10. AIR QUALITY

10.1 Introduction

This chapter identifies, describes, and assesses the potential significant direct and indirect effects on air quality arising from the construction, operation and decommissioning of the Proposed Project. The full description of the Proposed Project is detailed in Chapter 4: Description of the Proposed Project. Alternative designs initially proposed for the Proposed Project and their potential for effects on air quality are considered in Chapter 3: Site Selection & Reasonable Alternatives.

As detailed in Section 1.1.1 in Chapter 1:Introduction, for the purposes of this EIAR, the various project components are described and assessed using the following references: 'Proposed Project', 'Proposed Grid Connection', 'Proposed Wind Farm, 'Proposed Wind Farm site', and 'the Site'.

The assessment has been carried out according to best practice and guidelines relating to air quality.

10.1.1 Background

The Proposed Wind Farm site is located within a rural setting in west Co. Cork, approximately 2.3 km east of the village of Kealkill, 9.5 km northeast of the town of Bantry, and 12.2 km west of Dunmanway.

The Proposed Grid Connection includes for underground 110kV electrical cabling from the proposed 110kV onsite substation, in the townland of Maughanaclea, Co. Cork to the existing Dunmanway 110kV substation in the townland of Ballyhalwick, Co. Cork to facilitate the connection of the Proposed Project to the national electricity grid. The Proposed Grid Connection is primarily located along the public road corridor, with a short section located across private land/tracks. The Proposed Grid Connection follows the R585, L4909, L4609, L4615, R587, and the R586 to the existing Dunmanway 110kV substation. The townlands that the Proposed Grid Connection will pass through are detailed in Table 1-1 of Chapter 1.

The R585 passes through the centre of the EIAR site boundary in a general east to west direction, between the villages of Togher and Kealkill, separating the Proposed Wind Farm into two turbine clusters with T01 - T06 located to the north of the R585, and T07 - T14 located to the south of the R585. The southern portion of the Proposed Wind Farm site is accessed via an existing forestry access track off the R585, whilst the northern portion of the Proposed Wind Farm site is accessed via a Proposed new site entrance off the R585.

The townlands in which the Proposed Project is located are listed in Table 1-1 in Chapter 1: Introduction of this EIAR.

Current land-use on the Proposed Wind Farm site is predominantly commercial forestry, with agricultural pastures and rough grazing also present. Current land-use along the Proposed Grid Connection comprises of the public road corridor, public open space, pastures, and private land principally used by agriculture. Land-use on the wider landscape comprises a mix of pastoral agriculture, low-density residential, and small-scale commercial properties.

Due to the non-industrial nature of the Proposed Project, and the general character of the surrounding environment, baseline air quality sampling was deemed to be unnecessary for this EIAR. It is expected that the air quality in the existing environment is good, since there are no major sources of air pollution (e.g. heavy industry) in the vicinity of the Site.

The production of energy from wind turbines has no direct air emissions as is expected from fossil fuel-based power stations. 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. Some temporary or short-term indirect emissions associated with the construction of the Proposed Project will include vehicular and dust emissions.

10.1.2 Statement of Authority

This section of the EIAR has been prepared by Ciarán Fitzgerald and Robert Kennedy and reviewed by Eoin McCarthy, all of MKO.

Ciarán Fitzgerald is an Environmental Scientist who has been working with MKO since June 2024. Ciarán holds a B.Sc. (Honours) in Marine Science from the National University of Ireland Galway and a First-Class Honours PG. Dip in Geographic Information Systems from University College Cork. Ciarán works as part of the Environmental Renewables team as well as a larger multidisciplinary team. Ciarán's role involves undertaking tasks such as report writing, EIAR chapter writing, and QGIS mapping. Prior to joining MKO, Ciarán spent time aboard the research vessel "Celtic Explorer", working as part of a team undertaking chemical water data, pelagic species abundance and sorting, bathymetric GIS mapping, data collection, and report writing. Ciarán's key strengths lie in GIS mapping and communication. Since joining the company, Ciarán has been involved in a range of projects, including onshore wind, offshore wind, and solar, contributing by reviewing EIAR chapters and assisting with project development. Ciarán holds a membership from the Institute of Sustainability and Environmental Professionals (ISEP)

Robert is a Project Environmental Scientist working as part of MKO's Renewables Team, having joined the company in June 2022. Robert holds a BSc in Environmental Biology and an MSc in Environmental Policy, both from University College Dublin. Robert's key strengths and areas of expertise are in project management, environmental impact assessment, renewable energy, report writing, and research. Since joining MKO, Robert has worked with and coordinated large multi-disciplinary teams involved in the production of EIA Reports for large-scale renewable energy developments. Robert's experience spans a broad range of wind energy developments, including applications for new onshore and offshore wind farms, repowering and lifetime extension projects, and substitute consent. Robert also played a role in developing MKO's new service offering around Biodiversity Net Gain and other nature-positive mechanisms.

Eoin is a Project Director within the Environment Renewables team of MKO with over 14 years of environmental consultancy experience. Eoin holds a B.Sc. (Hons) in Environmental Science from NUI, Galway. Eoin took up his position with McCarthy Keville O'Sullivan in June 2011. Eoin's key strengths and areas of expertise are in project management, environmental impact assessment, wind energy site selection and feasibility assessment. Since joining MKO, Eoin has progressed from Graduate to Senior level and has been heavily involved on a significant range of energy infrastructure, tourism, waste permit, flood relief scheme and quarrying projects. He has overseen the design phase and applications of some of the largest wind energy projects in Ireland. In his role as project manager, Eoin works with and co-ordinates large multidisciplinary teams including members from MKO's Environmental, Planning, Ecological and Ornithological departments as well as sub-contractors from various fields in the preparation and production of EIARs. Eoin is also involved in the development of project strategy for the projects that he manages. He has held the role of project manager and EIAR co-ordinator on over 700MW worth of wind energy projects. Within MKO Eoin plays a large role in the management of and sharing of knowledge with junior members of staff and works as part of a large multi-disciplinary team to produce EIA Reports.

10.1.3 Relevant Guidance

The air quality section of this EIAR is carried out in accordance with the EIA Directive 2011/92/EU as amended by Directive 2014/52/EU and having regard, where relevant, to guidance listed below:

- Air Quality Assessment of Proposed National Roads – Standard PE-ENV-01107' (Transport Infrastructure Ireland, December 2022)[1].
- Guidelines on the Information to be contained in Environmental Impact Assessment Reports – June 2022 (EPA, 2022)[2].
- Environmental Impact Assessment of Projects: Guidance on the preparation of the Environmental Impact Assessment Report (EC, 2017)[3].
- Air Quality in Europe 2022 (EEA, 2022)[4]
- Air Quality Status Report 2025 (EEA, 2025)[5]
- Air Quality in Ireland Report 2023 (EPA, 2024).[6]
- Best Practice Guidelines on the Preparation of Resource and Waste Management Plans for Construction & Demolition Projects (EPA, 2021)[7].
- Guidance of the Assessment of Dust from Demolition and Construction (IAQM, 2024).[8]
- Guidelines for the Treatment of Air Quality During the Planning and Construction of National Road Schemes (TII, 2011).[9]
- Guidelines for Assessment of Ecological Impacts of National Roads Schemes (TII, 2009).[10]
- Clean Air Strategy for Ireland (Government of Ireland, 2023).[11]
- UK Department of Environment Food and Rural Affairs (DEFRA) Part IV of the Environment Act 1995: Local Air Quality Management, LAQM.TG (16) (DEFRA 2018).[12]
- UK Highways Agency (UKHA) Design Manual for Roads and Bridges (DMRB) – LA 105 Air Quality (UKHA, 2019).[13]
- World Health Organization (WHO) Air Quality Guidelines for Particulate Matter, Ozone, Nitrogen Dioxide and Sulphur Dioxide Global Update 2021 (WHO 2021)14.

10.1.4 Relevant Legislation

In 1996, the Air Quality Framework Directive (on ambient air quality assessment and management) (96/62/EC)[15] was published. This Directive was transposed into Irish law by the Environmental Protection Agency Act 1992 (Ambient Air Quality Assessment and Management) Regulations 1999 (S.I.

[1] *Transport Infrastructure Ireland (TII). (2022). Air Quality Assessment of Proposed National Roads – Standard (PE-ENV-01107). December 2022.* <https://cdn.tii.ie/publications/PE-ENV-01107-01.pdf>
[2] *Environmental Protection Agency (EPA). (2022). Guidelines on the Information to be Contained in Environmental Impact Assessment Reports. June 2022.* <https://www.epa.ie/publications/monitoring--assessment/assessment/guidelines-on-the-information-to-be-contained-in-environmental-impact-assessment.php>
[3] *European Commission (EC). (2017). Environmental Impact Assessment of Projects: Guidance on the Preparation of the Environmental Impact Assessment Report.* <https://op.europa.eu/en/publication-detail/-/publication/2b399830-cb4b-11e7-a5d5-01aa75ed71a1>
[4] *Air Quality in Europe 2022* <https://www.eea.europa.eu/publications/air-quality-in-europe-2022>
[5] *European Environment Agency (EEA). (2025). Air Quality Status Report 2025.* <https://www.eea.europa.eu/en/analysis/publications/air-quality-status-report-2025>
[6] *Environmental Protection Agency (EPA). (2024). Air Quality in Ireland 2023.*
[7] *Environmental Protection Agency (EPA). (2021). Best Practice Guidelines on the Preparation of Resource and Waste Management Plans for Construction & Demolition Projects.*
[8] *Institute of Air Quality Management (IAQM). (2024). Guidance on the Assessment of Dust from Demolition and Construction.*
[9] *Transport Infrastructure Ireland (TII). (2011). Guidelines for the Treatment of Air Quality During the Planning and Construction of National Road Schemes.* <https://tii.sonitussystems.com/information/tii-and-air-quality>
[10] *Transport Infrastructure Ireland (TII). (2009). Guidelines for Assessment of Ecological Impacts of National Road Schemes.* <https://www.tii.ie/media/kzldoawo/guidelines-for-assessment-of-ecological-impacts-of-national-road-schemes.pdf>
[11] *Government of Ireland. (2023). Clean Air Strategy for Ireland.*
[12] *Department for Environment, Food and Rural Affairs (DEFRA). (2018). Local Air Quality Management Technical Guidance (LAQM.TG(16)).*
[13] *UK Highways Agency. (2019). Design Manual for Roads and Bridges (DMRB) – LA 105 Air Quality.*
[14] *World Health Organization (WHO). (2021). WHO Global Air Quality Guidelines: Particulate Matter (PM2.5 and PM10), Ozone, Nitrogen Dioxide, Sulfur Dioxide and Carbon Monoxide.* <https://www.who.int/publications/i/item/9789240034228>
[15] *Council Directive 96/62/EC of 27 September 1996 on ambient air quality assessment and management* <https://eur-lex.europa.eu/eli/dir/1996/62/oj/engEuropean Environment Agency+2>

No. 33 of 1999). The Directive was followed by four Daughter Directives, which set out limit values for specific pollutants:

- The first Daughter Directive (1999/30/EC)[16] addresses sulphur dioxide, oxides of nitrogen, particulate matter and lead.
- The second Daughter Directive (2000/69/EC)[17] addresses carbon monoxide and benzene. The first two Daughter Directives were transposed into Irish law by the Air Quality Standards Regulations 2002 (SI No. 271 of 2002).
- The third Daughter Directive, Council Directive (2002/3/EC)[18] relating to ozone was published in 2002 and was transposed into Irish law by the Ozone in Ambient Air Regulations 2004 (SI No. 53 of 2004).
- The fourth Daughter Directive (2004/107/EC)[19], published in 2004, relates to polyaromatic hydrocarbons (PAHs), arsenic, nickel, cadmium and mercury in ambient air and was transposed into Irish law by the Arsenic, Cadmium, Mercury, Nickel and Polycyclic Aromatic Hydrocarbons in Ambient Air Regulations, 2009 (S.I. No. 58 of 2009) (amended by SI 659/2016 - Air Quality Standards (Amendment) and Arsenic, Cadmium, Mercury, Nickel and Polycyclic Aromatic Hydrocarbons in Ambient Air (Amendment) Regulations 2016.)

The Air Quality Framework Directive and the first three Daughter Directives were replaced by the Clean Air for Europe (CAFE) Directive (Directive 2008/50/EC[20] on ambient air quality and cleaner air for Europe) (as amended by Directive EU 2015/1480)[21] which encompasses the following elements:

- The merging of most of the existing legislation into a single Directive (except for the Fourth Daughter Directive) with no change to existing air quality objectives.
- New air quality objectives for PM2.5 (fine particles) including the limit value and exposure concentration reduction target.
- The possibility to discount natural sources of pollution when assessing compliance against limit values.
- The possibility for time extensions of three years (for particulate matter PM10) or up to five years (nitrogen dioxide, benzene) for complying with limit values, based on conditions and the assessment by the European Commission.

Table 10-1 below sets out the limit values of the CAFE Directive, as derived from the Air Quality Framework Daughter Directives. Limit values are presented in micrograms per cubic metre (µg/m^3) and parts per billion (ppb). The notation PM_{10} is used to describe particulate matter or particles of ten micrometres or less in aerodynamic diameter. $PM_{2.5}$ represents particles measuring less than 2.5 micrometres in aerodynamic diameter.

The CAFE Directive was transposed into Irish legislation by the Air Quality Standards Regulations 2011 (S.I. No. 180 of 2011) as amended by the Air Quality Standards (Amendments) and Arsenic, Cadmium, Mercury, Nickel and Polycyclic Aromatic Hydrocarbons in Ambient Air Regulations, 2016 (S.I. 659 2016). The 2011 Regulations superseded 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 Ambient Air

[16] *Council Directive 1999/30/EC of 22 April 1999 relating to limit values for sulphur dioxide, nitrogen dioxide and oxides of nitrogen, particulate matter and lead in ambient air* <https://eur-lex.europa.eu/eli/dir/1999/30/oj/eng>
[17] *Directive 2000/69/EC of the European Parliament and of the Council of 16 November 2000 relating to limit values for benzene and carbon monoxide in ambient air* <https://eur-lex.europa.eu/eli/dir/2000/69/oj/eng>
[18] *Directive 2002/3/EC of the European Parliament and of the Council of 12 February 2002 relating to ozone in ambient air* <https://eur-lex.europa.eu/eli/dir/2002/3/oj/eng>
[19] *Directive 2004/107/EC of the European Parliament and of the Council of 15 December 2004 relating to arsenic, cadmium, mercury, nickel and polycyclic aromatic hydrocarbons in ambient air* <https://eur-lex.europa.eu/eli/dir/2004/107/oj/eng>
[20] *Directive 2008/50/EC of the European Parliament and of the Council of 21 May 2008 on ambient air quality and cleaner air for Europe* <https://eur-lex.europa.eu/eli/dir/2008/50/oj/eng>
[21] *Commission Directive (EU) 2015/1480 of 28 August 2015 amending several annexes to Directives 2004/107/EC and 2008/50/EC* <https://eur-lex.europa.eu/eli/dir/2015/1480/oj/engEUR-Lex+1FAOHome+1>

Quality Assessment and Management Regulations 1999 (S.I. No. 33 of 1999). The Air Quality Standards Regulations 2011 (S.I. No. 180 of 2011) was revoked on 31 December 2022 and has been replaced by the Ambient Air Quality Standards Regulations 2022 (S.I. No. 739/2022).

On the 26th of October 2022 the EU Commission announced a proposed review of Air Quality Standards.[22] The proposed revision will set interim 2030 EU air quality standards, seeking to align more closely with WHO recommendations, while putting the EU on a trajectory to achieve zero pollution for air at the latest by 2050, in synergy with climate-neutrality efforts. The first review is proposed to take place by the end of 2028, with the objective of ensuring full alignment with WHO recommendations.

The Ambient Air Quality Standards Regulation (2022) made the provisions necessary for the implementation of Directive 2008/50/EC of the European Parliament and of the Council on ambient air quality and cleaner air for Europe (as amended), establishes the limit values and alert thresholds for concentrations of certain pollutants in ambient air, provides for the assessment of concentrations of certain pollutants in ambient air, provides for the maintenance of ambient air quality, and ensures that adequate information on concentrations of pollutants are made available to the public.

On 10 December 2024, Directive (EU) 2024/2881[23] on ambient air quality and cleaner air for Europe came into force. This directive recasts Directive 2008/50/EC (the CAFE Directive) and the fourth Daughter Directive (Directive 2004/107/EC) relating to arsenic, cadmium, mercury, nickel and polycyclic aromatic hydrocarbons in ambient air) and incorporates them into a single directive. This recast directive sets out limit values, target values, average exposure reduction obligations, average exposure concentration objectives, critical levels, alert thresholds, information thresholds and long-term objectives. It sets out air quality provisions with the aim of achieving the objectives of the European Commission's Zero Pollution Action Plan, so that air pollution within the EU is progressively reduced to levels no longer considered harmful to health and natural ecosystems at the latest by 2050. At the time of writing Directive (EU) 2024/2881 has not yet been transposed into Irish law.

The Proposed Project offers an important opportunity to further utilise Ireland's abundant renewable energy resources, delivering valuable improvements to air quality and, consequently, to human health.

10.1.5 Air Quality Standards

The recently implemented Ambient Air Quality Standards Regulations 2022 (S.I. No. 739/2022) remains aligned to the CAFÉ Directive and diverts to the CAFÉ Directive for the Limit values outlined in Table 10-1, the Assessment Thresholds in Table 10-2, the Ozone limits and Assessment Thresholds in Table 10-3 and Table 10-4 respectively.

Table 10-1 Limit Values of the CAFÉ Directive 2008/50/EC (Source: https://airquality.ie/information/air-quality-standards)

Pollutant	Limit Value Objective	Averaging Period	Limit Value (ug/m3)	Limit Value (ppb)	Basis of Application of Limit Value	Attainment Date
Sulphur dioxide (SO_2)	Protection of human health	1 hour	350	132	Not to be exceeded more than 24 times in a calendar year	1st Jan 2005

[22] *European Commission, Revision of the Ambient Air Quality Directives.* <https://environment.ec.europa.eu/topics/air/air-quality/revision-ambient-air-quality-directives_en>
[23] *Directive (EU) 2024/2881 of the European Parliament and of the Council of 23 October 2024 on ambient air quality and cleaner air for Europe (recast)* <https://eur-lex.europa.eu/eli/dir/2024/2881/oj/eng>

Pollutant	Limit Value Objective	Averaging Period	Limit Value (ug/m3)	Limit Value (ppb)	Basis of Application of Limit Value	Attainment Date
Sulphur dioxide (SO_2)	Protection of human health	24 hours	125	47	Not to be exceeded more than 3 times in a calendar year	1st Jan 2005
Sulphur dioxide (SO_2)	Protection of vegetation	Calendar year	20	7.5	Annual mean	19th Jul 2001
Sulphur dioxide (SO_2)	Protection of vegetation	1st Oct to 31st Mar	20	7.5	Winter mean	19th Jul 2001
Nitrogen dioxide (NO_2)	Protection of human health	Calendar year	40	21	Annual mean	1st Jan 2010
Nitrogen dioxide (NO_2)	Protection of human health	1 hour	200	105	Not to be exceeded more than 18 times in a calendar year	1st Jan 2010
Nitrogen monoxide (NO) and nitrogen dioxide (NO_2)	Protection of ecosystems	Calendar year	30	16	Annual mean	19th Jul 2001
Particulate matter 10 (PM_{10})	Protection of human health	24 hours	50		Not to be exceeded more than 35 times in a calendar year	1st Jan 2005
Particulate matter 10 (PM_{10})	Protection of human health	Calendar year	40		Annual mean	1st Jan 2005
Particulate matter 2.5 ($PM_{2.5}$) Stage 1	Protection of human health	Calendar year	25		Annual mean	1st Jan 2015
Particulate matter 2.5 ($PM_{2.5}$) Stage 2	Protection of human health	Calendar year	20		Annual mean	1st Jan 2020

Pollutant	Limit Value Objective	Averaging Period	Limit Value (ug/m3)	Limit Value (ppb)	Basis of Application of Limit Value	Attainment Date
Lead (Pb)	Protection of human health	calendar year	0.5		Annual mean	1st Jan 2005
Carbon Monoxide (CO)	Protection of human health	8 hours	10,000	8620	Not to be exceeded	1st Jan 2005
Benzene (C_6H_6)	Protection of human health	calendar year	5	1.5	Annual mean	1st Jan 2010

Table 10-2 Assessment Thresholds from CAFE Directive 2008/50/EC

Pollutant	Limit Value Objective	Averaging Period	Limit Value ($\mu g/m^3$)	Basis of Application of Limit Value
Sulphur dioxide (SO_2)	Upper assessment threshold for the protection of Human Health	24 hours	75	Not to be exceeded more than 3 times in a calendar year
Sulphur dioxide (SO_2)	Lower assessment threshold for the protection of human health	24 hours	50	Not to be exceeded more than 3 times in a calendar year
Nitrogen dioxide (NO_2)	Upper assessment threshold for the protection of human health	1 hour	140	Not to be exceeded more than 18 times in a calendar year
Nitrogen dioxide (NO_2)	Lower assessment threshold for the protection of human health	1 hour	100	Not to be exceeded more than 18 times in a calendar year
Particulate matter 10 (PM_{10})	Upper assessment threshold	24 hours	35	Not to be exceeded more than 35 times in a calendar year
Particulate matter 10 (PM_{10})	Lower assessment threshold	24 hours	25	Not to be exceeded more than 35 times in a calendar year
Lead (Pb)	Upper assessment threshold	Calendar Year	0.35	-

Pollutant	Limit Value Objective	Averaging Period	Limit Value ($\mu g/m^3$)	Basis of Application of Limit Value
Lead (Pb)	Lower assessment threshold	Calendar Year	0.25	-
Carbon Monoxide (CO)	Upper assessment threshold	8 hours	7000	-
Carbon Monoxide (CO)	Lower assessment threshold	8 hours	5000	-
Benzene (C_6H_6)	Upper assessment threshold	Calendar Year	3.5	-
Benzene (C_6H_6)	Lower assessment threshold	Calendar Year	2	-

Ozone is set out differently in the CAFE Directive in that it sets target values and long-term objectives for ozone rather than limit values. Table 10-3 presents the target values and long-term target value for ozone and Table 10-4 details the threshold values for Ozone.

Table 10-3 Target values for Ozone defined in Directive 2008/50/EC

Objective	Parameter	Target Value for 2010	Long- term Objective
Protection of human health	Maximum daily 8-hour mean	120 $\mu g/m^3$ not to be exceeded more than 25 days per calendar year averaged over 3 years	120 $\mu g/m^3$
Protection of vegetation	AOT40* calculated from 1-hour values from May to July	18,000 $\mu g/m^3.h$ averaged over 5 years	6,000 $\mu g/m^3.h$

* AOT40 is a measure of the overall exposure of plants to ozone. It is the sum of the excess hourly concentrations greater than 80 µg/m3 and is expressed as µg/m3 hours.

Table 10-4 Threshold for Ozone Defined in Directive 2008/50/EC (source: https://airquality.ie/information/air-quality-standards and Directive 2008/50/EC)

Pollutant	Averaging Period	Threshold
Information Threshold	1-hour average	180 $\mu g/m^3$
Alert Threshold	1-hour average	240 $\mu g/m^3$

On 26th October 2022, the European Commission announced a proposed review of Air Quality Standards[24]. The proposed revision will set interim 2030 EU air quality standards, seeking to align more closely with WHO recommendations, while putting the EU on a trajectory to achieve zero pollution for air at the latest by 2050, in synergy with climate-neutrality efforts. To this end, regular reviews of the air

[24] European Commission (October 2022) Revision of the Ambient Air Quality Directives. <https://environment.ec.europa.eu/topics/air/air-quality/revision-ambient-air-quality-directives_en>

quality standards are proposed to reassess them in line with latest scientific evidence as well as societal and technological developments. The first review is proposed to take place by the end of 2028, with the objective of ensuring full alignment with WHO recommendations.

The Ambient Air Quality Standards Regulation (2022) made the provisions necessary for the implementation of Directive 2008/50/EC of the European Parliament and of the Council on ambient air quality and cleaner air for Europe (as amended), establishes the limit values and alert thresholds for concentrations of certain pollutants in ambient air, provides for the assessment of concentrations of certain pollutants in ambient air, provides for the maintenance of ambient air quality, and ensures that adequate information on concentrations of pollutants are made available to the public.

10.1.5.1 Air Quality and Health

In September 2025 the EPA published '*Air Quality in Ireland 2024*'[25] which reports that although air quality in Ireland is generally good and on track to meet the majority of 2030 EU Commitments for national emission levels, there are concerning localised issues. Fine particulate matter ($PM_{2.5}$) from solid fuel combustion and nitrogen dioxide (NO_2) from vehicle emissions are the main pollutants. People's health and the health of our environment is impacted by these pollutants. Irelands most recent air quality measures in 2024 show that Ireland is meeting the legal limits set by the EU, however Ireland is not meeting the stricter health guidelines from the WHO and are currently falling behind on targets set in the Clean Air Strategy for Ireland out to 2026 (Section 10.2.2.1.1 below). Ireland's ambition in the 'Clean Air Strategy for Ireland' is to move towards alignment with the WHO Air Quality guidelines, this will be challenging but will have a significantly positive impact on health.

The European Environmental Agency (EEA) Report, '*Air Quality in Europe 2022*'[26] report highlights the negative effects of air pollution on human health. The report assessed that poor air quality in Europe accounted for premature deaths of approximately 238,000 people in the 27 EU Member States in 2020. In 2020 in the European Union, 96% of the urban population was exposed to levels of fine particulate matter above the health-based guideline level set by the World Health organisation. Furthermore, in 2020 damaging levels of nitrogen deposition to ecosystems were exceeding in 75% of the total ecosystems that are in the EU-27. This represents a fall of 12% since 2005. The estimated effects on the population in Europe of exposure to NO_2 and O_3 concentrations in 2020 were around 49,000 and 24,000 premature deaths, respectively. From this, 490 Irish deaths were attributable to fine particulate matter ($PM_{2.5}$), 50 Irish deaths were attributable to nitrogen oxides (NO_2) and 70 Irish deaths were attributable to Ozone (O_3). These figures are further informed by the EEA publication of 'Ireland – air pollution country fact sheet 2024' on the 10th of December 2024[27]. This states that 530 Irish deaths were attributable to fine particulate matter ($PM_{2.5}$), 100 Irish deaths were attributable to nitrogen oxides (NO_2) and 240 Irish deaths were attributable to Ozone (O_3).

The EEA published a briefing on '*Europe's Air Quality Status*' in April 2025[28]. This briefing presented the status of concentrations of pollution in ambient air in 2022 and 2023 for regulated pollutants in relation to both EU air quality standards and the 2021 WHO guideline levels. The assessment shows that, despite continuous improvements, exceedances of air quality standards are common across the EU, with concentrations well above the latest WHO recommendations. These emissions, along with others including sulphur oxides (SO_x) are produced during fossil fuel-based electricity generation in

[25] *Environmental Protection Agency (2025) Air Quality in Ireland 2024.* <https://www.epa.ie/publications/monitoring--assessment/air/air-quality-in-ireland-2024.php>
[26] *European Environment Agency. (2022). Air quality in Europe — 2022 report* <https://www.eea.europa.eu/publications/air-quality-in-europe-2022>
[27] *European Environment Agency (EEA). (2024). Ireland – Air Pollution Country Fact Sheet 2024.* <https://www.eea.europa.eu/en/topics/in-depth/air-pollution/air-pollution-country-fact-sheets-2024/ireland-air-pollution-country-fact-sheet-2024>
[28] *Europe's air quality status 2024 briefing.* <https://www.eea.europa.eu//publications/europes-air-quality-status-2024>

various amounts, depending on the fuel and technology used, emissions from industry and power plants, vehicles emissions and transport fuels.

Key messages outlined in the '*Air Quality Status Report 2025*' are detailed below:

- EU air quality standards are still not fully met across Europe, despite ongoing overall improvements.
- Since 2011, all countries have reduced exposure of their urban population to fine $PM_{2.5}$ particles, the most harmful pollutant from a health perspective. Nevertheless, the vast majority (94%) of the EU urban population remains exposed to $PM_{2.5}$ concentrations above the World Health Organization guideline level, highlighting the need for additional measures to reduce the associated health risks.
- Many locations already have air quality concentrations below the new EU 2030 standards. But in order to meet these new standards everywhere, and based on current progress, additional measures to improve air quality, especially in cities, are likely to be needed.

The Office of Energy Efficiency and Renewable Energy in the United States published an article on August 21, 2024, entitled '*How Wind Can help Us Breathe Easier*.'[29] This article details the carbon dioxide (CO_2) emissions from different energy sources over the entire lifespan of the technology. It was found that wind energy produces around 11 grams of CO_2 per kilowatt-hour (g CO_2/kWh) of electricity generated, compared with about 980 g CO_2/kWh for coal and roughly 465 g CO_2/kWh for natural gas. That makes coal's carbon footprint almost 90 times larger than that of wind energy, and the footprint of natural gas more than 40 times larger than wind. During combustion of high-emitting energy sources, other air pollutants, i.e., nitrogen oxides (NO_x) and sulphur dioxide (SO_2), are also released into the atmosphere. This results in the emission of pollutants that can cause adverse health effects, including asthma, bronchitis, lower and upper respiratory symptoms, and heart attacks. Air pollution is responsible for a large number of premature deaths relating to these illnesses.

A 2024 EPA report *'Ireland's State of the Environment Report'* [30] states that the pollutants of most concern are Fine Particulate matter ($PM_{2.5}$.), Nitrogen Dioxide (NO_2) and Ammonia (NH_3). The EPA 2024 report goes on to state that:

"The planned transition to more renewable energy sources, and away from combustion-sourced heating systems to electrification, is a shift that could see greenhouse gas emissions from industry significantly decrease.

As a consequence of meeting these growing demands primarily with oil, natural gas, coal and peat, our energy system is highly dependent on fossil fuels. Ireland has made some progress in transforming the electricity system through the deployment of wind farms, with renewable energy currently providing more than 40% of electricity used. However, electricity represents only one-fifth of Ireland's energy use, and our transport and heating systems remain heavily reliant on fossil fuel systems, with lock-ins that need to be addressed.

While Ireland's renewable energy share has increased from 10.7% in 2018 (reported in the last State of the Environment Report) to 13.1% in 2022, this is the lowest level in the EU (well below the EU average of 23.0%), and Ireland is not on track to meet the EU-wide binding target of 42.5% renewable energy share by 2030. Reaching the target of 80% renewable electricity by 2030, while ensuring a stable energy supply, will require new capacity, a more flexible grid and increased interconnectivity (EC, 2024)

Established technologies, such as wind energy, solar photovoltaics and bioenergy, will be key in meeting short-term emission reduction targets (i.e., 2030), whereas significant growth in offshore wind infrastructure is expected to be the key essential element of future energy systems."

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[29] *Office of Energy Efficiency and Renewable Energy (2023) How Wind Can Help Us Breathe Easier < https://www.energy.gov/eere/wind/articles/how-wind-can-help-us-breathe-easier>*

The EPA published a report, entitled '*Ireland's Air Pollutant Emissions 1990-2030*' in May 2025 providing details of emissions of air pollutants in Ireland in the period 1990 to 2023 and projected emissions of these pollutants for 2030[31]. The key findings of the report with respect to assessment of targets are:

- Ireland is compliant with current and future emission reduction commitments for ammonia (NH_3), non-methane volatile organic compounds (NMVOC), sulphur dioxide (SO_2), nitrogen
- oxides (NO_x) and fine particulate matter ($PM_{2.5}$)
- Ammonia emissions are projected to be in compliance out to 2030
- An adjustment to NMVOC emissions is required in order to meet the required emission reduction commitment made in 2023.

The Proposed Project therefore represents an opportunity to further harness Ireland's significant renewable energy resources, with valuable benefits to air quality and in turn to human health. The consumption of fossil fuels for energy results in the release of particulates, sulphur dioxide and nitrogen dioxide to the air. The use of wind energy, by providing an alternative to electricity derived from coal, oil or gas-fired power stations, results in emission savings of carbon dioxide (CO_2), oxides of nitrogen (NO_x), and sulphur dioxide (SO_2), thereby resulting in cleaner air and associated positive health effects.

Whilst there is the potential for minor emissions to be generated from the construction, operational and decommissioning phases of the Proposed Project, mitigation measures will be implemented at this site to reduce the impact from dust and vehicle emissions, which are discussed in Section 10.3 below

10.1.5.1.1 *Clean Air Strategy 2023*

Ireland's Clean Air Strategy 2023[32] sets out the detail of seven strategic frameworks that will be used to ensure that air quality continues to improve (Figure 10-1). The aims of these key strategic frameworks are:

- To set the appropriate targets and limits to ensure continuous improvements in air quality across the country and to deliver health benefits for all.
- To ensure the integration of clean air considerations into policy development across Government.
- To increase the evidence base that will help Ireland to continue to evolve it's understanding of the sources of pollution and their impacts on health, in order to address them more effectively.
- To enhance regulation required to deliver improvements across all pollutants.
- To improve the effectiveness of our enforcement systems.
- To promote and increase awareness of the importance of clean air, and the links between cleaner air and better health.
- To develop the additional targeted/specific policy measures as required to deal with national or local air quality issues.

Since the publication of the *Clean Air Strategy 2023*, the *Clean Air Strategy for Ireland Second Progress Report 2025*[33] was released. This report detailed the significant progress that has been made on the actions in the strategy since its publication in April 2023. The key takeaways that have been implemented since the publication of the strategy include the operational use of the Air Pollution Act 1987 (Solid Fuels), please note, while it is too early to say the exact impact that these regulations have had on air quality, initial indications from the EPA are that there have been significant air quality

[31] Environmental Protection Agency (EPA). (2025). Ireland's Air Pollutant Emissions 1990–2030. <https://www.epa.ie/publications/monitoring–assessment/climate-change/air-emissions/EPA-Air-Pollutant-Final-Report.pdf>

[32] *Rialtas na hÉireann Clean Air Strategy April 2023. Available at: <https://assets.gov.ie/static/documents/clean-air-strategy.pdf>*

[33] *Clean Air Strategy For Ireland Progress Report 2025, Available at: https://assets.gov.ie/static/documents/2025_06_17_CAS_Progress_Report.pdf*

improvements made in areas prone to burning solid fuels. The *Clean Air Strategy 2023* saw a push for the submission of Ireland's second National Air Pollution Control Programme, which was completed in May 2024, and the development of new public awareness campaigns. The *Clean Air Strategy 2023* has furthermore increased the frequency and financial supports given to local authorities to conduct sulphur testing[34].[35].

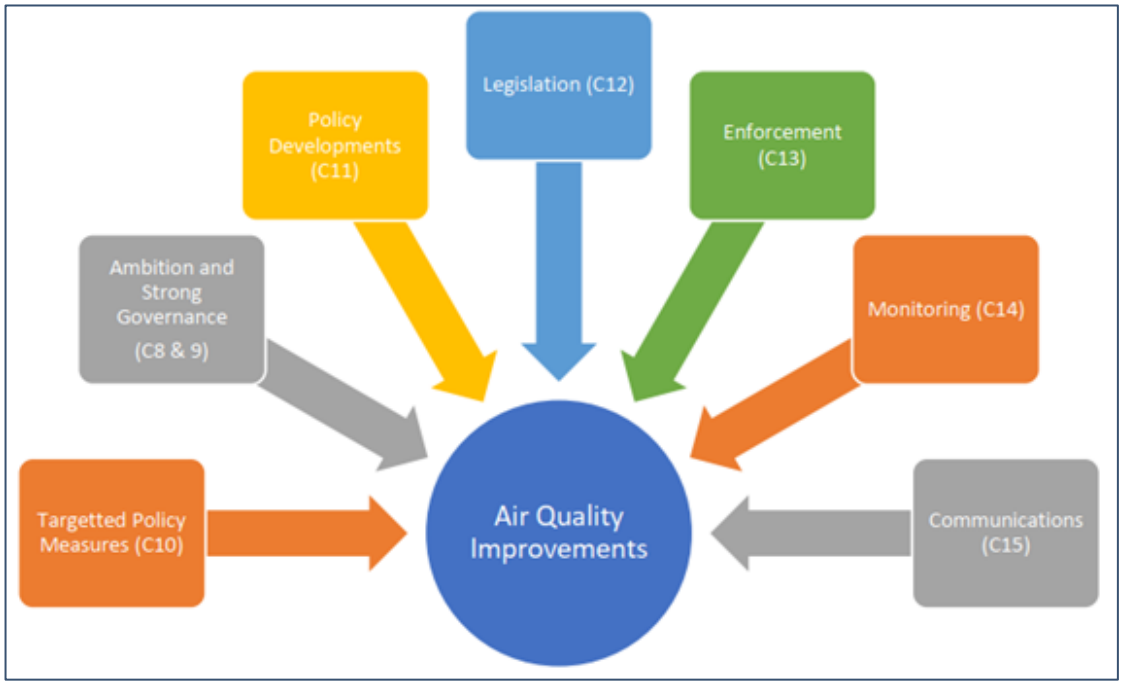

Figure 10-1 Seven Strategic Frameworks for Air Quality, with associated chapters in brackets. Reproduced as Figure 1 from Clean Air Strategy 2023

Chapter 11 of the Clean Air Strategy discusses Air Quality Policy Development. The chapter discusses energy policy and acknowledges how the State's accelerated transition to renewable electricity will be critical to successfully meeting the ambitious renewable energy and greenhouse gas emission reduction targets outlined in the European Green Deal and Ireland's Climate Action Plan 2023, as well as to protecting against security of supply risks and removal of fossil fuels from power generation. Wind (offshore and onshore) and solar energy will be the leading cost-effective technologies to achieve our energy and emissions targets, as well as displacing emissions in other sectors, including household heating and vehicle transport. In the Clean Air Strategy, the Climate Action Plan 2023 is referenced, while Climate Action Plan 2025 is currently the latest revision. The targets of the Climate Action Plan 2025 and the Green Deal are to deliver net-zero GHG emissions by 2050 and reduce GHG emissions to at least 55% by 2030, compared to 1990 levels.

10.1.6 Methodology

The assessment of the development footprint of the Proposed Project, within this EIAR Chapter, is based on the maximum potential footprint for all of the infrastructural elements. This precautionary approach is taken as the assessment of the maximum development footprint will, in the absence of mitigation measures, give rise to the greatest potential for significant effects. Should the development footprint be less than the maximum, the potential for significant effects will also be reduced.

[34] *Clean Air Strategy For Ireland First Progress Report 2024. Available at: https://assets.gov.ie/static/documents/clean-air-strategy-for-ireland-first-progress-report.pdf*
[35] *Clean Air Strategy For Ireland First Progress Report 2024. Available at: <https://assets.gov.ie/static/documents/clean-air-strategy-for-ireland-first-progress-report.pdf>*

10.1.6.1 Air Quality Zones

The air quality zone for the Site was selected, followed by a review of EPA collated baseline air quality data namely Sulphur Dioxide (SO_2), Particulate Matter (PM_{10}), Nitrogen Dioxide (NO_2), Carbon Monoxide (CO) and Ozone (O_3) for the selected air quality zone to determine the representative levels of such emissions for the Proposed Project.

The EPA has designated four Air Quality Zones for Ireland:

- Zone A: Dublin City and Environs
- Zone B: Cork City and Environs
- Zone C: 16 urban areas within population greater than 15,000
- Zone D: Remainder of the country

These zones were defined to meet the criteria for air quality monitoring, assessment and management as described in the CAFE Directive. The Site lies within Zone D see Figure 10-2, which represents rural areas located away from large population centres.

500000
520000
540000
560000
580000
560000
540000

Cork City
Kealkill
Bantry
Dunmanway

Lough Leane
Castlelough
Killarney National Park
Shronedarragh
Millstreet
Beennamweel West
Courtbrack
Ardamadane
Ballyvourney
Kilgarvan
Macroom
Nadrid
Coolyduff
Kenmare
Farran
Tullig More
Farnahoe
Knocknagarrane
Kinsale
Glanduff
Drimoleague
Toughbaun
Durrus
Clonakilty
Leap
Downeen
Cork Road
Rosscarbin
Castletownshend

N22 N71 N20 R579 R582 R619 R584 R585 R587 R590 R588 R637 R602 R591 R592

0 10 20 km

Map Legend

EIAR Site Boundary

Air Quality Zones

- ZoneA
- ZoneB
- ZoneC
- ZoneD

SITE LOCATION - NOT TO SCALE

Drawing Title
Air Quality Zones Surrounding the Site

Project Title
Maughanaclea Renewable Energy Development

Project No.	Drawing No.	Scale
240225	Figure 10-2	1:232,000
Drawn By	Checked By	Date
SOR	RK	02/03/2026

MKO
Email: info@mkoireland.ie/ Website: www.mkoireland.ie

10.1.6.2 Air Quality Data Review

The EPA publishes Air Monitoring Station Reports for monitoring locations in all four Air Quality Zones. The most recent report on air quality in Ireland, '*Air Quality in Ireland 2024*' was published by the EPA in 2025[36]. The EPA reports provide SO_2 PM_{10}, NO_2 and O_3 concentrations for areas in Zone D. The '*Air Quality in Ireland 2024*' report published by the EPA in 2025 provides concentrations for Zone D CO concentrations. These are detailed in Section 10.2 Baseline Air Quality below.

10.1.6.3 Dust

The Institute of Air Quality Management in the UK (IAQM) guidance document '*Guidance on the Assessment of Dust from Demolition and Construction*' (2024)[37] was considered in the dust impact assessment. The guidance document outlines an assessment method for predicting the impact of dust emissions from construction activities based on the scale and nature of the works and the sensitivity of the area to dust impacts. This methodology has been used to predict the likely risk of dust as a result of the construction phase works, operational phase activities and decommissioning phase. The use of UK guidance is considered best practice in the absence of applicable Irish guidance. The major dust generating activities are divided into four types within the IAQM guidance (2024) to reflect their different potential impacts. These are:

- Demolition (There are no demolition works required for any phase of the Proposed Project);
- Earthworks;
- Construction;
- Trackout[38].

The magnitude of dust generating activities is divided into 'Large', 'Medium' or 'Small' scale depending on the nature of the activities involved. The magnitude of each activity is combined with the overall sensitivity of the area to determine the risk of dust impacts from site activities. IAQM (2024) guidance provides example definitions for the scale of the activities, and these are applied for this development as outlined in Table 10-5.

Table 10-5 Description of magnitude for nature of activities IAQM 2024 Guidance

	Large	Medium	Small
Demolition	Total building volume >75,000 m^3, potentially dusty construction material (e.g. concrete), on-site crushing and screening, demolition activities >12 m above ground level	Total building volume 12,000 m^3 – 75,000 m^3, potentially dusty construction material, demolition activities 6-12m above ground level	Total building volume <12,000 m^3, construction material with low potential for dust release (e.g. metal cladding or timber), demolition activities <6 m above ground, demolition during wetter months

[36] *Environmental Protection Agency: Air Quality in Ireland 2024. Available at : https://www.epa.ie/publications/monitoring-assessment/air/EPA-Air-Quality-in-Ireland-Report-2024-INTERACTIVE.pdf*
[37] *Institute of Air Quality Management (IAQM). (2024). Guidance on the Assessment of Dust from Demolition and Construction. <https://iaqm.co.uk/wp-content/uploads/2013/02/Construction-Dust-Guidance-Jan-2024.pdf >*
[38] *The transport of dust and dirt from the construction / demolition site onto the public road network, where it may be deposited and then re-suspended by vehicles using the network. This arises when Heavy Goods Vehicles (HGVs) leave the construction / demolition site with dusty materials, which may then spill onto the road, and/or when HGVs transfer dust and dirt onto the road having travelled over muddy ground on site*

	Large	Medium	Small
Earthworks	Large: Total site area >110,000 m^2, potentially dusty soil type (e.g. clay, which will be prone to suspension when dry due to small particle size), >10 heavy earth moving vehicles active at any one time, formation of bunds >6m in height	Total site area 18,000 m^2 – 110,000 m^2, moderately dusty soil type (e.g. silt), 5-10 heavy earth moving vehicles active at any one time, formation of bunds 3m - 6m in height	Total site area <18,000 m^2, soil type with large grain size (e.g. sand), <5 heavy earth moving vehicles active at any one time, formation of bunds <3 m in height
Construction	Total building volume >75,000 m^3, on site concrete batching, sandblasting	Total building volume 12,000 m^3 – 75,000 m^3, potentially dusty construction material (e.g. concrete), on site concrete batching	Total building volume <12,000 m^3, construction material with low potential for dust release (e.g. metal cladding or timber)
Trackout	>50 HDV (>3.5t) outward movements in any one day, potentially dusty surface material (e.g. high clay content), unpaved road length >100 m	20-50 HDV (>3.5t) outward movements in any one day, moderately dusty surface material (e.g. high clay content), unpaved road length 50 m – 100 m	<20 HDV (>3.5t) outward movements in any one day, surface material with low potential for dust release, unpaved road length <50 m
	Note: A vehicle movement is a one-way journey. i.e. from A to B and excludes the return journey. HDV movements during a construction project vary over its lifetime, and the number of movements is the maximum not the average		

The earthwork requirements as outlined in Appendix 4-2: Peat and Spoil Management Plan of this EIAR, results in the classification of the Proposed Wind Farm as 'Large' for Earthworks and Construction activities. The Grid Connection falls under the classification of 'Medium' for Earthworks and Construction due to the lower volumes of construction material required. The number of heavy-duty vehicle movements per day, as outlined in Section 15.1 in Chapter 15 Material Assets of this EIAR, results in the classification of the Proposed Wind Farm site as 'Large' and the Proposed Grid Connection as 'Medium' for Trackout activities.

The magnitude of each activity is combined with the overall sensitivity of the area to determine the risk of dust impacts from site activities.

10.1.6.3.1 *Defining the Sensitivity of the Area*

For the purposes of this assessment, high sensitivity receptors are residential properties and dust sensitive ecological habitats. Commercial properties and places of work are regarded as medium

sensitivity while low sensitivity receptors are places where people are present for short periods or do not expect a high level of amenity[39].

The IAQM (2024) guidance has outlined three types of effects to be considered:

- Sensitivities of People to Dust Soiling Effects
- Sensitivities of People to the Health Effects of PM_{10}
- Sensitivities of Receptors to Ecological Effects

Sensitivities of People to Dust Soiling Effects

Dust soiling effects can occur for a distance of 250m from works areas, but the majority of deposition occurs within the first 50m (IAQM, 2024). Table 10-6 below identifies the sensitivity of an area to dust soiling effects on people and their properties, relative to different receptor sensitivities.

Table 10-6 Sensitivity of the Area to Dust Soiling Effects on People and Property. Guidance on the Assessment of Dust from Demolition and Construction (IAQM, 2024)

Receptor Sensitivity	Number Of Receptors	Distance from source (m)			
		<20	<50	<100	<250
High	>100	High	High	Medium	Low
	10-100	High	Medium	Low	Low
	1-10	Medium	Low	Low	Low
Medium	>1	Medium	Low	Low	Low
Low	>1	Low	Low	Low	Low

Sensitivities of People to the Health Effects of PM_{10}

When assessing sensitivity of people to the health effects of PM_{10}, the IAQM (2024) guidance recommends the use of sensitivities bands based on whether or not the receptor is likely to be exposed to elevated concentrations of PM_{10} over a 24-hour period. Table 10-7 below identifies the sensitivity of an area to human health effects of PM_{10}, relative to different receptor sensitivities. As indicated in Section 10.1.6.1 above, the Proposed Project is situated in Zone D. According to the 2021 EPA baseline air quality data[40]; the average PM_{10} for Zone D is 14µg/m^3. Therefore, the only annual PM_{10} concentration categorised in the IAQM 2024 Guidance relevant to the Proposed Project is the minimum concentration of <24µg/m^3.

[39] *Please see Section 7.3 (pg. 18) of the 2024 IAQM Guidance on the assessment of dust from demolition and construction (https://iaqm.co.uk/wp-content/uploads/2013/02/Construction-Dust-Guidance-Jan-2024.pdf) for full definitions of high, medium, and sensitive receptors for each of the three types of effects being considered*

[40] https://www.epa.ie/resources/charts–data/air/air-quality–pm10.php

Table 10-7 Sensitivity of the Area to Human Health Impacts. Guidance on the Assessment of Dust from Demolition and Construction (IAQM, 2024)

Receptor Sensitivity	Annual Mean PM_{10} concentration	Number Of Receptors	Distance from source (m)			
			<20	<50	<100	<250
High	>32 µg/m^3	>100	High	High	High	Medium
		10-100	High	High	Medium	Low
		1-10	High	Medium	Low	Low
	28-32 µg/m^3	>100	High	High	Medium	Low
		10-100	High	Medium	Low	Low
		1-10	High	Medium	Low	Low
	24-28 µg/m^3	>100	High	Medium	Low	Low
		10-100	High	Medium	Low	Low
		1-10	Medium	Low	Low	Low
	<24 µg/m^3	>100	Medium	Low	Low	Low
		10-100	Low	Low	Low	Low
		1-10	Low	Low	Low	Low
Medium	>32 µg/m^3	>10	High	Medium	Low	Low
		1-10	Medium	Low	Low	Low
	28-32 µg/m^3	>10	Medium	Low	Low	Low
		1-10	Low	Low	Low	Low
	24-28 µg/m^3	>10	Low	Low	Low	Low
		1-10	Low	Low	Low	Low
	<24 µg/m^3	>10	Low	Low	Low	Low
		1-10	Low	Low	Low	Low
Low	-	≥1	Low	Low	Low	Low

Sensitivities of Receptors to Ecological Effects

Dust deposition due to demolition, earthworks, construction and trackout has the potential to physically and chemically affect sensitive habitats and plant communities. Table 10-8 below identifies the sensitivity of an area to ecological impacts.

Table 10-8 Sensitivity of the Area to Ecological Impacts. Guidance on the Assessment of Dust from Demolition and Construction (IAQM, 2024)

Receptor Sensitivity	Distance from source (m)	
	<20	<50
High	High	Medium
Medium	Medium	Low
Low	Low	Low

A total of 5 no. ecological receptors and habitats were identified within the Proposed Wind Farm site, which as described by the IAQM 2024 Guidance, may be sensitive to dust. These ecologically sensitive habitats and their sensitivity designations are listed below:

- Wet Heath (HH3) – High sensitivity
- Upland Blanket Bog (PB2)- High sensitivity
- Eroding Upland River (FL1) -Medium sensitivity
- Dystrophic Lakes (FL1) -High sensitivity
- Kerry Slug -High sensitivity

The Proposed Grid Connection involves 11 no. watercourse crossings (All EPA Mapped), including the crossing of the Owngar (Cork) River (Medium sensitivity) and the Bandon River (high sensitivity),

Certain sections of the Proposed Grid Connection run parallel to the boundary of the Bandon River SAC along the L4615 and R587. The Proposed Grid Connection traverses the Bandon River SAC at a bridge crossing over the Bandon River along the R586, just outside Dunmanway. In addition, the Bandon Valley South of Dunmanway pNHA is located to the south of the same bridge along the R586, overlapping with the Bandon River SAC, and parallel to the Proposed Grid Connection. The

The above identified sensitive ecological receptors have been assessed within Chapter 6: Biodiversity, Chapter 9: Hydrology and Hydrogeology, and the Natura Impact Statement (NIS). These receptors sensitivity to dust are assessed below in Section 10.3.2.3.

10.1.6.3.2 Defining the Risk of Impacts

The dust emission magnitude is combined with the sensitivity of the area to determine the risk of impacts with no mitigation applied. The matrix in Table 10-9 provide a method of assigning the level of risk for each activity.

Table 10-9 Risk of Dust Impacts – Earthworks, Construction, and Trackout (IAQM, 2024)

Sensitivity of Area	Dust Emission Magnitude		
	Large	Medium	Small
High	High Risk	Medium Risk	Low Risk
Medium	Medium Risk	Medium Risk	Low Risk
Low	Low Risk	Low Risk	Negligible

EPA classification terminology as presented in Table 1-2 of Chapter 1 of this EIAR (and in Table 10-10 below), have been correlated with the equivalent risk rating from Table 10-10 below.

Table 10-10 Correlation of Impact Classification Terminology (EPA, 2022) to Risk Rating

EPA Term	EPA Description	Risk Rating
Imperceptible	An effect capable of measurement but without significant consequences	Negligible
Slight	An effect which causes noticeable changes in the character of the environment without affecting its sensitivities	Low
Moderate	An effect that alters the character of the environment in a manner consistent with existing and emerging baseline trends	Medium
Significant	An effect, which by its character, magnitude, duration or intensity alters a sensitive aspect of the environment	High

The risk of dust impacts for the Earthworks, Construction and Trackout activities from the Proposed Project is set out in Section 10.3 below.

10.2 Baseline Air Quality

The air quality in the vicinity of the Proposed Project is typical of that of rural areas of Ireland, i.e., Zone D. Prevailing south-westerly winds carry clean, unpolluted air from the Atlantic Ocean onto the Irish mainland. The EPA publishes Air Monitoring Station Reports for monitoring locations in all four Air Quality Zones. The most recent report on air quality in Ireland, '*Air Quality in Ireland 2024'* was published by the EPA in September 2025. The EPA reports provide SO_2, PM_{10}, NO_2 and O_3 concentrations for areas in Zone D. These are detailed in the following tables.

10.2.1.1 Sulphur Dioxide (SO_2)

The Sulphur dioxide data from Cork Harbour, Kilkitt, Askeaton, and Edenderry in 2024 is presented in Table 10-11.

Table 10-11 Sulphur Dioxide Data for Zone D Sites in 2024

Parameter	Measurement
Annual Mean	2.8 µg/m^3
Hourly values > 350	0.0
Hourly max (Average)	36.2 µg/m^3
Daily values > 125	0
Daily max (Average)	14.7 µg/m^3

During the EPA monitoring period there were no exceedances of the daily limit values for the protection of human health. As can be observed from Table 10-11 the average maximum hourly value recorded during the assessment period was 36.2 µg/m^3. In addition, there were no exceedances of the annual mean limit for the protection of ecosystems. It is expected, based on professional judgement and the rural setting within which the Site is located, that SO_2 values at the Site are similar or lower than those recorded for the Zone D sites above.

10.2.1.2 Particulate Matter (PM_{10})

Sources of particulate matter include vehicle exhaust emissions, dust from soil and road surfaces, construction works and industrial emissions. The '*Air Quality in Ireland 2024'* report provides annual mean PM_{10} concentration for nineteen Zone D towns: Tipperary Town, Roscommon Town, Malin Head, Macroom, Longford, Kilkitt, Killarney, Ballinasloe, Enniscorthy, Edenderry, Cork Mallow, Cobh Carrignafoy, Claremorris, Cavan, Castlebar, Carrick-on-Shannon, Carnsore, Askeaton and Birr. Particulate matter (PM_{10}) data for 2024 is presented in **Error! Reference source not found.**12.

Table 10-12 Average Particulate Matter (PM_{10}) Data for Zone D Sites in 2023

Parameter	Measurement
Annual Mean	11.5 µg/m^3
% Data Capture (Average)	94.0.%
Values > 50 ug/m^3	Max 7 (Longford)
Daily Max (Average)	49.5 µg/m^3

The daily limit of 50 µg/m^3 for the protection of human health was exceeded on 40 days, which is greater than the PM_{10} daily limit for the protection of human health of a max 35 days >50 µg/m^3 applicable from 2005. The greatest number of exceedances occurred at Longford where the PM_{10} daily limit was exceeded on 7 no. occasions. In the *'Air Quality in Ireland 2024'* report, it notes that there were breaches in the levels of particulate matter (PM), which *"in Ireland, mainly comes from the burning of solid fuel, such as coal, peat, and wood to heat our homes".* It is expected, based on professional judgement and the rural setting within which the Site is located, that PM_{10} values at the Site are similar or lower than those recorded for the Zone D sites above.

10.2.1.3 Nitrogen Dioxide (NO_2)

Nitrogen dioxide data for Emo Court, Birr, Castlebar, Carrick-on-Shannon, Kilkitt, Cork Mallow and Edenderry, in 2024 is presented in Table 10-13.

Table 10-13 Average Nitrogen Dioxide Data for Zone D Sites in 2023

Parameter	Measurement
Annual Mean (Average)	8.3 µg/m^3
NO_2 Values >200	0
Values > 140 (UAT)	0
Values >100 (LAT)	4
Hourly Max. (Average)	67.6 µg/m^3

The annual NO_2 value was below the annual mean limit value for the protection of human health of 40 µg/m^3. The lower assessment threshold of 100 µg/m3 was exceeded once during the monitoring period in Edenderry, Co. Offaly while the upper assessment threshold of 140 µg/m^3 was not exceeded during the monitoring period, The 18 days limit was also not exceeded during the monitoring period. In 2024, no other monitoring locations in Zone D had exceedances in the lower and upper assessment thresholds of 100 and 140 µg/m^3. The average hourly max. NO_2 value of 68.6 µg/m^3 measured during the monitoring period was below the hourly max threshold of 200 µg/m^3. It is expected, based on

professional judgement, that NO_2 values at the Site are similar or lower than those recorded for the Zone D sites above.

10.2.1.4 Carbon Monoxide (CO)

Due to operational issues at the Birr station, there is no 2024 data. The baseline air quality will use the 2023 data. The '*Air Quality in Ireland 2023*'[41] report provides rolling 8-hour carbon monoxide concentrations for Birr, a Zone D site. Carbon Monoxide data for 2023 is presented in Table 10-14.

Table 10-10 Carbon Monoxide Data for Birr – Zone D Site in 2023.

Parameter	Measurement
Annual Mean	0.6 mg/m^3
Median	0.6 mg/m^3
% Data Capture	99.8%
Values > 10	0
Max	2.2 mg/m^3

The average concentration of carbon monoxide was 0.6 mg/m^3. The carbon monoxide limit value for the protection of human health is 10,000 µg/m^3 (or 10 mg/m^3). On no occasions were values in excess of the 10 mg limit value set out in Directive 2008/50/EC. It is expected, based on professional judgement and the rural setting within which the Site is located, that the CO value at the Site are similar or lower than those recorded for the Zone D site above.

10.2.1.5 Ozone (O_3)

The '*Air Quality in Ireland 2024'* report provides rolling 8-hour ozone concentrations for eight Zone D sites, Emo Court, Kilkitt, Carnsore Point, Mace Head, Castlebar, Cork Mallow, Valentia and Malin Head. Ozone (O_3) data for 2024 is presented in Table 10-15. As can be observed from Table 10-15 there were no exceedances of the maximum daily eight-hour mean limit of 120 µg/m^3. The CAFE Directive stipulates that this limit should not be exceeded on more than 25 days per calendar year averaged over 3 years. It is expected, based on professional judgement and the rural setting within the Site is located, that O_3 values at the Site are similar or lower than those recorded for the Zone D sites below.

Table 10-15 Average Ozone Data for Zone D Sites in 2023.

Parameter	Measurement
Annual Mean	58.9µg/m^3
Median	59.9 µg/m3
% Data Capture	84.1%
No. of days > 120 µg/m^3	0 days

[41] *Air Quality in Ireland Report 2023. Available at:* https://www.epa.ie/publications/monitoring–assessment/air/air-quality-in-ireland-2023.php

10.2.1.6 Dust

There are no statutory limits for dust deposition in Ireland. However, EPA guidance suggests that a deposition of 10 mg/m^2/hour can generally be considered as posing a soiling nuisance. This equates to 240 mg/m^2/day. The EPA recommends a maximum daily deposition level of 350 mg/m^2/day when measured according to the TA Luft Standard 2002. This limit value can also be implemented with regard to dust impacts from construction activities associated with the Proposed Project.

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, etc., and the weather. In addition, dust dispersion is influenced by external factors such as wind speed and direction and/or periods of dry weather. Construction dust has the potential to be generated from on-site activities such as excavation and backfilling. Construction traffic movements also have the potential to generate dust as they travel along the haul route.

The potential dust-related effects on local air quality and the relevant associated mitigation measures during the construction, operational and decommissioning phases of the Proposed Project are presented in Sections 10.3 below.

10.3 Likely and Significant Impacts and Associated Mitigation Measures

10.3.1 'Do-Nothing' Effect

If the Proposed Project were not to proceed, the Site will continue to function as it does at present, with no changes to the current land-use and air quality. The impact of this is considered neutral in the context of the EIAR. If the Proposed Project were not to proceed, the opportunity to reduce emissions of carbon dioxide, oxides of nitrogen (NO_x), and sulphur dioxide (SO_2) to the atmosphere would be lost due to the continued dependence on electricity derived from coal, oil and gas-fired power stations, rather than renewable energy sources, such as the Proposed Wind Farm. This will result in an indirect negative impact on air quality nationally, regionally and locally.

Furthermore, the opportunity to capture an even greater part of County Cork's valuable renewable energy resource would be lost, as would the opportunity to further contribute to meeting Government and EU targets for the production and consumption of electricity from renewable resources and the reduction of greenhouse gas emissions.

Furthermore, as this application includes a Biodiversity Management and Enhancement Plan (Appendix 6-4) to be implemented during the development's operation, the opportunity to enhance the Site for biodiversity, at a local scale, would also be lost.

10.3.2 Construction Phase

Within this section, the impact will consider the Proposed Project i.e. both the Proposed Wind Farm and the Proposed Grid Connection, as a whole. Where the Proposed Wind Farm and the Proposed Grid Connection are required to be considered separately, this is identified within the assessment

10.3.2.1 Exhaust Emissions: Construction of Proposed Project Infrastructure

Pre-Mitigation Impact

Proposed Wind Farm site

Exhaust emissions associated with vehicles and plant such as NO_2, Benzene and PM_{10} will arise as a result of construction activities.

The construction of the Proposed Wind Farm (as outlined in Chapter 4 of this EAIR) will require the operation of construction machinery and plant. This potential effect will not be significant and will be restricted to the duration of the construction phase and localised to works areas. This therefore constitutes a short-term, slight, negative effect in terms of air quality. Mitigation measures in relation to exhaust emissions are presented below.

Proposed Grid Connection

The construction of the Proposed Grid Connection connecting the proposed 110kV onsite substation to the existing Dunmanway 110kV substation in the townland of Ballyhalwick, Co. Cork will require the use of construction machinery, thereby giving rise to exhaust emissions such as NO_2, Benzene and PM_{10}, as already outlined for the Proposed Wind Farm site activities. This is a short-term, slight, negative effect that is not significant, and will be reduced through use of the best practice mitigation measures as presented below.

Mitigation & Monitoring Measures for the Proposed Project

- Proposed Project construction staff will be trained how to inspect and maintain construction vehicles and plant to ensure good operational order while onsite, thereby minimising any emissions that arise. The Site Supervisor/Construction Manager produce and follow a site inspection and machinery checklist which will be followed and updated if/when required.
- All plant and materials vehicles shall be stored in dedicated areas (onsite). Machinery will be switched off when not in use.
- Turbines and construction materials will be transported to the Site on specified routes only, unless otherwise agreed with the Planning Authority. Please see Chapter 15: Material Assets for details.
- Areas of excavation will be kept to a minimum, and stockpiling will be minimised by coordinating excavation, spreading and compaction.
- The expected waste volumes generated onsite are unlikely to be large enough to warrant source segregation at the Site. Therefore, all wastes streams generated onsite will be deposited into a single waste skip which will be covered. This waste material will be transferred to a licensed /permitted Materials Recovery Facility (MRF) by a fully licensed waste contractor where the waste will be sorted into individual waste streams for recycling, recovery or disposal. The MRF facility will be local to the Site to reduce the emissions associated with vehicle movements.
- Aggregate materials for the construction of the Proposed Wind Farm infrastructure will be predominantly sourced onsite.
- A Construction and Environmental Management Plan (CEMP) will be in place throughout the construction phase (see Appendix 4-3).

Residual Effect

With the implementation of the above measures for the construction phase, residual effects on air quality from exhaust emissions associated with construction activities and machinery are considered to be temporary-to-short-term, slight, negative effect that is not significant.

Significance of Effects

The effects on air quality from exhaust emissions arising from the construction of Proposed Project infrastructure during the construction phase of the Proposed Project are considered to be Not Significant.

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10.3.2.2 Exhaust Emissions: Transport to and from the Site

Pre-Mitigation Impact

Proposed Wind Farm site

The transport of turbine components, supporting infrastructure materials, construction and staff vehicles, and waste removal vehicles to/from the Proposed Wind Farm site(which will occur on specified routes only, refer to Section 4.5 of Chapter 4 of this EIAR),, the departure of empty vehicles and/or minor waste volumes (see accompanying CEMP Appendix 4-3) from the Site and daily staff movements, will give rise to exhaust emissions associated with the transport vehicles. This constitutes a short-term, slight, negative effect in terms of air quality, which is not significant. Mitigation measures in relation to exhaust emissions are presented below.

Proposed Grid Connection

The transport of construction vehicles, aggregate material, waste removal vehicles and construction staff to/from the Site for the construction of the Proposed Grid Connection (which will occur on specified routes only, refer to Section 4.6 of Chapter 4 Description of this EIAR), the departure of empty vehicles and/or minor waste volumes (please see accompanying CEMP Appendix 4-3) from the Site and daily staff movements, will give rise to exhaust emissions associated with the transport vehicles. This constitutes a short-term, slight, negative effect in terms of air quality, which is not significant. Mitigation measures in relation to exhaust emissions are presented below.

Mitigation and Monitoring Measures

- Measures listed in section 10.3.2.1 above pertaining to exhaust emissions will be implemented for the transportation of vehicles to and from the Site.
- Aggregate materials for the construction of Site access tracks and all associated infrastructure will all be locally sourced where possible, which will further reduce potential emissions.
- Turbines and construction materials will be transported to the Site on specified haul routes only.
- The expected waste volumes generated onsite are unlikely to be large enough to warrant source segregation at the Site. Therefore, all wastes streams generated onsite will be deposited into a single waste skip which will be covered. Waste material will be transferred to a licensed /permitted MRF by a fully licensed waste contractor where the waste will be sorted into individual waste streams for recycling, recovery or disposal.
- The MRF facility will be local to the Site to reduce the emissions associated with vehicle movements.
- A CEMP will be in place throughout the construction phase (see Appendix 4-3).

Residual Effect

Following implementation of the above mitigation measures, residual effects from exhaust emissions arising from transportation activities will have a short-term, imperceptible, negative effect on air quality.

Significance of Effects

The effects on air quality from exhaust emissions arising from transportation activities during the construction phase of the Proposed Project are considered to be Not Significant.

10.3.2.3 Dust Emissions: Construction of Proposed Project Infrastructure

Pre-Mitigation Impact

Proposed Wind Farm site

The construction of the Proposed Wind Farm (as outlined in Chapter 4 of this EAIR) will give rise to dust emissions. In order to accommodate the delivery of turbine components, accommodation works will be required at the proposed new site entrance along the R585 regional road. Construction activities associated with the accommodation works will give rise to localised dust emissions.

It is intended to obtain the majority of materials for the construction of the Proposed Wind Farm from the 4 no. proposed onsite borrow pits, where an estimated 170,000m^3 of stone material will be extracted (engineer's specified material may be imported onto the Site should sufficient volumes of suitable material not be encountered during the excavation phase of the proposed infrastructure, to come from local licenced quarries and/or batching plants).

The removal of peat and spoil followed by its transportation and deposition at the peat and spoil management areas during the construction phase will give rise to dust emissions.

The IAQM 2024 Guidance, as discussed in Section 10.1.6.3 above, is used to assess the potential risk to high sensitivity receptors from dust deposition. Dust deposition impacts can occur for a distance of 250m from works areas, but the majority of deposition occurs within the first 50m (IAQM, 2024). The high sensitivity receptors were identified using a constraints mapping process, and detailed and updated planning searches which informed the project sensitive receptor dataset.

The sensitive properties located within the appropriate distance from potential dust emission sources, provided by the IAQM 2024 Guidance, are detailed below and presented in Figure 10-2 below for the Proposed Wind Farm.

- There are 0 no. high-sensitivity receptors located within 20m of the Proposed Wind Farm footprint;
- There are 2 no. high-sensitivity receptors located within 50m of the Proposed Wind Farm footprint;
- There are 3 no. high-sensitivity receptors located within 100m of the Proposed Wind Farm footprint;
- There are 8 no. high-sensitivity receptors located within 250m of the Proposed Wind Farm footprint.

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Map Legend

- EIAR Site Boundary
- High Sensitivity Receptor
- Proposed Wind Farm Infrastruchture
- 250m IAQM Dust Deposition Band
- 100m IAQM Dust Deposition Band
- 50m IAQM Dust Deposition Band
- 20m IAQM Dust Deposition Band

SITE LOCATION - NOT TO SCALE

Drawing Title

IAQM Dust Deposition Bands and Sensitive Receptors – Proposed Wind Farm

Project Title

Maughanaclea Renewable Energy Development

Project No.	Drawing No.	Scale
240225	10-3	1:20,000
Drawn By	Checked By	Date
SOR	RK	25/03/2026

Email: info@mkoireland.ie/ Website: www.mkoireland.ie

Table 10-16 below identifies the sensitivity of the area surrounding the development footprint of the Proposed Wind Farm to dust soiling effects, as described in Section 10.1.6.3 above. As there are no sensitive properties within 50m of the Proposed Wind Farm footprint, the overall sensitivity of the area to dust soiling impacts is considered to be **Low**. For the construction phase of the Proposed Wind Farm, the potential impact from dust emissions is considered to be a short term, slight, negative effect, which is not significant.

Table 10-16 Sensitivity of the Area to Dust Soiling Effects on People and Property. Guidance on the Assessment of Dust from Demolition and Construction (IAQM, 2024)

Receptor Sensitivity	Number Of Receptors	Distance from source (m)			
		<20	<50	<100	<250
High	>100	High	High	Medium	Low
	10-100	High	Medium	Low	Low
	1-10	Medium	Low	Low	Low
Medium	>1	Medium	Low	Low	Low
Low	>1	Low	Low	Low	Low

Table 10-17 below identifies the high sensitivity receptors in the area surrounding the development footprint of the Proposed Wind Farm to the health effects of PM_{10}, as described in Section 10.1.6.3.1 above. The overall sensitivity of the area to human health effects of PM_{10} is considered to be **Low**. As indicated in Section 10.1.6.1 above, the Proposed Project is situated in Zone D. According to the 2021 EPA baseline air quality data[42]; the average PM_{10} for Zone D is 14µg/m^3. Therefore, the only annual PM_{10} concentration categorised in the IAQM 2024 Guidance relevant to the Proposed Project is the minimum concentration of <24µg/m3 (<14 µg/m3 in Scotland).

Table 10-17 Sensitivity of the Area to Human Health Impacts from the Proposed Wind Farm construction works. Guidance on the Assessment of Dust from Demolition and Construction (IAQM, 2024)

Receptor Sensitivity	Annual Mean PM_{10} Concentration	Number Of Receptors	Distance from source (m)			
			<20	<50	<100	<250
High	<24 µg/m^3 (<14 µg/m^3 in Scotland)	>100	Medium	Low	Low	Low
		10-100	Low	Low	Low	Low
		1-10	Low	Low	Low	Low
Medium	<24 µg/m^3 (<14 µg/m^3 in Scotland)	>10	Low	Low	Low	Low
		1-10				
Low	-	≥1	Low	Low	Low	Low

[42] https://www.epa.ie/resources/charts–data/air/air-quality–pm10.php

Table 10-18 below identifies the sensitivity of the receptors to ecological effects in the area surrounding the development footprint of the Proposed Wind Farm. As noted above in Section 10.1.6.3, there are 3 no. sensitive ecological receptors (habitats) within 20m of the Proposed Wind Farm footprint: Wet Heath (Annex I habitat), Upland Blanket Bog (Anex I habitat)and Kerry Slug. While Dystrophic Lakes (FL1) and Upland River (FL1) are noted a possible dust sensitive ecological receptors above, the Proposed Project has been designed maintaining a minimum of 50m buffer from any watercourses, The overall sensitivity of the areas surrounding the development footprint of the Proposed Wind Farm is '**Medium**'. A detailed ecological impact assessment assessing impacts on these ecological receptors during the construction phase (including effects from dust) is contained in Chapter 6: Biodiversity of this EIAR and the NIS.

Table 10-18 Sensitivity of the Proposed Wind Farm to Ecological Impacts. Guidance on the Assessment of Dust from Demolition and Construction (IAQM, 2024)

Receptor Sensitivity	Distance from source (m)	
	<20	<50
High	High	Medium
Medium	Medium	Low
Low	Low	Low

As identified in Section 10.1.6.3 above, the Proposed Wind Farm is classified as 'Large' for Earthworks, Construction and Trackout activities. Therefore, when combined with the sensitivity of the area, using Tables 10-6 to 10-8 above as guidance, the pre-mitigation risk of impacts from the Proposed Wind Farm is summarised in Table 10-19 below.

Table 10-19 Summary Dust Risk Table for Proposed Wind Farm Activities

Potential Impact	Dust Emission Magnitude			
	Demolition	Earthworks	Construction	Trackout
Dust Soiling	N/A	Low Risk	Low Risk	Low Risk
Human Health	N/A	Low Risk	Low Risk	Low Risk
Ecological	N/A	Medium Risk	Medium Risk	Medium Risk

The overall risk of dust emissions impacts with no mitigation applied for the major dust generating activities during the construction phase of the Proposed Wind Farm is **Medium**. Therefore, the potential effects of dust from the construction phase of the Proposed Wind Farm are considered to be equivalent to short-term, moderate negative effect, which is not significant.

Proposed Grid Connection

The construction of the Proposed Grid Connection will give rise to dust emissions. Aggregate materials for the construction of the Proposed Grid Connection will be sourced from locally, licenced quarries and/or batching plants. Please refer to Section 4.9.2 in Chapter 4 for further information.

The number of high sensitivity properties within 250m from the Proposed Grid Connection works areas and their likely risk of dust impacts during the construction works, as highlighted in the IAQM 2024 Guidance discussed above are detailed below and presented in Figure 10-4 below.

- There are 7 no. high sensitivity properties located within 20m from the Proposed Grid Connection footprint;
- There are 37 no. high sensitivity properties located within 50m of the Proposed Grid Connection footprint;;
- There are 62 no. high sensitivity properties located within 100m of the Proposed Grid Connection footprint 1 no. of which are also located within 100m of the Proposed Wind Farm footprint; and,
- There are 120 no. high sensitivity properties located within 250m of the Proposed Grid Connection footprint, (1 no. of which is a participating landowner); 4 no. of which are also located within 250m of the Proposed Wind Farm footprint.

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Map Legend

- EIAR Site Boundary
- High Sensitivity Receptor
- Proposed Grid Connection
- 250m IAQM Dust Deposition Band
- 100m IAQM Dust Deposition Band
- 50m IAQM Dust Deposition Band
- 20m IAQM Dust Deposition Band

SITE LOCATION - NOT TO SCALE

Drawing Title
IAQM Dust Deposition Bands and Sensitive Receptors – Grid Connection

Project Title
Maughanaclea Renewable Energy Development

Project No.	Drawing No.	Scale
240225	10-4	1:45,000
Drawn By	Checked By	Date
SOR	RK	25/03/2026

Email: info@mkoireland.ie/ Website: www.mkoireland.ie

Table 10-20 below identifies the sensitivity of the area surrounding the development footprint of the Proposed Grid Connection to dust soiling effects, as described in Section 10.1.6.3 above. The overall sensitivity of the area to dust soiling effects is **Low**. For the construction phase of the Proposed Grid Connection, the impact from dust emissions is considered to be a short term, slight, negative effect, which is not significant.

Table 10-110 Sensitivity of the Area to Dust Soiling Effects from the Proposed Grid Connection construction works on People and Property. Guidance on the Assessment of Dust from Demolition and Construction (IAQM, 2024)

Receptor Sensitivity	Number Of Receptors	Distance from source (m)			
		<20	<50	<100	<250
High	>100	High	High	Medium	Low
	10-100	High	Medium	Low	Low
	1-10	Medium	Low	Low	Low
Medium	>1	Medium	Low	Low	Low
Low	>1	Low	Low	Low	Low

Table 10-21 below identifies the high sensitivity receptors in the area surrounding the development footprint of the Proposed Grid Connection to the health effects of PM_{10}, as described in Section 10.1.6.3 above. The overall sensitivity of the area to human health effects of PM_{10} is **Low**. As indicated in Section 10.1.6.1 above, the Proposed Project is situated in Zone D. According to the 2021 EPA baseline air quality data[43]; the average PM_{10} for Zone D is 14µg/m^3. Therefore, the only annual PM_{10} concentration categorised in the IAQM 2024 Guidance relevant to the Proposed Project is the minimum concentration of <24µg/m^3 (<14 µg/m^3 in Scotland).

Table 10-121 Sensitivity of the Area to Human Health Impacts from Proposed Grid Connection construction works. Guidance on the Assessment of Dust from Demolition and Construction (IAQM, 2024).

Receptor Sensitivity	Annual Mean PM_{10} Concentration	Number Of Receptors	Distance from source (m)			
			<20	<50	<100	<250
High	<24 µg/m^3 (<14 µg/m^3 in Scotland)	>100	Medium	Low	Low	Low
		10-100	Low	Low	Low	Low
		1-10	Low	Low	Low	Low
Medium	<24 µg/m^3 (<14 µg/m^3 in Scotland)	>10	Low	Low	Low	Low
		1-10				
Low	-	≥1	Low	Low	Low	Low

[43] https://www.epa.ie/resources/charts–data/air/air-quality–pm10.php

Certain sections of the Proposed Grid Connection run parallel to the boundary of the Bandon River SAC along the L4615 and R587. The Proposed Grid Connection traverses the Bandon River SAC at a bridge crossing over the Bandon River along the R586, just outside Dunmanway. In addition, the Bandon Valley South of Dunmanway pNHA is located to the south of the same bridge along the R586, overlapping with the Bandon River SAC, and parallel to the Proposed Grid Connection. The Proposed Grid Connection underground cable route involves 11 no. EPA watercourse crossings, 9 no. of which have connectivity into the Bandon River SAC and have a **High** sensitivity to dust. The remaining 2 no. watercourse crossings cross watercourses that flow into the Ouvane River which flows directly to Bantry Bay and have a **Medium** sensitivity to dust.

For the construction phase of the Proposed Grid Connection, the impact from dust emissions is considered to be a short term, moderate, negative effect, which is not significant. Please note, a detailed ecological impact assessment assessing impacts on these ecological receptors during the construction phase (including effects from dust) is contained in Chapter 6 of this EIAR and the NIS.

Table 10-132 Sensitivity of the Proposed Grid Connection to Ecological Impacts. Guidance on the Assessment of Dust from Demolition and Construction (IAQM, 2024)

Receptor Sensitivity	Distance from source (m)	
	<20	<50
High	High	Medium
Medium	Medium	Low
Low	Low	Low

As identified in Section 10.1.6.3 above, the Proposed Grid Connection is classified as 'Medium' for Earthworks, Construction, and Trackout activities. Therefore, when combined with the sensitivity of the area, using Table 10-9 to **Error! Reference source not found.** above as guidance, the pre-mitigation risk of impacts from the Proposed Grid Connection is summarised in Table 10-23.

Table 10-143 Summary Dust Risk Table for Proposed Grid Connection Activities

Potential Impact	Dust Emission Magnitude			
	Demolition	Earthworks	Construction	Trackout
Dust Soiling	N/A	Low Risk	Low Risk	Low Risk
Human Health	N/A	Low Risk	Low Risk	Negligible
Ecological	N/A	High Risk	High Risk	Negligible

The overall risk of dust emissions impacts with no mitigation applied for the major dust generating activities during the construction phase of the Proposed Grid Connection is **Medium**. Therefore, the potential effects of dust from the construction phase of the Proposed Grid Connection, prior to mitigation being put in place, are considered to be equivalent to a short-term, significant, negative effect, which is not significant.

Mitigation & Monitoring Measures for the Proposed Project

- Sporadic wetting of loose stone surface will be carried out during the construction phase to minimise movement of dust particles to the air. In periods of extended dry

weather, dust suppression may be necessary along haul roads to ensure dust does not cause a nuisance. Water bowser movements will be carefully monitored to avoid, insofar as reasonably possible, increased runoff.

- All plant and materials vehicles shall be stored in dedicated areas within the Site.
- Areas of excavation will be kept to a minimum, and stockpiling will be minimised by coordinating excavation, spreading and compaction.
- Turbines and construction traffic will be transported to the Site on specified haul routes only.
- The agreed haul route road adjacent to the Site will be regularly inspected for cleanliness and cleaned as necessary.
- The roads adjacent to the Site entrances will be checked weekly for damage/potholes and repaired as necessary.
- The transportation of materials from the borrow pit around the Site will be covered by tarpaulin or similar covered vehicles where necessary.
- The transportation of construction materials from locally sourced quarries and/or batching plants for the Proposed Grid Connection to the Site will be covered by tarpaulin where necessary.
- If necessary, excavated material will be dampened prior to transport to the spoil management areas.
- Waste material will be transferred to a licensed/permitted Materials Recovery Facility (MRF) by a fully licensed waste contractor where the waste will be sorted into individual waste streams for recycling, recovery or disposal. The MRF facility will be local to the Proposed Project to reduce the level of emissions associated with vehicle movement.
- A Construction and Environmental Management Plan (CEMP) will be in place throughout the construction phase (see Appendix 4-3). The CEMP includes dust suppression measures.
- Groundworks (i.e., works with potential to create dust) associated with proposed turbines T04 and T14 will be fully supervised by an ECoW. The ECoW will regularly monitor adjacent Annex I habitat for signs of dust deposition or any other habitat degradation.

Residual Effect

With the implementation of the above, the Proposed Project is considered to have a short-term, slight, negative effect on air quality brought about by dust emissions generated during the construction activities, that is not significant.

Significance of Effects

Based on the evaluation above, there will be no significant direct or indirect effects on air quality from dust emissions arising from construction activities during the construction phase of the Proposed Project.

10.3.2.4 Dust Emissions: Transport to and from the Site

Pre-Mitigation Impact

Proposed Wind Farm site

The transport of turbine components, supporting infrastructure materials, construction and staff vehicles, small volume of aggregate material and waste removal vehicles to and from the Proposed Wind Farm site, the departure of empty vehicles and/or minor waste volumes (please see accompanying CEMP Appendix 4-3) from the Proposed Wind Farm site, and daily staff movements

will also give rise to some localised dust emissions during periods of dry weather. This is a short-term slight negative impact, which is not significant. Mitigation measures are presented below.

Proposed Grid Connection

The transport of construction vehicles, aggregate material, waste removal vehicles and construction staff to/from the Site for the construction of the Proposed Grid Connection will also give rise to some localised dust emissions during periods of dry weather. This is a short-term slight negative impact, which is not significant. Mitigation measures are presented below.

Transport to the Proposed Wind Farm site

The IAQM 2024 Guidance states that the routes of construction traffic should also be included in an assessment of dust arising from trackout, and that related construction dust impact increases with respect to the number of movements of HGVs per day, length of unpaved road, distance to receptors and the sensitivity of local receptors.

For the purposes of this assessment of the dust emissions arising from trackout related to the construction of the Proposed Project, the R585 local road, along which the proposed new and existing (to be upgraded) site entrances are located, were scoped in for assessment. Beyond either end of this road, construction traffic will have dispersed in different directions to a degree that there will be no potential for significant effects from trackout related dust emissions. In relation to the turbine delivery route and construction traffic related to the proposed site access along the R585 to the east of the Proposed Wind Farm site, it is considered that the numbers of vehicle movements per day will be low and therefore there will be no potential for significant effects from trackout related dust emissions. The section of the R585, scoped in for assessment, is approximately a 2.8km stretch of regional road that runs in an east-west direction between the northern and southern turbine clusters of the Proposed Wind Farm site.

The IAQM 2024 Guidance as discussed in Section 10.1.6.3 above is used to assess the potential risk to high sensitivity receptors from dust deposition. Dust deposition impacts can occur for a distance of 250m from source (the 2.8km stretch of the R585 and L-8776), but the majority of deposition occurs within the first 50m (IAQM, 2024). The high sensitivity receptors were identified using a constraints mapping process, and detailed and updated planning searches which informed the project sensitive receptor dataset. The sensitive receptors located within the appropriate distance from potential dust emission sources, provided by the IAQM 2024 Guidance, are detailed below and presented in Figure 10-5 below.

- There is 3 no. high sensitivity receptor located within 20m of the identified 2.8km stretch of the R585 and L-8776;
- There are 5 no. high sensitivity receptors within 50m of the identified 2.8km stretch of the R585 and L-8776;
- There are 9 no. high sensitivity receptors within 100m of the identified 2.8km stretch of the R585 and L-8776;
- There are 14 no. high sensitivity receptors within 250m of identified 2.8km stretch of the R585 and L-8776.

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Map Legend

- EIAR Site Boundary
- Local Roads ; L8777 & R585
- High Sensitive Receptor
- 250m IAQM Dust Deposition Band
- 100m IAQM Dust Deposition Band
- 50m IAQM Dust Deposition Band
- 20m IAQM Dust Deposition Band

SITE LOCATION - NOT TO SCALE

Drawing Title

IAQM Dust Deposition Bands and Sensitive Receptors – R585 Local Road Trackout

Project Title

Maughanaclea Renewable Energy Development

Project No.	Drawing No.	Scale
240225	Figure 10-5	1:7,000
Drawn By	Checked By	Date
SOR	RK	05/03/2026

Email: info@mkoireland.ie/ Website: www.mkoireland.ie

Table 10-24 below identifies the sensitivity of the area surrounding the R585 to dust soiling effects from trackout, as described in Section 10.1.6.3 above.

As per the criteria in Table 10-24 below, there is 1 no. high sensitivity receptor within 20m of the R585, and 5 no. high sensitivity receptors within 50m of the R585. The overall sensitivity of the area to dust soiling impacts is considered to be **Medium**.

Table 10-154 Sensitivity of the Area to Dust Soiling Effects on People and Property. Guidance on the Assessment of Dust from Demolition and Construction (IAQM, 2024)

Receptor Sensitivity	Number Of Receptors	Distance from source (m)			
		<20	<50	<100	<250
High	>100	High	High	Medium	Low
	10-100	High	Medium	Low	Low
	1-10	Medium	Low	Low	Low
Medium	>1	Medium	Low	Low	Low
Low	>1	Low	Low	Low	Low

Table 10-25 below identifies the high sensitivity receptors in the area surrounding the R585 to the health effects of PM_{10}, as described in Section 10.1.6.3 above. The overall sensitivity of the area to human health effects of PM_{10} is considered to be **Low**. As indicated in Section 10.2.3.1 above, the Proposed Project is situated in Zone D. According to the 2021 EPA baseline air quality data[44]; the average PM_{10} for Zone D is 14µg/m^3. Therefore, the only annual PM_{10} concentration categorised in the IAQM 2024 Guidance relevant to the Proposed Project is the minimum concentration of <24µg/m^3 (<14 µg/m^3 in Scotland).

Table 10-165 Sensitivity of the Area to Human Health Impacts from the transportation of construction plant and vehicles on the identified 2.8km stretch of the R585 regional road and L8777. Guidance on the Assessment of Dust from Demolition and Construction (IAQM, 2024)

Receptor Sensitivity	Annual Mean PM_{10} Concentration	Number Of Receptors	Distance from source (m)			
			<20	<50	<100	<250
High	<24 µg/m^3 (<14 µg/m^3 in Scotland)	>100	Medium	Low	Low	Low
		10-100	Low	Low	Low	Low
		1-10	Low	Low	Low	Low
Medium	<24 µg/m^3 (<14 µg/m^3 in Scotland)	>10	Low	Low	Low	Low
		1-10				
Low	-	≥1	Low	Low	Low	Low

[44] https://www.epa.ie/resources/charts–data/air/air-quality–pm10.php

As identified in Section 10.1.6.3 above, the Proposed Wind Farm site is classified as 'Large' for Trackout activities, and the Proposed Grid Connection is classified as 'Medium' for Trackout activities. Therefore, when combined with the sensitivity of the area, using Table 10-11 above as guidance, the pre-mitigation risk of impacts from the Proposed Wind Farm and Proposed Grid Connection on the identified 1.6km stretch of the R585 is summarised in Table 10-26 below.

Table 10-176 Summary Dust Risk Table for the identified 3.5km stretch R585 regional road

Potential Impact	Dust Emission Magnitude	
	Trackout (Proposed Wind Farm)	Trackout (Proposed Grid Connection)
Dust Soiling	Low Risk	Low Risk
Human Health	Low Risk	Low Risk
Ecological	N/A	N/A

The overall risk of dust emissions impacts on the identified 2.8km stretch of the R585 and L8777, with no mitigation applied for the major dust generating activities, during the construction phase of the Proposed Wind Farm site and Proposed Grid Connection is **Low**. Therefore, the potential effects of dust from the construction phase of the Proposed Project are considered to be equivalent to short-term, slight, negative effect, which is not significant.

Mitigation and Monitoring Measures

- Sporadic wetting of loose stone surface will be carried out during the construction phase to minimise movement of dust particles to the air. In periods of extended dry weather, dust suppression may be necessary along haul roads to ensure dust does not cause a nuisance. Water bowser movements will be carefully monitored by the ECoW to avoid, insofar as reasonably possible, increased runoff.
- All plant and materials vehicles shall be stored in dedicated areas within the Site.
- Turbines components and construction materials will be transported to the Proposed Wind Farm site on specified haul routes only, as agreed with the local authority.
- Construction material for the Proposed Project will be transported to the Site on specified haul routes only.
- Construction materials for the Proposed Grid Connection will be sourced locally from licenced quarries/and or batching plants.
- The agreed haul route roads adjacent to the Site will be regularly inspected for cleanliness and cleaned as necessary.
- The roads adjacent to the Proposed Wind Farn site entrance will be checked weekly for damage/potholes and repaired as necessary.
- The transport of construction materials around the Site from the nearby quarry facilities will be covered by tarpaulin where necessary.
- Waste material will be transferred to a licensed /permitted Materials Recovery Facility (MRF) by a fully licensed waste contractor where the waste will be sorted into individual waste streams for recycling, recovery or disposal.
- The MRF facility will be local to the Site to reduce the level of emissions associated with vehicle movements.
- A CEMP will be in place throughout the construction phase (see Appendix 4-3).

Residual Effect

Following implementation of mitigation measures as outlined above, residual effects on air quality from dust emissions from traffic movements to and from the Site during the construction phase will have a short-term, imperceptible, negative effect that is not significant.

Significance of Effects

Based on the evaluation above, there will be no significant direct or indirect effects on air quality from dust emissions arising from transportation activities during the construction phase of the Proposed Project.

10.3.3 Operational Phase

10.3.3.1 Exhaust Emissions: Proposed Project Infrastructure

Pre-Mitigation Impact

Proposed Wind Farm site

The operational phase of the Proposed Wind Farm will generate additional traffic to the area in the form of light goods vehicles (LGVs) visiting the Site 1-2 times per day for inspections but on occasion, daily visits by LGVs and HGVs may be required over short periods during maintenance/component replacement activities. The addition of a LGV to the area 1-2 times per day during the operational phase will give rise to a long-term, imperceptible, negative effect on air quality due to exhaust emissions, which is not significant.

The addition of several HGVs on occasion over the 35-year lifetime of the Proposed Project will give rise to a long-term, imperceptible, negative effect that is not significant, due to the localised and intermittent nature of the maintenance.

In addition to the above, the existing agricultural and commercial forestry activities within the Proposed Wind Farm site will continue during the operational phase, and associated machinery will continue to utilise the site as required.

The proposed 110kV onsite substation will be operated and maintained by the Electricity Supply Board (ESB) and Eirgrid. It is anticipated that substation operators will visit the Site 1-2 times per day in LGVs but on occasion, HGVs may be required to visit the Site for maintenance/substation component replacement. On occasion, the removal of hydrocarbons (transformer oil) and waste from substation welfare facilities will be removed from the Site by a licenced waste disposal company. The addition of a LGV to the area 1-2 times per day during the operational phase will give rise to a long-term, imperceptible, negative effect on air quality due to exhaust emissions, which is not significant. The addition of several HGVs on occasion over the 35-year lifetime of the Proposed Project will give rise to a long-term, imperceptible, negative effect on air quality that is not significant.

Proposed Grid Connection

There will be no potential effects on air quality due to exhaust emissions during the operational phase of the Proposed Grid Connection, as all required works will be completed during the construction phase unless required in the event of a fault occurring along the Proposed Grid Connection. It is expected that such instances will be infrequent. During occasions where maintenance is required, short-term works may be required at the location of the fault that could give rise to exhaust emissions. During such times it is considered that the effects on air quality due to exhaust emissions will be negative, temporary and imperceptible, and not significant.

Mitigation and Monitoring Measures

- Any vehicles or plant brought onsite during the operational phase will be maintained in good operational order that comply with the Road Traffic Acts 1961 as amended, thereby minimising any emissions that arise.
- When stationary, delivery and onsite vehicles will be required to turn off engines.
- Waste material will be transferred to a licensed/permitted Materials Recovery Facility (MRF) by a fully licensed waste contractor where the waste will be sorted into individual waste streams for recycling, recovery or disposal.
- The MRF facility will be local to the Site to reduce the emissions associated with vehicle movements.

Residual Effect

Based on the above, the residual effect on air quality from exhaust emissions during the operational phase is a long-term, imperceptible, negative effect that is not significant.

Significance of Effects

Based on the assessment above there will be no significant effects on air quality from exhaust emissions arising during the operational phase of the Proposed Project.

10.3.3.2 Dust Emissions: Proposed Project Infrastructure

Pre-Mitigation Impact

Proposed Wind Farm site

As discussed above in Section 10.3.3.1, the operational phase of the Proposed Wind Farm will generate additional traffic to the area in the form of LGVs 1-2 visits per day and on occasion, daily LGVs and HGVs for short periods if maintenance or component replacement is required. This additional traffic may give rise to dust emissions. This will be a long-term imperceptible negative impact on air quality, which is not significant, due to dust emissions.

As outlined above in Section 10.3.3.1, the permanent 110kV onsite substation will be operated and maintained by the Electricity Supply Board (ESB) and EirGrid. It is anticipated that substation operators will visit the Site 1-2 times per day in LGVs but on occasion, HGVs may be required to visit the Site for maintenance/substation component replacement. On occasion, the removal of hydrocarbons (transformer oil) and waste from substation welfare facilities will be removed from the Site by a licenced waste disposal company. This additional traffic may give rise to dust emissions. This will be a long-term imperceptible negative impact on air quality due to dust emissions.

Proposed Grid Connection

As outlined above in Section 10.3.3.1, there will be no potential effects on air quality during the operational phase of the Proposed Grid Connection, as all required works will be completed during the construction phase unless required in the event of a fault occurring along the Proposed Grid Connection. It is expected that this will be infrequent. During occasions where maintenance is required, short-term works may be required at the location of the fault that could give rise to dust. During such times it is considered that the effects on air quality due to dust emissions will be negative, temporary and imperceptible, and not significant.

Mitigation and Monitoring Measures

- Any vehicles or plant brought onsite during the operational phase will be maintained in good operational order that comply with the Road Traffic Acts 1961 as amended, thereby minimising any dust emissions that arise.
- Waste material will be transferred to a licensed /permitted Materials Recovery Facility (MRF) by a fully licensed waste contractor where the waste will be sorted into individual waste streams for recycling, recovery or disposal.
- The MRF facility will be local to the Site to reduce the emissions associated with vehicle movements.

Residual Effect

Based on the above, the residual effect on air quality from dust emissions during the operational phase is a long-term imperceptible negative effect.

Significance of Effects

Based on the assessment above there will be no significant effects on air quality from dust arising during the operational phase of the Proposed Project.

10.3.3.3 Overall Effects on Air Quality

10.3.3.3.1 *Operational Phase: Air Quality*

Although a long-term imperceptible negative effect on air quality is expected during the operational phase due to exhaust and dust emissions from maintenance vehicles, there will be no net carbon dioxide (CO_2) emissions from the operation of the Proposed Project. By providing an alternative to electricity derived from coal, oil or gas-fired power stations, the Proposed Project will result in emission savings of carbon dioxide (CO_2), oxides of nitrogen (NO_x), and sulphur dioxide (SO_2). The production of renewable energy from the Proposed Project will have a long-term moderate positive effect on air quality due to the offsetting of approximately 44,498 tonnes of Carbon Dioxide (CO_2) per annum. Please see Section 11.4.3.2 of Chapter 11 Climate for further details on carbon displacement calculations.

Mitigation and Monitoring Measures

No mitigation required.

Residual Effect

The overall effect will be a long-term moderate positive effect on air quality due to the offsetting of approximately 44,498 tCO_2eq per annum (see Chapter 11 for details), due to the provision of renewable energy in the range of approximately 51,800 Irish households with electricity per year.

Significance of Effects

Based on the assessment above there will be a significant positive effect on air quality due to the operation of the Proposed Project.

10.3.3.3.2 *Operational Phase: Human Health*

Whilst the operational phases of the Proposed Project will give rise to minor increases in dust and vehicle emissions, the implementation of the mitigation measures discussed above, and good management practices can prevent or minimise potential effects off-site. Good management practice consists of good site design and layout, adopting appropriate working methods, choosing the right equipment and ensuring that the workforce understands the company's responsibilities and is familiar with good working practice and dust suppression techniques. The potential for health effects is considered negligible as the potential for both exhaust and dust emissions will be limited and controlled through site layout design and mitigation measures outlined in Sections 10.3.2.1 to 10.3.2.4.

Exposure to chemicals such as SO_2 and NO_x, Pb, benzene and O_3 are thought to be harmful to human health. The production of clean renewable energy from the Proposed Wind Farm will offset the emission of these harmful chemicals by fossil fuel powered sources of electricity and, therefore, will have a long term, slight, positive impact on human health. Further information on the impact of the Proposed Project on human health is contained in Chapter 5: Population and Human Health.

Mitigation and Monitoring Measures

No mitigation required.

Residual Effect

No residual effect.

Significance of Effects

Based on the assessment above there will be no significant effects.

10.3.4 Decommissioning Phase

The Proposed Wind Farm is seeking permission for an operational life of 35 years. Wind turbines are expected to have a lifespan of approximately 35 years. Following the end of their life, the wind turbines may be upgraded or replaced with a new set of turbines, subject to planning permission being obtained, or the Proposed Wind Farm may be decommissioned fully. The proposed 110kV onsite substation and underground electrical cabling will remain in place as it will be under the ownership of the ESB.

A Decommissioning Plan is included as Appendix 4-6 of this EIAR for the decommissioning of the Proposed Wind Farm, the detail of which will be agreed with the local authority prior to any decommissioning. Any impact and consequential effect that occurs during the decommissioning phase are similar to that which occur during the construction phase, be it of less effect. The mitigation measures prescribed for the construction phase of the Proposed Project will be implemented during the decommissioning phase thereby minimising any potential effects. The potential for effects during the decommissioning phase of the Proposed Wind Farm has been fully assessed within this EIAR.

10.3.5 Cumulative Effects

The potential for impact between the Proposed Project, and other relevant developments has been carried out with the purpose of identifying what influence the Proposed Project will have on the surrounding environment when considered cumulatively and in combination with relevant existing permitted or proposed projects and plans in the vicinity of the Site, such as other wind energy developments, extractive industries, battery energy storage systems, forestry etc. Please see Section 2.8 of Chapter 2: 'Background to the Proposed Project' for the cumulative assessment methodology used.

During the construction phase of the Proposed Project and the construction of other permitted or proposed projects and plans in the area (please see Section 2.9 in Chapter 2: Background to the Proposed Project and Appendix 2-3 of this EIAR), there will be exhaust emissions from construction plant and machinery and potential dust emissions associated with the construction activities. However, once the mitigation proposals, as outlined in the above assessment are implemented during the construction phase of the Proposed Project, there will be no measurable negative cumulative effect with other developments on air quality.

Exhaust and dust emissions during the operational phase of the Proposed Project will be minimal, relating to the use of maintenance vehicles onsite, and therefore there will be no measurable negative cumulative effect with other developments on air quality.

The nature of the Proposed Project is such that, once operational, it will have a long-term, significant, positive impact on the air quality. There will be no measurable negative cumulative effect with other developments on air quality.

10.3.5.1 Construction Phase

Air Quality

During the construction phase of the Proposed Project, and other permitted or proposed projects and plans in the area, there will be minor exhaust emissions from construction plant and machinery and potential dust emissions associated with the construction activities. However, once the mitigation proposals, as outlined in Sections 10.3.2.1 to 10.3.2.2 are implemented during the construction phase of the Proposed Project, there will be no cumulative negative effect on air quality.

As established in section 10.3.2, there are short-term, imperceptible to slight, negative effects on air quality during the construction phase from:

- Exhaust emissions arising from the construction of Proposed Project infrastructure;
- Exhaust emissions arising from transit of vehicles to, from and within the Site;
- Dust Emissions arising from the construction of Proposed Project infrastructure; and,
- Dust emissions arising from the transit of vehicles to, from and within the Site.

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

10.3.5.2 Operational Phase

There will be no net carbon dioxide (CO_2) emissions resulting from the operation of the Proposed Project.

Air Quality

Exhaust emissions of carbon dioxide (CO_2), oxides of nitrogen (NO_x), sulphur dioxide (SO_2) or dust emissions during the operational phase of the Proposed Project will be minimal, relating to the use of operation and maintenance vehicles onsite, and therefore there will be no measurable negative cumulative effect with other developments on air quality.

As established above in section 10.3.3, there will be a long-term imperceptible negative effect on air quality due to:

- Exhaust and dust emissions from maintenance LGV vehicles visiting the Site daily for site inspections; and

- Increased exhaust and dust emissions on occasion due to more frequent LGV and HGV visits during component or substation infrastructure replacement.

It is similarly established in section 10.3.3 that there will be an overall long-term significant positive effect on air quality given:

- There will be no net carbon dioxide (CO_2) emissions from operation of the Proposed Project. By providing an alternative to electricity derived from coal, oil or gas-fired power stations, the Proposed Project will result in emission savings of carbon dioxide (CO_2), oxides of nitrogen (NO_x), and sulphur dioxide (SO_2).
- The production of renewable energy from the Proposed Project will have a Long-Term Moderate Positive effect on air quality due to the offsetting of approximately 44,498 tonnes of Carbon Dioxide (CO_2) per annum, or 1,557430 tonnes of carbon dioxide over the proposed 35-year lifecycle of the Proposed Project.

It is therefore considered there will be no measurable negative cumulative effects on air quality should other proposed or consented plans and within the surrounding landscape be operational in parallel with the Proposed Project. However, once the Proposed Project is operational, there will be a long-term, significant, positive impact on the air quality.

10.3.5.3 Decommissioning Phase

The works required during the decommissioning phase are described in Section 4.11 in Chapter 4: Description of the Proposed Project. Any cumulative impact and consequential effect that occurs during the decommissioning phase are similar to that which occur during the construction phase, be it of less impact. The mitigation measures prescribed for the construction phase of the Proposed Project will be implemented during the decommissioning phase thereby minimising any potential cumulative effects.

10.4 EIA Classification Summary

Please see the below table for a summary of all identified impacts for the Proposed Project relating to air quality.

Table 10-27 Impact Assessment Classification Summary

Topic	Pre-Mitigation Effect	Mitigation Section Reference	Residual Effect	Significance
Construction Phase				
Exhaust Emissions – Construction of Proposed Project Infrastructure	**Proposed Wind Farm** Short-Term, Slight, Negative **Proposed Grid Connection** Short-Term, Slight, Negative	Section 10.3.2.1	Temporary -Short-Term, Slight, Negative	Not Significant
Exhaust Emissions: Transport to	**Proposed Wind Farm** Short-Term, Slight, Negative	Section 10.3.2.2.	Short-Term, Imperceptible, Negative	Not Significant

and from the Site	**Proposed Grid Connection** Short-Term, Slight, Negative			
Dust Emissions: Construction of Proposed Project Infrastructure	**Proposed Wind Farm** Short-Term, Moderate, Negative **Proposed Grid Connection** Short-Term, Significant, Negative	Section 10.3.2.3	Short-Term, Slight, Negative	Not Significant
Dust Emissions: Transport to and from the Site	**Proposed Wind Farm** Short-Term, Slight, Negative **Proposed Grid Connection** Short-Term, Slight, Negative **Transport to the Proposed Wind Farm Site** Short-Term, Slight, Negative	Section 10.3.2.4	Short-Term, Imperceptible, Negative	Not Significant
Operational Phase				
Exhaust Emissions	**Proposed Wind Farm** Long-Term, Imperceptible, Negative **Proposed Grid Connection** Temporary, Imperceptible, Negative	Section 10.3.3.1	Long-Term, Imperceptible, Negative	Not Significant
Dust Emissions	**Proposed Wind Farm** Long-Term, Imperceptible, Negative **Proposed Grid Connection**	Section 10.3.3.2	Long-Term, Imperceptible, Negative	Not Significant

	Temporary, Imperceptible, Negative			
Air Quality	Long-term, Moderate, Positive	N/A	Long-term, Moderate, Positive	Not Significant
Human Health	Long-term, Slight, Positive	N/A	No residual effect	Not Significant
Decommissioning Phase				
Air Quality	Any impact and consequential effect that occurs during the decommissioning phase will be similar to that which occurs during the construction phase, however to a lesser extent and lesser duration, and the mitigation measures outlined in Section 10.3.2 will be implemented during the decommissioning phase also	10.3.2	N/A	N/A