

1 NON-TECHNICAL SUMMARY

1.1 INTRODUCTION

This is the Non-Technical Summary of the Environmental Report that has been prepared to accompany a planning application by EirGrid plc to An Bord Pleanála for approval to develop the Laois – Kilkenny Reinforcement Project.

The project consists of the following 8 units:

- Unit 1: New 400/110kV GIS substation, Coolnaback near Portlaoise Co. Laois.
- Unit 2: New 400kV line connection to Coolnaback from the existing Moneypoint-Dunstown 400kV line (c. 1.4km).
- Unit 3: New 110kV connection to Coolnaback substation from the existing Athy-Portlaoise 110kV line.
- Unit 4: A new 110kV / 38kV / MV substation in Moatpark, Ballyragget, Co. Kilkenny adjacent to the existing 38kV /MV substation.
- Unit 5: A new 110kV overhead line between Ballyragget and Coolnaback (c. 26km).
- Unit 6: An uprate to the existing Ballyragget-Kilkenny 110kV overhead line (c. 22km).
- Unit 7: A new bay in the existing Kilkenny 110kV station.
- Unit 8: Modifications to existing Athy-Portlaoise 110kV line.

The Environmental Report sets out a description of the proposed development, an outline of the main alternatives studied by the developer (and an indication of the main reasons for this choice), a description of aspects of the environment which could be potentially affected by the proposed development, a description of the potential effects of the proposed development on the environment, a description of the forecasting methods used to assess the potential effects on the environment referred to above, a description of the measures envisaged to prevent, reduce and offset any potential adverse effects on the environment and a non-technical summary of this information. In addition, the Environmental Report addresses the concerns identified in the Stage 1 Lead Consultants Report (May 2011), which was carried out for the project and identified the most significant constraints within the study area, and in the Stage 2 Lead Consultants Report (February 2012), which considered the emerging preferred route corridor. The Report also addresses concerns raised in submissions received during the consultation process. Alternatives have been considered in the Stage 1 and 2 project reports and are further discussed in the Planning Report (see Chapter 7).

The potential impacts of the operation and construction phases of the proposed development have been assessed and summarised under the following environmental topics:

- Human Beings and Population
- Landscape and Visual Impact
- Cultural Heritage
- Ecology
- Soils and Geology
- Water (Hydrology and Hydrogeology)
- Material Assets
- Air and Climatic Factors
- Interaction of the foregoing

Mitigation measures have been integrated into the project with a preference given to measures that avoid potential environmental effects over measures that reduce and remedy potential environmental effects.

Assessments were carried out on the basis of available access and information, i.e. on the basis of conditions that could be reasonably viewed or inferred from aerial photography, published reports and direct observation during site visits.

1.2 HUMAN BEINGS AND POPULATION

This section of the Report provides an assessment of the route for the proposed development under the heading of Human Beings and Population.

The proposed project travels through a region that has experienced continued population growth over the last few years. The route is proximate to the towns and villages of Abbeyleix, Ballinakill, Ballyragget and Ballyroan. The route has, in the main, avoided centres of population.

Economic activity in the general area is principally based around agricultural activities with urban related economic activity occurring in Portlaoise and Kilkenny City. To continue to attract investment (both domestic and foreign) and to support agricultural and rural enterprise, physical infrastructure will continue to play a key role including energy, broadband, and transport.

In addition to the urban areas of Laois and Kilkenny, which have buildings and features of tourism interest, local amenities near the proposed route include; heritage towns, scenic landscape, scenic routes, significant tree groups, high amenity zones, outdoor activities, forestry, rivers and lakes.

There are no significant constraints in relation to Human Beings and Population. The implementation of appropriate mitigation measures (as described in the sections on Ecology, Landscape and Visual Impact and Cultural Heritage) will ensure there will be no significant residual impact on the environment from the proposed development with regards to Human Beings and Population.

1.3 LANDSCAPE AND VISUAL IMPACT

The renewal of the line south of Ballyragget will give rise to a localised increase in the intensity of the established effect of the existing 110kV line.

This new project will give rise to significant localised changes to the appearance of the immediate vicinity of the substation at Ballyragget.

North of Ballyragget the project will cause localised changes that will be intermittently visible from roads close to the development with limited impacts on the wider landscape. Visibility against the skyline, will be very localised on account of topography and vegetation, particularly from the R 432, the environs of Ballinakill or Haywood Demesne.

North of Ballinakill the route crosses some elevated areas that will give rise to some skyline views – affecting small numbers of houses or roads. There will be localised effects around Boleybeg Cross Roads after which the route crosses elevated and afforested lands that contain low levels of roads or dwellings. There will be no significant landscape or visual effects on the historic settlement of Timahoe or its environs.

In the general vicinity of Loughteog and Coolnabacky there will be a locally significant landscape effects due to the combination of the existing 400kV and 110kV lines, the proposed substation and the proposed 400kV link.

The route selection process was the main method used to avoid landscape effects.

1.4 CULTURAL HERITAGE

An archaeological and cultural heritage assessment of Units 1-8 of the proposed Laois-Kilkenny reinforcement project has been undertaken. The purpose of this assessment is to identify any potential

impacts on the Cultural Heritage landscape. It amalgamates desk-based research and the results of field walking survey to identify areas of archaeological, architectural or cultural heritage significance or potential, likely to be impacted by the proposed reinforcement project.

A desk-based constraints study for a broad study area was initially undertaken which was then followed by an assessment of potential substation sites and potential route corridors.

The assessment of the preferred routes and substation sites is the subject of this report. A number of documentary and cartographic sources were consulted in order to identify and map nearby cultural heritage sites. A programme of field walking along each unit of the reinforcement project was also undertaken in order to assess the potential impact of the project on recorded archaeological monuments, protected structures and any items of cultural heritage. The field work also served to identify any previously unrecorded archaeological monuments or features/structures of architectural or cultural heritage significance. The assessment of the archaeology and cultural heritage along the proposed reinforcement project was carried out with regard to the Code of Practice between EirGrid and the Department of the Environment, Heritage and Local Government (DoEHLG) (2009).

No significant impacts on the archaeological, architectural or cultural heritage along the proposed reinforcement project have been identified. Where potential impacts have been identified they are mainly categorised as 'slight' and appropriate mitigation has been recommended in order to minimise any such impact.

1.5 ECOLOGY

This report presents an Ecological Impact Assessment (EclIA) of the proposed Laois Kilkenny Reinforcement project. The potential impacts (direct, indirect and cumulative) of the proposed development on the flora and fauna of the study area are assessed.

A number of ecological reports and surveys have been carried out during the constraints identification and route evaluation stages of the proposed development that have enabled an assessment of the potential ecological impacts of the proposed scheme. These reports and surveys include:

- Ecological constraints report on the study area
- Winter bird surveys undertaken over two seasons (January 2010 – April 2010 and October 2010 - April 2011)
- Ecological assessment of potential route corridors and route selection
- Ecological Assessment of potential substation site options and site selection
- Assessment of preferred route corridor which included multidisciplinary walkover surveys of line routes and substation sites associated with the development

A description of the existing ecological environment surrounding the proposed development (divided into eight individual components or units) is presented, paying particular attention to features of ecological interest. Those features of particular interest in the surrounding area are associated with the River Barrow and River Nore candidate Special Area of Conservation (a designated site of European significance). The potential impacts of the proposed development on this and other European sites in the surrounding area have been assessed in the form of a Natura Impact Statement (NIS).

The conclusion of the NIS is such that, the correct implementation of all mitigation measures detailed in the report will ensure that the conservation objectives for the cSAC will not be compromised by the proposed development, nor by any cumulative effects and no significant impact is anticipated on any of the species and habitats for which the site is designated. It is the considered view of the author that the proposed development will have no adverse impact on the integrity of the designated site as a whole or on any other designated site.

Most of the lands that are present within the substation sites and along the line routes are of low ecological value with few areas of semi-natural habitat recorded. The ecological characteristics of the line

routes, substation sites and surroundings are evaluated and features and areas of particular ecological sensitivity identified.

Potential direct and indirect impacts of the proposed scheme on ecology are described and assessed. Predictions are made with regards to the magnitude and significance of these impact; and these range from imperceptible to minor in significance.

Following suggested mitigation, the potential ecological impacts of the proposed development are reduced to give at most an imperceptible negative impact at the local scale. It is concluded that the impacts of the construction and operation of the reinforced electrical infrastructure on the ecology of the study area are likely to be imperceptible provided construction, management and restoration on decommissioning follow best practice procedures, and the proposed mitigation measures are adopted.

1.6 SOILS AND GEOLOGY

This section assesses the potential impacts on soils and geology arising from the proposed Laois-Kilkenny Reinforcement Project.

The assessment was carried out according to the methodology specified by the Environmental Protection Agency (EPA) and the Institute of Geologists of Ireland (IGI). An extensive walkover of the proposed substations and line routes and windscreen surveys were carried out in October 2011 – June 2012 by AWN Consulting Ltd, in order to assess the baseline soils and geological environment and confirm the findings of the baseline desk study of site investigation reports in relation to the proposed Coolnabacky and Ballyragget substations, numerous guidance and publications.

A description of the receiving environment is described in terms of soils and geology. The underlying soils, subsoils and bedrock geology were noted. Alluvium is present at the proposed Coolnabacky substation location and surrounding area. Gleys and Grey Brown Podzolics are the distinct soil types that exist along the line routes. The subsoils comprise of till derived from bedrock sandstones, shales and limestones of the Carboniferous Period.

The GSI was consulted in relation to any areas of geological heritage or interest located in the study area. According to the GSI, there is 1 no. site of geological interest that lies within the vicinity of the proposed substation (located 250m. South) - Timahoe Eskers, Co. Laois - Esker ridges. There are three sites of geological interest in the vicinity of the proposed line route. These are Ballyragget Quarry, Dunmore Cave and the Kyle Spring.

Potential short term impacts during the construction phase include activities associated with the excavation, handling, storage, transport and re-use of soils, subsoils, bedrock and contaminated materials (if present), foundations for substations, temporary paving or compaction of soils, temporary construction of tracks and traffic management procedures.

The design of the proposed substations and line routes has taken account of the potential impacts on the soils and geology environment local to the area where construction is taking place. Measures have been incorporated in the design to mitigate the potential effects on the surrounding soils and geology environment. A project-specific Construction and Environmental Management Plan¹ will be established and maintained by the contractors during the construction and operational phases. The mitigation measures for decommissioning phase would be the same as the measures highlighted for the construction phase.

The implementation of the mitigation measures will ensure that the soils and geology environment is not adversely impacted during normal and/or emergency conditions and that the impact will be short term - imperceptible.

1.7 WATER (HYDROLOGY AND HYDROGEOLOGY)

This section assesses the potential impacts on Water (hydrology and hydrogeology) arising from the proposed Laois-Kilkenny Reinforcement Project.

The assessment was carried out according to the methodology specified in Environmental Protection Agency (EPA) guidance documents and included a review of all necessary site investigation reports, water related guidance, policy documents, legislation and databases.

An extensive walkover of the proposed substations and line routes and windscreen surveys were carried out in October 2011 – June 2012 by AWN Consulting Ltd, in order to assess the baseline water environment in the study area and confirm the findings of the desk study.

A description of the receiving environment is described in terms of Water (hydrology and hydrogeology). The Laois-Kilkenny Reinforcement Project is located within the South Eastern River Basin District (SERBD)

¹ Prior to commencement of development, a Construction Environment Management Plan (CEMP) shall be submitted to, and agreed in writing with, the planning authorities, following consultation with relevant statutory agencies. This plan shall incorporate the mitigation measures indicated in the Environmental Report, and any others deemed necessary, and shall provide details of intended construction practice for the proposed development, including:

- a) location of the site and materials compound(s) including area(s) identified for the storage of construction refuse,
- b) location of areas for construction site offices and staff facilities,
- c) details of site security fencing and hoardings,
- d) details of on-site car parking facilities for site workers during the course of construction,
- e) details of the timing and routing of construction traffic to and from the construction site and associated directional signage, to include proposals to facilitate the delivery of abnormal loads to the site,
- f) measures to obviate queuing of construction traffic on the adjoining road network,
- g) measures to prevent the spillage or deposit of clay, rubble or other debris on the public road network,
- h) alternative arrangements to be put in place for pedestrians and vehicles in the case of the closure of any public road during the course of site development works,
- i) details of appropriate mitigation measures for noise, dust and vibration, and monitoring of such levels,
- j) containment of all construction-related fuel and oil within specially constructed bunds to ensure that fuel spillages are fully contained; such bunds shall be roofed to exclude rainwater,
- k) disposal of construction/demolition waste and details of how it is proposed to manage excavated soil,
- l) a water and sediment management plan, providing for means to ensure that surface water run-off is controlled such that no silt or other pollutants enter local water courses or drains,
- m) details of a water quality monitoring and sampling plan.
- n) If peat is encountered - a peat storage, handling and reinstatement management plan.

Monitoring of the construction phase shall be carried out by an environmental engineer and an ecologist each of whom shall be appropriately qualified and experienced, to ensure that all mitigation measures contained in the CEMP are implemented.

A record of daily checks that the works are being undertaken in accordance with the CEMP shall be available for inspection by the planning authority. Monitoring reports shall be submitted to the planning authorities and other relevant statutory bodies in accordance with the requirements of the planning authorities.

as defined under the Water Framework Directive (WFD). The study area is within the River Barrow and River Nore catchments.

The proposed Coolnabackey Substation, the proposed Dunstown - Moneypoint - Coolnabackey 400kV line route and the existing Athy - Portlaoise 110kV line are located within the Stradbally Water Management Unit (WMU) and the River Barrow catchment. Surface water features in the vicinity of the proposed substation and line routes are the Timahoe River, Timogue River and Bauteogue River. Any watercourses within the study area are likely to be tributaries of one of these rivers.

The proposed Ballyragget substation is located within the Nore Main WMU and the River Nore catchment. No major surface water features or field drains were found at the proposed substation location. The River Nore is located 350m West from the site boundary.

The proposed Ballyragget – Coolnabackey 110kV line route traverses two separate catchments – The River Barrow and the River Nore. The proposed line route (North to South) traverses and/or is located within the vicinity of the following watercourses:

- Timahoe
- Timogue
- Bauteogue River
- Owenbeg River
- Ironmills
- Glashagal
- Nore

The existing Ballyragget-Kilkenny 110 kV overhead line route (to be upgraded as part of this project) traverses the River Nore catchment (northern and southern sections of the study area) and the Dinin River sub catchment located in the Northern section. The proposed line route (North to South) traverses and/or is located within the vicinity of the following watercourses:

- River Nore
- Dinin River
- Pockocke River
- Lyrath
- Scart

The existing Kilkenny 110kV Substation is located within the Nore Main WMU and the River Nore catchment.

In relation to the WFD, all groundwater bodies within the study area have been designated 'Good'. The bedrock aquifer underlying the proposed Coolnabackey substation is classified as a Regionally Important Aquifer; referring to the Ballyadams Formation. The proposed substation is located on the boundary of defined Locally Important sand and gravel aquifer. Groundwater vulnerability underlying the proposed substation site varied from "Moderate" to "High".

Regionally Important Karstified (diffuse) bedrock aquifers underlie the proposed Dunstown - Moneypoint - Coolnabackey 400kV line route and the existing Athy - Portlaoise 110kV line route. Locally Important sand and gravel aquifers underlie 45% of the existing Athy - Portlaoise 110kV line route. Aquifer vulnerability is classed by the GSI as 'High' for the proposed line routes.

Regionally Important Karstified (diffuse) bedrock aquifer and a Regionally Important, extensive Sand/Gravel Aquifer underlie the proposed Ballyragget substation. Aquifer vulnerability is classed by the GSI as 'High' for the proposed substation.

The proposed Ballyragget-Coolnabackey 110 kV overhead line route is underlain by Poor bedrock aquifers (64%) and Regionally Important bedrock aquifers (36%). Sand/gravel aquifers are present along 3.4% of

the proposed line route. Groundwater vulnerability was varied along the existing line route but was largely classed as 'High' (48.4%) and 'Extreme' (41.5%).

The existing Ballyragget – Kilkenny 110kV line route is underlain by Poor bedrock aquifers (34%), Locally Important bedrock aquifers (16.5%) and Regionally Important Bedrock Aquifers (49.5%). Two separate sand/gravel aquifers underlie approx. 6.4% of the proposed line route. Groundwater vulnerability was varied throughout the line route but was largely classed as High (36.7%) and Extreme (30.7%).

A Locally Important aquifer underlies the existing Kilkenny substation. No gravel aquifers are present under the existing substation. Aquifer vulnerability is classed by the GSI as 'High'.

The key civil engineering works involve the excavation of material for foundations and deliveries of imported engineering fill, crushed stone, concrete, reinforcement and other construction materials. Other construction activities will include site storage of cement and concrete materials, oils and fuels. Existing access tracks will be utilised. The potential impacts in relation to water include the following:

- Increased runoff and sediment loading
- Contamination of local watercourses and groundwater
- Diversion/Erosion of local watercourses
- Flood Risk
- Dewatering/localised alteration of groundwater flow, rate and direction

The design of the proposed substations and line routes has taken account of the potential impacts of the developments on the water environment local to the area where construction is taking place. Measures have been incorporated in the design to mitigate the potential effects on the surrounding water environment. A project-specific Construction and Environmental Management Plan will be established and maintained by the contractors during the construction and operational phases. The mitigation measures for decommissioning phase would be the same as the measures highlighted for the construction phase. The implementation of the mitigation measures will ensure that the water environment is not adversely impacted during normal and/or emergency conditions and that the impact will be short term - imperceptible.

1.8 MATERIAL ASSETS

1.8.1 TRAFFIC

This section assesses the potential impacts on material assets arising from the proposed Laois-Kilkenny Reinforcement Project.

A description of the receiving environment is described in terms of traffic, waste and utilities. The potential development at Coolnabacky is situated approximately 1.2km away from the R426 road on the Timahoe Road. The proposed development at Ballyragget is adjacent to the R432 outside Ballyragget village. The existing Kilkenny substation is adjacent to the R712 regional road. Traffic Counts were carried on in June and July 2012 at three locations - N77, R432 and the R426.

AECOM Transportation consultants were commissioned to carry out a Haulage Assessment Report for the transportation of abnormal loads of two transformers to the site at Coolnabacky. A feasibility study was also carried out on the entrance and access routes to site at Coolnabacky and also at Ballyragget station.

Potential short term impacts during the construction phase associated with traffic include construction traffic for development of substations and overhead lines. The percentage increase in traffic due to development is low in relation to current traffic volumes. In general, it is not anticipated that there will be any significant impacts on the existing traffic flow as a result of this development. Predicted impacts will primarily occur during the construction phase of the project but these will be short-term in nature.

To facilitate electricity cable laying under the R432 to Ballyragget substation temporary disruption of traffic flow will be required and a Traffic Management Plan will be put in place to minimise potential

impacts on road users and ensure safety. Road traffic may be reduced to one lane on the R432 at Ballyragget during the laying of the cables to the site. Appropriate signage will be used at all times.

A Traffic Management Plan will be prepared and included as part of the Construction Environmental Management Plan (CEMP)².

It is not anticipated that the presence of additional heavy vehicles associated with the construction of the development will decrease road safety, from current trends, along the roads surrounding proposed development sites. The impact of overhead line construction on traffic flows generally is not significant. Construction impacts will be short term and peaks in activity will be for short durations only. Additional traffic volumes for the construction of each angle mast and poleset will be very low and for a very limited duration.

At operational phase, the substations will be generally unmanned therefore traffic will be limited to a relatively small number of personnel for maintenance and servicing requirements at substations with infrequent visits to the sites.

The implementation of the mitigation measures will ensure that traffic is not adversely impacted during normal and/or emergency conditions and that the impact will be short term - imperceptible.

1.8.2 WASTE

This section assesses the potential impacts on waste arising from the proposed Laois-Kilkenny Reinforcement Project.

The main waste arising from construction will be generated from the development of Coolnabacky 400/110 kV substation, development of the 110 kV substation in Ballyragget and the redevelopment of the existing Ballyragget 38 kV substation. A small quantity will also be generated from construction works at Kilkenny substation. Waste from construction of the overhead lines will include steel, conductors and insulators from the decommissioning of existing lines. Waste materials will be reused and recycled to the best extent possible.

As part of the construction process for Coolnabacky substation, inert soils and subsoils will be excavated, generating an estimated volume of 8,000 m³ of material. Inert soils and subsoil material from Ballyragget is estimated to be 3,500 m³. The material from Ballyragget will be transported to the site at Coolnabacky for landscaping purposes including the construction of an earthen berm at the Coolnabacky substation.

² It will include, but not limited to the following specific mitigation measures:

- Construction and delivery vehicles will be instructed to use only the approved and agreed means of access and movement of construction vehicles will be restricted to these designated routes.
- Appropriate vehicles will be used to minimise environmental impacts from transporting construction material, for example the use of dust covers on trucks carrying dust producing material.
- Warning signs will be installed at appropriate locations.
- Temporary traffic lights and/or road or lane closures will be provided as required to ensure traffic safety.
- Parking of site vehicles on the public roads will not be permitted.
- A road sweeper and/or wheel washing facilities will be utilised to clean the public roads of any mud that may be introduced from the site roads.
- All vehicles will be properly serviced and maintained to avoid any leaks or spillage of oil, petrol or diesel. All scheduled maintenance will be carried out off site.
- The appropriate authorities will be notified of the movement of abnormal loads and traffic management measure agreed in advance such as:
 - Placing warning notices to advise other road users of the presence of slow moving vehicles
 - Using lead warning vehicles and using Garda escorts where required
 - Undertaking deliveries at times that minimise the impact on other road users and resting in safe lay-bys to reduce any traffic congestion.
 - Closing extendable transported vehicles on return journeys.

Demolition waste will mainly be generated from Ballyragget substation from the decommissioning of the existing 38 kV substation.

Waste steel, copper and aluminium will be stored separately in a metal skip and recycled using a licensed waste company and recycling facility.

The presence of asbestos or Polychlorinated Biphenyls (PCBs) is not envisaged, however, should hazardous waste be found, a licensed contractor will handle and dispose of the material.

General waste including canteen and/or office waste will be generated during construction works at temporary facilities provided.

Temporary facilities for sanitary purposes will be provided for construction works at Coolnabacky and Ballyragget substations. Foul effluent from these facilities will be collected and disposed of by an appropriately licensed waste contractor.

Waste generated in the operational phase will include rags, etc. arising in maintenance and cleaning operations, lighting units replaced as required, oils arising from occasional maintenance activities and packaging materials. All wastes will be removed off site by licensed contractors for appropriate treatment/disposal at licensed facilities.

Overhead lines - It is envisaged that little waste will arise from the new Coolnabacky to Ballyragget line or the new 400 kV double circuit line. The upgrading of lines requires 16 steel towers to be replaced. Steel will be sent to a licensed metal contractor for recycling. Approximately 14 towers will be decommissioned as waste from the Ballyragget to Kilkenny line and 2 from the Athy to Portlaoise line. Waste concrete from trucks delivering concrete for tower foundations is not envisaged. There will be no concrete washing on-site.

Timber waste will be generated from hedges, tree lines and forestry to clear open space for overhead line development. Qualified and certified Timber contractors will dispose of all waste arising from these activities.

Waste generated from construction activities will be sent to licensed facilities where recycling will occur where possible. It is envisaged that waste to landfill will be slight - consisting only of domestic wet waste. All other materials can be recycled. Following good waste management practices it is not expected that waste arisings from the project will give rise to significant impacts.

The implementation of the mitigation measures will ensure to minimise waste generation, segregate waste at source and ensure all waste is disposed of by licensed waste contractors.

1.8.3 UTILITIES

1.8.3.1 Gas

Information provided on the distribution network by Bord Gáis does not indicate the presence of any gas infrastructure at the proposed sites.

1.8.3.2 Telecoms

Where the crossing of existing telecom services is necessary during construction, maximum efforts will be made to minimise disruption of the service.

1.8.3.3 Water

Water will be imported by tanker for construction works at Coolnabacky substation. It is proposed to meet the long term water demand from the substation from the local groundwater resource through a bored well. The expected demand will be similar to that of a domestic supply as it will be used for sanitary services and canteen purposes. The substation will be unmanned and the water demand will be

intermittent. At the site in Ballyragget, the proposal is to connect to the existing water mains along the R432 road adjacent to the site subject to permission from the Local Authority.

1.8.3.4 Wastewater

A holding tank is proposed to collect sewage effluent from sanitary facilities at Coolnabackey. This will be emptied and disposed off by a licensed waste contractor at regular intervals. During construction works at the Ballyragget site, foul sewage tanks/facilities will be made available by the contractor. These will be emptied and disposed off by a licensed waste contractor at regular intervals. A wastewater treatment system comprising septic tank and percolation area is proposed at Ballyragget as a permanent system for the station.

1.8.3.5 Energy

During construction, generators will be used onsite at Coolnabackey as an energy supply. The diesel generator may be connected to the station AC system until a permanent AC supply can be obtained. The permanent supply will be from a 200 kVA house transformer. Both Ballyragget and Kilkenny substations have existing energy supply.

The implementation of the mitigation measures will ensure to minimise potential sources of dust and air emissions from construction vehicles.

1.9 AIR AND CLIMATE

1.9.1.1 Air and Climate

This section assesses the potential impacts on air and climate from the proposed Laois-Kilkenny Reinforcement Project.

The project area is located in a rural area with one industrial emission source. Glanbia Ingredients Limited is located within one kilometre of the Ballyragget proposed substation. The plant is located on the opposite side of the river Nore, on the N77 between Ballyragget and Durrow.

The primary existing source of air emissions at substation sites comes from passing traffic, including farm machinery, natural land use and HGV's with the exception of Ballyragget, where an additional source of air emissions is the Glanbia plant.

Short term impacts on local air quality will arise from construction related emissions but the overall impacts on air quality will be negligible both in the national context and in the immediate receptor area. The main potential impact to air quality at construction sites will come from dust which could potentially have an effect on aesthetic surroundings or cause a nuisance due to reduced visibility, soiling of gardens, buildings or vegetation and impairment of air quality.

Impacts will be short term and can be controlled using good site practice and good engineering construction practices during the construction phase. To prevent dust becoming a nuisance during the construction phase, dust suppression such as wheel washing of vehicles and dampening down of sites, lanes and roadways with water will be carried out in prolonged dry periods.

During the construction phase site works for the substations, dust and emissions will be associated with construction vehicles and equipment. These impacts will be short term and can be controlled using good site practice during the construction phase.

1.9.1.2 Noise

This section assesses the potential impacts on noise from the proposed Laois-Kilkenny Reinforcement Project.

Noise baseline surveys were carried out and a noise impact assessment was prepared in conjunction with Biospheric Engineering Ltd. A noise prediction model for the transformer/substation noise at Coolnabackey was also prepared.

One long-term, twenty-one short-term measurements and additional short term monitoring (including night time measurements) were undertaken in June/July 2012 in good weather conditions at the proposed substation locations and along the proposed Ballyragget - Coolnabacky and the Ballyragget to Kilkenny overhead lines to determine background noise.

The background noise levels at the Coolnabacky site are relatively low (LAeq levels measured at 37 dBA at night and 46 dBA during the day). The noise levels at nearby properties will be higher than this due to the remoter location for the site and the fact that most residential properties in the area face onto the road network. The measured noise levels at Ballyragget substation were 58 dBA during the day and 48 dBA during the night. Noise levels at night are considerably higher than the substation location at Coolnabacky due to its proximity to roads and a large industrial site in the area.

Potential short term impacts during the construction phase include activities using large equipment such as excavators and dozers for site clearance and a crane for installation of the transformers.

The construction phase will involve earthworks on sections of the site and the erection of new buildings which will give rise to localised elevated noise levels. This impact is considered relatively short-term in nature. The primary source of noise in the operational context will be the noise emission from the mechanical and services plant associated with the development, i.e. transformer noise and other mechanical and electrical services.

During erection of the lines, there may be additional noise on a small scale at localised pole sites or tower sites along the line route, however, since such activities are confined to daylight hours and are for a short duration, these temporary increases in noise levels are generally acceptable.

Once the substations have been commissioned, noise will continue to be emitted by much of the equipment in the station such as switchgear (circuit breakers and disconnects). Many of the noises associated with this equipment are typically of short duration and individually they would be unlikely to cause significant annoyance.

Transformer noise takes the form of a low frequency hum that can be tonal in nature and lead to annoyance. Due to the low background noise levels in the immediate area of the sub-station at Coolnabacky, the transformers will be audible outside the sub-station boundary area under certain weather conditions. The area in which the transformers are likely to be audible does not include any residences. Residences in the area are generally located along the road network and background noise measurements at these locations are considerably higher than at the sub-station site, providing sufficient masking for any noise emanating from the sub-station.

Measured noise levels at the nearest noise locations in the area indicate that these levels are generally higher than currently existing levels at the proposed substation site. This is due to existing road traffic near the residences whereas the proposed substation site is more remote. Noise modelling of the substation site indicates the noise from the substation will not increase the existing background level at the residences and no significant impact is predicted to occur.

Noise from overhead lines can be generally classed as either aeolian (wind-induced) noise, corona (electrically-induced) noise or from gap sparking. Gap sparking occurs at tiny electrical separations (gaps) that develop between mechanically connected metal parts which give rise to electrical noise. Gap sparking can develop at any time on power lines at any voltage and is monitored by the network. Corona noise is not expected to give rise to complaints for the Laois-Kilkenny Project. Aeolian noise rarely occurs on overhead lines and in the unlikely event of it occurring, appropriate mitigation measures will be applied.

There will be some small short term impact on nearby residential properties due to noise emissions from site traffic and other activities during construction. Traffic impact will be short term and of a temporary nature and will not be excessively intrusive.

Overall the predicted noise impact from the development will be low and is not expected to give rise to complaints from local residents.

The implementation of the mitigation measures will ensure to minimise noise from construction activities and electrical equipment.

1.10 INTERACTIONS

Interactions between the potential impacts during both the construction and operational phases of the proposed development include those between:

- human beings and population and ecology;
- human beings and population and landscape;
- human beings and population and cultural heritage;
- ecology and soils, geology and hydrogeology;
- noise and human beings and population; and,
- human beings and population, landscape and cultural heritage.