

# **Environmental Impact Assessment Report (EIAR)**

Proposed Cahermurphy  
West Wind Farm, Co. Clare

Chapter 10 – Air Quality





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## 10. AIR QUALITY

### 10.1 Introduction

This chapter identifies, describes and assesses the potential likely significant direct and indirect effects on air quality arising from the construction, operational and decommissioning phases of the Proposed Project. The full description of the Proposed Project is detailed in Ch. 4: Description of the Proposed Project.

#### 10.1.0 Background

As detailed in Section 1.1.1 in Ch. 1: Introduction, for the purposes of this EIAR, the various project components are described and assessed using the following references: ‘Proposed Project’ ‘Proposed Wind Farm’, ‘Proposed Grid Connection’ and ‘the Site’. Please see Section 1.1.1 of this EIAR for further details. A detailed description of the Proposed Project is provided in Ch. 4: Description of the Proposed Project.

The Proposed Project is located approximately 23.8km west of Ennis. Kilmihil village is located approximately 4.3km southeast of the nearest proposed turbine, with the village of Mullagh being situated approximately 4.3km northeast of the nearest proposed turbine. It is proposed that new roads will be constructed on site, and existing forestry tracks be upgraded to facilitate the delivery of abnormal loads and concrete throughout the site. Similarly, it is proposed that the eastern site access point is widened to facilitate deliveries.

The townlands in which the Proposed Project is located are listed in Table 1-1 in Ch. 1: Introduction. Current land-use on the Proposed Wind Farm site comprises coniferous forestry, peat bog and third-party lands currently being used for agriculture and forestry. The use of the site for forestry and agriculture will continue alongside the wind farm development.

Given the non-industrial nature of the Proposed Project, and the character and land use of the surrounding landscape, baseline air quality sampling was deemed to be unnecessary for this EIAR. The Proposed Project is located entirely within Zone D as described by the Environmental Protection Agency (See Section 10.2.3.1). The air quality status of this zone is further discussed in Section 10.3. It is also noted that no major sources of air pollution (e.g. heavy industry) within 10km of the Proposed Wind Farm 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.

#### 10.1.1 Relevant Guidance and Legislation

The air quality section of this Environmental Impact Assessment Report (EIAR) has been completed in accordance with the EIA Directive 2011/92/EU as amended by Directive 2014/52/EU and being in accordance the relevant guidance, listed below.

- Air Quality Assessment of Proposed National Roads – Standard PE-ENV-01107’ (Transport Infrastructure Ireland, December 2022).
- Guidelines on the Information to be contained in Environmental Impact Assessment Reports – June 2022’ (EPA, 2022).

- Environmental Impact Assessment of Projects: Guidance on the preparation of the Environmental Impact Assessment Report’ (EC, 2017)
- Environmental Protection Agency (2024) Air Quality in Ireland Report 2023.
- Environmental Protection Agency (2021) Best Practice Guidelines on the Preparation of Resource and Waste Management Plans for Construction & Demolition Projects.
- Environmental Protection Agency
- Guidance on the Assessment of Dust from Demolition and Construction (IAQM 2024);
- Guidelines for the Treatment of Air Quality During the Planning and Construction of National Road Schemes (TII 2011);
- Guidelines for Assessment of Ecological Impacts of National Roads Schemes (TII 2009);
- Clean Air Strategy for Ireland (Government of Ireland, 2023).
- 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);
- UK Highways Agency (UKHA) Design Manual for Roads and Bridges (DMRB) – LA
- 105 Air Quality (UKHA 2019);
- World Health Organization (WHO) Air Quality Guidelines for Particulate Matter, Ozone, Nitrogen Dioxide and Sulphur Dioxide Global Update 2005 (WHO 2005).

## 10.1.2 Statement of Authority

This chapter of the EIAR, has been prepared by Michéal Cahill and reviewed by Eoin McCarthy, of MKO. Michéal Cahill is an Environmental Scientist with over a years’ experience with MKO and 2 years’ experience in Environmental consulting. Michéal holds a first-class honours degree in Environmental Science at the University of Galway and was awarded the Professor Emer Colleran Medal for his academic achievements. Michéals key strengths and areas of expertise are in environmental impact assessment, the preparation and writing of environmental impact assessment reports, proficiency in geographic information systems and ecological assessment. As an environmental scientist within MKOs environmental renewables team, Michéal is involved in the preparation and revision of a variety of reports and EIAR chapters for a range of energy infrastructure projects.

Eoin McCarthy holds a BSc. (Env.) in Environmental Science and is a Project Director with over 14 years’ experience in the consultancy sector. Eoin has completed numerous Air Quality chapters of EIARs for wind farm developments.

## 10.2 Air Quality

### 10.2.1 Relevant Legislation

The Clean Air for Europe (CAFE) Directive (Directive 2008/50/EC on ambient air quality and cleaner air for Europe) (as amended by Directive EU 2015/1480) 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 particulate matter less than 2.5 micrometres ( $\mu\text{m}$ ) referred to as  $\text{PM}_{2.5}$  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 less than  $10\mu\text{m}$  ( $\text{PM}_{10}$ ) 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. Limit values are presented in micrograms per cubic metre ( $\mu\text{g}/\text{m}^3$ ) and parts per billion (ppb). The notation  $\text{PM}_{10}$  is used to describe particulate matter or particles of ten micrometres or less in aerodynamic diameter.  $\text{PM}_{2.5}$  represents particles measuring less than 2.5 micrometres in aerodynamic diameter. The CAFE Directive is currently transposed into Irish law by SI No 739/2022 - Ambient Air Quality Standards Regulations 2022.

### 10.2.2 Air Quality Standards

The recently implemented Ambient Air Quality Standards Regulations 2022 (S.I. No. 739/2022) remains aligned to the CAFE Directive and directly transposes 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 Directive 2008/50/C and 2000/69/EC (Source: <https://www.epa.ie/air/quality/standards/>)

Pollutant	Limit Value Objective	Averaging Period	Limit Value ( $\mu\text{g}/\text{m}^3$ )	Basis of Application of Limit Value	Attainment Date
Sulphur dioxide ( $\text{SO}_2$ )	Protection of human health	1 hour	350	Not to be exceeded more than 24 times in a calendar year	1 <sup>st</sup> Jan 2005
Sulphur dioxide ( $\text{SO}_2$ )	Protection of human health	24 hours	125	Not to be exceeded more than 3 times in a calendar year	1 <sup>st</sup> Jan 2005
Sulphur dioxide ( $\text{SO}_2$ )	Protection of vegetation	Calendar year	20	Annual mean	19 <sup>th</sup> Jul 2001
Sulphur dioxide ( $\text{SO}_2$ )	Protection of vegetation	1st Oct to 31st Mar	20	Winter mean	19 <sup>th</sup> Jul 2001

Nitrogen dioxide (NO <sub>2</sub> )	Protection of human health	Calendar year	40	Annual mean	1 <sup>st</sup> Jan 2010
Nitrogen dioxide (NO <sub>2</sub> )	Protection of human health	1 hour	200	Not to be exceeded more than 18 times in a calendar year	1 <sup>st</sup> Jan 2010
Nitrogen dioxide (NO <sub>2</sub> )	Protection of human health	Calendar year	40	Annual mean	1 <sup>st</sup> Jan 2010
Nitrogen monoxide (NO) and nitrogen dioxide (NO <sub>2</sub> )	Protection of ecosystems	Calendar year	30	Annual mean	19 <sup>th</sup> Jul 2001
Particulate matter 10 (PM <sub>10</sub> )	Protection of human health	24 hours	50	Not to be exceeded more than 35 times in a calendar year	1 <sup>st</sup> Jan 2005
Particulate matter 10 (PM <sub>10</sub> )	Protection of human health	Calendar year	40	Annual mean	1 <sup>st</sup> Jan 2005
Particulate matter 2.5 (PM <sub>2.5</sub> ) Stage 1	Protection of human health	Calendar year	25	Annual mean	1 <sup>st</sup> Jan 2015
Particulate matter 2.5 (PM <sub>2.5</sub> ) Stage 2	Protection of human health	Calendar year	20	Annual mean	1 <sup>st</sup> Jan 2020
Lead	Protection of human health	calendar year	0.5	Annual mean	1 <sup>st</sup> Jan 2005
Carbon Monoxide	Protection of human health	8 hours	10,000	Not to be exceeded	1 <sup>st</sup> Jan 2005
Benzene	Protection of human health	calendar year	5	Annual mean	1 <sup>st</sup> Jan 2010

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

Pollutant	Limit Value Objective	Averaging Period	Limit Value ( $\mu\text{g}/\text{m}^3$ )	Basis of Application of Limit Value
Sulphur dioxide ( $\text{SO}_2$ )	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 ( $\text{SO}_2$ )	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 ( $\text{NO}_2$ )	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 ( $\text{NO}_2$ )	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 ( $\text{PM}_{10}$ )	Upper assessment threshold	24 hours	35	Not to be exceeded more than 35 times in a calendar year
Particulate matter 10 ( $\text{PM}_{10}$ )	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	-
Lead (Pb)	Lower assessment threshold	Calendar Year	0.25	-
Carbon Monoxide ( $\text{CO}$ )	Upper assessment threshold	8 hours	7000	-
Carbon Monoxide ( $\text{CO}$ )	Lower assessment threshold	8 hours	5000	-
Benzene ( $\text{C}_6\text{H}_6$ )	Upper assessment threshold	Calendar Year	3.5	-
Benzene ( $\text{C}_6\text{H}_6$ )	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 µg/m <sup>3</sup> not to be exceeded more than 25 days per calendar year averaged over 3 years	120 µg/m <sup>3</sup>
Protection of vegetation	AOT40* calculated from 1-hour values from May to July	18,000 µg/m <sup>3</sup> .h averaged over 5 years	6,000 µg/m <sup>3</sup> .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/m<sup>3</sup> and is expressed as µg/m<sup>3</sup> 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 µg/m <sup>3</sup>
Alert Threshold	1-hour average	240 µg/m <sup>3</sup>

### 10.2.2.1 Air Quality and Health

In September 2025, the EPA published ‘Air Quality in Ireland 2024’<sup>1</sup> which reports that although Ireland met the current EU legal air quality limits in 2024, monitoring results were higher than the more stringent health-based World Health Organization air quality guidelines for a number of pollutants including: particulate matter (PM), nitrogen dioxide (NO<sub>2</sub>), sulphur dioxide (SO<sub>2</sub>) and ozone (O<sub>3</sub>). The main sources of these pollutants are the burning of solid fuel in our towns and villages and traffic in our cities. People’s health and the health of our environment is impacted by these pollutants. Ireland’s ambition in the ‘Clean Air Strategy for Ireland’ (discussed below) is to move towards alignment with the World Health Organisation (WHO) Air Quality guidelines, this will be challenging but will have a significantly positive impact on health. Despite comparing favourably with many of our European neighbours, Ireland’s 2023 monitoring results would exceed the soon approaching 2026 WHO targets.

The European Environmental Agency (EEA) Briefing, ‘Europe’s Air Quality Status 2025’<sup>2</sup> highlights the negative effects that air pollution has on human health. The assessment shows that, despite constant improvements, exceedances of air quality standards are common across the EU, with concentrations well above the latest WHO recommendations. The briefing also notes that air pollution is Europe’s largest environmental health risk, causing cardiovascular and respiratory diseases that impact health, reduce quality of life and cause preventable deaths. In 2024, despite ongoing reductions in emissions, most of the EU’s monitoring locations were exposed to levels of key air pollutants that are damaging to health. In 2024 in the European Union, 92% of monitoring locations were exposed to levels of fine

<sup>1</sup> Environmental Protection Agency: Air Quality in Ireland 2023. Available at: <https://www.epa.ie/publications/monitoring-assessment/air/air-quality-in-ireland-2024.php>

<sup>2</sup> European Environment Agency, Air Quality Status report 2025. Available at: <https://www.eea.europa.eu/en/analysis/publications/air-quality-status-report-2025>

particulate matter (PM<sub>2.5</sub>) above the health-based guideline level set by the World Health Organisation (WHO). Furthermore, in 2023 in the EU, 70% of all monitoring stations were above the WHO annual guideline for NO<sub>2</sub>. Whilst there is the potential of such emissions to be generated from 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 10.4 below.

The United States Department of Energy published an article on August 21, 2024, entitled ‘*How Wind Can help Us Breathe Easier*.’<sup>3</sup> This article details the CO<sub>2</sub> emissions from different energy sources over the entire lifespan of the technology. It was found that wind energy produces around 11 grams of CO<sub>2</sub> per kilowatt-hour (g CO<sub>2</sub>/kWh) of electricity generated, compared with about 980 g CO<sub>2</sub>/kWh for coal and roughly 465 g CO<sub>2</sub>/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. During combustion of high-emitting energy sources, other air pollutants, i.e., nitrogen oxides (NO<sub>x</sub>) and sulphur dioxide (SO<sub>2</sub>), 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*’<sup>4</sup> states that the pollutants of most concern are Fine Particulate matter (PM<sub>2.5</sub>), Nitrogen Dioxide (NO<sub>2</sub>) and Ammonia (NH<sub>3</sub>). 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.”*

The EPA also published a report 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<sup>5</sup>. The Key findings of the report with respect to assessment of targets are:

<sup>3</sup> US Department of Energy ‘*How Wind Can Help Us Breathe Easier*’ August 2024. Available at: <https://www.energy.gov/eere/wind/articles/how-wind-can-help-us-breathe-easier>

<sup>4</sup> Environmental Protection Agency (EPA). (2024). *Ireland’s State of the Environment Report 2024*. <<https://www.epa.ie/our-services/monitoring-assessment/assessment/irelands-environment/state-of-environment-report/>>

<sup>5</sup> 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>>

- Ireland is compliant with current and future emission reduction commitments for ammonia (NH<sub>3</sub>), non-methane volatile organic compounds (NMVOC), sulphur dioxide (SO<sub>2</sub>), nitrogen
- oxides (NO<sub>x</sub>) and fine particulate matter (PM<sub>2.5</sub>)
- 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 our 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<sub>2</sub>), oxides of nitrogen (NO<sub>x</sub>), and sulphur dioxide SO<sub>2</sub>, thereby resulting in cleaner air and associated positive health effects.

### 10.2.2.1.1 Clean Air Strategy for Ireland 2023

Ireland’s Clean Air Strategy 2023<sup>6</sup> 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 its 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.



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

<sup>6</sup> Rialtas na hÉireann Clean Air Strategy April 2023. Available at: <https://www.gov.ie/en/publication/927e0-clean-air-strategy/#:~:text=The%20Clean%20Air%20Strategy%20provides,delivering%20on%20wider%20national%20objectives.>

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.

## 10.2.3 Methodology

### 10.2.3.1 Air Quality Zones

The air quality zone for the Proposed Project was selected, followed by a review of EPA collated baseline air quality data, namely Sulphur Dioxide (SO<sub>2</sub>), Particulate Matter (PM<sub>10</sub>), Nitrogen Dioxide (NO<sub>2</sub>), Carbon Monoxide (CO) and Ozone (O<sub>3</sub>) 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: Other Urban areas with populations >15,000
- Zone D: The remainder of the State

These zones were defined to meet criteria for air quality monitoring, assessment and management as described in the CAFE Directive. The Site is located in Zone D, which largely represents rural areas located away from dense population centres.

### 10.2.3.2 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<sup>7</sup>. The EPA reports provide SO<sub>2</sub>, PM<sub>10</sub>, NO<sub>2</sub> and O<sub>3</sub> concentrations for areas in Zone D. The ‘Air Quality in Ireland 2023’ report published by the EPA in 2024<sup>8</sup> provides concentrations for Zone D CO concentrations. These are detailed in the Baseline Air Quality section.

### 10.2.3.3 Dust

The Institute of Air Quality Management in the UK (IAQM) guidance document ‘Guidance on the Assessment of Dust from Demolition and Construction’ (2024) was followed 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;

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<sup>7</sup> 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>

<sup>8</sup> EPA; Air Quality in Ireland in 2023. Available at <https://www.epa.ie/publications/monitoring-assessment/air/air-quality-in-ireland-2023.php>

- > Construction;
- > Trackout - 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.

The magnitude of dust generating activities is divided into ‘Large’, ‘Medium’ or ‘Small’ scale depending on the nature of the activities involved. 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 below:

Table 10-5 Description of magnitude for nature of activities

	Large	Medium	Small
Demolition	Total building volume >75,000 m <sup>3</sup> , 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 <sup>3</sup> – 75,000 m <sup>3</sup> , potentially dusty construction material, demolition activities 6-12m above ground level	Total building volume <12,000 m <sup>3</sup> , construction material with low potential for dust release (e.g. metal cladding or timber), demolition activities <6 m above ground, demolition during wetter months
Earthworks	Large: Total site area >110,000 m <sup>2</sup> , 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 <sup>2</sup> – 110,000 m <sup>2</sup> , 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 <sup>2</sup> , 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 <sup>3</sup> , on site concrete batching, sandblasting	Total building volume 12,000 m <sup>3</sup> – 75,000 m <sup>3</sup> , potentially dusty construction material (e.g. concrete), on site concrete batching	Total building volume <12,000 m <sup>3</sup> , 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

	Large	Medium	Small
	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 outlined in Appendix 8-1 of this EIAR results in the classification of the Proposed Wind Farm site as ‘Large’ for earthworks and construction activities. The Proposed Grid Connection falls under the classification of ‘Medium’ for earthworks and construction due to lower volume of construction material required for its construction. The number of heavy-duty vehicle movements per day, as outlined in Section 15.1.7 in Ch. 15: Material Assets, results in the classification of the Proposed Wind Farm site as ‘Large’ and Grid Connection as ‘Small’ 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.

### 10.2.3.3.1 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 of time, or do not expect a high level of amenity.

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

- Sensitivities of People to Dust Soiling Effects
- Sensitivities of People to Health Effects of PM<sub>10</sub>
- Sensitivities of Receptors to Ecological Effects

#### Sensitivities of People to Dust Soiling Effects

Dust soiling effects can occur for a distance of 250m from work areas, but the majority of deposition occurs within the first 50m (IAQM, 2024). Table 10-6 below outlines the sensitivity of an area to dust soiling effects on people and 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<sub>10</sub>

When assessing sensitivity of people to the health effects of PM<sub>10</sub>, 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<sub>10</sub> over a 24-hour period. Table 10-7 below identifies the sensitivity of an area to human health effects of PM<sub>10</sub>, relative to different receptor sensitivities.

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 <sub>10</sub> concentration	Number Of Receptors	Distance from source (m)			
			<20	<50	<100	<250
<b>High</b>	>32 µg/m <sup>3</sup>	>100	High	High	High	Medium
		10-100	High	High	Medium	Low
		1-10	High	Medium	Low	Low
	28-32 µg/m <sup>3</sup>	>100	High	High	Medium	Low
		10-100	High	Medium	Low	Low
		1-10	High	Medium	Low	Low
	24-28 µg/m <sup>3</sup>	>100	High	Medium	Low	Low
		10-100	High	Medium	Low	Low
		1-10	Medium	Low	Low	Low
	<24 µg/m <sup>3</sup>	>100	Medium	Low	Low	Low
		10-100	Low	Low	Low	Low
		1-10	Low	Low	Low	Low
<b>Medium</b>	>32 µg/m <sup>3</sup>	>10	High	Medium	Low	Low
		1-10	Medium	Low	Low	Low
	28-32 µg/m <sup>3</sup>	>10	Medium	Low	Low	Low
		1-10	Low	Low	Low	Low
	24-28 µg/m <sup>3</sup>	>10	Low	Low	Low	Low
		1-10	Low	Low	Low	Low
	<24 µg/m <sup>3</sup>	>10	Low	Low	Low	Low
		1-10	Low	Low	Low	Low
<b>Low</b>	-	≥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

There are no sensitive habitats as described by the IAQM (2024) guidance within 50m of the Proposed Wind Farm. Therefore, dust impacts on sensitive ecological receptors in relation to the Proposed Project has been scoped out of this assessment.

There are sensitive habitats as described by the IAQM (2024) guidance within 50m of the proposed Grid Connection cable route at 3 no. watercourse crossings. Therefore, dust impacts on sensitive ecological receptors in relation to the Proposed Grid Connection is considered to be ‘High’

#### 10.2.3.3.2 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 matrices in Table 10-9, Table 10-10 and Table 10-11 provide a method of assigning the level of risk for each activity.

Table 10-9 Risk of Dust Impacts - Earthworks (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

Table 10-10 Risk of Dust Impacts - Construction

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

Table 10-11 Risk of Dust Impacts - Trackout

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

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

EPA classification terminology as presented in Table 1-2 of Ch. 1: Introduction have been correlated with the equivalent risk rating from Table 10-12 below.

Table 10-12 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

## 10.3 Baseline Air Quality

The air quality in the vicinity of the Site is typical of that of the 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 2025. The EPA reports provide SO<sub>2</sub>, PM<sub>10</sub>, NO<sub>2</sub> and O<sub>3</sub> concentrations for areas in Zone D. There is no data for Zone D for CO concentrations due to operational issues. As such data from the 2024 EPA Report ‘Air Quality in Ireland 2023’ has been used to provide a CO baseline.

These are detailed in the following tables.

### 10.3.1.1 Sulphur Dioxide (SO<sub>2</sub>)

The Sulphur dioxide data from Cork Harbour, Kilkitt, Askeaton and Edenderry in 2024 is presented in Table 10-13.

Table 10-13 Sulphur Dioxide Data for Zone D Sites in 2024

Parameter	Measurement (ug/m <sup>3</sup> )
Annual Mean	2.8
Hourly max (Average)	36.2
Hourly > 350 ug/m <sup>3</sup>	0
Daily max (Average)	14.7
Daily Max > 125	0

During the monitoring period there were no exceedances of the daily limit values for the protection of human health. As can be observed from Table 10-13 the average maximum hourly value recorded during the assessment period was 36.2 ug/m<sup>3</sup>. In addition, there were no exceedances of the annual mean limit for the protection of ecosystems. It is expected, based on professional judgement that SO<sub>2</sub> values at the Site are similar or lower than those recorded for the Zone D sites above.

### 10.3.1.2 Particulate Matter (PM<sub>10</sub>)

Sources of particulate matter include vehicle exhaust emissions, dust from soil and road surfaces, construction works and industrial emissions. The EPA report<sup>9</sup> provides annual mean PM<sub>10</sub> concentration for nineteen Zone D towns, Askeaton, Birr, Carnsore, Carrick-on-Shannon, Castlebar, Cavan, Claremorris, Cobh Carrignafof, Cork Mallow, Edenderry, Enniscorthy, Galway Ballinasloe, Killarney, Kilkitt, Longford, Macroom, Malin Head, Roscommon Town and Tipperary Town. Particulate matter (PM<sub>10</sub>) data for 2024 is presented in Table 10-14.

Table 10-14 Average Particulate Matter (PM<sub>10</sub>) Data for Zone D Sites in 2024

Parameter	Measurement (ug/m <sup>3</sup> )
Annual Mean	11.5

<sup>9</sup> EPA (2025). Air Quality in Ireland 2024.

Parameter	Measurement (ug/m3)
% Data Capture (Average)	94%
Values > 50 ug/m <sup>3</sup>	Max 7 (Longford)
Daily Max (Average)	49.5

The daily limit of 50 µg/m<sup>3</sup> for the protection of human health was exceeded on a total of 16 days across all monitoring locations, which is lesser than the PM<sub>10</sub> daily limit for the protection of human health of a max 35 days >50 µg/m<sup>3</sup> applicable from 2005. The greatest number of exceedances occurred at Longford where the PM<sub>10</sub> daily limit was exceeded on 7 no. occasions. In the EPA 2025 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 that PM<sub>10</sub> values at the Proposed Wind Farm and Proposed Grid Connection is similar or lower than those recorded for the Zone D sites above.

### 10.3.1.3 Nitrogen Dioxide (NO<sub>2</sub>)

Nitrogen dioxide data for Birr, Castlebar, Carrick-on-Shannon, Cork Mallow, Edenderry, Emo Court and Kilkitt in 2024 is presented in Table 10-15.

Table 10-15 Average Nitrogen Dioxide Data for Zone D Sites in 2024

Parameter	Measurement
Annual Mean (Average)	8.3
NO <sub>2</sub> Values >200	0
Values > 140 (UAT)	0
Values >100 (LAT)	1
Hourly Max. (Average)	68.6

The annual NO<sub>2</sub> value was below the annual mean limit value for the protection of human health of 40 µg/m<sup>3</sup>. The lower assessment threshold of 100 µg/m<sup>3</sup> was exceeded 1 no. times during the monitoring period in Edenderry and the upper assessment threshold of 140 µg/m<sup>3</sup> was not exceeded once during the monitoring period. Edenderry did not exceed the 18 hours limit during the monitoring period. The average hourly max. NO<sub>2</sub> value of 68.6 µg/m<sup>3</sup> measured during the monitoring period was below the hourly max threshold of 200 µg/m<sup>3</sup>. It is expected based on professional judgement that NO<sub>2</sub> values at the Site is similar or lower than those recorded for the Zone D sites above.

### 10.3.1.4 Carbon Monoxide (CO)

The ‘Air Quality in Ireland 2023’ Report provides rolling 8-hour carbon monoxide concentrations for Birr, a Zone D site. Carbon Monoxide data for 2023 is presented in Table 10-16.

Table 10-16 Carbon Monoxide Data for Birr – Zone D Site in 2023.

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

The average concentration of carbon monoxide was 0.6 mg/m<sup>3</sup>. The carbon monoxide limit value for the protection of human health is 10,000 µg/m<sup>3</sup> (or 10 mg/m<sup>3</sup>). 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 that the CO value at the Site is similar or lower than those recorded for the Zone D site above.

### 10.3.1.5 Ozone (O<sub>3</sub>)

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, Valentia, Cork Mallow and Malin Head. Ozone (O<sub>3</sub>) data for 2024 is presented in Table 10-17.

Table 10-17 Average Ozone Data for Zone D Sites in 2024.

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

As can be observed from Table 10-17 there were no exceedances of the maximum daily eight-hour mean limit of 120 µg/m<sup>3</sup>. The CAFE Directive stipulates that this limit should not be exceeded on more than 25 days per calendar year averaged over 3 years. It would be expected on professional judgement that O<sub>3</sub> values at the Site would be similar or lower than those recorded for the Zone D sites below.

### 10.3.1.6 Dust

There are no statutory limits for dust deposition in Ireland. However, EPA guidance suggests that a deposition of 10 mg/m<sup>2</sup>/hour can generally be considered as posing a soiling nuisance. This equates to 240 mg/m<sup>2</sup>/day. The EPA recommends a maximum daily deposition level of 350 mg/m<sup>2</sup>/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 are presented in Section 10.4 below.

## 10.4 Likely and Significant Impacts and Associated Mitigation Measures

### 10.4.1 ‘Do-Nothing’ Effect

If the Proposed Project were not to proceed, the Site would likely continue to function as it does at present. This impact is considered to be neutral in the context of the EIAR. If the Proposed Project were not to proceed, there would be no potential for negative impacts on human health during the construction phase of the Proposed Project, particularly in relation to potential emissions of dust to the air.

However, a ‘Do-Nothing’ scenario would also lose the opportunity to further harness an even greater part of County Clare’s renewable energy resource. Furthermore, the opportunity to contribute to meeting the Government and EU targets for the production and consumption of electricity derived from renewable resources, as well as a reduction in greenhouse gas emissions, would similarly be lost. The opportunity to improve our air quality as a result of the reduction of our reliance on fossil fuels would also be lost.

### 10.4.2 Construction Phase

#### 10.4.2.1 Exhaust Emissions: Construction of Proposed Project Infrastructure

##### **Proposed Wind Farm**

The construction of turbines, foundations, associated hardstanding areas, on-site substation, meteorological mast, access roads, underground cabling, temporary construction compound as well as the felling of coniferous forestry and all ancillary works and apparatus will require the work of construction vehicles. The potential effect of the emissions will not be significant and will be restricted to the duration of the construction phase and localised to the Site. These emissions will therefore be considered a short-term, slight, negative effect in context of the EIAR. Best practice mitigation measures will be employed to reduce this impact, which are outlined below.

Two borrow pit locations are proposed within the Site. The excavation of these borrow pits will require the use of construction machinery and plant, thereby increasing exhaust emissions. The proximity of the nearest residential dwellings to the northern and southern borrow pits are approximately 840m and 520m respectively. The potential effect from the exhaust emissions will therefore be insignificant and restricted to both the construction phase and localised to the areas of work. As a result, this is considered a short-term, slight, negative effect. Mitigation measures to reduce this effect are presented below.

The construction of peat and spoil management areas will require the use of construction machinery and plant, thereby giving rise to exhaust emissions. This is considered a short-term, slight, negative effect and will be reduced using mitigation measures as presented below.

##### Mitigation & Monitoring Measures

- 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 will produce and follow a site inspection and machinery checklist which will be followed and updated as required.

- All plant and materials vehicles will 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 Ch. 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.
- 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 and will be a key contract document that will be implemented in full by the contractor. (see Appendix 4-5)
- Waste volumes generated on site are unlikely to be large enough to warrant source segregation at the Site. Therefore, all waste generated onsite, such as peat and spoils will be managed on site. Any hazardous materials encountered on site will be removed to a suitably licensed facility. Any facility used will be as local to the site as possible to reduce the emissions associated with additional vehicle movements.

### 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 a short-term imperceptible negative effect.

### Significance of Effects

The effects on air quality from exhaust emissions during the construction phase of the Proposed Project are considered to be not significant

### Proposed Grid Connection

The construction of the proposed underground cabling route connecting the substation to the existing Moneypoint 110kV substation, located in the townland of Carrowdotia South, c.4.5km from the town of Kilrush, Co. Clare, will require the use of construction machinery. This will give rise to exhaust emissions such as NO<sub>2</sub>, Benzene and PM<sub>10</sub>, as previously outlined for the Proposed Wind Farm activities. This is a short-term, slight, negative effect, which will be reduced through use of the best practice mitigation measures as outlined below.

### Mitigation & Monitoring Measures

- 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 will produce and follow a site inspection and machinery checklist which will be followed and updated if/when required.
- All plant and materials vehicles will 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.
- Areas of excavation will be kept to a minimum, and stockpiling will be minimised by coordinating excavation, spreading and compaction.
- 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 and will be a key contract document that will be implemented in full by the contractor. (see Appendix 4-5)
- Waste volumes generated on site are unlikely to be large enough to warrant source segregation at the Site. Therefore, all waste generated onsite, such as peat and spoils will be managed on site. Any hazardous materials encountered on site will be removed to a suitably licensed facility. Any facility used will be as local to the site as possible to reduce the emissions associated with additional vehicle movements.
- Silt fencing will be erected on ground sloping towards watercourses at the 3 no. HDD crossing locations within private lands at the stream crossings if required.
- HDD works will not take place at periods of high rainfall and will be scaled back or suspended if heavy rain is forecast.
- A fracture blow out prevention and contingency plan is outlined in Section 9.5.2 of this EIAR.

### Residual Effect

With the implementation of the above mitigation measures for this phase of the construction phase, effects on air quality from exhaust emissions associated with construction activities and machinery are considered to be a short-term, imperceptible negative effect.

### Significance of Effects

The effects on air quality from exhaust emissions during the construction phase of the Proposed Project are considered to be not significant.

## 10.4.2.2 Exhaust Emissions: Transportation to and from the Site

### Identification of Effect

#### **Proposed Wind Farm Site**

The transport of turbine components, supporting infrastructure materials, construction and staff vehicles, small volumes of aggregate material and any waste removal vehicles to and from the Proposed Wind Farm site (which will occur on specified routes only, see in Ch. 4: Description of the Proposed Project), the departure of empty vehicles and/or minor waste volumes (please see accompanying CEMP Appendix 4-5) from the site and daily staff movements, will give rise to exhaust emissions associated with the transport vehicles.

#### **Proposed Grid Connection**

The transport of substation infrastructure, construction vehicles, aggregate material, waste removal vehicles and construction staff to/from the Site for the construction of the Proposed Grid Connection Route (which will occur on specified routes only, see Ch. 4: Description of the Proposed Project), the departure of empty vehicles and/or minor waste volumes (please see accompanying CEMP in Appendix 4.5) from the site and daily staff movements, will give rise to exhaust emissions associated with the transport of vehicles.

### Mitigation & Monitoring Measures for the Proposed Project

- Measures listed in Section 10.4.2.1 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.
- A Construction and Environmental Management Plan (CEMP) will be in place throughout the construction phase (see Appendix 4-5).
- Any waste or hazardous material that requires transferring from the site will be transported to the most local suitably licensed facility.

### Residual Effect

This constitutes a short-term, slight, negative effect on air quality as a result of exhaust emissions associated with the increased traffic movements to and from the Site.

### Significance of Effects

Based on this assessment there will be no significant effects on air quality from exhaust emissions due to traffic movements to and from the Site.

## 10.4.2.3 Dust Emissions: Construction of Proposed Project Infrastructure

### Identification of Effect

#### Proposed Wind Farm

The construction of turbines and associated foundations and hard-standing areas, meteorological mast, access roads, temporary construction compound, underground cabling, site drainage, tree felling and all ancillary works and apparatus will give rise to dust emissions.

The majority of the construction materials for the Proposed Wind Farm will be won onsite from the 2 no. borrow pits where 180,000m<sup>3</sup> of material will be extracted as the project progresses. It should be noted that the extraction of this material will occur on a sequential basis and not all at once.

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

The IAQM methodology for the Assessment of Dust from Demolition and Construction as discussed in Section 10.2.3 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

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

It should be noted that the 3 no. high sensitivity receptors are located within 250m of the proposed 110kv on-site substation and not turbine infrastructure or the on-site borrow pits.

Table 10-18 below identifies the sensitivity of the area surrounding the development footprint of the Proposed Wind Farm to dust soiling effects, as described in Section 10.2.3.3.1 above.

As outlined above, there are no sensitive receptors within 100m of the Proposed Wind Farm site footprint, with only 3 no. sensitive receptors within 250m of the Proposed Wind Farm site. The assessment outlined in the IAQM (2024) does not include for the scenario wherein there is no high sensitivity receptors within the 20m, 50m, 100m and 250m distance bands. As such, while it is outlined in Table 10-18 that there are 1-10 sensitive receptors within 20, 50 and 100m of the Proposed Wind Farm site footprint, in reality, this is not the case. Regardless, the overall sensitivity of the area to dust soiling impacts as a result of the construction works at the Proposed Wind Farm site is considered to be Low.

Table 10-18 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 10-19 below identifies the high sensitivity receptors in the area surrounding the development footprint of the proposed Wind Farm Site to the health effects of PM<sub>10</sub>, as described in Section 10.1.6.3.1 above. The overall sensitivity of the area to human health effects of PM<sub>10</sub> is considered to be Low.

Table 10-19 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 <sub>10</sub> Concentration	Number Of Receptors	Distance from source (m)			
			<20	<50	<100	<250
High	<24 µg/m <sup>3</sup> (<14 µg/m <sup>3</sup> in Scotland)	>100	Medium	Low	Low	Low
		10-100	Low	Low	Low	Low
		1-10	Low	Low	Low	Low
Medium	<24 µg/m <sup>3</sup> (<14 µg/m <sup>3</sup> in Scotland)	>10	Low	Low	Low	Low
		1-10				

Low		≥1	Low	Low	Low	Low
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Table 10-20 below identifies the sensitivity of the receptors to ecological effects in the area surrounding the development footprint of the Proposed Wind Farm. There are 4 no. sensitive ecological receptors (habitats) within 20m of the Proposed Wind Farm footprint, including cutover peat habitat, heathland habitat, blanket bog and watercourse crossings within the Site. The overall sensitivity of the areas surrounding the development footprint of the Proposed Wind Farm is ‘Medium’. 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 10-20 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

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 10-21 below.

Table 10-1 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 major dust generating activities during the construction phase of the Proposed Wind Farm is Low/Medium. Therefore, the potential effects of dust from the construction phase of the Proposed Wind Farm are considered to be equivalent to short-term, slight/moderate, negative effects.

### Proposed Grid Connection

The construction of the Proposed Grid Connection (underground grid connection cabling, horizontal directional drilling, joint Bays and end masts) will give rise to dust emissions.

The number of sensitive receptors within 250m of the Proposed Grid Connection work areas and their likely risk of dust impacts during the construction works, as highlighted in the IAQM (2024) methodology are as follows:

- There are 58 no. high sensitivity receptors within 20m of the proposed Grid Connection footprint.
- There are 101 no. high sensitivity receptors within 50m of the Proposed Grid Connection footprint.
- There are 123 no. high sensitivity receptors within 100m of the Proposed Grid Connection footprint.
- There are 168 no. high sensitivity receptors within 250m of the Proposed Grid Connection footprint.

Table 10-21 below identifies the sensitivity of the area surrounding the development footprint of the 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 High due to the number of high sensitivity receptors within 20m and within 50m of the Proposed Grid Connection.

Table 10-20 Sensitivity of the Area to Dust Soiling Effects from 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 10-22 below identifies the high sensitivity receptors in the area surrounding the development footprint of the Proposed Grid Connection to the health effects of PM<sub>10</sub>, as described in Section 10.1.6.3 above. The overall sensitivity of the area to human health effects of PM<sub>10</sub> is Low.

Table 10-21 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 <sub>10</sub> Concentration	Number Of Receptors	Distance from source (m)			
			<20	<50	<100	<250
High	<24 µg/m <sup>3</sup> (<14 µg/m <sup>3</sup> in Scotland)	>100	Medium	Low	Low	Low
		10-100	Low	Low	Low	Low
		1-10	Low	Low	Low	Low
Medium	<24 µg/m <sup>3</sup> (<14 µg/m <sup>3</sup> in Scotland)	>10	Low	Low	Low	Low
		1-10				
Low	-	≥1	Low	Low	Low	Low

Table 10-23 below identifies the sensitivity of the receptors to ecological effects in the area surrounding the development footprint of the Proposed Grid Connection. The Proposed Grid Connection route runs roughly 185m east of St. Senan’s Lough pNHA. The overall sensitivity of the areas surrounding the development footprint of the Proposed Grid Connection is Medium due to the location of the designated sites within 50m of the Proposed Grid Connection.

Table 10-22 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

As identified in Section 10.2.2.3 above, the Proposed Grid Connection is classified as ‘Medium’ for Earthworks, ‘Medium’ for Construction, and ‘Small’ for Trackout activities. Therefore, when combined with the sensitivity of the area, using Tables 10-9 to 10-11 above as guidance, the pre-mitigation risk of impacts from the Proposed Grid Connection is summarised in Table 10-24.

Table 10-23 Summary Dust Risk Table for Proposed Grid Connection Activities

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

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 Negligible/Low. Therefore, the potential effects of dust from the construction phase of the Grid Connection are considered to be equivalent to temporary, imperceptible/slight negative effects.

Please note that the assessment of the potential impact of dust on the ecological receptors included in this assessment follows the methodology set out in the IAQM 2024 guidance. However, a more detailed ecological impact assessment assessing impacts on these receptors during the construction phase (including effects from dust) is contained in Ch. 6: Biodiversity..

### 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.
- All plant and materials vehicles will 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 for the Proposed Grid Connection infrastructure and a small volume for the Proposed Wind Farm 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.
- A Construction and Environmental Management Plan (CEMP) will be in place throughout the construction phase (see Appendix 4-5). The CEMP includes dust suppression measures. The CEMP will be a key construction contract document and will be implemented in full by the contractor.

### Residual Effect

With the implementation of the above mitigation and monitoring measures, the Proposed Wind Farm is considered to have a short-term not significant, negative effect on air quality brought about by dust emissions generated during the construction activities.

The Proposed Grid Connection is considered to have a temporary slight negative effect on air quality brought about by dust emissions generated during the construction activities.

### Significance of Effects

The effects on air quality from dust emissions during the construction phase will be negative, not significant and slight.

## 10.4.2.4 Dust Emissions: Transport to and from the Site

### Identification of Effects

#### **Proposed Wind Farm**

The transport of turbine components, supporting infrastructure materials, construction and staff vehicles, small volumes of aggregate material and waste removal vehicles to/from the Site, the departure of empty vehicles and/or minor waste volumes (please see accompanying CEMP Appendix 4-5) from the Site and daily staff movements will also give rise to some localised dust emissions during periods of dry weather.

#### **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.

The Institute of Air Quality Management Construction Dust Guidance (IAQM, 2024) states that the likely routes the construction traffic will use 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 L6254 local road, along which the main construction site entrance is located was scoped in for assessment. Beyond this road, construction traffic will disperse in different directions along different routes to a degree that there will be no potential for significant effects from trackout related dust emissions. In relation to the turbine delivery route, it is considered that the numbers of vehicle movements per day are so low that there will be no potential for significant effects from trackout related dust emissions. The L6254, scoped in for assessment, is a 5.7km stretch of road that runs from north to south along the east of the site boundary, of which approximately 3.3km is expected to be used during the construction phase. The 3.3km stretch of this road has therefore been chosen for assessment below.

The IAQM methodology for *the Assessment of Dust from Demolition and Construction* 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 (in this instance the L5024), 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.

- There are 2 no. high sensitivity receptors located within 20m of the L6254;
- There are 6 no. high sensitivity receptors within 50m of the L6254;
- There are 11 no. high sensitivity receptors within 100m of the L6254;
- There are 17 no. high sensitivity receptors within 250m of L6254.

Table 10-25 below identifies the sensitivity of the area surrounding the L6254 to dust soiling effects from trackout, as described in Section 10.1.6.3 above.

As per the criteria in Table 10-25 below, there are 2 no. high sensitivity receptors within 20m of the L6254, and 6 no. high sensitivity receptors within 50m of the L6254. The overall sensitivity of the area to dust soiling impacts is considered to be Low.

Table 10-24 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 10-26 below identifies the high sensitivity receptors in the area surrounding the L6254 to the health effects of PM<sub>10</sub>, as described in Section 10.1.6.3.1 above. The overall sensitivity of the area to human health effects of PM<sub>10</sub> is considered to be Low.

Table 10-25 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 <sub>10</sub> Concentration	Number Of Receptors	Distance from source (m)			
			<20	<50	<100	<250
High	<24 µg/m <sup>3</sup> (<14 µg/m <sup>3</sup> in Scotland)	>100	Medium	Low	Low	Low
		10-100	Low	Low	Low	Low
		1-10	Low	Low	Low	Low
Medium	<24 µg/m <sup>3</sup> (<14 µg/m <sup>3</sup> in Scotland)	>10	Low	Low	Low	Low
		1-10				
Low	-	≥1	Low	Low	Low	Low

As identified in Section 10.1.6.3 above, the Proposed Wind Farm 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 is summarised in Table 10-27 below.

Table 10-26 Summary Dust Risk Table for Proposed Wind Farm Activities

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 with no mitigation applied for the major dust generating activities during the construction phase of the Proposed Wind Farm and Proposed Grid Connection is Low. Therefore, the potential effects of dust from the construction phase of the Proposed Wind Farm are considered to be equivalent to short-term, slight negative effects.

### 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.
- All plant and materials vehicles will be stored in dedicated areas within the Site.
- Turbines and construction vehicles will be transported to the Site on specified haul routes only.
- Proposed Grid Connection infrastructure will be transported to the Site on specified haul routes only.

- Construction materials for the Proposed Grid Connection and a small volume for the Proposed Wind Farm will be sourced locally from licenced quarries.
- The agreed haul route roads 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 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 amount of emissions associated with vehicle movements
- A Construction and Environmental Management Plan (CEMP) will be in place throughout the construction phase (see Appendix 4-5). The CEMP will be a key construction contract document and will be implemented in full by the contractor.

### 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.

### Significance of Effects

Based on the assessment above the effects on air quality from dust emissions generated by traffic movements to and from the Site during the construction phase will be imperceptible.

## 10.4.3 Operational Phase

### 10.4.3.1 Exhaust Emissions: Proposed Project Infrastructure

#### Identification of Effect

##### **Proposed Wind Farm**

The operational phase of the Proposed Project will generate additional traffic to the area in the form of light goods vehicles (LGVs) visiting the site twice per week. Frequency of visits may increase over short periods during maintenance/component replacement activities. The addition of a LGV to the area one to two times per week during the operational phase will give rise to a long-term, imperceptible, negative effect due to the localised and intermittent nature of the maintenance.

#### Identification of Effect

##### **Proposed Wind Farm**

The permanent 110 kV onsite substation will be operated and maintained by Cahermurphy Renewables DAC. It is anticipated that substation operators will visit the Site 1 to 2 times per week in LGVs but on occasion, HGVs may be required to visit the Site more frequently 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 week during the operational phase will give rise to a long-term, imperceptible, negative, direct effect on air quality. 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, indirect effect on air quality.

### Mitigation & Monitoring Measures for the Proposed Project

- 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 suitably licensed/permitted facility by a fully licensed waste contactor where the waste will be sorted into individual waste streams for recycling, recovery or disposal. The MRF facility will be as local to the Site as possible to reduce the emissions associated with vehicle movements.

### Residual Effect

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

### Significance of Effects

Based on this assessment above the effects on air quality from exhaust emissions generated at the Site during the operational phase will be Imperceptible.

## 10.4.3.2 Overall Effect on Air Quality

### 10.4.3.2.1 Operational Phase: Carbon Offsetting

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<sub>2</sub>) 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 savings of carbon dioxide (CO<sub>2</sub>), oxides of nitrogen (NO<sub>x</sub>), and sulphur dioxide (SO<sub>2</sub>). The production of renewable energy from the Proposed Project will have a Long-Term Significant positive effect on air quality due to the offsetting of approximately 37,110 tonnes of Carbon Dioxide (CO<sub>2</sub>) per annum. Please see Ch. 11: Climate for further details on carbon displacement calculations.

### Residual Effect

The overall effect will be a Long-term Moderate Positive effect on air quality due to the offsetting of approximately 37,110 tonnes of Carbon Dioxide (CO<sub>2</sub>) per annum (see Ch. 11: Climate for details), due to the provision of renewable energy in the range of approximately 43,249 Irish households with electricity per year.

### Significance of Effects

Based on the assessment above there will be a long-term, moderate, positive indirect effect on air quality.

## 10.4.4 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 30-35 years. Following the end of their life, the wind

turbines may be replaced with a new set of turbines, subject to planning permission being obtained, or the Proposed Wind Farm may be decommissioned fully.

The works required during the decommissioning phase are described in Section 4.6 in Ch. 4: Description of the Proposed Project. A Decommissioning Plan is included as Appendix 4-6 of this EIAR for the decommissioning of the Proposed Project, the detail of which will be agreed with the local authority prior to any decommissioning.

### Pre-Mitigation Impact

Upon decommissioning of the Proposed Project, the wind turbines will be disassembled in reverse order to how they were erected. All above-ground turbine components will be separated and removed off-site for reuse or recycling.

It is proposed to leave the existing turbine foundations in place underground and to cover them with earth and reseed as appropriate. Leaving the turbine foundations in-situ is considered a more environmentally prudent option, as to remove that volume of reinforced concrete from the ground could result in significant environment nuisances such as noise, dust and/or vibration.

It is proposed that site roadways will be left in situ, as appropriate, as these are in use by the participating landowners to access their lands. If it were to be confirmed that the roads were not required in the future for any other useful purpose, they could be removed where required, however, this is not envisaged at this time. It is proposed to leave underground cables in place where they are below a level likely to be impacted by typical agricultural works.

During decommissioning, it may be possible to reverse or at least reduce some of the potential impacts caused during the initial construction of the wind farm by rehabilitating construction areas such as turbine bases and hard standing areas. This will be done by covering with local topsoil and reseeded with a local native mix to encourage vegetation growth and reduce run-off and sedimentation.

It is expected that the pre-mitigation impact associated with decommissioning of the Proposed Project will have a short-term, slight and negative effect on air quality.

### Mitigation Measures

- A decommissioning plan (Appendix 4-6) has been prepared as part of the EIAR, which includes mitigation measures for the decommissioning phase of Proposed Project. These include:
  - Prior to the end of the operational period the Decommissioning Plan will be updated in line with decommissioning methodologies that may exist at the time and will agree with the competent authority at that time.
  - Upon decommissioning of the wind farm, turbine foundations will remain in place underground and will be covered with earth and reseeded with an appropriate seed mix to accelerate the resumption of natural drainage management.
  - The underground cable ducting within the wind farm site will be left in-situ as it is considered the most environmentally prudent option, avoiding unnecessary excavation and soil disturbance.
  - Water misting or sprays will be used as required if particularly dusty activities are necessary during dry or windy periods;
  - The transport of soils or other material, which has significant potential to generate dust, will be undertaken in tarpaulin-covered vehicles where necessary;
  - All site related traffic will have speed restrictions on un-surfaced roads to 15 kph;
  - Any site roads with the potential to give rise to dust will be regularly watered, as appropriate, during dry and/or windy conditions.

Please refer to the Decommissioning Plan, included as Appendix 4-6 of this EIAR for further details.

### Residual Effect

The residual effect on Air Quality is a short-term, imperceptible and negative effect.

### Significance of Effects

Based on the assessment above there will be no significant effects on Air Quality associated with the decommissioning of the Proposed Project.

## 10.4.5 Cumulative Effects

The potential for impact between the Proposed Project, and other existing, permitted and proposed plans and projects with the potential to have significant cumulative environmental effects has been carried out with the purpose of identifying what influence the Proposed Project (Proposed Wind Farm and Proposed Grid Connection combined) will have on the surrounding environment when considered cumulatively with relevant existing permitted or proposed projects and plans within 25km of the Site, such as other wind energy developments, extractive industries, battery energy storage systems, forestry etc.. Please see Section 2.6.1 of Ch. 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 2.6 in Ch. 2: Background to the Proposed Project and Appendix 2-2 for full list of plans and projects assessed), there will be emissions from construction plant and machinery and potential dust emissions associated with the construction activities. Potential significant effects due to dust and exhaust emissions, including NO<sub>x</sub> and Fine Particulate matter (among others) could cumulatively cause potentially significant cumulative effects on sensitive receptors. The significance of these effects would be similar to those outlined in Section 10.4.2 to Section 10.4.4 above. It is assumed that the developers of all plans and projects in the area will, or will continue to adhere to best practice guidance and mitigation measures which have been outlined in planning documentation submitted which will ensure no significant effects on air quality will take place on an individual and cumulative scale in conjunction with the Proposed Project. It is currently expected that the only development that will overlap in construction/decommissioning that utilises the same delivery route as the Proposed Project is the Proposed Cloonkett Wind Farm, which minorly overlaps with the TDR as described in Chapter 4 of this EIAR. The contractor appointed by the Applicant during the construction and decommissioning of the Proposed Wind Farm will endeavour to contact contractors involved with the construction/decommissioning of other large scale developments in the vicinity of the Site. While it is proposed that the Proposed Project and the Proposed Cloonkett Wind Farm do not undergo construction concurrently, if this event were to arise, it would be expected to give rise to a short-term, slight, negative cumulative effect due to the small areas of overlap along delivery routes, and mitigation measures proposed as part of both applications. Once the mitigation proposals, as outlined in the above assessment are implemented during the construction phase of the Proposed Project, there will be no cumulative negative effect 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, moderate, positive impact on the air quality. There will be no measurable negative cumulative effect with other developments on air quality.

### 10.4.5.1 Construction Phase

#### Air Quality

As established in Section 10.4.2, 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 that there will be no residual 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.

### 10.4.5.2 Operational Phase

There will be no net carbon dioxide (CO<sub>2</sub>) emissions from the operation of the Proposed Project.

#### Air Quality

As established above in Section 10.4.3, there will be a long-term imperceptible effect on air quality due to:

- Exhaust and dust emissions from maintenance LGV vehicles visiting the site for weekly 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 10.4.3 that there will be an overall long-term, moderate positive effect on air quality given:

- There will be no net carbon dioxide (CO<sub>2</sub>) 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<sub>2</sub>), oxides of nitrogen (NO<sub>x</sub>), and sulphur dioxide (SO<sub>2</sub>).
- 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 37,110 tonnes of Carbon Dioxide (CO<sub>2</sub>) per annum, or 1,298,850 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 projects 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, moderate, positive impact on the air quality.

### 10.4.6 Difficulties Encountered & Limitations

The information provided in this ELAR chapter accurately and comprehensively describes the baseline environment and provides an informed prediction of the likely impacts of the Proposed Project. It also prescribes mitigation measures as necessary and describes the predicted residual effects. The data used throughout the chapter is the most updated data available, and no limitations on data were



encountered. Therefore, no significant limitations in the scope, scale or context of the assessment have been identified.

# EIA CLASSIFICATION SUMMARY

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

1.

## PROPOSED WIND FARM

Topic	Pre-Mitigation Effect	Mitigation Section Reference	Residual Effect	Significance
<b>Construction Phase</b>				
Exhaust Emissions	Short-Term, Slight, Negative	Section 10.4.2.1 Section 10.4.2.2	Short-Term, Imperceptible, Negative	Not Significant
Dust Emissions	Short-Term, Moderate, Negative	Section 10.4.2.3 Section 10.4.2.4 Section 10.4.2.5	Short-Term, Slight, Negative	Not Significant
<b>Operational Phase</b>				
Exhaust Emissions	Long-Term, Imperceptible, Negative	Section 10.4.3.2.1	Long-Term, Imperceptible, Negative	Not Significant
Air Quality	Long-term, Significant, Positive	N/A	Long-term, Significant, Positive	Significant
<b>Decommissioning Phase</b>				
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 10.4.2 will be implemented during the decommissioning phase also	10.4.2	N/A	N/A

2.

## PROPOSED GRID CONNECTION

Topic	Pre-Mitigation Effect	Mitigation Section Reference	Residual Effect	Significance
<b>Construction Phase</b>				
Exhaust Emissions	Short-Term, Slight, Negative	Section 10.4.2.1 Section 10.4.2.2	Short-Term, Imperceptible, Negative	Not Significant
Dust Emissions	Temporary, Slight, Negative	Section 10.4.2.3 Section 10.4.2.4 Section 10.4.2.5	Temporary, Slight, Negative	Not Significant
<b>Operational Phase</b>				
Air Quality	No Effect	N/A	No Effect	Not Significant
<b>Decommissioning Phase</b>				
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 10.4.2 will be implemented during the decommissioning phase also	10.4.2	N/A	N/A