



Human Health and Population

Chapter 13: Air Quality

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Glossary

| | |
|--|--|
| Application Site | The area within the red line Planning Boundary comprising the Onshore Transmission Works (OnTW), as defined. |
| Consented Offshore Transmission Works (OfTW) | Offshore substation platforms and their foundations and substructures, interconnector cables and offshore export cables, as consented by the Scottish Ministers on 10 October 2014. |
| Consented Offshore Wind Farm | Wind turbine generators and their foundations and substructures, and inter-array cables., as consented by the Scottish Ministers on 10 October 2014. |
| Construction Compound | An indicative area within the Application Site used to accommodate the temporary work site including; construction parking, construction welfare facilities, construction meeting room, construction laydown and storage area, construction security facilities (fenced area/gate and security access) and construction security lighting. |
| Dust | Solid particles that are suspended in air or have deposited onto a surface after having been suspended in air. |
| EIA Report | Report presenting the findings of the Environmental Impact Assessment (EIA). |
| Fugitive dust | Fugitive emissions are those which are not collected and released under controlled conditions. |
| ICOL's Offshore Transmission Works (OfTW) | Offshore substation platforms (OSPs) and their foundations and substructures, interconnector cables and Offshore Export Cables. This refers to either the Consented OfTW or Revised OfTW, as defined. |
| ICOL's Offshore Wind Farm | This includes proposed wind turbine generators, foundations and substructures and inter-array cables. This refers to either the Consented Offshore Wind Farm or Revised Offshore Wind Farm, as defined. |
| Landfall | Point where up to two Offshore Export Cables from ICOL's Offshore Wind Farm will be brought ashore. |
| Offshore Export Cable | The subsea, buried or protected electricity cables running from ICOL's Offshore Wind Farm offshore substation to the Landfall. |
| Onshore Export Cables | Electricity cables from the Onshore Substation to the grid connection point. |
| Onshore Export Cable Corridor | The area within the Application Site where the proposed Onshore Export Cables will be laid. |
| Onshore Substation | The electrical substation comprising of all the equipment and associate infrastructure required to enable connection to the electrical transmission grid. |
| Onshore Substation Site/Substation Site | The indicative area within the Application Site where the Onshore Substation and screening will be located. |
| Onshore Transmission Works (OnTW) | All proposed works within the Application Site, typically including the Onshore Substation, cables transition pits, cable jointing pits, underground electricity transmission cables connecting to the Onshore Substation and further underground cables required to facilitate connection to the national grid. This includes all |

| | |
|--|---|
| | permanent and temporary works required. See <i>Chapter 5: Description of Development</i> for full details. |
| Original Application Site | The red line planning boundary in which the Original OnTW was to be located in accordance with planning permission in principle with East Lothian Council (ELC) reference 14/00456/PPM. |
| Original Onshore Substation | The electrical substation comprising of all the equipment and associate infrastructure required to enable connection to the electrical transmission grid as was granted planning permission in principle in September 2014, under ELC reference 14/00456/PPM. |
| Original OnTW | The OnTW, as was granted planning permission in principle in September 2014, under ELC reference 14/00456/PPM. |
| Original OnTW EIA | The Environmental Impact Assessment (EIA) that was prepared to support the planning application for the Original OnTW and reported in the Original OnTW ES, as defined. |
| Original OnTW ES | The Environmental Statement (ES) that was submitted to support the application for the Original OnTW in 2014. |
| Passive Diffusion Tube | Diffusion tubes are passive samplers: they consist of small plastic tubes containing a chemical reagent to absorb the pollutant to be measured directly from the air. |
| Planning Boundary | The red line application boundary containing the Onshore Transmission Works (OnTW), as defined. |
| Revised Offshore Transmission Works (OfTW) | Offshore substation platforms and their foundations and substructures, interconnector cables and Offshore Export Cables, as per the scoping report submitted to Marine Scotland Licensing Operations Team on behalf of the Scottish Ministers in April 2017. |
| Revised Offshore Wind Farm | Wind turbine generators and their foundations and substructures, and inter-array cables, as per the scoping report submitted to Marine Scotland Licensing Operations Team on behalf of the Scottish Ministers in April 2017. |
| Scoping Opinion | The Scoping Opinion adopted by ELC as to the scope and information to be provided in support of an application for the OnTW, as defined. |
| Scoping Report | Report prepared as the first stage of the EIA process in support of a request for a Scoping Opinion from ELC, under Regulation 17 of the EIA Regulations. The Report was submitted in July 2017. |
| Suspended Particulate Matter | Particulate matter that remains suspended due to its small particle size (i.e. does not deposit) |
| Trackout | The transport of dust and dirt from a construction site onto the road network (transferred by vehicles leaving the site) where it may be deposited and re-suspended. |

Abbreviations and Acronyms

| | |
|-----------------------|---|
| AADT | Annual Average Daily Traffic |
| AQMA | Air Quality Management Area |
| AQAP | Air Quality Action Plan |
| AQO | Air Quality Objective |
| AQFD | Air Quality Framework Directive (2008/50/EC) |
| AQSR | Air Quality Standard (Scotland) Regulations 2010 & 2016 |
| AURN | Automatic Urban and Rural Network |
| CAFS | Cleaner Air For Scotland |
| CEMP | Construction Environmental Management Plan |
| CO | Carbon Monoxide |
| CTMP | Construction Traffic Management Plan |
| DPF | Diesel Particulate Filters |
| DMP | Dust Management Plan |
| ELC | East Lothian Council |
| EU | European Union |
| HDV | Heavy Duty Vehicles |
| HGV | Heavy Goods Vehicles (vehicles >3.5 tonnes) |
| IAQM | Institute of Air Quality Management |
| ICOL | Inch Cape Office Limited |
| kWh | Kilowatt-hour |
| LAQM | Local Air Quality Management |
| LDV | Light Duty Vehicle (vehicles <3.5 tones) |
| NGR | National Grid Reference |
| NO₂ | Nitrogen dioxide |
| NO_x | Oxides of nitrogen |
| NRMM | Non-Road Mobile Machinery |

| | |
|-------------------------|--|
| OfTW | Offshore Transmission Works |
| OnTW | Onshore Transmission Works |
| PM_{2.5} | Airborne particulate matter with an aerodynamic diameter less than 2.5 microns |
| PM₁₀ | Airborne particulate matter with an aerodynamic diameter less than 10 microns |
| SAC | Special Area of Conservation |
| SEPA | Scottish Environmental Protection Agency |
| SI | Spark Ignition |
| SPA | Special Protection Area |
| SPP | Scottish Planning Policy |
| SSSI | Site of Special Scientific Interest |
| UK AQS | United Kingdom Air Quality Strategy |
| µg/m³ | Microgram per cubic metre |

13 Air Quality

13.1 Introduction

- 1 This chapter of the EIA Report considers the potential significant impacts on air quality from the construction (and decommissioning) of the Inch Cape Onshore Transmission Works (OnTW). Operational impacts on air quality are not likely to lead to a significant effect and have been agreed through the Scoping process not to be assessed.
- 2 The following describes the scope, relevant legislation, assessment methodology and the current baseline conditions at the Application Site and the surrounding area. It then considers the potential significant air quality impacts on this baseline environment, taking into account the embedded mitigation, and the potential for cumulative impacts.
- 3 This chapter is supported by the following appendices:
 - Appendix 13A: EPUK and IAQM Operational Phase Screening Criteria

13.2 Consultation

- 4 Scoping responses received from East Lothian Council (ELC), which are relevant to air quality are summarised in Table 13.1 below, including Inch Cape Offshore Limited's (ICOL) response and where relevant information can be found within this EIA Report.

Table 13.1 Scoping Response from ELC

| Consultee | Scoping Response | ICOL Response |
|-----------|---|--|
| ELC | Assessment required of potential for dis-amenity impacts from deposited fugitive dust and health effects from suspended particulate matter and combustion pollutants associated with construction, decommissioning and vehicular movements. | Whilst 'dis-amenity' is a subjective term the potential adverse effects of deposited dust have been assessed within this chapter using custom and practice approaches as summarised in Section 13.6. |

13.3 Policy and Legislation

- 5 The following legislation and guidance are considered applicable to the OnTW and were taken into account during the assessment:
 - The Air Quality Standards (Scotland) Regulations 2010 (AQSR);
 - EU Air Quality Framework Directive (AQFD) and Fourth Daughter Directive;
 - The United Kingdom Air Quality Strategy (UK AQS) 2007 for England, Scotland, Wales and Northern Ireland;

- Cleaner Air for Scotland (CAFS) (Scottish Government, 2015);
- LAQM Technical guidance for review and assessment work (Scottish Government, 2016a and Scottish Government, 2016b); and
- Scottish Planning Policy (SPP) (2014).

13.4 Embedded Mitigation

6 The assessment of impacts on air quality has taken account a range of industry ‘best practice’ embedded mitigation measures to minimise environmental impacts which would be defined in the Construction Environmental Management Plan (CEMP); typical measures include:

- provision of adequate water supply for use as dust suppression as necessary;
- imposition of a speed limit on site;
- minimisation of double handling of materials;
- rapid re-vegetation of earthworks and bunds; and
- cleaning of haul roads and vehicle wheels exiting site to minimise trackout.

13.5 Baseline Environment

13.5.1 Study Area

7 The Application Site is centered at the site of the former Cockenzie Power Station and for the purposes of this Air Quality Assessment the ‘Study Area’ has been defined based on the relevant guidance as:

- a buffer of 350 metres from the Application Site boundary for construction dust as per the IAQM Construction Dust guidance as shown in Figure 13.1;
- a 50 metre buffer from roads used by site construction vehicles for potential Trackout associated with construction activities as per the IAQM Construction Dust guidance as shown in Figure 13.1; and
- a 200 metre buffer from roads used by traffic associated with the development (as per the DMRB guidance), namely the B1348, B6371 and A189.

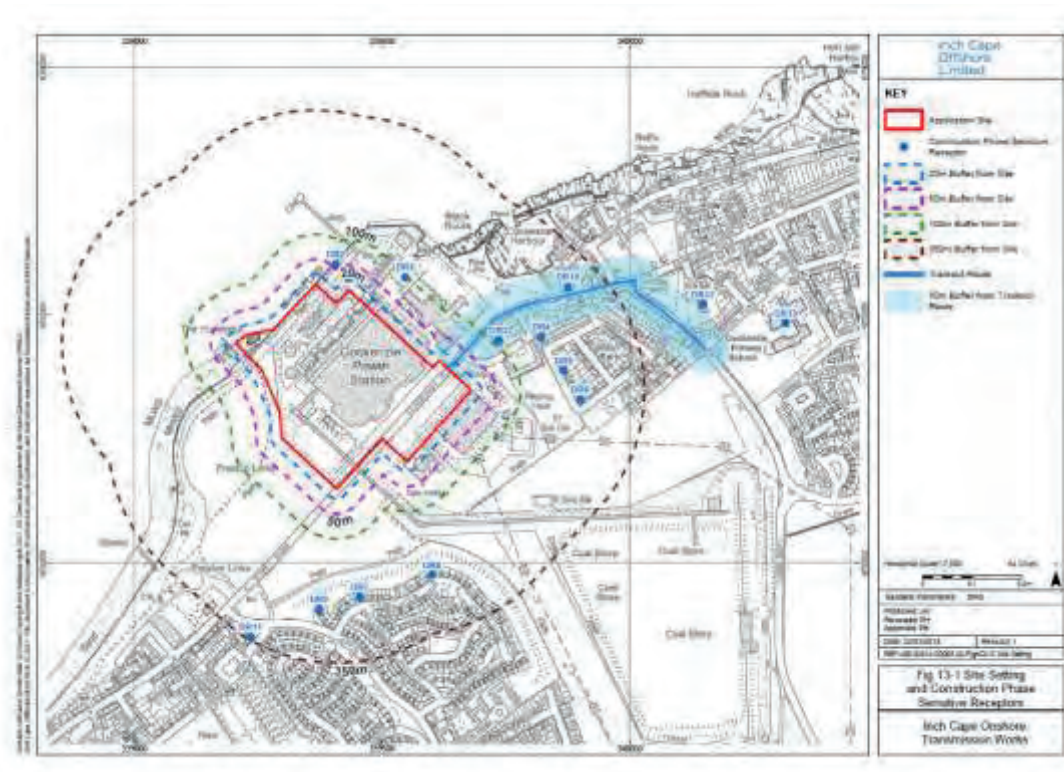


Figure 13.1: Site Setting and Construction Phase Sensitive Receptors

13.5.2 Data Sources

8 The following sources have been consulted to provide information for this air quality assessment:

- Measured concentrations of PM₁₀, and NO₂ provided by ELC (East Lothian Council, 2016);
- Background predicted mapped concentrations of PM₁₀, PM_{2.5}, NO₂ and NO_x from DEFRA UK-AIR and Air Quality in Scotland online resources;
- Meteorological data obtained from the Met Office; and
- Ecological designations and receptors obtained from Magic mapping website, Scotland's Nature Reserves and Scottish Natural Heritage websites.

13.5.3 Overview of Baseline

Meteorology

9 In relation to construction dust, the generation, release and dispersion of fugitive dust are particularly dependent upon weather conditions and the nature of the handled material. The most important climatic parameters governing the emission and magnitude of impact of dust are:

- Wind direction which determines the broad transport of the emission and the direction in which it is dispersed; and

- Wind speed will affect ground level emissions by increasing the initial dilution of pollutants in the emission; it will also affect the potential for dust entrainment.

10 Rainfall is also an important climatological parameter in the generation of dust; sufficient amounts of rainfall can suppress dust at the source and eliminate the pathway to the receptor. Rainfall greater than 0.2 mm per day is typically regarded as being sufficient to suppress dust emissions (Arup & Ove Arup, 1995).

Wind Speed and Direction Data

11 The meteorological station considered to represent conditions at the Application Site is located at Edinburgh Airport, located approximately 23.5 km to the west. A wind rose for this station is presented in Figure 13.2 below.

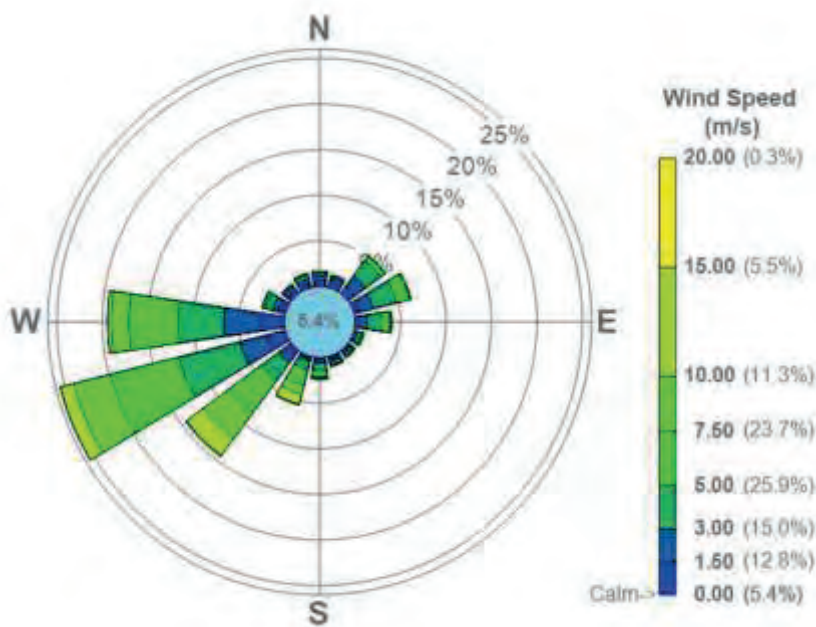


Figure 13.2 Wind Rose for Edinburgh Airport (2015)

12 From Figure 13.2 it can be seen that the majority of winds are from the south-west and west (220° – 270°) with winds from these sectors occurring for approximately 60 per cent of the year. On this basis, the locations in the north-eastern sectors have the highest potential for impacts from any dust emissions originating from the Application Site.

Rainfall

13 Relevant rainfall data applicable to the locale of the Application Site has been obtained from the Met Office website (Met Office, 2017) of UK mapped climate averages for 1981 - 2010. The average annual rainfall >0.2 mm/day for the area of the site is 180 - 200 days per year, comprising 49 per cent of the year.

Human Receptors

- 14 Receptors in the Study Area that are identified as being potentially at risk from dust generation during the construction phase of the OnTW are presented below in Table 13.2 and are illustrated on Figure 13.1. Where these are referenced within the report text, they are referred to as DR1-DR13.

Table 13.2 Construction Dust Sensitive Receptors

| Receptor | | NGR (m) | | Approximate Distance from Application Site Boundary (m) | Approximate Direction from Application Site Boundary |
|----------|----------------------------|---------|--------|---|--|
| | | X | Y | | |
| DR1 | Car Park | 339546 | 675576 | <10 m | Northeast |
| DR2 | Public Footpath | 339405 | 675602 | <10 m | North and Eastern boundary |
| DR3 | Industrial Units | 339735 | 675449 | 100 m | North-east |
| DR4 | Hawthorn Terrace Residence | 339821 | 675456 | 175 m | North-east |
| DR5 | Whin Park Residence | 339866 | 675388 | 190 m | East |
| DR6 | Whin Park Residence | 339900 | 675329 | 215 m | South-east |
| DR7 | Atholl View Residence | 339455 | 674932 | 215 m | South |
| DR8 | Atholl View Residence | 339600 | 674976 | 225 m | South |
| DR9 | Appin Drive Residence | 339372 | 674907 | 240 m | South |
| DR10 | Edinburgh Road Residence | 339875 | 675556 | 290 m | East |
| DR11 | Nethershot Road Residence | 339234 | 674851 | 345 m | South |
| DR12 | Medical Practice | 340148 | 675521 | 470 m | East |
| DR13 | Cockenzie Primary School | 340315 | 675483 | 580 m | East |

15 Human receptors can also be impacted by vehicular emissions. The increased traffic associated with the construction phase of the OnTW could impact on the air quality in the surrounding locale of the Application Site. Residential dwellings of Hawthorn Terrace, W Lornimer Place and Inglis Farm would be considered as sensitive receptors. Furthermore, the Medical Practice (DR12) and Cockenzie Primary School (DR13) would also constitute sensitive receptors. Further information on the increased traffic associated with the construction of the OnTW please refer to *Chapter 11: Traffic and Transport*.

Ecological Receptors

16 Guidance from the Institute of Air Quality Management (IAQM) (2016) states that construction dust impacts at ecological receptors requires assessment at locations up to 50 m from the site boundary. The DMRB (2007) furthermore states that ‘Special Areas of Conservation (SACs) including candidate sites, Special Protection Areas (SPAs) including potential sites, Sites of Special Scientific Interest (SSSIs) and Ramsar sites within 200 m of an ‘affected road’ require an assessment of the potential impact upon ambient air quality’.

17 A search within 50 m of the Application Site boundary and within 200 m of any road with traffic flow affected by the Application Site identified the following sites primarily designated for their importance as a habitat for wintering birds:

- Firth of Forth SSSI;
- Firth of Forth Ramsar for Wetlands of International Importance;
- Firth of Forth SPA; and
- Proposed Outer Firth of Forth and St. Andrews Bay Complex pSPA.

18 The Firth of Forth extends along the coastline and therefore borders the Application Site to the north-west. Given the proximity of the SSSI/Ramsar/SPA consideration of this ecological receptor is required within the assessment.

Air Quality

19 Analysis of the baseline air quality within in the Study Area has identified that the concentration of air pollutants is considered to be well below the relevant AQO’s for all pollutants considered (NO₂, NO_x, PM₁₀ and PM_{2.5}), however outside the study area elevated concentration of some pollutants have been identified.

Local Authority Review and Assessment

20 ELC has conducted an ongoing exercise to review and assess air quality within its area of jurisdiction. This process has indicated that annual mean concentrations of NO₂ are above, and predicted to remain above, the AQO at locations of relevant exposure. As such, ELC has declared one AQMA for exceeding the annual mean concentrations of NO₂, located along the High Street in Musselburgh. This AQMA is approximately 5.5 km to the south-west of the Application Site and therefore considered unlikely to be affected by development of the OnTW.

- 21 All other Air Quality Strategy pollutants were below the relevant AQOs at locations of relevant public exposure, as such no further AQMAs have been declared within the Council's administrative area.

Non-automatic Monitoring

- 22 Non-automatic monitoring for NO₂ using passive diffusion tubes monitoring is undertaken at 23 locations throughout the administrative area of ELC, as part of their commitment to LAQM.
- 23 At the time of assessment, the closest diffusion tubes to the Application Site were located in Tranent, approximately 2.5 km to the south. The results of the two locations in Tranent are presented in Table 13.3 below.

Table 13.3: NO₂ Diffusion Tube Monitoring Results, ELC

| Monitoring Location | Site Classification | NGR (m) | | Bias Adjusted Annual Mean Concentration (µg/m ³) | | |
|-----------------------|---------------------|---------|--------|--|------|------|
| | | X | Y | 2013 | 2014 | 2015 |
| T14- 26 High Street | Roadside | 340570 | 672780 | 24 | 24 | 21 |
| T15- 58 Bridge Street | Roadside | 340112 | 672905 | 19 | 17 | 16 |

- 24 Table 13.3 indicates that the annual mean NO₂ AQO of 40µg/m³ has been complied with at the two diffusion tube monitoring locations in Tranent during considered years.

Automatic Air Quality Monitoring

- 25 Automatic monitoring undertaken by ELC and DEFRA as part of the UK Automatic Urban and Rural Network (AURN) is not considered representative of the Study Area as the monitoring locates are over 5km from the site and located in urban areas and therefore have not been considered further.

Modelled background Air Quality Maps

- 26 Background pollutant concentration data on a one kilometre x one kilometre spatial resolution is provided by the UK Air Information Resource (UK AIR) (DEFRA, 2017b) and Scottish Air Quality Database. Both sets of data are routinely used to support LAQM and Air Quality Assessments. Mapped background concentrations were downloaded from the Scottish Air Quality Database for the following grid square containing the Application Site (339500, 675500).

27 Mapped background concentrations of NO_x, NO₂, PM₁₀ and PM_{2.5} for the considered grid square are presented within Table 13.4 below. These mapped background concentrations for 2017 are based upon the 2013 base year.

Table 13.4: Relevant Estimated Annual Mean Background Concentrations

| Pollutant | 2017 Background Concentration (µg/m ³) |
|---------------------|--|
| NO ₂ | 6.7 |
| NO _x | 9.9 |
| PM ₁₀ | 11.2 |
| PM _{2.5} * | 7.5 |

*Background concentrations for PM_{2.5} are not available from Scottish Air Quality Database; PM_{2.5} values have therefore been obtained from DEFRA UK AIR.

13.5.4 Baseline without the OnTW

28 If the OnTW were not implemented, upon completion of the decommissioning of the former Cockenzie Power Station, it is likely that there would be change to the context of the Application Site and immediately surrounding area with some form of development occurring. The site of the former Cockenzie Power Station is identified as a location for energy related development in National Planning Framework 3 and is identified in the adopted Local Plan 2008 for use as, or in association with, a power generating station, as discussed further in *Chapter 2: Policy and Legislation*. Therefore, without the OnTW it is likely that some form of development would take place that would also potentially be a source of impact on air quality.

13.6 Assessment Methodology

13.6.1 Guidance and Methods

29 Relevant information and guidance to this assessment includes:

- Institute of Air Quality Management (2016) Guidance on the Assessment of Dust from Demolition and Construction v1.1;
- Local Air Quality Management Technical Guidance (2016), Part IV of the Environment Act 1995, April 2016;
- Design Manual for Roads and Bridges, (2007) Volume 11, Section 3, Part 1, HA 207/07 - Air Quality, Highways Agency; and
- Land-Use Planning and Development Control: Planning for Air Quality (2017) – EPUK and IAQM v1.2.

13.6.2 Methodology

Construction Dust

- 30 The assessment of risk is determined by considering the risk of dust effects arising from the following four generic construction related activities:
- demolition;
 - earthworks;
 - construction; and
 - track-out.
- 31 The assessment methodology considers the following potential dust related impacts:
- annoyance due to dust soiling;
 - the risk of health effects due to an increase in exposure to PM10; and
 - harm to ecological receptors.
- 32 The first stage of the assessment involves a screening to determine if there are sensitive receptors within threshold distances of the site activities associated with the construction of the scheme. No further assessment is required if there are no receptors within a certain distance of the works: 350 m for human receptors and 50 m for designated ecological receptors.
- 33 The dust emission class (or magnitude) for each activity is then determined on the basis of the IAQM Construction Dust guidance (IAQM, 2016), and expert judgement.
- 34 The risk of dust effects arising is then derived based upon the relationship between the dust emission class and the sensitivity of the area.
- 35 Initially this requires an evaluation of the sensitivity of the surrounding area which is based on the sensitivity of different receptor types as detailed within Table 13.5 below.

Table 13.5 Receptor Sensitivity to Dust Effects

| Receptor Sensitivity | Examples | | |
|----------------------|---|---|--|
| | Human Receptors | | Ecological Receptors |
| | Dust Soiling Effects | Health Effects of PM ₁₀ | |
| High | <p>users can reasonably expect an enjoyment of a high level of amenity; or</p> <p>the appearance, aesthetics or value of their property would be diminished by soiling; and the people or property would reasonably be expected to be present continuously, or at least regularly for extended periods.</p> <p>i.e. dwellings, museums and other culturally important collections, car parks and car showrooms.</p> | <p>locations where members of the public are exposed over a time period relevant to the air quality objective for PM₁₀.</p> <p>i.e. residential properties. Hospitals, schools and residential care homes should also be considered as having equal sensitivity to residential areas for the purposes of this assessment.</p> | <p>locations with an international or national designation and the designated features may be affected by dust soiling; or</p> <p>locations where there is a community of a particularly dust sensitive species such as vascular species included in the Red Data List For Great Britain.</p> <p>indicative examples include a Special Area of Conservation (SAC) designated for acid heathlands or a local site designated for lichens a.</p> |
| Medium | <p>users would expect to enjoy a reasonable level of amenity, but would not reasonably expect to enjoy the same level as in their home; or</p> <p>the appearance, aesthetics or value of their property could be diminished by soiling; or the people or property wouldn't reasonably be expected to be present here continuously or regularly;</p> <p>i.e. parks and places of work.</p> | <p>locations where the people exposed are workers, and exposure is over a time period relevant to the air quality objective for PM₁₀.</p> <p>indicative examples include office and shop workers, but will generally not include workers occupationally exposed to PM₁₀, as protection is covered by Health and Safety at Work legislation.</p> | <p>locations where there is a particularly important plant species, where its dust sensitivity is uncertain or unknown; or</p> <p>locations with a national designation where the features may be affected by dust deposition.</p> <p>indicative example is a Site of Special Scientific Interest (SSSI) with dust sensitive features.</p> |
| Low | <p>the enjoyment of amenity would not reasonably be expected; or</p> | <p>locations where human exposure is transient.</p> <p>indicative examples include</p> | <p>locations with a local designation where the features may be</p> |

| | | | |
|--|--|--|---|
| | <p>property would not reasonably be expected to be diminished in appearance, aesthetics or value by soiling; or</p> <p>there is transient exposure, where the people or property would reasonably be expected to be present only for limited periods of time;</p> <p>i.e. playing fields, farmland (unless commercially-sensitive horticultural), footpaths, short term car parks and roads.</p> | <p>public footpaths, playing fields, parks and shopping streets.</p> | <p>affected by dust deposition.</p> <p>indicative example is a local Nature Reserve with dust sensitive features.</p> |
|--|--|--|---|

36 Table 13.6 to Table 13.8 below illustrate how the sensitivity of the area as a whole is then determined for dust soiling, human health and ecosystem impacts, respectively depending on the individual receptor sensitivity, proximity to site, and number of receptors of each type. The highest level of sensitivity is applied and distances are from the dust emission sources; where this is not known, receptor distances are determined from the Application Site boundary.

Table 13.6 Sensitivity of Area to Dust Soiling Impacts on People and Property

| Receptor Sensitivity | Number of Receptors | Distance from Source (m) | | | |
|----------------------|---------------------|--------------------------|--------|--------|------|
| | | <20 | <50 | <100 | <350 |
| 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 13.7 Sensitivity of Area to Human Health Impacts

| Receptor Sensitivity | Annual Mean PM ₁₀ Concentration | Number of Receptors | Distance from the Source (m) | | | | | |
|----------------------|---|---------------------|------------------------------|--------|--------|--------|------|-----|
| | | | <20 | <50 | <100 | <200 | <350 | |
| High | >32µg/m ³ (>18µg/m ³ in Scotland) | >100 | High | High | High | Medium | Low | |
| | | 10 – 100 | High | High | Medium | Low | Low | |
| | | 1 – 10 | High | Medium | Low | Low | Low | |
| | 28 – 32µg/m ³ (16-18µg/m ³ in Scotland) | >100 | High | High | Medium | Low | Low | |
| | | 10 – 100 | High | Medium | Low | Low | Low | |
| | | 1 – 10 | High | Medium | Low | Low | Low | |
| | 24 – 28µg/m ³ (14-16µg/m ³ in Scotland) | >100 | High | Medium | Low | Low | Low | |
| | | 10 – 100 | High | Medium | Low | Low | Low | |
| | | 1 – 10 | Medium | Low | Low | Low | Low | |
| | <24µg/m ³ (<14µg/m ³ in Scotland) | >100 | Medium | Low | Low | Low | Low | |
| | | 10 – 100 | Low | Low | Low | Low | Low | |
| | | 1 – 10 | Low | Low | Low | Low | Low | |
| Medium | >32µg/m ³ (>18µg/m ³ in Scotland) | >10 | High | Medium | Low | Low | Low | |
| | | 1 – 10 | Medium | Low | Low | Low | Low | |
| | 28 – 32µg/m ³ (16-18µg/m ³ in Scotland) | >10 | Medium | Low | Low | Low | Low | |
| | | 1 – 10 | Low | Low | Low | Low | Low | |
| | 24 – 28µg/m ³ (14-16µg/m ³ in Scotland) | >10 | Low | Low | Low | Low | Low | |
| | | 1 – 10 | Low | Low | Low | Low | Low | |
| | <24µg/m ³ (<14µg/m ³ in Scotland) | >10 | Low | Low | Low | Low | Low | |
| | | 1 – 10 | Low | Low | Low | Low | Low | |
| | Low | - | 1 | Low | Low | Low | Low | Low |

Table 13.8 Sensitivity of the Area to Ecological Impacts

| Receptor Sensitivity | Distance from the Source (m) ^(A) | |
|--|---|--------|
| | <20 | <50 |
| High | High | Medium |
| Medium | Medium | Low |
| Low | Low | Low |
| NOTE: For trackout, the stances should be measured from the side of the roads used by construction traffic. | | |

37 Table 13.9 to Table 13.12 below illustrate how the dust emission magnitude is combined with the sensitivity of the area to determine the risk of impacts for each activity type.

Table 13.9 Risk of Dust Impacts- Demolition

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

Table 13.10 Risk of Dust Impacts – Earthworks

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

Table 13.11 Risk of Dust Impacts – Construction

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

Table 13.12 Risk of Dust Impacts – Trackout

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

38 The determined ‘dust impact risk’ for each activity is then used to assess the requirement for additional mitigation measures to ensure the overall residual effects are ‘not significant’.

Road Traffic Emissions Assessment

39 The assessment of the potential impact of emissions from road traffic has been undertaken by reviewing the trip generation and vehicle routing against the screening criteria provided in the IAQM and DMRB guidance to identify if additional assessment is required.

13.6.3 Identification of Effects

40 The identification of effects has been undertaken in accordance with the criteria defined in the IAQM Construction Dust guidance (IAQM, 2016) and within EPUK and IAQM Planning for Air Quality guidance (EPUK & IAQM, 2017).

13.7 Impact Assessment

13.7.1 Effects of Construction

41 Construction activities will include:

- Material import and export;
- Temporary stockpiling of materials;
- Construction of trenches, transition and joining pits;

- Landing of Offshore Export Cables;
 - Construction of Onshore Substation (including infill and landscape bund formation); and
 - Other associated vehicle movements.
- 42 Potentially significant air quality impacts associated with these activities have been identified as:
- Construction Dust - Generation of dust emissions on-site during construction works; and
 - Vehicular Pollutants - Generation of emissions from construction plant (NRMM) and construction phase road traffic, including Light Duty Vehicles (LDVs) carrying construction workers to and from the Application Site and HDV movements involved with the export and import of construction material.

13.7.2 Construction Dust Magnitude

- 43 The potential construction dust emission magnitude (as per the IAQM guidance) associated with the OnTW is summarised in Table 13.13 below.

Table 13.13: Summary Construction Dust Magnitude

| Activity | Dust Emission Magnitude – incorporating embedded mitigation | Justification |
|--------------|---|--|
| Demolition | N/A | No demolition required on site |
| Earthworks | Large | <p>The total site area over which earthworks will be required will be in excess of 10,000m² and includes the Substation footprint, construction compound, trenching for cabling and earth embankment. The earthworks are likely to involve the use of >10 heavy earth moving vehicles and significant quantities of material being moved.</p> <p>Therefore, the dust emission magnitude is classified as 'large' according to the IAQM criteria.</p> |
| Construction | Large | <p>The new building is within 25,000 m³ volume threshold and construction will be steel framed with concrete block walls. The construction of base slabs and cable transition pits will be constructed from concrete.</p> <p>Therefore, the dust emission magnitude is classified as 'large' according to the IAQM criteria.</p> |
| Trackout | Medium | <p>Construction vehicles will most likely access the site via the A1, A198, B6371 and the B1348. The development of the site is anticipated to generate between 10-50 HDV outward movements in any one day</p> <p>Therefore, the dust emission magnitude is classified as medium according to the IAQM criteria.</p> |

13.7.3 Construction Dust Sensitivity of Area

Soiling

44 In terms of dust soiling there are between 10 – 100 residential properties within the Study Area, with the closest located 175 m to the north-east as shown in Figure 13.1, these are residential dwellings where users can reasonably expect a high level of amenity. Additionally, industrial units and car parking areas are situated within 100m of the Application Site boundary; these are locations where users would expect to enjoy a reasonable level of amenity as well as a footpath along the site boundary.

- 45 Therefore, considering the limited number of high sensitivity receptors and their distance from the Site, as per Table 13.6, the sensitivity of the area to dust deposition impacts is considered to be low.

Human Health

- 46 The background PM₁₀ concentration for the 1 km² grid square containing the Study Area is estimated to be 11.2 µg/m³; well below the annual AQO of 18 µg/m³.
- 47 Therefore, considering the limited number of high sensitivity receptors and their distance from the Site, as per Table 13.7, the sensitivity of the area to human health impacts as a result of PM₁₀ is considered to be low.

Ecological

- 48 The Firth of Forth extends along the coastline and therefore borders the Application Site to the north-west. The section of intertidal habitat bordering the Application Site comprises a sand and pebble beach shoreline and therefore is not considered likely to be sensitive to the effects of dust deposition and has therefore been classified as being of low sensitivity.
- 49 Therefore, considering the type and proximity of receptor, as per Table 13.8, the sensitivity of the area to ecological impacts as a result of dust deposition is considered to be low.

Sensitivity Summary

- 50 A summary of the sensitivity of the Study Area to potential impacts from construction dust is presented within Table 13.14 below.

Table 13.14 Construction Dust - Sensitivity of Surrounding Area

| Potential Impact | Sensitivity of Surrounding Area | | |
|------------------|---------------------------------|--------------|----------|
| | Earthworks | Construction | Trackout |
| Dust Soiling | Low | Low | Low |
| Human Health | Low | Low | Low |
| Ecological | Low | Low | Low |

13.7.4 Construction Dust Assessment Summary

- 51 A summary of the determined risk category for each phase of the construction of the OnTW is presented within Table 13.15 below.

Table 13.15 Construction Dust - Assessment Summary of Risk

| Potential Impact | Risk of Dust Impact | | |
|------------------|---------------------|--------------|----------|
| | Earthworks | Construction | Trackout |
| Dust Soiling | Low | Low | Low |
| Human Health | Low | Low | Low |
| Ecological | Low | Low | Low |

52 Given that the potential impact for all construction related phases has been determined as low risk, there is not considered to be a requirement for additional mitigation measures beyond those that will be defined within the CEMP.

13.7.5 Construction Vehicular Pollutants

53 Road traffic emissions associated with vehicle movements, particularly HDV movements, during the construction phase have the potential to result in increased concentrations of combustion related pollutants, such as NO₂ and PM₁₀ in the vicinity of the Application Site.

54 Information on traffic movements anticipated during construction works is outlined in *Chapter 11: Traffic and Transport / Appendix 11A* The Traffic Assessment predicts a maximum of 67 two-way HDV movements per day, which would occur for a two month period. HDV movements during the remaining months are predicted to average 30 two-way movements per day.

55 The Traffic Assessment predicts a maximum of 113 LDV two-way movements per day for a two month period. LDV movements during the remaining months are predicted to average 52 two-way LDV movements per day.

56 The distribution of HDV traffic is anticipated to travel to / from the Application Site via the B1348, A198 and B6371 from the west along the A1. It has been predicted that 90 per cent of all HDV movements would travel along this route. A similar distribution is predicted for LDV movements.

57 Based on the information provided in *Chapter 11: Traffic and Transport* and summarised above, the traffic movements associated with the OnTW during the construction phase are not above the DMRB or the EPUK and IAQM criterion (upper criterion applied; 500 AADT for LDVs and 100 AADT for HDVs). Therefore, in accordance with the criterion presented within EPUK and IAQM guidance, additional road vehicle trips during the construction phase of the scheme '*can be considered to have insignificant effects*' on air quality.

58 With regard to the DMRB criteria, the predicted increase in traffic on the surrounding road links is considered to be below the defined threshold (1,000 AADT or 200 HDV movements) for an '*affected road*'. Therefore, in accordance with the DMRB Guidance, '*the impact of the*

scheme [from construction phase vehicle movements] can be considered to be neutral in terms of local air quality and no further work is required’.

- 59 Furthermore, the duration of movements will be short-term in nature and as such are not considered further within the context of this assessment.

Non-Road Mobile Machinery

- 60 LAQM.TG(16) guidance states that with the application of suitable control measures and site management, exhaust emissions from on-site NRMM are “unlikely to make a significant impact on local air quality. In the vast majority of cases they will not need to be quantitatively assessed”.

- 61 Therefore, given the duration and quantum of the proposed site activities, emissions from NRMM have not been considered further within the context of this assessment.

13.7.6 Effects of Decommissioning

- 62 Once the operational lifetime of the associated cables comes to an end, decommissioning of the OnTW will be required. It is anticipated that the Onshore Export Cables will be removed and the ground re-installed. An appropriate decommissioning plan will be prepared in consultation with ELC.

- 63 Once the operational lifetime of the Onshore Substation comes to an end, decommissioning of the OnTW will be required. All temporary areas will be reinstated after use. Demolition of the substation and foundations could be a potential dust emission source. Given the size of the Onshore Substation and the materials used in the construction phase (e.g. concrete), the dust emission magnitude would be classified as medium.

Table 13.16 Risk of Dust Impact: Demolition of Onshore Substation

| Risk of Dust Impact | Potential Impact | | |
|---------------------|------------------|--------------|------------|
| | Dust Soiling | Human Health | Ecological |
| Demolition | Low | Low | Low |

13.8 Cumulative Impact Assessment

13.8.1 Cumulative Effects of Construction

64 No significant cumulative air quality effects associated with ICOL's Offshore Wind Farm or Offshore Transmission Works (OfTW) during the construction phase are predicted.

13.8.2 Cumulative Effects of Decommissioning

65 No significant cumulative air quality effects with ICOL's Offshore Wind Farm or OfTW are predicted during the decommissioning phase.

13.9 Impact Interactions

66 There is potential for short term interactive effects to arise as a result of general disturbance and nuisance on local residents within the Study Area resulting from the combined effects of periodic increases in noise from construction, vehicle movements associated with the OnTW, particularly heavy vehicle traffic and the dust generated by construction activities. These events are predicted to be short term in duration and with embedded mitigation outlined in *Section 13.4* above the residual effects are not considered to be significant.

13.9.1 Cumulative with Other Projects

67 At the time of the assessment the only projects considered for potential cumulative impacts were as follows:

- Blindwells Development (14/00768/PPM). This site is located approximately 1.5 km to the south-east. Given the lack of proximity and location of the two sites, there is not considered to be the potential for significant cumulative effects.

13.10 Conclusion and Residual Effects – Onshore Transmission Works

68 SLR Consulting has undertaken an Air Quality Assessment in support of the planning application for the proposed OnTW at the former Cockenzie Power Station, to the east of Preston Links.

69 A qualitative assessment of the potential dust impacts during the construction and decommissioning stages of the OnTW has been undertaken. Through good practice and implementation of appropriate mitigation measures, it is expected that the release of dust would be effectively controlled and mitigated, with resulting effects considered to be '*not significant*'. All dust impacts are considered to be temporary and short-term in nature.

70 The results of the Air Quality Assessment indicate that additional development flows associated with the construction and operation of the OnTW do not exceed the EPUK and IAQM or DMRB criteria for further assessment. Therefore, the potential air quality effect of additional development related trips can be considered *neutral / not significant* in accordance with the stated guidance.

Table 13.17 Summary of effects with embedded mitigation

| Impact | Receptors | Effect (Including embedded mitigation) |
|-------------------------------|--|---|
| Dust Soiling | DR1-DR13 | Low Risk |
| PM ₁₀ Human Health | DR1-DR11 | Low Risk |
| Ecological Effects | Firth of Forth SSSI, Ramsar, SPA, pSPA | Low Risk |
| Vehicle Emissions | DR1, DR3, DR10, DR12 | Negligible |

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