Accessed on: 30 Jul. 25



Table 7-3: Particulate Matter (PM10) Data from Station 82, 01/09/2025 – 01/02/2026

Parameter	Measurement
No. of Days	154
No of measure values	3,524
Percentage coverage	95.3%
Maximum hourly value	104.7µg/m ³
Mean hourly value	11 µg/m ³

Particulate Matter (PM_{2.5})

Particulate matter (PM_{2.5}) data for the 1st of September 2025 to the 1st of February 2026 monitoring period in Station 82 is presented in Table 7-4. During this time there were some periods of missing data. Readings were taken hourly, with 95.3% of readings available from the timeframe examined.

The Stage 2 threshold value for PM_{2.5} under the CAFE directive is an annual mean concentration of 20 µg/m³, this was not exceeded over the timeframe examined. Therefore, it is assumed that the PM_{2.5} concentrations throughout the year are compliant with the CAFE Directive.

The World Health Organisation (WHO) have set more restrictive limits for PM_{2.5} concentration with an annual mean limit value of 5 µg/m³. As the mean daily value at Station 82 is 7.6 µg/m³, the local PM_{2.5} concentration at Station 82 is exceeding the WHO limit. It should be noted that WHO guideline values are more conservative than national and EU legal limits and are intended as long-term health-based targets rather than enforceable standards.

Table 7-4: Particulate Matter (PM2.5) data from Station 82, 01/09/2025 – 01/02/2026

Parameter	Measurement
No. of Days	154
No of measure values	3,524
Percentage coverage	95.3%
Maximum hourly value	103.4 µg/m ³
Mean hourly value	7.6 µg/m ³

Ozone (O₃)

Ozone for the 1st of September 2025 to the 1st of February 2026 monitoring period in Station 82 is presented in Table 7-5. During this time there were some periods of missing data. Readings were taken hourly, with 83.6% of readings available from the timeframe examined.



Ozone monitoring did not exceed WHO Air Quality Guideline Limits. The WHO has an 8-hour averaging limit of 100 µg/m³ (99th percentile i.e. 3–4 exceedance days per year). There is also a peaks season limit of 60 µg/m³ (Average of daily maximum 8-hour mean O₃ concentration in the six consecutive months with the highest six-month running-average O₃ concentration).

Table 7-5: Ozone data from Station 82, 01/09/2025 – 01/02/2026

Parameter	Measurement
No. of Days	154
No of measure values	3,091
Percentage coverage	83.6 %
Maximum hourly value (O ₃)	94.2 µg/m ³
Mean hourly value (O ₃)	40.6 µg/m ³

Nitrogen Dioxide (NO₂)

Nitrogen dioxide for the 1st of September 2025 to the 1st of February 2026 monitoring period in Station 82 is presented in Table 7-6. The mean nitrogen dioxide concentration for the examined time period is below the 40 µg/m³ annual mean limit set out in the CAFE Directive. The hourly concentration limit of 200 µg/m³ was not exceeded once over the examined time frame. Therefore, it is assumed that nitrogen dioxide concentrations throughout the year are compliant with the CAFE Directive.

The World Health Organisation (WHO) have set out more restrictive limits for nitrogen dioxide concentration in their 2021 Air Quality Guidelines. Both the 24 hour and annual mean limit were exceeded. It should be noted that WHO guideline values are more conservative than national and EU legal limits and are intended as long-term health-based targets rather than enforceable standards.

Table 7-6. During this time there were some periods of missing data. Readings were taken hourly, with 94.8% of readings available from the timeframe examined.

The mean nitrogen dioxide concentration for the examined time period is below the 40 µg/m³ annual mean limit set out in the CAFE Directive. The hourly concentration limit of 200 µg/m³ was not exceeded once over the examined time frame. Therefore, it is assumed that nitrogen dioxide concentrations throughout the year are compliant with the CAFE Directive.

The World Health Organisation (WHO) have set out more restrictive limits for nitrogen dioxide concentration in their 2021 Air Quality Guidelines. Both the 24 hour and annual mean limit were exceeded. It should be noted that WHO guideline values are more conservative than national and EU legal limits and are intended as long-term health-based targets rather than enforceable standards.



Table 7-6: Nitrogen Dioxide data from Station 82, 01/09/2025 – 01/02/2026

Parameter	Measurement
No. of Days	154
No of measure values	3,504
Percentage coverage	94.8 %
Maximum hourly value (SO ₂)	71.5 µg/m ³
Mean hourly value (SO ₂)	16.0 µg/m ³

7.3.2 Climate

Climate is defined by the EPA as “the average weather over a period of time”. Climate change is a term that is used to describe a “significant change in the measures of climate, such as temperature, rainfall, or wind, lasting for an extended period – decades or longer.”¹⁹ There is scientific evidence²⁰ which suggests that the current climate is rapidly warming, having reached approximately 1°C above pre-industrial levels in 2017, increasing at a rate of 0.2 °C per decade. Warmer weather places pressure on flora and fauna which cannot adapt to a rapidly changing environment. In Ireland, the pressure on flora and fauna is mitigated due to the dominant influence of the Gulf Stream on Ireland's climate. Consequently, Ireland does not suffer from the extremes of temperature experienced by many other countries at similar latitudes.

The climatic conditions for the wider geographical area have been derived from historical meteorological measurements compiled by Met Éireann at Fermoy Moorepark weather station²¹, which is the closest weather station, approximately 7 km north-east of the Site and associated infrastructure. These meteorological conditions are presented in Table 7-7 for the period January 2023 – January 2026.

¹⁹ <https://www.epa.ie/climate/communicatingclimatescience/whatisclimatechange/>

²⁰ IPCC Special Report “Global Warming of 1.5°C”: <https://www.ipcc.ch/sr15/download/#chapter>

²¹ www.met.ie/climate



Table 7-7: Climate Records January 2023 – January 2026

Total rainfall in millimetres for Fermoy Moore Park WEATHER STATION

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
2026	143.7							-	-	-	-	-	N/A
2025	136.7	157.9	31.7	89.9	23.3	49.3	43.5	30.5	97.6	128.8	151.3	127	1068
2024	75.8	124.7	140.6	87.7	84.5	34.9	40.6	44.8	62.8	127.5	103.9	74.4	1002.2
2023	104.1	17.2	144.4	52.8	34.4	56.6	150.1	87.6	136	250.8	71.1	120.4	1225.5

Mean temperature in degrees Celsius for Fermoy Moore Park WEATHER STATION

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
2026	4.6												N/A
2025	5	7	8.2	10.4	12.9	14.9	17.1	16.8	12.5	11.5	8.4	6.4	10.9
2024	4.3	8.2	8	9.5	13	13.6	14.9	15	13	11.1	8.8	7.6	10.6
2023	6.4	7.7	7.8	9.2	13.1	16.2	15.4	16	14.8	11.5	8.3	7.9	11.2



Mean wind speed (knots) for Fermoy Moore Park WEATHER STATION

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
2026	5.2												N/A
2025	5.9	7.6	5.8	5.6	5	5.8	5.8	5.6	5.7	6.3	5.4	5.4	5.8
2024	5.6	5.7	7.6	7.1	5.3	5.8	5.1	5.8	5.6	5.5	5.2	6	5.9
2023	5.8	5.7	7.1	6.3	5.2	5	6.5	5.9	5.3	4.7	6.1	7.6	5.9



7.4 Impact Assessment

7.4.1 Do-Nothing Impact (and Likely Evolution of the Baseline)

If the Proposed Development does not proceed, local air quality and the microclimate will remain unchanged. On a national scale, there will be an increase in greenhouse gas emissions if increasing future electricity needs are not met by alternative renewable sources which has the potential to contribute to air pollution and climate change. The opportunity to contribute to Ireland's commitments under the Kyoto Protocol and to meet national targets as set out in the Climate Action Plan would also be lost.

While immediate forestry felling of 17.8 ha would not be required (10.2 ha of this is already accounted for within the felling area included in the consented CGEP), clear felling forms part of the cycle of commercial forestry and without the Proposed Development clear felling would likely occur as normal, if at a later date.

7.4.2 Air Quality

7.4.2.1 *Construction Phase Impacts*

The principal sources of potential air emissions during the construction of the Proposed Development will be from the Site and haulage routes; from dust arising from earthworks, tree felling activities, trench excavation along cable routes, construction of the new access tracks, the temporary storage of excavated materials, the construction of the proposed substation, the movement of construction vehicles, loading and unloading of aggregates/materials and the movement of material around the site.

Dust emissions can lead to elevated PM₁₀ and PM_{2.5} concentrations and may also cause dust soiling. The amount of dust generated and emitted from a working site and the likely effect on the surrounding areas varies according to:

- The type and quantity of material and working methods;
- Distance between site activities and sensitive receptors;
- Climate/local meteorology and topography.



Earthworks

Table 7-8: IAQM descriptions for the magnitude of an earthworks project

Source	
Scale	Description
Large	Total site area greater than 10,000 m ² , potentially dusty soil type, more than 10 heavy earth-moving vehicles active at any one time, formation of bunds greater than 8m in height, total material moved greater than 100,000 tonnes.
Medium	Total site area greater 2,500 m ² , moderately dusty soil type, 5-10 heavy earth-moving vehicles active at any one time, formation of bunds 4 to 8m in height, total material moved 20,000 tonnes to 100,000 tonnes.
Small	Total site area less than 2,500m ² , soil type with large grain size (e.g. sand), less than 5 heavy earth-moving vehicles active at any one time, formation of bunds less than 4m in height, total material moved less than 20,000 tonnes, earthworks during wetter months.

Source: IAQM, 2014

Applying the IAQM criteria in Table 7-8, the overall construction of the Proposed Development is considered a large scale construction site as the site area is greater than 10,000 m² and the total material moved will likely exceed 100,000 tonnes. The “magnitude” of the potential emissions is therefore “large”.

The Proposed Development partially follows the existing public road corridor, for the most part, there is a linear pattern of one-off rural housing fronting onto this network. Furthermore, with regards to the off-road sections located in private land and the Proposed substation location these are located in a sparsely populated rural context, with the closest residential receptor being located c. 600m from the Proposed 110kv Substation. The “sensitivity” of the area is therefore determined to be “low”, as per the criteria set out in the guidance (DMRB, 2007). For further information on human receptors, please refer to Chapter 6 – Population and Human Health, within EIAR Volume 2.

Combining the large magnitude of the earthworks with the low sensitivity, the IAQM guidance indicates that the Risk of Dust Impacts are “Low Risk” for the Proposed Development. This will apply during the construction stage and is not likely to be a significant effect.

Dust Emissions

Construction dust has the potential to be generated from on-site activities such as excavation and backfilling. The extent of dust generation at any site depends on the type of activity undertaken, the location, the nature of the dust, (i.e. soil, sand, peat) and the weather. In addition, dust dispersion is influenced by external factors such as wind speed and direction and/or periods of dry weather.

Some receptors have the potential for dust soiling due to trucks travelling along local routes. This is a temporary, slight adverse effect, which is not considered to be significant.



Machinery & Plant Use

Emissions from plant and machinery such as generators, excavators etc. have the potential to increase concentrations of compounds such as NO₂, Benzene and PM₁₀ in the receiving environment. The machinery used on the Proposed Development will be relatively small units which will be operated on an intermittent basis. Local receptors may be exposed to these emissions. This exposure would be slight and short duration (but also recurring) as the setting is rural and will allow for emissions to rapidly dilute in the open air, there is not considered to be significant effects arising from machinery and plant use.

Traffic

The Proposed Development does not meet the requirements for a full Air Quality Assessment as set out by TII (specified in the methodology of this chapter in Section 7.2.2).

The construction phase of the Proposed Development will lead to an increase in traffic volumes on the surrounding road network as detailed in Chapter 12 – Material Assets, Telecommunications, Traffic and Transportation. It is anticipated that the construction phase and associated increase in traffic volumes would be for a period of 12 months.

Traffic volumes in Chapter 12, Volume 2 of the EIAR, are described in terms of Light Goods Vehicles (LGVs) such as cars (incl. 4x4 vehicles) and vans used by the workers and supervisory staff involved in the construction works, and Heavy Goods Vehicles (HGVs) transporting materials to and from the site, including road making materials, concrete, building materials, drainage/ducting materials, cabling, electrical components and excavated material.

It is estimated that the construction phase for the proposed development will lead to 12,711 HGV trips (two-way) over the duration of the installation works which is estimated to last 12 months (i.e. approx. 22 HGV trips per day). Based on the preliminary construction programme this would increase to a peak of 26 HGV trips per day during the peak month, which occurs in the first month of the programme (see Chapter 12, Volume 2 of the EIAR).

An average workforce of 15 no. site staff is anticipated. This is estimated to give rise to an average increase in LGV traffic of 19 no. trips per working day. The combined HGV and LGV average daily increase are 41 vehicles per day and rising to 44 vehicles per day during peak construction period occurring during the first month of the construction programme.

For context, these average daily increases in traffic are significantly below the threshold of 1,000 annual average daily traffic (AADT) referenced in TII Guidance (Section 7.2.2) below which construction traffic impacts are generally considered to be not significant. The relatively low volume of additional traffic is not expected to result in a likely significant effect on or air quality.

Conclusion

In general, air quality impacts during the construction phase of the Proposed Development are predicted to be short-term, localised, and minor in nature. No likely significant effects on air quality are anticipated during the construction phase.

Air quality effects may arise from emissions produced by construction plant and vehicles, as well as the potential for dust generation during excavation to formation level and placement of imported stone. Some dust migration may also occur during compaction of the stone layers. However, these effects will be short term and given the relatively small scale of the road improvement works compared to typical road construction projects, any adverse impacts on air quality are expected to be of slight magnitude. As such, the works are anticipated to result in short-term, slight adverse effects on air quality, which are not likely significant.



7.4.2.2 *Operational Phase Impacts*

Once the Proposed Development is constructed there will be no likely significant direct emissions to atmosphere. Maintenance vehicles will access the Site during the operational period, however, due to the low traffic movements involved (see Chapter 12, Volume 2 of the EIAR), the potential adverse effects from their operation will be imperceptible and not significant.

Additionally, the operational phase of the development will result in positive effects on air quality due to the displacement of fossil fuels as an energy source that will be facilitated. This would have a significant positive effect on Cork County Council meeting their CDP and CAP targets: and a slight, positive effect on Ireland meeting its various climate targets set out in Section 7.1.4 of this Chapter and in Chapter 4 – Policy. The likely effect on Climate Change on a global scale would be imperceptible and as such non-significant.

7.4.2.3 *Decommissioning Phase Impacts*

The 110kV GCR and onsite substation within Lackendarragh North and ancillary electrical equipment will form part of the national grid and will be left in situ.

The 33kV CNR that connects each turbine will be removed from the cable ducting. The cabling will be pulled from the cable duct using a mechanical winch which will extract the cable and re-roll it on to a cable drum. This will be undertaken at each of the joint bays/pull pits along the cable. The access track will be excavated at each cable pulling pit location using a mechanical excavator and will be fully re-instated once the cables are removed.

There will be truck movements required for removal of cabling, earthmoving, track reinstatement and landscaping resulting in vehicular emissions and dust. However, the number of truck movements will be significantly less than the construction phase and the likely potential adverse effects on air quality will be temporary, imperceptible and not significant.

The cable ducting will be left in-situ as it is considered the most environmentally prudent option, avoiding unnecessary excavation and soil disturbance for an underground element that is not visible. It is proposed that all access tracks will be left in place. These will continue to be used for forestry and agriculture.

A detailed decommissioning plan will be agreed in advance of construction with Cork County Council.



7.4.3 Climate

There is the potential for greenhouse gas emissions to the atmosphere during the construction, operation and decommissioning phases of the Proposed Development such as those arising from construction vehicles, the use of on-site generators, pumps, back-up generators and excavation works. The potential climatic effects arising from these emissions are assessed hereunder with respect to micro and macro climates.

Microclimate

The likely significance of effects associated with the conversion of vegetated surfaces to un-vegetated surfaces is assessed through the consideration of the area of the land experiencing such a change.

The total area of proposed new permanent hardstanding surface is approximately 3.5% of the Proposed Development Area and consequently there will be no direct or indirect effect on air temperature and microclimate because of the relatively small proportion of new permanent hardstanding surface proposed.

While immediate forestry felling of 17.8 ha would not be required (10.2 ha of this is already accounted for within the felling area included in the permitted CGEP). There will be no direct or indirect effect on site temperature and microclimate due to clear felling because clear felling forms part of the cycle of commercial forestry and without the Proposed Development clear felling would occur as normal. For further information on felling, please refer to Chapters 2 – Description of the Development and Chapter 9 - Biodiversity.

Macroclimate

Carbon dioxide (CO₂) is a greenhouse gas which if released in excessive amounts can lead to increases in global temperatures known as ‘global warming’ or ‘greenhouse effect’ which can influence climate change. Section 7.4.4 details the carbon savings that have been calculated for the Proposed Development.

The Proposed Development has the potential to facilitate an offset in carbon emissions associated with fossil fuel power stations, which are the primary providers of electricity in Ireland. Offsetting these carbon emissions would have a significant positive effect on Cork County Council meeting their CDP and CAP targets: and a slight, positive effect on Ireland meeting its various climate targets set out in Section 7.1.4 of this Chapter and in Chapter 4 – Policy. The likely effect on Climate Change on a global scale would be imperceptible and as such non-significant.

The Proposed Development facilitates Ireland's development of an indigenous form of sustainable electricity and will contribute to the security of supply against our dependence on imports in addition to the overarching positive effects on the macroclimate.

The vulnerability of the Proposed Development to future changes in the climate and its capacity to adapt to possible climate change impacts over the course of its lifetime has been considered. Additional capacity has been included for watercourse crossing designs to account for future climate conditions. For further information, please refer to Chapter 11 - Hydrology and Water Quality, located in Volume 2 of the EIAR and the Surface Water Management Plan located within the CEMP in Appendix 2.2, Volume 3 of the EIAR.



7.4.4 Carbon Balance

The TII Carbon Assessment Tool was used in February 2026 to assess GHG emissions associated with the Proposed Development. The carbon emissions are calculated by multiplying the emission factor by the quantity of the material that will be used over the entire construction and operation phase. The land use change associated with the construction phase of the Proposed Development has also been quantified using the TII Carbon Assessment Tool which considers the loss or gain of carbon sinks. Please refer to Appendix 7.1, Volume 3 for a summary of variables and inputs used to generate the model for the Proposed Development.

Based on the TII Carbon Assessment Tool, carbon emissions associated with the product, construction, operation and decommissioning stage of the Proposed Development will release 59,793 tonnes of CO₂eq into the atmosphere. A breakdown of the embodied carbon and carbon emissions associated with each stage of the Proposed Development is available in Table 7-9.

The Carbon Emissions associated with the full lifespan of Proposed Development would be equivalent to the Carbon Emissions offset by the consented CGEP Development in 4 months of operation. The CGEP has an operational life of 30 years, with an estimated 6,508,140 tonnes of CO₂eq displaced over that lifespan. In proportion to this potential reduction in emissions, the necessary carbon emissions associated with the Proposed Development to connect the CGEP to the national grid is not considered significant.

Offsetting these carbon emissions would have a significant positive effect on Cork County Council meeting their CDP and CAP targets: and a slight, positive effect on Ireland meeting its various climate targets set out in Section 7.1.4 of this Chapter and in Chapter 4 – Policy. The likely effect on Climate Change on a global scale would be imperceptible and as such non-significant.

7.4.4.1 *Carbon Balance from Forestry Loss*

It should be noted that the calculator only considers the loss of forestry from felling (carbon release) and the loss of forestry growth (carbon sequestration) associated with the Proposed Development. It does not consider the effects of replanting of forestry outside of the site (there is no option of including external replant lands).

The clear-felling of trees in the State requires a felling licence. A felling licence will include the provision of relevant replant lands (afforestation area) to be planted in lieu of the proposed tree felling on the site. New forestry will be replanted in accordance with the Forestry Act, 2014 at the alternative site to compensate the loss of forestry at the Proposed Development which will offset the CO₂ lost due to the felling of forestry. This replanting is not factored into the carbon assessment.

It should be noted that while 17.8 ha of felling was used in carbon calculations, 10.2 ha of this was also consented and accounted for in carbon calculations for the permitted CGEP. Therefore, it is possible that the carbon loss calculations for the Proposed Development are slightly overestimated in this regard and with regard to replanting not being accounted for.

There will be no direct or indirect effect on site temperature and microclimate due to clear felling because clear felling forms part of the cycle of commercial forestry and without the Proposed Development clear felling would occur as normal. For further information on felling, please refer to Chapters 2 – Description of the Development and Chapter 9 - Biodiversity.



Table 7-9: Estimated Carbon Emissions from Proposed Development

Phase	Activity	Tonnes CO _{2eq}	Sector
Product Stage	Raw Material Supply and Manufacture	11,892	Industry
	Raw Material transport	260	Transport
Construction Stage	Construction Worker Travel to Site	425	Transport
	Clearance and Demolition	23	Industry
	Land Use Change and Vegetation Loss	232	Industry
	Excavation	34	Industry
	Plant Use	684	Industry
	Construction Water Use	0.2	Other (Including Water & Wastewater)
	Construction Waste Disposal	46,240	Other (Including Water & Wastewater)
Operational Stage	Operational Waste Transport	0.03	Transport
Decommissioning Stage	Decommissioning Waste Transport	0.2	Transport
	Decommissioning Waste Disposal	2	Industry
Total Expected Losses		59,793	



7.4.5 Cumulative Impacts

The geographic extent of the cumulative assessment is considered on a case-by-case basis, in line with the Guidance on the preparation of the Environmental Impact Assessment Report (European Union, 2017). Potential cumulative effects on air quality and climate between the Proposed Development and other projects in the vicinity were considered as part of this assessment. The projects considered as part of the cumulative effect are described in Appendix 1.3, Volume 3 of this EIAR and considered below.

There are several operational and consented cumulative developments located within 20 km of the Proposed Development that could potentially generate a cumulative impact in relation to air quality during construction, operation and decommissioning. A 20 km distance is considered a suitable zone of influence considering that the emissions associated with the Proposed Development will be focused on the construction site and significant emissions beyond the construction site are not envisaged as concentrations of the pollutants will have dissipated.

In line with the 2022 EPA Guidelines on the information to be contained in EIARs, consideration has also been given to the potential for the Proposed Development to (i) cause major accidents or disasters, and (ii) be vulnerable to such accidents or disasters (for example, lightning strikes). In relation to air quality and climate, no such risks arise: the Proposed Development would not give rise to accidents or disasters with the potential to significantly affect air quality, nor is the Proposed Development vulnerable to such events in a way that would result in significant air quality or climate impacts.

Table 7-10: Cumulative Developments within 20km of the Proposed Development

Development Name	Planning Reference	Distance and Direction from proposed site	Status
Coom Green Energy Park	308885 (ACP)	Adjacent to Proposed Development	Granted (9/11/2023)
Castlelyons Solar Farm	323301 (ACP) 245211 (CCC)	Adjacent to Proposed Development	ABP - due to be decided by (11/12/2025)
Clykeel Solar Farm	205898 (CCC)	~2km south of the Proposed Development	Conditional (24/05/2021)
Rahanisky Solar Farm	318852 (ACP) 235486 (CCC)	~12.1km south of the Proposed Development	ABP - Conditional (01/08/2024)
Ballynahina Solar Farm	234245 (CCC)	~11.3km south of the Proposed Development	Conditional (20/12/2023)
Bottlehill Landfill	-	~Adjacent to Proposed Development	Existing
M20 Motorway Project	-	~7km east of the Proposed Development	Planning application not lodged at time of writing
M28 Motorway Project	HA04.HA0053 (ACP)	~20km south of the Proposed Development	Granted 29/06/2018



7.4.5.1 Construction Phase

As established above in section 7.4.2.1, there are no significant effects on air quality during the construction phase from:

- Dust emissions arising from the transportation of materials to the Application Site;
- Dust emissions arising from earthworks, tree felling activities, trench excavation along cable routes and construction of the new access tracks;
- Dust emissions arising from the temporary storage of excavated materials, the movements of construction vehicles, the loading/unloading of aggregates/materials and the movement of material around the site;
- Dust emissions arising from the construction of the proposed substation;
- Vehicle and plant emissions (including Carbon dioxide (CO₂), oxides of nitrogen (NO_x), and Sulphur dioxide (SO₂)) arising from the above construction activities.

Therefore, it is considered there will be no cumulative effects on air quality should other proposed or consented plans and project within the surrounding landscape be constructed in parallel with the Proposed Development.

As established above in section 7.4.2.1, there are no significant effects on climate arising from construction phase activities.

Therefore, it is considered there will be no cumulative effects on climate and greenhouse gas emission should other proposed or consented plans and projects within the surrounding landscape be constructed in parallel with the Proposed Development.

7.4.5.2 Operational Phase

As established above in section 7.4.2.2, there are no significant effects on air quality during the operational phase from:

- Exhaust emissions from any maintenance and amenity visitors to the site;
- Dust emissions from any maintenance and amenity visitors to the site.

Therefore, it is considered there will be no cumulative effects on air quality should other proposed or consented plans and projects within the surrounding landscape be operational in parallel with the Proposed Development.

As established above in section 7.4.2.2, there is a significant long-term moderate positive indirect effect on air quality during the operational phase. There will be emission savings of carbon dioxide (CO₂), oxides of nitrogen (NO_x), and Sulphur dioxide (SO₂).

The integration of renewable energy facilitated by the Proposed Development will have a long-term significant positive effect on air quality. Connection of the consented CGEP Development will allow the offset of approximately 86,921 tonnes of CO₂eq per annum (against EU FFC and supply renewable energy of approximately 45,990 Irish households with electricity per year). This is a significant long-term moderate positive indirect effect on air quality.



The nature of the Proposed Development and associated wind energy developments both within 20 kilometres and on the island of Ireland are such that, once operational, they will have a cumulative long-term, significant, positive effect on the air quality and climate and would assist the national and international objectives for offsetting CO₂ emissions and achieving a climate neutral Ireland by 2050 as set out in the Climate Action and Low Carbon Development (Amendment) Act 2021.

7.5 Mitigation Measures

The impact assessment has not identified any likely significant adverse effects on Air or Climate from the Proposed Development. However, while mitigation measures are not required, they are provided here as best practice.

7.5.1 Air Quality

7.5.1.1 *Construction Phase*

While no likely significant effects have been identified in respect of air quality from the Proposed Development during the construction phase, the Construction Environmental Management Plan (CEMP) (included in Volume 3, Appendix 2.2) includes mitigation measures during the construction phase of the Proposed Development relevant to air quality as follows:

- Any required access tracks will be constructed prior to the commencement of other major elements of the Proposed Development. These tracks will be finished with graded aggregate which compacts, preventing dust;
- A water bowser will be used to spray work areas and haul roads, especially during periods of excavations works coinciding with dry periods of weather, to suppress dust migration from the site;
- All loads which could cause a dust nuisance will be covered to minimise the potential for fugitive emissions during transport;
- Earthworks and exposed areas/soil stockpiles will be re-vegetated (with removed turves) to stabilise surfaces as soon as practicable;
- The access and egress of construction vehicles will be controlled and directed to designated locations, along defined routes, with all vehicles required to comply with onsite speed limits;
- Construction vehicles and machinery will be serviced and maintained in good working order to avoid hydrocarbon (fuel/lubricant) leaks;
- Wheel washing facilities will be provided within the site near the site entrance points of the Site; and all vehicles entering or leaving the site will be required to use these facilities and the water will be managed and controlled as outlined in the CEMP;
- The contractor will be required to implement the dust control plan as part of the CEMP. Subject to Planning consent, the CEMP will be amended and finalised in consultation with the Local Authority and other key statutory agencies; it will include relevant planning conditions, including any additional mitigation measures which are conditioned by the Planning Authority;
- All construction vehicles will be required to switch off engines when stationary and no idling of vehicles will be permitted; and
- Exhaust emissions from vehicles operating within the site, including trucks, excavators, diesel generators or other plant equipment, will be controlled by the contractor by ensuring that emissions from vehicles are minimised through regular servicing of machinery



For more information on the measures to minimise and control dust and the complaints procedure for dust, please refer to the CEMP, within Appendix 2.2, Volume 3 of the EIAR.

7.5.1.2 *Operational Phase*

As the operation of the Proposed Development will not have any likely significant effects on air quality, mitigation measures are unnecessary.

7.5.1.3 *Decommissioning Phase*

While no likely significant effects have been identified in respect of air quality from the Proposed Development during the decommissioning phase, the same, mitigation measures with respect to dust control and minimisation will be implemented. The proposed access tracks across the Site are proposed to be left in situ following decommissioning and no mitigation measures are proposed. In terms of the underground grid cable and substation, these will be left in situ and so no mitigation measures are proposed.

7.5.2 Climate

It is considered that the Proposed Development will have an overall likely positive non-significant effect in terms of carbon reduction and climate change. It will assist Ireland in meeting the EU's latest renewable energy targets set out in the Renewable Energy Directive (2023) which contains a binding target for 2030 of at least 42.5% but aiming for 45%. Also, it will facilitate increasing the onshore wind capacity, as per the Climate Action Plan 2024. In terms of renewable energy, the target increase set in the Climate Action Plan 2024 in electricity generated from renewable sources is to increase to 80% by 2030, with 9GW of onshore wind capacity.

As no likely significant effects on climate will arise during construction, operation and decommissioning, no mitigation measures are necessary or proposed. In terms of the operational phase, the operation of the Proposed Development will have a positive effect on climate due to the displacement of fossil fuels that it will facilitate.

7.6 Residual Impacts

7.6.1 Air Quality

The implementation of the above mitigation measures will keep residual effects arising from fugitive dust emissions to slight to moderate impact. Construction activities involving excavations, felling or earthmoving will be localised in nature and as they will be associated with the construction phase, they will be temporary in nature and will not result in any likely significant residual effects.

As no likely significant effects on air quality were identified for the construction phase in the pre-mitigation assessment, no likely significant residual effects will arise for the construction phase. While the proposed mitigation measures may reduce the magnitude and duration of the residual effects as compared to the pre-mitigation effects, such mitigation measures are not required to reach a conclusion of no likely significant residual effects.



Effects related to vehicle emissions and dust will reduce during the operational stage and no likely significant effects are expected. There will be a low level of maintenance traffic during the operational period, which will have imperceptible, non-significant effects. Furthermore, the operational phase of the Proposed Development will facilitate green energy generation, the avoidance of emissions from fossil fuel electricity generators which is a positive effect on local air quality. As with the construction phase, no likely significant effects were identified for the operational phase, and no likely significant residual effects arise.

Additionally, effects on air quality due to vehicle emissions and dust during the decommissioning phase are expected to be similar in nature to those in the construction phase but of a smaller magnitude. They will be temporary in nature and result in slight residual effects, therefore not significant. There will be no permanent or significant residual effects from decommissioning. As no likely significant effects were identified at the pre-mitigation stage for decommissioning, no likely significant residual effects arise. Mitigation measures may further reduce the magnitude and duration of effects but are not required to support the conclusion of no likely significant residual effects.

7.6.2 Climate

Section 7.4.3 assessed the potential effects on climate associated the Proposed Development through microclimate and macroclimate. At the microclimate level, the Proposed Development encompasses approximately 3.5 % of the entire site area with hardstanding surfaces. The assessment found that a 3.5 % increase in hardstanding would not adversely affect the vegetation necessary to maintain a microclimate. In addition, the minimal felling of forestry required will not have a likely significant effect on microclimate. For more information, please refer to Chapter 9 – Biodiversity, within Volume 2 of the EIAR.

In terms of macroclimate, it is estimated that the consented CGEP Development will have an annual average output²² of 193,158 MWhr, which will result in the net displacement of 86,921 tonnes of CO₂ per annum. This would result in positive effects by removing the GHG emissions that would have otherwise been part of the output of traditional energy manufacturing (i.e. coal, natural gas, peat, etc). Potential effects to climate can affect human health (see Chapter 6 - Population and Human Health) and the environment. No likely significant direct or indirect effect on air temperature, microclimate or macroclimate will be associated with the Proposed Development due to the location of the site which is predominately a rural agricultural location except for existing public roadways.

Should the Proposed Development not be developed, the potential reduction in fossil fuel electricity generation presented by the consented CGEP will not be achieved. This will further contribute to greenhouse gas and other air pollutant emissions, as well as hindering Ireland in its commitment to meet its international commitments in relation to increasing renewable electricity production and reduction in GHG emissions.

²² Per *Scottish Windfarm Carbon Assessment Tool* (<https://informatics.sepa.org.uk/CarbonCalculator/index.jsp>, last accessed on 30 July 2025)



7.7 Conclusion

There are no likely significant effects expected on Air Quality or Climate as a result of the construction, operation and decommissioning of the Proposed Development.

There are no likely significant cumulative effects expected on Air Quality and Climate as a result of other existing or proposed projects.

There will be a likely long term positive residual effect on Air Quality and Climate as a result of the Proposed Development due to the displacement of fossil fuels.

The mitigation measures identified in this Chapter will be adopted and implemented by the Contractor and have been incorporated into the construction stage CEMP included in Appendix 2.2, Volume 3 of the EIAR.



7.8 References

BRITISH STANDARDS INSTITUTION (BSI). PAS 2080:2023 Carbon Management in Infrastructure. 2023.

Dammeier, Loriaux, Steinmann, Smits, Wijnant, van den Hurk and Huijbregts, 2019. Space, Time, and Size Dependencies of Greenhouse Gas Payback Times of Wind Turbines in Northwestern Europe. (online). Available at: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6686152/>

Department of Environment Climate and Communications, 2020. Ireland's National Energy and Climate Plan 2021 – 2030 : <https://www.gov.ie/en/publication/0015c-irelands-national-energy-climate-plan-2021-2030/>

Design Manual for Roads and Bridges (DMRB) (2007). Volume 11 Environmental Assessment Section 3 Environmental Assessment Techniques.

EEA, 2024. Europe's Air Quality Status 2024 report. (online). Available at: <https://www.eea.europa.eu/publications/air-quality-in-europe-2022>

EirGrid, 2018. All-Island Generation Capacity Statement 2018 – 2027. (online). Available at: [http://www.eirgridgroup.com/site-files/library/EirGrid/Generation Capacity Statement 2018.pdf](http://www.eirgridgroup.com/site-files/library/EirGrid/Generation%20Capacity%20Statement%202018.pdf).

EPA, 2024. Air Quality Zones. (Online). Available at: <https://www.epa.ie/air/quality/zones/>.

EPA, 2024. Climate Change. (online). Available at: <https://www.epa.ie/climate/communicatingclimatescience/whatisclimatechange/>

EPA, 2025. Ireland's Greenhouse Gas Emissions Projections 2024-2055. (Online). Available at: [Ireland's Greenhouse Gas Emissions Projections 2023-2050](#)

EPA, 2024. Air Quality in Ireland: Report 2023. (Online). Available at: [Air Quality in Ireland 2023](#)

EPA, 2023. Ireland's Final Greenhouse Gas Emissions – 1990 – 2021. (online). Available at: https://www.epa.ie/publications/monitoring--assessment/climate-change/air-emissions/Ireland's-Final-Greenhouse-gas-report-1990-2021_April-2023.pdf

EPA, 2020. Ireland's Environment 2020 – Chapter 14 – Environment, Health and Wellbeing', p. 364.

EUROPEAN COMMISSION. Commission Decision 2010/335 on Guidelines for the Calculation of Land Carbon Stocks... 2010.

INSTITUTION OF CIVIL ENGINEERS. Civil Engineering Standard Method of Measurement 4 (CESMM4), Carbon and Price Book Database. 2013.

Intergovernmental Panel on Climate Change (IPCC), 2018. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty. (online). Available at: https://www.ipcc.ch/site/assets/uploads/sites/2/2019/06/SR15_Full_Report_High_Res.pdf.

Intergovernmental Panel on Climate Change (IPCC), 2011. Renewable Energy Sources and Climate Mitigation. (online). Available at: https://www.ipcc.ch/site/assets/uploads/2018/03/SRREN_Full_Report-1.pdf

Intergovernmental Panel on Climate Change (IPCC), 1997. Revised 1996 IPCC guidelines for national greenhouse gas inventories workbook, vol. 2. Cambridge, UK. Cambridge University Press.



Met Eireann, 2024. Monthly Data. (online). Available at: <https://www.met.ie/climate/available-data/monthly-data>

SEAI, 2024. Energy in Ireland – 2024 Report. (online). Available at: [energy-in-ireland-2024.pdf](#)

SUSTAINABLE ENERGY AUTHORITY OF IRELAND. Conversion Factors. [online] Available at: [Conversion Factors | SEAI Statistics | SEAI](#)

TA Luft (2002) Technical Instructions on Air Quality Control (Technische Anleitung zur Reinhaltung der Luft).

UK ENVIRONMENT AGENCY. Environment Agency Carbon Calculator Tool (Version 3.6). 2014.

UK GOVERNMENT. Greenhouse Gas Reporting: Conversion Factors. 2021.

WHO. (2020). Hazard Prevention and Control in the Work Environment: Airborne Dust WHO/SDE/OEH/99.14. (online). Available at: https://www.who.int/occupational_health/publications/en/oehairbornedust3.pdf .

WHO. (2018). Ambient (outdoor) air pollution. Online. Available at: [https://www.who.int/news-room/fact-sheets/detail/ambient-\(outdoor\)-air-quality-and-health](https://www.who.int/news-room/fact-sheets/detail/ambient-(outdoor)-air-quality-and-health).



**DESIGNING AND DELIVERING
A SUSTAINABLE FUTURE**

www.fehilytimoney.ie

 **Cork**

 **Dublin**

 **Carlow**

