Sure Partners Limited

Arklow Bank Wind Park Phase 2 Onshore Grid Infrastructure

EIA Scoping Report

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1 Introduction

1.1 Overall Project Overview

The Arklow Bank Wind Park (ABWP) is an offshore wind farm, located off the coast of County Wicklow, on the east coast of Ireland. A Foreshore Lease was granted for the development of a wind park on the Arklow Bank in 2002. Arklow Bank Wind Park Phase 1 was constructed in 2003 – 2004 consisting of seven wind turbines with a capacity of 25.2 MW. Phase 1 is owned and operated by GE Energy under a sublease to the Foreshore Lease. Sure Partners Limited (SPL), a wholly owned subsidiary of SSE plc (SSE), is now developing the remainder of the project, Arklow Bank Wind Park Phase 2. The overall project and location context can be seen in **Figure 1.**

SPL proposes to build out the remainder of the Arklow Bank Wind Park under the existing Foreshore Lease. This overall project comprises three distinct elements:

- Offshore Infrastructure;
- Onshore Grid Infrastructure (OGI); and
- Operations and Maintenance Facility (OMF)

In order to build out this overall project, various terrestrial and maritime approvals are required, including approval to develop the Arklow Bank Wind Park Phase 2 Onshore Grid Infrastructure (the proposed development). The proposed development is outlined below, with further detail provided in Section 3 herein, with a brief outline of the other project elements also given below.

1.1.1 Overview of the Proposed Development

Arup has been appointed by SPL to support the planning and permitting applications for the Arklow Bank Wind Park Phase 2 Onshore Grid Infrastructure, hereinafter referred to as the proposed development.

Planning permission will be required for the proposed development from the highwater mark of ordinary or medium tides (shown as HWM on Ordnance Survey maps) to the point of connection with the national electricity transmission network (NETN).

The proposed development is expected to comprise underground high voltage circuit(s) and fibre-optic cables, from the proposed landfall (where the export cables from the offshore wind farm come onshore) at Johnstown North to a new onshore 220kV substation, at Shelton Abbey. The connection from the new substation to the existing NETN is via overhead cable. An overview of the onshore grid infrastructure is shown in **Figure 2.**

1.1.2 Offshore Infrastructure

The Foreshore Lease for Arklow Bank Wind Park covers an area approximately 27km long and 2.5km wide, on an approximately north-south alignment, 6 - 13km offshore, to the east of Arklow town in the Irish Sea.

The Foreshore Lease allows for the construction of up to 200 wind turbines with a Maximum Export Capacity (MEC) of 520 MW. Advances in turbine technology over the past 15 years mean that it is possible to achieve the installed capacity with the installation of up to 76 turbines in the same Foreshore Lease area, depending on the final turbine unit selected. Phase 2 of the wind park will transmit power from new offshore substation platform(s) via 2 no. new 220kV offshore export cables, installed along coordinates identified within the Foreshore Lease.

An application has been submitted to the Minister for Housing, Planning and Local Government (DHPLG) to extend Long Stop Dates in the Foreshore Lease to allow development of the remainder of the project.

1.1.3 Operations and Maintenance Facility

An Operation and Maintenance Facility (OMF) will also be required as part of the overall project. The OMF will require additional statutory consents, with a planning application to Wicklow County Council (for onshore buildings and infrastructure) and a Foreshore Lease application to the Minister for Housing, Planning and Local Government (DHPLG) for any infrastructure located in the foreshore area.

1.2 SID Process

It is anticipated that the proposed development will be determined to be a Strategic Infrastructure Development, under Section 182A of the Planning and Development Act 2000, as amended. SPL has commenced pre-application consultations with An Bord Pleanála, and expects to submit a planning application for the proposed development to An Bord Pleanála in the final quarter of 2020.

1.3 Need for EIA

SPL has made an application to the Minister for Housing, Planning and Local Government to extend the long stop dates in the foreshore lease for the Arklow Bank Wind Park (the “Application for an Extension”) to allow the construction of ABWP Phase 2. As the Application for an Extension relates to a project for which an EIA is mandatory, an EIAR is being submitted in relation to the Application for an Extension to the Minister for Housing, Planning and Local Government.

As the onshore grid infrastructure is an integral part of ABWP Phase 2, an EIA is also required for the OGI development. An EIAR will therefore be prepared to accompany the planning consent application.

This EIA Scoping Report has been prepared to provide an overview of the approach and scope of the EIAR and to seek feedback from relevant stakeholders.

Figure 1: Overview of the Project

Figure 2: Overview of the Onshore Grid Infrastructure (including emerging preferred cable route options 1A and 1B)

1.4 Benefits of the Proposed Development

1.4.1 Need for the Proposed Development

The proposed development will be an integral part of a project to transmit up to 520MW (MEC) of renewably generated electricity from Arklow Bank Wind Park Phase 2 to the NETN. This will further the Irish Government's objectives with regard to increasing the generation and supply of renewable electricity and reducing the emissions of greenhouse gases.

This will be an important contribution to reducing the effects of climate change on biodiversity and the environment, facilitating economic development and providing for a growing population.

1.4.2 Planning and Policy

1.4.2.1 Supporting the Objectives of National and Regional Plans and Strategies

The proposed development will contribute towards fulfilling the objectives of the National Development Plan, the Climate Action Plan and the Eastern and Midlands Regional Spatial and Economic Strategy.

The Department of Public Expenditure and Reform published the most recent National Development Plan 2018-2027 in February 2018.

Chapter 1, the introduction to the Plan, sets out the context for the National Planning Framework (NPF) and the National Development Plan's strategic investment options. Section 1.7 addresses low-carbon and climate resilience. To achieve this outcome the plan identifies various strategic investment priorities and investment actions. Under the sub-heading 2 "Decarbonising Energy", the plan states:

"*Irelands energy system requires a radical transformation in order to achieve its 2030 and 2050 energy and climate objectives. This means that how we generate energy, and how we use it, has to fundamentally change. This change is already underway with the increasing share of the renewables in our energy mix and the progress we are making on energy efficiency…*

"…Investment in renewable energy must be complemented by wider measures to moderate growth in energy demand, diversify supply sources by greater interconnection to international energy networks, and increase adoption and utilisation of electricity storage and smart meters.

"This will significantly increase our capacity to electrify heat and transport and promote less energy intensive/low-carbon heating solutions…

"Measures required to decarbonise energy generation and enhance energy efficiency include those listed below."

The Arklow Bank Wind Park Phase 2 will be capable of generating at least 1.8TWh of renewable electricity annually – enough green energy to power 435,000 homes and offset 530,225 tonnes of carbon emissions annually, representing a significant contribution towards Ireland's 2030 targets for carbon emission reduction.[1]

The Climate Action Plan 2019 sets an ambitious target to generate 70% of electricity from renewable sources by 2030. It sets a specific target for offshore renewable energy: to achieve 1GW of installed capacity by 2025 and at least 3.5GW by 2030 as a key requirement to achieve this 70% target. With a planned export capacity of 520MW, Arklow Bank Wind Park Phase 2 is capable of making a significant contribution towards meeting these targets. Given the current capability of offshore renewable energy technologies (where the technology for wave, tidal and floating wind is not yet as advanced as fixed wind), this 3.5GW is likely to be delivered by offshore wind farms in the Irish Sea.

The recently published draft Programme for Government 'Our Shared Future' (June 2020) gives additional momentum to the projects such as the Arklow Bank Wind Park Phase 2, placing increased emphasis on "*Developing major drive to realise the immense potential of Ireland's offshore renewables*" along with establishing "*a path to achieving 5GW capacity in offshore wind by 2030 off Ireland's Eastern and Southern coasts.*" The 5GW target, is to be phased in by 2030, with the first auction of quota to potential developers by next year.

The Eastern and Midlands Region comprises 12 counties including Wicklow. The Eastern and Midlands Regional Assembly 2019-2031 published the Regional Spatial and Economic Strategy in June 2019. The 2019 Regional Spatial and Economic Strategy sets out a 12-year strategic development framework to shape the future development of the Region. Chapter 7 of the Strategy addresses Environment and Climate. Climate change resilience and the need for a transition to a low carbon economy are covered in Section 7.9. The Arklow Bank Wind Park Phase 2 will further the objectives of the strategy in relation to the low carbon economy.

1.4.3 Local Planning Policy Objectives

The proposed development also fulfils a number of local planning and policy objectives.

The Wicklow County Development Plan 2016 – 2022, has as one of its key strategic goals underpinning the vision of the plan:

"*10 Climate Change*

To address the climate change challenge, as a plan dynamic, throughout the county plan, directly in the areas of flooding and renewable energy, and indirectly by integrating climate change and sustainable development into statements of plan policy, strategies and objectives."

Further support is provided by the following County Development Plan Objectives:

[1] Total annual TWh quoted based on minimum installed capacity, typical load factor of 40%, and typical annual consumption (4,200kWh); Quoted CO2 emissions abated based on Average CO2 Emissions in 2018 (0.291 t/MWh) in the All-Island Single Electricity Market, and published by the CRU in its Fuel Mix Disclosure and CO2 Emissions for 2018, September 2019.

"*CCE7 To facilitate the development of off-shore wind energy projects insofar as onshore facilities such as substations/connections to the grid may be required"*

"CCE17 To support the development and expansion of the electricity transmission and distribution grid, including the development of new lines, pylons and substations as required."

The proposed development is also supported by the Arklow and Environs Local Area Plan 2018 – 2024, which states the following in relation to electricity transmission and distribution:

"*Arklow has a key role in electricity transmission and distribution with a number of high voltage electricity lines crossing the plan area, with the main electricity station at Killiniskyduff. Energy from the off-shore wind bank is brought ashore in Arklow and Arklow also has potential as a location for the landing of an underwater electricity interconnector from Wales. The plan facilitates the development of the expansion of electricity transmission and distribution*".

1.4.4 Economic Benefits

SSE has been in Ireland since 2008 and employs more than 1,000 people here. It owns and operates 745MW of onshore wind generation capacity across 29 wind farms including Galway Wind Park, Ireland's largest onshore wind farm.

The Arklow Bank Wind Park Phase 2 will be an enabler to unlock new infrastructure investment in Irish ports and maritime businesses. Irish ports are important nodes where future renewable and offshore energy projects could be based to stimulate new employment and investment opportunities.

SPL estimates that for a project of this scale (of which the proposed development is part), assuming 520MW of maximum export capacity will lead to the creation of approximately 80 full-time jobs in operation and maintenance work, most of which will be working from a new OMF in Arklow. These roles will consist of wind turbine technicians, office and management staff and vessel operatives.

In addition, the overall project will support companies in the operation and maintenance supply chain, including vessel services, water and fuel, technical inputs, and loading and unloading of project cargoes. Offshore wind energy can create industry sub-sectors delivering output and jobs across overlapping skill sets. The development of the new service base and associated employment represents an opportunity for significant new investment and ongoing economic activity at County Wicklow's existing maritime facilities.

The overall project (including the proposed development) will not only maximise regional economic benefits and create local sustainable jobs, it can also unlock focused community participation in the sector, particularly around port towns. Once the proposed development is operational, a multi-million-euro community benefit fund will be established to support communities near the wind farm for its lifetime.

2 Purpose of the EIA Scoping Report

2.1 Overview

This EIA Scoping Report describes the key elements of the proposed development, the baseline conditions and sensitivities of the environment likely to be affected by the proposed development and the studies and assessments proposed. It identifies likely significant effects and provides an outline of the proposed Environmental Impact Assessment Report (EIAR). The report also facilitates stakeholder engagement, with feedback sought from consultees to further inform the content and scope of the EIAR.

2.2 Legislation and Guidance on the Contents of an EIAR

The EIAR will be prepared in accordance with EU Council Directive 2011/92/EU (the EIA Directive), as amended by Directive 2014/52/EU, and the relevant Irish legislation.

The scoping exercise has been undertaken with due regard to the following guidelines:

- Department of the Housing, Planning, Community and Local Government (2018) *Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment*;
- Department of Housing, Planning, Community and Local Government (2017) *Transposition of 2014 EIA Directive (2014/52/EU) in the Land Use Planning and EPA Licencing Systems*; and
- Department of Housing, Planning, Community and Local Government (2017) *Circular PL 1/2017 – Implementation of Directive 2014/52/EU on the effects of certain public and private projects on the environment (EIA Directive): Advice on the Administrative Provisions in Advance of Transposition*; and
- Environmental Protection Agency (2017) *Draft Guidelines on the Information to be contained in Environmental Impact Assessment Reports (Draft August 2017)*.
- European Commission (2017) Environmental Impact Assessment of Projects: Guidance on Scoping; and
- European Commission (2017) Environmental Impact Assessment of Projects: Guidance on the Environmental Impact Assessment Report.

Responses to this EIA Scoping Report should be forwarded by email to moira.walsh@arup.com by close of business on 16th October 2020. Alternatively, you can respond by letter to:

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3 The Proposed Development

3.1 Overview

The proposed development will comprise the onshore grid infrastructure including 220kV onshore export circuit(s) and fibre optic cables, from the landfall of the offshore export circuit(s) at Johnstown North, to a new 220kV substation at Shelton Abbey and from the new substation to the NETN. An overview of the proposed development is shown in **Figure 3**, with **Figure 4** providing a schematic showing the connection of the Arklow Bank Wind Park Phase 2 to the transmission network, via the new 220kV substation.

The proposed development will provide:

- Connection by underground 220kV high voltage alternating current circuits, including fibre optic over a distance of c. 5 km, from the landfall at Johnstown North, located approximately 4.5km northeast of Arklow, to the new onshore 220kV substation,
- A new onshore 220kV gas insulated switchgear (GIS) substation, to be located at Shelton Abbey, north of the Avoca River, approximately 2.1km northwest of Arklow Town, and
- A 220kV overhead line (OHL) connection from the new 220kV substation at Shelton Abbey to the existing 220kV transmission network in the vicinity of Shelton Abbey by diverting the existing 220kV OHL in and out of the new onshore 220kV substation.

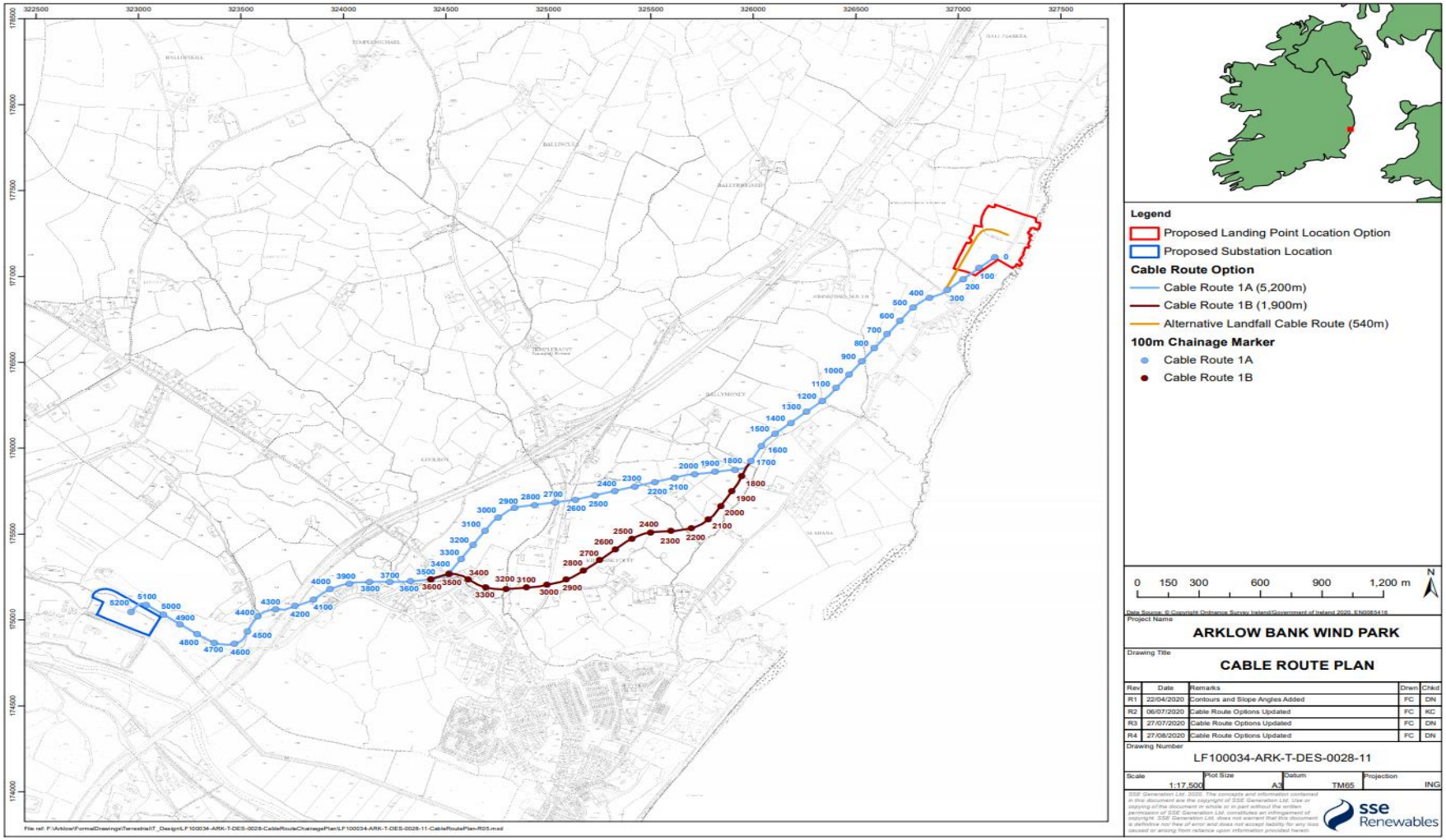

Figure 3: Overview of the Proposed Development (including the emerging preferred cable route options)

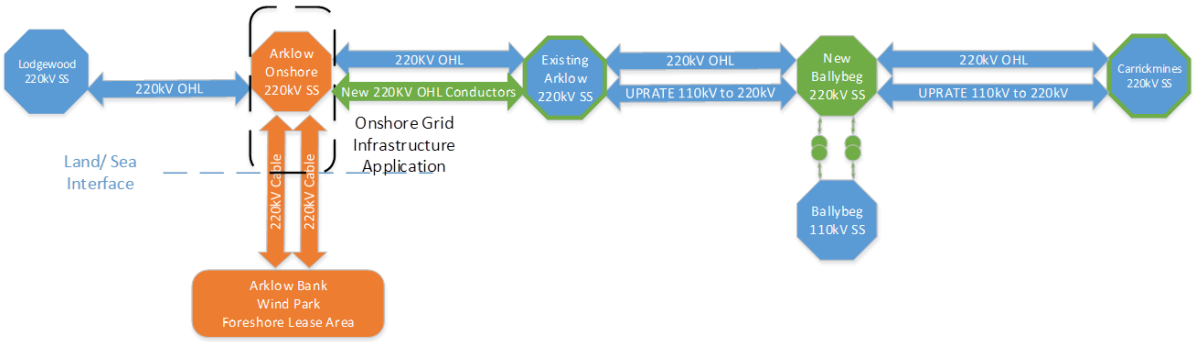

Figure 4: Schematic showing Proposed Arklow Bank Wind Park Phase 2 Grid Infrastructure and EirGrid Upgrade Works

3.2 Description of Permanent Works

The onshore grid infrastructure will comprise a number of elements, as follows:

- Landfall at Johnstown North
- Connection from the landfall to the new substation
- Onshore 220 kV substation
- Site facilities
- Connection from substation to transmission network (NETN)

These elements are described in further detail within sections 3.2.1 to 3.2.5 below.

3.2.1 Landfall

The Foreshore Lease provides for two landfall locations for the offshore export circuits. However due to constraints, only the northernmost landfall will be utilised for the proposed development. The southern landfall is assessed from an alternative's perspective in the EIAR.

The proposed landfall location is in the townland of Johnstown North approximately 4.5km northeast of Arklow, close to Ennereilly Beach, Co Wicklow. The landfall area consists of undulating pasture fields located behind sea cliffs, approximately 10m in height, which rise above a steeply sloping shingle beach.

A feasibility assessment determined that horizontal directional drilling (HDD) was the preferred method to bring the offshore export circuits ashore. Each circuit will be pulled through its own hole, drilled from land following a path under the cliffs, beach and seabed, without the need for a surface trench. This cable installation method will require a temporary construction compound, expected to be approximately 70m x 70m in area. The onshore export circuits, to be laid underground, will be jointed to the offshore export circuits at the landfall location. The temporary construction compound for HDD operations will be located on the western side of the R750 regional road, in the townland of Johnstown North. Further information on the construction of the landfall is provided in section 3.3.

Once construction is completed, the only visible structures at the landfall will be a small manhole cover for each circuit and small cable marker posts, which will indicate the location of the circuits.

3.2.2 Connection from Landfall to the Onshore 220 kV Substation

Connection to the proposed onshore 220kV substation at Shelton Abbey will be made by 2 no. 220kV high voltage alternating current (AC) circuits with associated fibre optic and communication cables laid underground from the landfall location at Johnstown North.

A cable route options assessment has been completed, including site walkovers, to determine the route option with the least environmental constraints. The outcome of this assessment is the emerging preferred routes which are shown in **Figure 3**.

A total of six routes were assessed, as shown in **Figure 5**. The constraints and impacts of the potential routes and route combinations were compared in the assessment. The assessment included three Phases. The results of the Phase 1 desktop study show that the southern route options are preferred to the northern route options, and thus the southern options were investigated in more detail in the next Phase of the study. The results of the Phase 2 desktop study show that Route Combinations 1 and 2 have the most advantages and the least disadvantages of the options assessed and were recommended for further consideration.

A number of route walkovers and surveys of Route Combination 1 and 2 were carried out by technical specialists for Phase 3 of the assessment in order to ground truth the constraints for both route options.

The findings of the assessment are that both Route Combination 1 and Route Combination 2 are suitable options, particularly in respect of environmental constraints considered in the assessment. Further detailed engineering and technical assessment, together with landowner and stakeholder consultation is needed to make a final determination on the emerging preferred route for the cable.

Figure 5: Cable Route Options Assessed

Emerging preferred cable route 1A (as shown in *blue* in **Figure 3**) originates at the landfall site location in Johnstown North and initially heads south-west, crossing a minor road, the L95115, then running in fields adjacent to the R750 in agricultural lands, for 1500m until it reaches Ballymoney. From this point the route continues in a westerly direction through agricultural land, close to field boundaries, for 1700m. The route then crosses the Dublin Road (R772) at chainage 2700m and passes north of the existing Arklow Substation and from this point continues in a southerly direction for 500m until it crosses the L2180 Beech Road and the Kilbride Industrial Estate at chainage 3400m. From here the route changes to a westerly direction, for a distance of 1000m, crossing the M11 at chainage 4200m and passing again through agricultural lands in a south-westerly direction until it crosses the Shelton Abbey Road and finally the L6179 Kilbride Road at the entrance to the Avoca River Business Park before arriving at the proposed Shelton Abbey substation.

The total corridor length is 5000m (approximately 125m within public roads and 4875m off-road) and requires six public road crossings, including one motorway crossing and one private road crossing, as well as potentially eight watercourse crossings, namely the Johnstown North, Johnstown South, Ticknock, Coolboy, Templerainey, Kilbride, Kilbride Church and Sheepwalk Streams (as per EPA mapping).

Emerging preferred cable route 1B (as shown in *purple* in **Figure 3**) diverges from cable route 1A at Ballymoney, at (approximately) chainage 1700m. It continues in a southerly direction, adjacent to the R750 through agricultural lands for 500m until it reaches west of Seabank. From this point the route continues in a south westerly direction passing through agricultural lands, in close proximity to some residential properties in Killiniskyduff. For a distance of 1500m through agricultural fields, the route crosses the R772 Dublin Road in Killiniskyduff at chainage 3200m, passing south of the existing Arklow substation and continues, again through agricultural lands, until it crosses the L2180 Beech Road at the Kilbride Industrial Estate where it re-joins route 1A at approximately chainage 3500m.

The total section length of this route variant is 1900m (approximately 40m within public roads and 1860m off-road) and requires two public road crossings south of the existing Arklow substation and one private road crossing, as well as potentially four watercourse crossings, namely the Johnstown South, Ticknock, Templerainey and Coolboy Streams. All watercourse crossings, apart from Johnstown South, are crossed at different locations to route 1A (as per EPA mapping). It is also noted that route 1B runs parallel to the Kilbride stream for circa 600m.

The emerging preferred cable routes will traverse agricultural land, off-road where practicable, to minimise disruption to traffic during cable construction and to avoid, in so far as possible, areas of congested utilities and proximity to residential areas. Where the cable route traverses agricultural land, the cable corridor will be adjacent to the field boundaries where feasible. For some sections, where following the boundary would result in much longer cable runs or would produce excessive cable bends, a more direct route was selected. It is intended that the land along the emerging preferred cable routes will be reinstated and returned to its current use

post-construction, although future access for inspection and maintenance purposes will be required.

There will be access tracks required to facilitate this, the details of which are currently being finalised. The chosen route reduces the crossings of roads and watercourses to a practical minimum and avoids significant environmental constraints.

Once construction is completed, the only visible above ground structures along the cable route will be small marker posts and manhole covers, which will indicate the location of the cables and associated joint bays.

3.2.3 Onshore 220 kV Substation

The site at Shelton Abbey for the proposed onshore 220kV substation was identified following a detailed site selection and assessment study. This site is the northern portion of a larger site which had been previously occupied by Irish Fertiliser Industries (IFI) up until 2003. The site is currently owned by Crag Digital Limited, who have planning permission to develop a data centre on an area adjacent to the proposed substation site (Planning reference: 18940).

The site covers an area of approximately 4 hectares and consists primarily of made ground, with the exception of the Shelton Abbey Canal and a Right of Way along the southern boundary, which consists of a mixture of soil and gravel and a small area of woodland between the site and the public road. The site is part of the Avoca River Business Park. The Avoca River forms the southern boundary of the Avoca River Business Park.e

The context of the site is shown in **Figure 6**. There is a landfill, associated with the former IFI plant, to the east of the site and an embankment on the northern side where the access road to the Avoca River Park Industrial Estate is located. The site is not within the licence boundary of the landfill (Register Number: P0031-02), therefore there are no obligations under its IPPC licence, relevant to the proposed development.

Access to the substation site is expected to use the existing road network, from the R772, which is c. 2km to the east, to the Avoca River Business Park for construction activities and as the permanent access.

Infrastructure and utilities such as telecoms are already in place close to the site, in the Avoca River Business Park. There will be a new telecoms mast installed at the substation site. The existing Lodgewood-Arklow-Carrickmines 220kV overhead transmission line passes in a north east to south west direction approximately 150m to the east of the site. There are three transmission towers carrying this line within 500m of the site. Two 110kV overhead lines cross the site from the existing Shelton Abbey 110kV substation in a north-easterly direction towards the Arklow 220kV substation and to maximise the available footprint at the proposed substation it may be necessary to divert the overhead lines coming into the site. This diversion would entail the construction of two Line Cable Interface Masts where the overhead lines would then transition to underground cables. The underground cables would then be routed within the proposed substation site boundary to the existing 110kV substation approximately 150m away.

Surface water for the site at present is managed through a drain around the perimeter.

A suitable surface water and wastewater system will need to be designed to accommodate the proposed development. Consideration will also be given to the adjacent data centre development to ensure the cumulative development would not result in a net increase in stormwater discharge to the River Avoca.

The surface water drainage network will be designed so that no flooding or surcharging of the network will occur for all rainfall events with a 30-year return period, and properties will be protected against flooding for all rainfall events with a 200-year rainfall return period. Allowance for climate change will be incorporated in the rainfall data used in surface water drainage calculations.

The substation will have two components, an EirGrid GIS substation including 2 no. new 220kV overhead line pylons and an SSE (SPL) GIS substation including external auxiliary electrical equipment required to connect to the transmission network. The proposed development will include both the EirGrid substation and the SSE (SPL) substation, as well as the OHL tie-in.

The Gas Insulated Switchgear Substation (GIS) technology was chosen to minimise the size of the development. **Figure 6** presents the layout plan of the proposed substation. A 'Loop-In' connection will be made to the existing Lodgewood-Arklow-Carrickmines 220kV overhead transmission line.

The overall design and external finishes of the substation buildings will, in so far as possible, conform with the architectural design of the adjacent buildings in the Avoca River Business Park. The substation buildings will likely incorporate a flat (possibly precast concrete or reinforced concrete) roof to ensure security. All materials and equipment will be designed to withstand the most severe weather conditions anticipated at the site. The substation will include:

- Entrance gates
- Signage
- Site lighting and security measures
- Landscaping
- Car parking
- Telecommunications infrastructure
- Office and meeting room, and
- Welfare facilities

During the operational phase, the onshore 220kV substation will generally be unmanned and remotely monitored and operated. However, maintenance checks and physical monitoring will be carried out on a regular basis. The substation facility will be designed to accommodate up to 8 people during operation and maintenance.

The EirGrid substation will also generally be unmanned and remotely monitored and operated with regular visits by ESB personnel for maintenance and inspection. It is likely that the EirGrid GIS substation will accommodate visits by up to 6 personnel but this is subject to further confirmation.

Figure 6: Proposed Substation Site Layout

3.2.4 Connection from Substation to Transmission Network

An overhead line connection from the new proposed 220kV substation to the existing 220kV transmission network (NETN) will be required. This connection will include a northern tie-in to the transmission network of approximately 270m and a southern tie-in to the transmission network of approximately 350m in length.

As described previously, the 220kV Lodgewood-Arklow-Carrickmines overhead transmission line runs on a southwest-northeast alignment approximately 150m to the east of the substation site. An options study was undertaken which identified the methods to connect to the existing 220kV line. A 'Loop-In' connection is considered preferable for connecting the substation to this 220kV overhead line. The connection is as shown in **Figure 4**.

The connection will utilise the existing 220kV overhead line (OHL) infrastructure adjacent to the proposed site. The 'Loop in' will consist of cutting into the existing overhead line by building a new angle pylon (adjacent to the existing Tower 6) and re-stringing the OHL from the existing Tower 5 to this new Tower 6. The OHL is then strung from the new Tower 6 into the substation site to a new terminal tower. Tower 7 (south of the substation development on the Avoca river bank) will be replaced by an angle pylon. A new span of OHL is then strung from the new Tower 7 to a second new terminal tower in the substation. The current pylon (Tower 6) to the east and also the existing span between the existing pylons (Towers 5 & 7) will be decommissioned. A total of 3 new OHL towers will be constructed and 1 existing OHL tower will be changed to an angle tower. The location of the OHL and Towers is shown in **Figure 6**.

3.3 Description of the Construction Works

3.3.1 Overview

The following section describes the current assumptions on construction aspects of relevance for scoping the EIAR. Construction phasing and methodologies are currently being developed and any material changes to these assumptions will be described in the EIAR.

A Construction Environmental Management Plan (CEMP) will be prepared and will accompany the planning application. The CEMP will set out the principles and control procedures to manage any likely significant effects on the environment from the construction phase.

The proposed development will have a defined planning boundary to include all project elements, including ancillary infrastructure such as site access roads, underground cabling, drainage and temporary working areas for site facilities. Assessments to date have covered a 100m wide corridor along the emerging preferred cable routes. However, this will be refined to a max. 50m planning corridor (to allow some flexibility of micro-routing during construction). Details of these elements will be provided within the EIAR.

Information will be provided in the EIAR on the following aspects of the proposed development:

- Construction programme;

- Construction sequence and methodology
- Construction workforce and traffic generated;
- Drainage control measures;
- Temporary site facilities;
- Site preparation works;
- Substation construction;
- Cable installation;
- Cable landfall construction;
- Commissioning;
- Maintenance; and
- Decommissioning.

Most of the potential negative environmental impacts of the proposed development will be associated with construction and installation activities. The EIAR will set out the measures taken to avoid or minimise such potential impacts.

An explanation of cable installation methods will be given. The methods and techniques to be used for the construction of the crossings of roads, rivers and for the landfall will also be described. The measures to control potential impacts on watercourses and other features, including Natura 2000 sites, will be described. The duration and phasing of the construction and installation activities will be outlined. The control measures that will be implemented to manage the risk of soil and water pollution, emissions of dust and noise, construction waste management and traffic impacts will be explained.

3.3.2 Indicative Methodology

The following sections provide an overview of the indicative construction works that are likely to be required to support the proposed development.

3.3.2.1 Landfall

Trenchless technology is the preferred method of connecting the offshore export circuits to land. Ground investigations will be undertaken to confirm the technical details.

Horizontal Directional Drilling (HDD) is a technique whereby a hole is drilled from land under any coastal features such as cliffs, dune systems or sensitive features, to a point a suitable distance offshore, ensuring environmental constraints are avoided. HDD involves pushing a steerable rotating boring head, supported by a drilling fluid, through the ground. When the pilot bore is completed it is enlarged to the required diameter by pulling a reamer back towards the drilling machine and pulling the duct into place. At the landfall, a pipe will be inserted into the drilled hole. The pipe will then be used as a duct into which the cables are installed.

A temporary construction working area (approximately 70m x 70m) will be required for the HDD operation.

The temporary compound will accommodate the drilling unit, drill strings, drilling mud (naturally occurring non-toxic lubricant for the drill operation) equipment, workshops, welfare facilities, offices and stores. The construction compound will also serve the cable laying contractor, accommodating the storage of separated topsoil and subsoil, transmission cables and fibre optic cable, ducts and equipment prior to trenching and cable laying. On completion of the works, the area of the construction compound will be restored to agricultural use.

The proposed compound area consists of two undulating fields in pasture, bounded to the north, west and south by hedgerows and to the east by the R750 road. A west to east flowing watercourse runs along the field boundary between the two fields.

Each field is accessible via existing entrance gates from the R750 and is of suitable size for the construction of a site compound. However, due to their undulating topography it is likely that some levelling works may be required, comprising of minor earthworks cut and fill. The fields will be reinstated and returned to agricultural use post construction. The duration of works is expected to be approximately 7 months in duration.

3.3.2.2 Connection from Landing Point to the Onshore 220 kV Substation

Where the circuits are laid within agricultural land, the cables, including fibre optic cables, will be laid within a fenced c. 30m working corridor. This working corridor may increase at HDD locations and is subject to final confirmation. The cables will be installed in plastic ducts or direct buried, using a mix of open cut trench and trenchless methods (with trenchless methods used for specific constraint areas such as some road and river crossings). It is usual for the three electricity cables (per each of the two circuits), whether ducted or direct buried, to be positioned close together in a trefoil formation to form a circuit. However, following detailed design, the cables may be laid in flat formation separated by sufficient spacing to achieve the required electrical rating. A protective cover and warning tape will be laid over the cables or ducts below the backfill material. Above ground marker posts will be placed at regular intervals. Typical trench cross sections are shown in **Figure 7** and **8**.

Within agricultural land, generally a c. 30m working corridor will be used, but there may be limited locations (such as road and river crossings for example) where a wider working width will be required. A planning corridor of up to 50 m is proposed to accommodate this. This will allow for two approximate 4 - 5m wide cross-section trenches, an access track for movement of construction plant, and soil storage. Excavated material will be stored on site, alongside the trench, with separate storage for topsoil and subsoil. Following completion of the cable installation, all trenches and excavations will be backfilled, utilising the stored material and incorporating appropriate safety measures (e.g. warning tape laid above the cables). On completion of the works, the area through which the cable passes will be restored to pre-construction conditions.

Trenchless crossing techniques (such as horizontal directional drilling) will be employed, only where open cut trenching is not suitable, for crossing roads, rivers, streams, drainage ditches and existing services.

The cables will be supplied to site on large reels. When the ducts have been installed and the trench has been backfilled, the cables will be winched through the ducts.

Typically, up to approximately 800m of cable can be carried on a single reel. This results in at least one jointing bay being required every 800m of a cable installation and in places, more frequently depending on the complexity of the route.

The joints between two cables will be made at a jointing bay. The joint bay is a concrete chamber placed in the ground where the two cables are jointed together. During the jointing process, a temporary shelter is placed over the joint bay to provide a safe and clean environment for an engineer to work in while connecting the two cable ends. Typically, at this voltage level, the temporary shelter will be a shipping container. The final specification and location of each jointing bay will be determined once the final cable route has been selected, immediate constraints identified, and detailed design completed. Once the joint has been made, the temporary shelter will be removed, and a concrete cover will be placed over the joint bay. The ground above the joint bay cover will be fully reinstated.

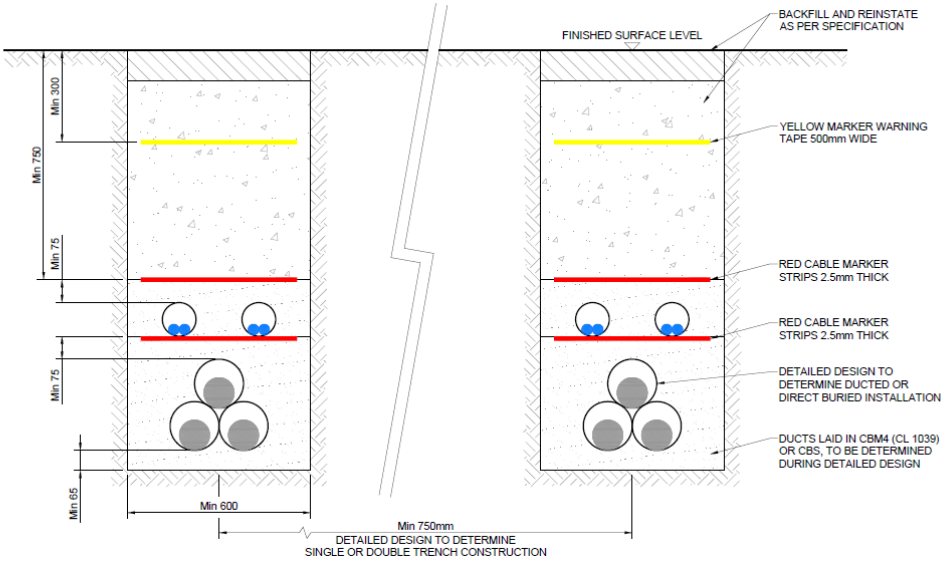

Figure 7: Typical Cable Trenching Cross Section – Ducted Trefoil Arrangement

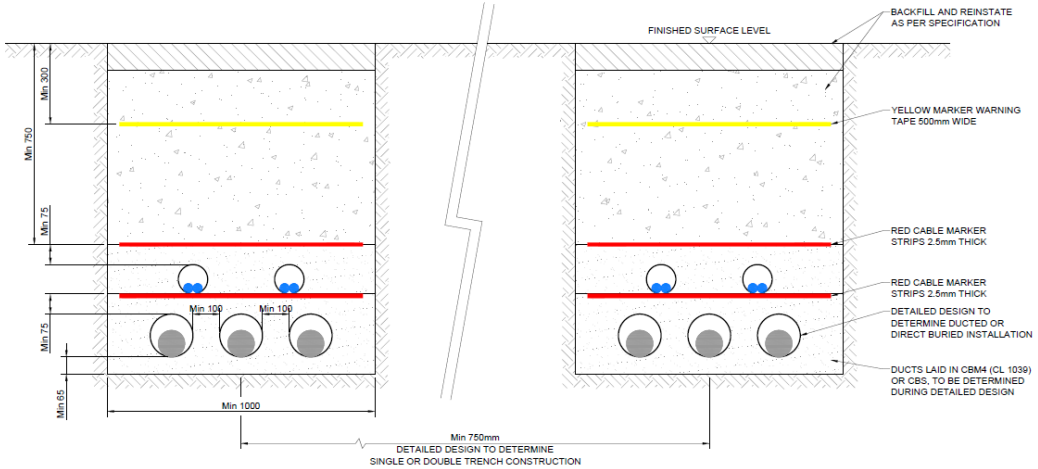

Figure 8: Typical Cable Trenching Cross Section – Ducted Flat Arrangement

3.3.2.3 Onshore 220kV Substation

Construction of the onshore 220 kV substation will use standard construction techniques. Access to the site will be via the main road to the Avoca River Park Industrial Estate and all works will take place within the site boundary. The construction work will take place in three broad phases.

The first phase is site preparation, and this involves construction of the site entrance, site establishment, construction of temporary site drainage works and bulk earthworks, including site levelling and entrance road construction. It may be necessary to extend the platform northwards by raising the level of the ground towards the access road to assist with flood risk management.

Following site preparation, the main civil works are undertaken. This includes construction of the GIS buildings, including foundations works, structural steelwork erection, cladding and building finishing works. The compounds for the major outdoor electrical equipment will be constructed along with permanent foul and surface water drainage works, paving and fencing.

The final stage is the electrical installation involving the delivery and installation of all HV equipment, wiring and cabling of HV equipment and protection and control cabinets and finally the commissioning of all newly installed equipment.

For the duration of the construction phase of the substation there will be temporary welfare facilities installed. Normal working hours will be adhered to for the most part, however there may be some occasions where work will be undertaken outside of these hours. These occasions will be kept to a minimum. Any works or deliveries which are likely to have a significant impact in terms of noise or other disturbances will be avoided outside of normal working hours. The activity which is expected to have most impact during this construction is the traffic to and from the site. A traffic management plan will be implemented to mitigate against undue impacts.

3.3.2.3.1 Site Remediation Works

As mentioned previously, the proposed substation site is located within a larger site which was formerly owned by IFI (now owned by Crag Digital Limited). The substation site is primarily overlain with asphalt on made ground beneath. The asphalt will need to be removed for substation building footprint. Based on existing geotechnical site investigation data, piled foundations are likely to be required for buildings and heavy equipment.

While the site is not within the licence boundary of the landfill (Register Number: P0031-02), there is potential for contaminated soil to be uncovered in any excavations due to the former industrial use of the site and proximity to the landfill.

A geotechnical assessment of the site is currently ongoing, which, together with the existing site investigation data, will determine the level of remediation works required, if any.

3.3.2.3.2 Connection from Substation to Transmission Network

Construction of the connection from the onshore 220kV substation to the existing transmission network will use standard techniques. The existing pylon (Tower 6) to the east is to be decommissioned. Given that this pylon is within lands subject of an EPA licence (Register Number: P0031-02) and to avoid any potential ground contamination issues, it is proposed to remove all above ground infrastructure, but to leave the foundations in place, ensuring no ground disturbance.

A new angle pylon will be constructed outside of the licence area and re-stringing the OHL from the existing Tower 5 to this new Tower 6. The OHL is then strung from the new Tower 6 into the substation site to a new terminal tower. Tower 7 (south of the substation development on the Avoca river bank) will be replaced by an angle pylon. A new span of OHL is then strung from the new Tower 7 to a second new terminal tower in the substation.

The EirGrid GIS Substation and the OHL tie-in infrastructure will be handed over to EirGrid/ESB to own and operate once construction is complete.

3.4 Operations and Decommissioning

The EIAR will describe the operation of the proposed development including maintenance activities, the expected life of the project and decommissioning activities.

The substation will be operated remotely and will be unmanned during operation. It will receive occasional visits for inspection and maintenance. The cable route will also be inspected occasionally.

The EirGrid element of the substation will form part of the permanent transmission network and will be handed over to EirGrid/ESB upon completion. The SPL side of the substation will be owned and operated by SPL.

The normal asset life of a substation is c. 50 years but it may be extended beyond this. When, and if, the proposed development reaches the end of its useful life it will be decommissioned. All buildings and above ground structures on the substation site will be removed. All above ground structures along the cable route will be removed. It is likely that the ducts and cables will be left in place, as to remove them would be likely to cause a more substantial environmental impact than leaving them in-situ.

3.5 Other Relevant Developments

The overall Arklow Bank Wind Park Phase 2 project comprises the proposed development, as well as the build out of the offshore infrastructure and the construction of a new OMF.

There are also upgrade works to the high voltage transmission network required to accommodate the power generated by the overall project. The items shown green in Figure 4 herein shows a schematic of the proposed Arklow Bank Wind Park Phase 2 EirGrid Upgrade Works which is based on the East Coast Opportunity Assessment Report. This option is subject to further study and confirmation from EirGrid.

These related developments, as well as other relevant developments identified in the vicinity of the proposed development, such as, for example, the adjacent permitted data centre, will be described in the EIAR and the likely cumulative effects on the environment of these developments and the proposed development will be assessed.

3.6 Environmental Constraints

There are a number of environmental constraints relating to the proposed development that will be taken into account in the preparation of the EIAR. These include, but are not limited to the following:

- Residential receptors in close proximity to the onshore grid infrastructure;
- The primary landscape features including the Avoca River, the Arklow Town Marsh and the townscape environment of Arklow. The landfall site at Johnstown North is within an area designated in the Wicklow County Development Plan as an Area of Outstanding Natural Beauty;
- There is one Natura 2000 site and two proposed Natural Heritage Areas within 15km of the proposed development. The Natura 2000 site is the Buckroney-Brittas Dunes and Fen Special Area of Conservation (SAC) (located approximately 470m north of the landfall compound), Arklow Sand Dunes pNHA (located approximately 860m southwest of the cable route) and the Arklow Town Marsh pNHA (approximately 350m to the southwest of the cable route).

Further details on the baseline environment conditions are provided in Section 6.3.

4 Statutory Basis

4.1 Introduction

A European Directive for EIA has been in force since 1985 since the adoption of Council Directive 85/337/EEC on the assessment of the effects of certain public and private projects on the environment.

The EIA Directive of 1985 has been amended three times by Council Directives 97/11/EC, 2003/35/EC and 2009/31/EC. It was ultimately codified and repealed by Council Directive 2011/92/EU of the European Parliament and of the Council on 13 December 2011. This Directive was further amended in 2014 by Council Directive 2014/52/EU. The amended directive sets out the requirements for member states on the assessment of the effects of certain public and private projects on the environment.

The EIA Directive, as amended, requires the competent authority to undertake an EIA of certain public and private projects that are likely to have significant effects on the environment as part of the consent decision making process. In Ireland, the requirements of the EIA Directive, as amended, in relation to planning consents are specified in Part X of the Planning and Development Act, 2000, as amended, and in Part 10 of the Planning and Development Regulations, 2001, as amended.

This EIA Scoping Report has therefore been prepared to comply with the requirements of Directive 2011/92/EU as amended by Directive 2014/52/EU, the Planning and Development Act 2000, as amended, and the Planning and Development Regulations 2001, as amended.

4.2 The Need for EIA

The prescribed classes of development and thresholds that trigger a mandatory Environmental Impact Assessment (EIA) and the provision of an EIAR are set out in Schedule 5 of the Planning and Development Regulations, 2001, as amended.

The classes under Schedule 5 that are relevant to the overall project are listed below:

Part 2 Class 3 Energy Projects

(i) Installations for the harnessing of wind power for energy production (wind/07 farms) with more than 5 turbines or having a total output greater than 5 megawatts.

The proposed development, being the onshore grid infrastructure required to connect the offshore wind park to the onshore grid, is an integral part of the overall wind farm project.

As the overall project is subject to a mandatory requirement for an EIA, the onshore grid infrastructure must also be subject to EIA.

4.3 Consultation

A variety of third parties will be consulted throughout the preparation of the EIAR and the scheme design for the proposed development.

This will include Wicklow County Council, relevant statutory bodies, utility/service providers, landowners, and residents and businesses in proximity to the proposed development. The bodies listed in Appendix A will be sent a copy of this EIA Scoping Report.

Public consultation for the whole project is planned for October 2020, as part of the design development and preparation of the EIARs for both the onshore and offshore elements.

5 EIA Process

5.1 Introduction

Article 1(2)(g) of the EIA Directive as amended provides the following definition:

"environmental impact assessment" means a process consisting of:

(i) the preparation of an environmental impact assessment report by the developer, as referred to in Article 5(1) and (2);

(ii) the carrying out of consultations as referred to in Article 6 and, where relevant, Article 7;

(iii) the examination by the competent authority of the information presented in the environmental impact assessment report and any supplementary information provided, where necessary, by the developer in accordance with Article 5(3), and any relevant information received through the consultations under Articles 6 and 7;

(iv) the reasoned conclusion by the competent authority on the significant effects of the project on the environment, taking into account the results of the examination referred to in point (iii) and, where appropriate, its own supplementary examination; and

(v) the integration of the competent authority's reasoned conclusion into any of the decisions referred to in Article 8a."

For the purpose of the EIA, SPL is the 'developer' proposing the Arklow Bank Wind Park Phase 2 Onshore Grid Infrastructure development and An Bord Pleanála is likely to be the 'competent authority' that will undertake the EIA and decide whether to grant consent for the proposed development. This is subject to confirmation from the Board that the development is strategic infrastructure.

5.2 EIA Process and Role of the EIAR

The EIA is part of the consenting process for certain specified development projects. It ensures that consent decisions for those projects are made in the knowledge of the environmental consequences of the project. The principal elements of the EIA process can be described as follows:

- **Screening** – deciding whether an EIA is required to be undertaken for the proposed development;
- **Scoping** – determining the issues to be considered as part of the EIA, further issues identified by consultees and the availability of data. The EIA Scoping Report provides consultees with information on the proposed development and describes the intended level of detail and content of the EIAR so that they can provide comments/input to the final scope and content of the EIAR;
- **Consideration of alternatives** – describing the reasonable alternatives studied by the developer (for example in terms of design, technology, location, size and scale) and indicating the reasons for selecting the chosen option;

- **Description of baseline environment** – description of the existing conditions against which the likely environmental effects of the proposed development will be evaluated;
- **Description of the proposed development –** providing the relevant information on the site, design and other relevant features of the proposed development, having regard to the vulnerability of the proposed development to risk from major accidents;
- **Identification and assessments of effects** – an iterative process whereby the significance of likely effects is determined;
- **Monitoring and Mitigation** – description of the mitigation measures proposed to avoid, prevent and reduce significant adverse effects and a description of proposed monitoring arrangements;
- **Reporting** – the findings of the assessment are reported and published in an EIAR which is submitted to An Bord Pleanála as part of the application for planning permission;
- **Scrutiny** – An Bord Pleanála (as the competent authority) will undertake the EIA as part of its consideration of the proposed development. An Bord Pleanála will having regard to the information in the EIAR, and the submissions of statutory and non-statutory bodies and the general public in its determination whether consent should be granted; and
- **Enforcement and monitoring -** If consent is granted, the developer is obliged to adhere to the measures and commitments contained in the EIAR, as modified by any conditions attached to the consent.

5.3 Scoping

In August 2017, the EPA published the latest edition of the draft Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (EPA, 2017). The Guidelines have been drafted with a view to facilitating compliance with the EIA Directive as amended by Directive 2014/52/EU. The draft Guidelines state that the scoping process should focus effort and resources on key significant issues that are guided by the following criteria:

- Use of likelihood and significance as the principal criteria for determining what environmental aspects need to be considered and addressed in the EIAR;
- Consider precedence to ensure any EIARs for similar projects on similar sites are used to develop an appropriate technical scope and robust assessment; and
- Recognise potential direct and indirect interactions that may magnify effects and/or give rise to cumulative significant effects (from multiple non-significant effects).

This EIA Scoping Report provides an overview of the likely significant environmental effects that may arise from the proposed development and describes the methods which will be used to evaluate them as part of the preparation of the EIAR. It includes information on the following:

- Information and studies needed to characterise the existing environment;

- Methods used to predict the magnitude of environmental effect where applicable;
- Criteria against which the significance of effects will be evaluated;
- Consultations to be carried out (see above); and
- The envisaged structure and content of the EIAR.

5.4 Rating and Significance of Effects

Section 3.7 of the draft EPA Guidelines (EPA, 2017) advises that the EIAR should focus on likely, significant effects and descriptions of effects that are accurate and credible.

Likely effects are considered to be those which are planned to take place and those which can be reasonably foreseen to be inevitable consequences of normal construction and operation of the proposed development, including the vulnerability of the proposed development to risks from major accidents. Significance of effects is understood to mean the importance of the outcome of the effect (i.e. consequence of change) and is determined by a combination of objective (scientific, often quantitative) and subjective (social, often qualitative) concerns.

The factors outlined in Table 1 are therefore to be considered when determining likely significant effects of the proposed development on environmental aspects.

Table 1: Description of effects (Source: EPA, 2017)

Nature	Description	Definition
Quality of effects	Positive effect	A change which improves the quality of the environment (for example, by increasing species diversity; or the improving reproductive capacity of an ecosystem, or by removing nuisances or improving amenities)
	Neutral effect	No effect(s) and/or effects that are imperceptible within normal bounds of variation or within margin of forecasting error
	Negative effect	A change which reduces the quality of the environment (for example, lessening species diversity or diminishing the reproductive capacity of an ecosystem; or damaging health or property or by causing nuisance)
Significance of effects	Imperceptible	An effect capable of measurement but without significant consequences
	Not significant	An effect which causes noticeable changes in the character of the environment but without significant consequences
	Slight effect	An effect which causes noticeable changes in the character of the environment without affecting its sensitivities
	Moderate effect	An effect that alters the character of the environment in a manner that is consistent with existing and emerging baseline trends
	Significant effect	An effect which, by its character, magnitude, duration or intensity alters a sensitive aspect of the environment
	Very significant effect	An effect which, by its character, magnitude, duration or intensity significantly alters most of a sensitive aspect of the environment

Nature	Description	Definition
	Profound effect	An effect which obliterates sensitive characteristics
Extent and Context of effects	Extent	Describe the size of the area, the number of sites, and the proportion of a population affected by an effect
	Context	Describe whether the extent, duration, or frequency will conform or contrast with established (baseline) conditions (is it the biggest, longest effect ever?)
Probability of effects	Likely effect	The effects that can reasonably be expected to occur because of the planned project if all mitigation measures are properly implemented
	Unlikely effect	The effects that can reasonably be expected not to occur because of the planned project if all mitigation measures are properly implemented
Duration and Frequency of effects	Momentary effect	Effect lasting from seconds to minutes
	Brief effect	Effect lasting less than a day
	Temporary effect	Effect lasting less than one year
	Short-term effect	Effect lasting one to seven years
	Medium-term effect	Effect lasting seven to fifteen years
	Long-term effect	Effect lasting fifteen to sixty years
	Permanent effect	Effect lasting over sixty years
	Reversible effect	Effects that can be undone, for example through remediation or restoration
	Frequency of effects	Describe how often the effect will occur (once, rarely, occasionally, frequently, constantly – or hourly, daily, weekly, monthly, annually)
Type of effects	Indirect effect	Impacts on the environment, which are not a direct result of the project, often produced away from the project site or because of a complex pathway
	Cumulative effect	The addition of many minor or significant effects, including effects of other projects, to create larger, more significant effects
	Do-nothing effect	The environment as it would be in the future should the subject project not be carried out
	Worst-case effect	The effects arising from a project in the case where mitigation measures substantially fail
	Indeterminable effect	When the full consequences of a change in the environment cannot be described
	Irreversible effect	When the character, distinctiveness, diversity or reproductive capacity of an environment is permanently lost
	Residual effect	The degree of environmental change that will occur after the proposed mitigation measures have taken effect.
	Synergistic effect	Where the resultant effect is of greater significance than the sum of its constituents, (e.g. combination of SOx and NOx to produce smog)

5.5 Information to be Included in an EIAR

An EIAR is best defined as *"a statement of the effects, if any, which the proposed development, if carried out, would have on the environment"* (EPA, 2017). As outlined in Article 5(3)(a) of the EIA Directive, the EIAR must be prepared by competent experts. Annex IV of the EIA Directive specifies that the following information must be provided in an EIAR:

"1. Description of the project, including in particular:

a) a description of the location of the project;

b) a description of the physical characteristics of the whole project, including, where relevant, requisite demolition works, and the land-use requirements during the construction and operational phases;

c) a description of the main characteristics of the operational phase of the project (in particular any production process), for instance, energy demand and energy used, nature and quantity of the materials and natural resources (including water, land, soil and biodiversity) used;

d) an estimate, by type and quantity, of expected residues and emissions (such as water, air, soil and subsoil pollution, noise, vibration, light, heat, radiation) and quantities and types of waste produced during the construction and operation phases.

2. A description of the reasonable alternatives (for example in terms of project design, technology, location, size and scale) studied by the developer, which are relevant to the proposed project and its specific characteristics, and an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects.

3. A description of the relevant aspects of the current state of the environment (baseline scenario) and an outline of the likely evolution thereof without implementation of the project as far as natural changes from the baseline scenario can be assessed with reasonable effort on the basis of the availability of environmental information and scientific knowledge.

4. A description of the factors specified in Article 3(1) likely to be significantly affected by the project: population, human health, biodiversity (for example fauna and flora), land (for example land take), soil (for example organic matter, erosion, compaction, sealing), water (for example hydromorphological changes, quantity and quality), air, climate (for example greenhouse gas emissions, impacts relevant to adaptation), material assets, cultural heritage, including architectural and archaeological aspects, and landscape.

5. A description of the likely significant effects of the project on the environment resulting from, inter alia:

a) the construction and existence of the project, including, where relevant, demolition works;

b) the use of natural resources, in particular land, soil, water and biodiversity, considering as far as possible the sustainable availability of these resources;

c) the emission of pollutants, noise, vibration, light, heat and radiation, the creation of nuisances, and the disposal and recovery of waste;

d) the risks to human health, cultural heritage or the environment (for example due to accidents or disasters);

e) the cumulation of effects with other existing and/or approved projects, taking into account any existing environmental problems relating to areas of particular environmental importance likely to be affected or the use of natural resources;

f) the impact of the project on climate (for example the nature and magnitude of greenhouse gas emissions) and the vulnerability of the project to climate change;

g) the technologies and the substances used.

The description of the likely significant effects on the factors specified in Article 3(1) should cover the direct effects and any indirect, secondary, cumulative, transboundary, short-term, medium-term and long-term, permanent and temporary, positive and negative effects of the project. This description should take into account the environmental protection objectives established at Union or Member State level which are relevant to the project.

6. *A description of the forecasting methods or evidence, used to identify and assess the significant effects on the environment, including details of difficulties (for example technical deficiencies or lack of knowledge) encountered compiling the required information and the main uncertainties involved.*

7. *A description of the measures envisaged to avoid, prevent, reduce or, if possible, offset any identified significant adverse effects on the environment and, where appropriate, of any proposed monitoring arrangements (for example the preparation of a post-project analysis). That description should explain the extent, to which significant adverse effects on the environment are avoided, prevented, reduced or offset, and should cover both the construction and operational phases.*

8. *A description of the expected significant adverse effects of the project on the environment deriving from the vulnerability of the project to risks of major accidents and/or disasters which are relevant to the project concerned. Relevant information available and obtained through risk assessments pursuant to Union legislation such as Directive 2012/18/EU of the European Parliament and of the Council (*) or Council Directive 2009/71/Euratom (**) or relevant assessments carried out pursuant to national legislation may be used for this purpose provided that the requirements of this Directive are met. Where appropriate, this description should include measures envisaged to prevent or mitigate the significant adverse effects of such events on the environment and details of the preparedness for and proposed response to such emergencies.*

9. *A non-technical summary of the information provided under points 1 to 8.*

10. *A reference list detailing the sources used for the descriptions and assessments included in the report.*

Section 4 of the EPA Draft Guidelines outlines the information to be presented in an EIAR as follows:

"To assist assessment and increase clarity and the systematic organisation of information in an EIAR; it is good practice to separately describe the:

i) key alternatives considered

ii) proposed project

iii) receiving environment

iv) likely significant effects

v) mitigation and monitoring measures and

vi) residual effects.

A non-technical summary must also be provided.

The receiving environment and the effects of the project are explained by reference to its possible effects on a series of environmental factors:

- *Population and Human Health*
- *Biodiversity*
- *Land & Soils*
- *Water*
- *Air*
- *Climate*
- *Material Assets*
- *Cultural Heritage*
- *Landscape*
- *Interactions."*

Table 2 presents an overview of the aspects of the proposed development that will be considered in the EIAR and indicates whether significant effects are considered likely and require assessment. Further detail on the proposed scope of the assessments is provided in Section 6.3.

Table 2: Summary of the Proposed Scope of the EIA

Environmental aspect	Scoped in/out	Justification
Traffic and transportation	In	Construction activities and the generation of additional vehicle movements during construction, maintenance activities during operation, and decommissioning activities have the potential to impact on existing traffic and transportation.
Air quality and climate	In	Construction activities and traffic, and decommissioning activities and traffic, have the potential to give rise to air quality impacts. The gas insulated substation will contain sulphur hexafloride, which is a potent greenhouse gas. The potential effects on climate of the presence of this gas will be assessed.
Odour	Out	The construction, operation and decommissioning are not likely to be odorous. However, there is the possibility of soil contamination being uncovered during the excavation works on the substation site. The potential for odour emissions during construction will be addressed as necessary.
Noise and vibration	In	Construction activities and traffic, operation of the substation and decommissioning activities and traffic have the potential to generate noise and vibration.
Biodiversity (Terrestrial and marine)	In	The construction, operation and decommissioning of the proposed development may impact on existing terrestrial and marine biodiversity including terrestrial and aquatic (including marine) flora, fauna and habitats in proximity to the overall development site and in the general area.
Archaeology, architectural and cultural heritage	In	The construction of the proposed development may impact on unknown and/or unrecorded subsurface features as well as on existing heritage including items on the National Inventory of Architectural Heritage and Record of Monuments and Places.
Landscape and visual	In	The construction, operation and decommissioning of the proposed development has the potential to impact on visual amenity and may alter the nature of the existing views and landscape and townscape character.
Land and Soils	In	Given the industrial history of the substation site, there is the potential for construction activities to uncover contaminated materials during construction. Furthermore, the intrusive nature of the construction activities may directly impact on existing soils, geology and hydrogeology (groundwater).
Water	In	The substation site is located on the floodplain of the Avoca River and is protected by existing flood defences on the Avoca River Business Park site. The substation has the potential to be vulnerable to flooding and has potential to affect flood conditions elsewhere. Given the nature of the construction activities and works along the cable route, including watercourse crossings, the proposed development may impact on existing hydrological conditions and water quality.
Resource and waste management	In	The proposed development will generate waste arisings that will require management during construction, operation and decommissioning.

Environmental aspect	Scoped in/out	Justification
Population and human health	In	The proposed development has the potential to impact on employment, the local community and amenity during construction, operation and decommissioning. Electromagnetic fields generated by the proposed development has the potential to impact on human health.
Material assets	In	The proposed development may indirectly impact on existing material assets during construction, operation and decommissioning.
Major Accidents and Natural Disasters	In	Given the location of a COMAH site in the vicinity and the record of pluvial and fluvial flooding in Arklow, the proposed development has the potential increase the risk associated with major accidents and natural disasters.
Cumulative	In	There is the potential for cumulative effects with other proposed developments in the vicinity. The proposed development is part of a larger overall project (Arklow Bank Wind Park Phase 2), which includes the build out of the offshore infrastructure and the proposed OMF. There are also required upgrades to the transmission network required to connect the power generated from the overall project. The substation site is located in the Avoca River Business Park, adjacent to a permitted data centre. There are other industrial premises and major infrastructure, such as high voltage overhead power lines, the railway and the M11 motorway, nearby. The EIAR will identify all relevant developments to be included in the cumulative assessment in the EIAR.
Interactive	In	There is the potential for multiple direct or indirect effects (from various environmental aspects) to result in an accumulation or magnified effects from the proposed development.
Daylight and sunlight	Out	It is not likely that there would be a significant change to overshadowing and/or the existing daylight and sunlight conditions at neighbouring properties.
Wind and microclimate	Out	The massing of the substation building is such that it is unlikely to result in a significant change to the wind conditions at pedestrian level and/or microclimate on site and/or in the vicinity of the site. No other element of the proposed development is likely to have a significant effect on wind conditions or microclimate.
Transboundary	In	The nature and scale of the proposed development is such that it is not likely to result in any significant transboundary effects.

6 EIAR

6.1 Introduction

A grouped format structure is proposed for the EIAR. The report will comprise 'front end' chapters and 'assessment' chapters for each environmental aspect. It is considered that this structure makes it easy to understand the proposed development and investigate topics of interest in the assessment chapters.

This structure has also been aligned (in so far as possible) with the offshore infrastructure EIAR and each EIAR is being prepared in parallel and will take full cognisance of each other.

The EIAR will be prepared in four volumes as follows:

- Volume 1 provides the non-technical summary. This summarises the findings of the EIAR in a clear, accessible format that uses non-technical language and supporting graphics. The non-technical summary describes the proposed development, existing environment, effects and mitigation measures and relevant aspects of the EIAR in a manner that can be easily understood by the general public;
- Volume 2 encompasses the main EIAR including introductory chapters in addition to 'assessment' chapters for each environmental aspect in accordance with Article IV of the EIA Directive. The front end chapters (described in Section 6.2 below) provide the relevant project context whilst the assessment chapters (described in Section 6.3 below) provide a description of the relevant environmental aspects and likely significant effects with summary chapters provided thereafter;
- Volume 3 includes the figures to support Volume 2; and
- Volume 4 provides the technical appendices that support and are cross-referenced with Volume 2. This may include other relevant drawings, modelling outputs, background reports and/or supporting documents.

The EIAR will be prepared by competent experts, make use of the latest and most appropriate scientific methodology and assessment procedures, and support the correct interpretation of data. Information on the competent experts will be provided.

A proposed Table of Contents for the EIAR is provided in Section 7.

6.2 Front End Chapters

The front end chapters will facilitate a systematic approach to understanding the context of the proposed development, provide a comprehensive description of the proposed development and ensure that all matters identified in Annex IV of the EIA Directive have been addressed in order to provide all relevant information to An Bord Pleanála.

The EIAR will commence with the front-end chapters that provide overarching information on the proposed development and its context by addressing the following:

- **Introduction** – this will outline the background and need for the proposed development;
- **Policy and Legislation -** this chapter will examine the proposed development in the context of relevant EU national, regional and local planning and energy plans, policies and objectives. Consideration will also be given to relevant non-statutory plans and guidance. The chapter will provide an evaluation of compliance with these plans and policies;
- **Consideration of Alternatives** – the reasonable alternatives considered during the development of the design including alternative locations, layouts, designs, processes and the 'do nothing' scenario of no development, will be described;
- **Description of Development** – the design and operation of the proposed development will be described. The description will be supported by appropriate graphics and scheme drawings;
- **Construction Strategy –** the likely approach to the construction of the proposed development, including indicative durations will be described. The description will form the basis of the environmental assessments to establish the likely significant effects which could arise during construction. A Construction Environmental Management Plan (CEMP) will be included in the EIAR, and the Contractor will be required to comply with the requirements of this plan during the construction phase of the scheme. The decommissioning activities on cessation of operations will also be addressed;
- **EIAR Methodology –** the role of the EIAR in the EIA process and the methodology for preparation of the EIAR, including the environmental assessment approach, will be described.

6.3 Assessment Chapters

6.3.1 Overview

The assessment chapters will describe the existing baseline environment, in the context of any relevant environmental quality standards, the assessment methodology, the likely significant effects, mitigation and monitoring measures and residual effects for each environmental aspect. Each phase of the development will be addressed – construction, operation and decommissioning. The potential for interactive, indirect and cumulative effects will be identified in the assessment chapters where relevant.

6.3.2 Traffic and Transportation

The traffic and transport assessment will describe the existing roads, footpaths, access arrangements, public transport and traffic in the area of the proposed development and the wider context.

The construction phase is likely to have the greatest effect on the existing road network due to the amount of additional traffic which will be generated in the vicinity of the cable works, the landfall and substation construction sites. The volume of traffic generated by the proposed development during construction and its distribution onto the local road network will be estimated. The assessment will also consider the likely significant effects on pedestrian movement and vehicular access in the area.

Particular attention will be given to road capacity as the local rural roads in the vicinity of the emerging preferred cable routes and landfall would have less capacity for construction traffic and heavy goods vehicles. Recommendations for appropriate mitigation will be made where necessary to avoid significant adverse effects. The assessment will consider the operation of the proposed development on a day to day basis in order to identify and address any significant operational traffic and transportation effects associated with the proposed development. The impacts on traffic and transportation due to the decommissioning phase will also be addressed. Any cumulative effects between traffic related to the offshore infrastructure, the operations and the maintenance facility and the Eirgrid upgrade works, as well as other existing and permitted developments in the area, will be considered.

The assessment will be undertaken with appropriate consideration of national, regional and local transport policy. In addition, the assessment will address transport issues that emerge from consultation with stakeholders, such as Wicklow County Council Roads and Traffic Department and Transport Infrastructure Ireland.

6.3.3 Air Quality and Climate

6.3.3.1 Air Quality

The proposed development falls within Zone D (Rural Ireland) as outlined in Schedule 18 of the Air Quality Standards Regulations 2011 (S.I. No. 180 of 2011).

The assessment of air quality will address the effect of the proposed development on ambient air quality. The assessment will be prepared in accordance with the requirements of the following documents:

- *Air Quality Standards Regulations 2011* (S.I. No. 180 of 2011); and
- *Technical Instructions on Air Quality* (TA Luft, 2002).

The chapter will provide information on the air quality baseline recorded in Zone D by the EPA. Effects on air quality associated with the construction of the proposed development will be as a result of construction activities and construction traffic.

There are 4 residential buildings within 500m of the proposed substation site, the closest of which is c. 300m from the development boundary. Given that the site is within an industrial park and is within 450m of the M11 motorway, it is likely the site and surrounds are already subjected to traffic related air quality effects. The Dublin to Rosslare railway also passes by just south of the Avoca River.

There are approximately 13 landowners along the emerging preferred cable routes – comprising both private and public owners. The land within the development area is primarily in agricultural use with typical ribbon development. There are also some pockets of mixed land use and for short sections, the cable passes through more urban areas and along public roads, primarily in the vicinity of Arklow town.

The construction dust assessment will focus on any sensitive air quality receptors in the local area, which generally comprises receptors such as residences, schools, hospitals and similar receptors.

Monitoring and mitigation measures will be implemented to minimise dust nuisance. Mitigation measures will be proposed where appropriate to minimise significant adverse effects on air quality.

The assessment of traffic-related pollutant emissions during the construction phase will follow the *'Design Manual for Roads and Bridges'* (DMRB) methodology (Highways Agency (UK), 2017). A screening assessment will be carried out and traffic-related pollutants, namely carbon monoxide (CO), benzene, nitrogen oxides (NO_x), nitrogen dioxide (NO_2) and particulate matter (PM_{10} and $PM_{2.5}$) will be quantified where traffic volumes on the road network are predicted to increase by greater than 5% during the operational phase and 10% during the construction phase.

The only new air emissions sources expected during the operational phase relate to the likely provision of standby generation at the proposed onshore 220 kV substation. Potential emissions effects from these generators will be assessed in the EIAR. Once the proposed development is operational, it is not expected there will be a significant increase in traffic volumes. It is unlikely that there will be a significant operational impact on air quality.

Decommissioning, should it occur at the end of life of the asset (which could be more than 50 years), is likely to include the demolition of the buildings on the substation site and removal of all above ground structures on the site and along the cable route. The potential impacts on air quality from this phase, such as dust and emissions from the traffic generated, will also be assessed.

It is expected that the proposed development will have a positive indirect and cumulative effect on air quality as it will be an integral part of the Arklow Bank Wind Park Phase 2 project, providing a clean, renewable source of energy with the view to reduce reliance on non-renewable energy sources. The proposed development has the potential to contribute towards emissions reductions from fossil fuel power generation.

6.3.3.2 Climate

Climate data will also be obtained from Met Éireann and the EPA.

Ireland is bound by commitments to reduce greenhouse gas emissions from as far back as the EU Climate Change and Renewable Energy Package in December 2008. Ireland is unlikely to meet 2020 EU greenhouse gas emission targets for all sectors. Current projections by the EPA[2] indicate that Ireland will be 2% and 4% below 2005 levels by 2020 under the *With Existing Measures* and *With Additional Measures* compared with the target of 20%.

The proposed development is not expected to have a significant direct effect on carbon or greenhouse emissions, or on climate. The onshore 220 kV substation will contain sulphur hexafluoride gas, which has significant greenhouse gas potential. There will be no routine emissions of this gas and the mitigation measures and improvements in operation and maintenance to manage this risk will all be addressed in the EIAR, covering all phases of the development, including decommissioning.

[2] Ireland's Greenhouse Gas Emissions Projections, 2019 – 2040, EPA, July 2020

It is envisaged that the proposed development will have a significant positive indirect and cumulative effect on the climate once operational as it will be an integral part of the Arklow Bank Wind Park Phase 2 project, providing a clean, renewable source of energy with the view to reduce reliance on non-renewable energy sources. The proposed development has the potential to contribute significantly towards reducing greenhouse gas emissions.

6.3.4 Noise and Vibration

The noise and vibration assessment will address the likely significant effects associated with the proposed development during construction, decommissioning and operation of the onshore 220 kV substation. Noise and vibration from construction and decommissioning of the landfall site and emerging preferred cable routes will also be assessed. No operational effects are associated with the landfall site and cable route.

Noise and vibration effects during the decommissioning phase of the proposed development will be similar or less than effects during the construction phase. The noise assessment presented for the construction phase is considered representative of the decommissioning phase. As such a separate assessment for noise from the decommissioning phase is not included.

During the operation of the substation, there will be plant noise from the electrical and mechanical equipment. The cumulative impact with the existing developments (or future developments with planning permission) will also be considered. There will be no potential for vibration impacts during the operation of the substation.

Traffic noise associated with the construction and decommissioning phases will be assessed. As the scheme has no significant operational traffic associated with it, no operational traffic assessment will be undertaken.

The noise and vibration assessment for the substation site will focus on sensitive receptors in the local area. The nearest existing receptors (and approximate distances from the site boundary) are as follows:

- R1 - offices/commercial uses 290m to the west;
- R2 - residential properties 570m to the south;
- R3 - residential properties 600m to the north;
- R4 - residential properties 300m to the east; and
- R5 - Shelton Abbey 800m to the west.

Additional receptors (e.g. future receptors with planning permission) will be further considered in the EIAR.

The site is within an industrial park and is within 450m of the M11 motorway. The Dublin to Rosslare railway also passes by just south of the Avoca River. It is likely that the site is currently subjected to levels of noise and vibration from these sources.

The land through which the emerging preferred cable routes traverse is primarily zoned as agricultural with some single dwellings.

Some sections of the route are classed as mixed land use, with some small sections of the route passing through areas that are primarily urban in nature (e.g. built up areas affected by noise along public roads). These areas have a higher number of sensitive receptors. Representative receptor locations in these areas will be identified in the EIAR for the purposes of assessing construction and decommissioning noise and vibration effects from the cable route and landfall.

A noise survey will be conducted at noise sensitive properties and other locations within the vicinity of the substation site, cable route and landfall to determine the existing baseline noise environment. The monitoring procedures will follow guidance from British Standard (BS) 7445-1:2003 '*Description and environment of environmental noise – Part 1: Guide to quantities and procedures'* and BS 4142:2014+A1:2019 '*Methods for rating and assessing industrial and commercial sound'.* A single weather station will also be installed during long-term noise monitoring to measure wind speeds and rainfall.

Any measurement of existing ambient or background sound levels will be subject to a degree of uncertainty. Environmental sound levels vary between days, weeks, and throughout the year due to variations in source levels and conditions, meteorological effects on sound propagation and other factors. Given the on-going coronavirus outbreak, environmental sound levels may also be affected because typical road, rail and air transport usage has been reduced by travel restrictions and social distancing measures. Other sound sources may also have been affected – for example, due to changes in operating patterns at industrial and commercial premises.

Hence, any measurement survey can only provide a sample of the ambient levels. Every effort will be made to ensure that measurements are undertaken in such a way as to provide a representative sample of conditions, such as avoiding periods of adverse weather conditions. However, a small degree of uncertainty will always remain in the values taken from such a measurement survey.

Construction works noise levels will be predicted following guidance from BS 5228:2009+A1:2014 '*Code of practice for noise and vibration control on construction and open sites – Part 1: Noise*' which provides a realistic estimate of sound propagation from construction plant. The predictions will use representative noise levels, sourced from industry standard guidance documents such as BS 5228, for typical items of plant that are used in such developments.

Construction noise will be assessed based on guidance from BS 5228 Part 1: Noise (e.g. the 'ABC' method which compares predicted construction noise levels to existing levels of ambient noise) and will also consider the construction noise level guidance in National Roads Authority (NRA) '*Guidelines for the Treatment of Noise and Vibration in National Road Schemes'* (2014).

BS 5228 Part 2: Vibration indicates that vibration effects generally only occur during heavy ground works (e.g. piling, excavation or ground compaction activities) when they are located less than 20m from sensitive locations. The effect depends on the type of works taking place, ground conditions, and receptor distance. Vibration levels from plant and equipment activities will be estimated based on library measurement data from BS 5228 Part 2: Vibration and TRL Report 429 *'Groundborne Vibration Caused by Mechanised Construction Works'* (2000).

Construction vibration will be assessed based on guidance from BS 5228 Part 2: Vibration and will also consider the construction vibration level guidance in the NRA Guidelines.

Construction traffic noise levels will be quantified where overall traffic volumes are predicted to increase by greater than 25% and will follow the *'Calculation of Road Traffic Noise (CRTN)'* (UK Department of Transport, Welsh Office, 1988) methodology. The assessment of traffic-related noise during the construction phases will be based on guidance from the Institute of Environmental Management and Assessment (IEMA) *'Guidelines for environmental noise impact assessment'* (2014).

Predictions of operational substation plant sound pressure levels will be undertaken following guidance to ISO 9613-1:1993 *'Attenuation of sound during propagation outdoors – Part 1: Calculation of the absorption of sound by the atmosphere'* and ISO 9613-2:1996 *'Part 2: General method of calculation*' which are based on an assumption of moderate downwind propagation, and hence could be considered as a worst-case calculation. However, the standard also indicates an estimated accuracy of ±3 dB(A) in predicted levels.

Operational noise from the substation site will be assessed following the methodology set out in BS 4142, whereby the rating level of noise emissions from activities are compared against the background sound level of the pre-development noise climate. The operational noise assessment will also consider the noise limits applicable to licence applications for scheduled activities recommended in Environmental Protection Agency (EPA) Office of Environmental Enforcement (OEE) *'Guidance Note for Noise: Licence Applications, Surveys and Assessments in Relation to Scheduled Activities (NG4)'*.

The noise and vibration assessment will focus on the likely significant effects and mitigation measures will be proposed to minimise significant adverse noise and vibration effects. Where significant effects are identified, mitigation measures to minimise any disturbance to sensitive receptors will be set out and the residual effect with these in place will be assessed. Cumulative, indirect and interactions of effects will also be considered.

6.3.5 Biodiversity

The biodiversity assessment will address the likely significant effects of the proposed development on flora, fauna and habitats in proximity to the landfall and substation sites, cable route and wider area. Likely significant effects will be assessed during for the construction, operation and decommissioning phases of the proposed development.

A separate, standalone Report for Screening for Appropriate Assessment (AA) and, if necessary, a Natura Impact Statement (NIS), will be prepared to accompany the consent application.

In particular, the biodiversity assessment for the EIAR will include:

- Impacts on Natura 2000 sites i.e. Special Areas of Conservation (SACs) designated under the EU Habitats Directive (Council Directive 92/43/EEC) and Special Protection Areas (SPAs) designated under the EU Birds Directive (Directive 2009/147 EC) in the vicinity of the proposed sites and routes, and any Natura 2000 sites connected to the proposed development by a pathway which could give rise to potential effects,
- Other designated sites such as Natural Heritage Areas (NHAs) and proposed Natural Heritage Areas (pNHAs), Nature Reserves and Refuges for Fauna or Flora,
- Habitats listed in Annex I of the Habitats Directive,
- Species listed in Annex II of the Habitats Directive,
- Birds listed in Annex I of the Birds Directive,
- Birds of Conservation Concern in Ireland (BoCCI), Bird Watch Ireland
- The impact on any flight paths of bird and bat species,
- Species protected under the Wildlife Acts including protected flora,
- Habitats that can be considered as corridors as per Article 10 of Habitats Directive,
- Red Data Book species,
- Alien invasive species, and
- Biodiversity in general.

Consultation has already commenced and will continue with relevant stakeholders such as the National Parks and Wildlife Service (NPWS) and Inland Fisheries Ireland (IFI), who will also be consulted in relation to the freshwater streams in the vicinity of the proposed development.

The site of the proposed substation, a brownfield site adjacent to the Avoca River, the emerging preferred cable routes and the landfall site do not encroach on any environmentally designated areas.

There are three environmentally designated areas within 15km of the proposed development including Buckroney-Brittas Dunes and Fen SAC, located c. 470m north of the landfall compound, Arklow Sand Dunes pNHA, located c. 860m southwest of cable route, and the Arklow Town Marsh pNHA, c. 350m to southwest of cable route.

The biodiversity assessment for the EIAR will be carried out in stages, firstly through desktop assessment to determine existing records in relation to habitats and species present within the footprint of the proposed development. This will include research on the NPWS metadata website, the National Biodiversity Data Centre database, Environmental Protection Agency reports and data and a literature review of published information on flora and fauna occurring on site and in the surrounding marine, estuarine and riverine environment.

The second phase of the assessment involves site visits and fieldwork by specialist aquatic and terrestrial ecology teams, to establish the existing ecological conditions within the footprint of the proposed development and in its vicinity. The site visits/fieldwork include terrestrial, marine and freshwater surveys. Site visits and surveys have been in progress since early autumn 2019.

Habitats and flora

Surveys to date include habitat mapping, recording of flora and surveys for invasive species. The habitats within the survey area are predominantly low-value, agricultural habitats which are intensively managed and have low levels of biodiversity. Two small areas of woodland which are of low to moderate value at a local level will be crossed by the cable route and an area of low to moderate value woodland will be removed to facilitate the proposed substation. No significant species of flora or high-risk invasive species were recorded.

Birds

Monthly winter bird counts in the vicinity of the landfall and breeding bird surveys of the landfall, substation site and the cable routes have been undertaken. The bird communities recorded along the cable route are typical of the type of farmland through which the route passes, which consist of a mixture of pasture and arable farmland. A survey of the coastline was also carried out to determine if there was potential breeding sites for seabirds such as suitable ledges, sea stacks etc or signs of occupancy such as guano staining. No suitable sites for breeding seabirds were recorded.

Mammals

No signs of badger or other protected mammals have been recorded. Although there is likely to be bat activity along hedgerows or small wooded areas, no trees likely to be of significant value for roosting bats have been recorded. An area of woodland at the proposed substation site will also be removed. Based on the surveys to date, no significant ecological constraints were identified.

Other Fauna

One pond was recorded within the route corridor which has the potential to support Smooth Newt. No other notable species, including invertebrate specie such as Marsh Fritillary, were recorded.

The final part of the assessment will involve an evaluation of the footprint of the proposed development and determination of the likely significant effects on the flora and fauna from the proposed development. It is intended that the following surveys will be carried out and these may be supplemented or changed depending on the finalised project design:

- Survey for smooth newt within a small pond within the route corridor
- Fish stock assessment on minor watercourses.
- Biological monitoring of watercourses (Q value and/or Small Stream Risk Score)
- Otter survey at proposed crossing points on watercourses.

Guidelines of relevance for further survey work and preparation of the Biodiversity Chapter of the EIAR and the NIS include the following:

- *Assessment of plans and projects significantly affecting Natura 2000 sites* (EC, 2002);
- *Managing Natura 2000 Sites (EC, 2000) Guidance document on Article 6(4) of the Habitats Directive 92/43/EEC* (EC, 2007);
- *Appropriate Assessment of Plans and Projects in Ireland - Guidance for Planning Authorities* (DoEHLG, Rev. Feb. 2010);
- *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal* (CIEEM, 2019); and
- *Draft Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (EPA, 2017).*

The construction of the proposed development has the potential for the following effects:

- Loss of terrestrial and aquatic habitats
- Contaminants could be released into the aquatic and terrestrial environment during construction;
- Noise impacts could impact on sensitive faunal receptors during construction;
- Increased human activity and the operation of plant and machinery during construction could impact on sensitive faunal receptors during construction;
- Site works could result in the spread of invasive species.

Interactions, indirect effects and cumulative effects with other existing and permitted developments in the locality, will be assessed.

The effects during the operational and decommissioning phases are not expected to be significant but will be assessed within the NIS and Biodiversity Chapter.

Mitigation will be proposed where appropriate in order to avoid, reduce or remedy significant adverse effects. The result of the field surveys will be used to inform the location and detailed design of mitigation measures, and appropriate guidance will be followed. In addition to the mitigation measures, opportunities to enhance biodiversity will be taken where practical and feasible subject to other project constraints.

A report for AA Screening will be prepared in parallel with the preparation of the EIAR. Should the screening conclude that there is a potential for significant effects, or there is uncertainty about the effects, on the qualifying interests or integrity of any Natura 2000 site, a NIS will be prepared. The report for AA Screening and the NIS, if required, will be submitted with the planning application.

6.3.6 Archaeology, Architectural and Cultural Heritage (Terrestrial and Marine)

The town of Arklow has a rich and varied history. It was founded by the Vikings in the 9th century, settled by the Normans in the 12th century and was the site of one of the bloodiest battles of the Irish rebellion of 1798. There are a number of historic features and sites of heritage interest in the town.

There are no Recorded Monuments (RMP sites), or buildings listed on the Record of Protected Structures (RPS) or the National Inventory of Architectural Heritage (NIAH) in immediate proximity to the proposed landfall and substation sites. The emerging preferred cable routes will pass through the zone of archaeological potential for Arklow Town and will also run in close proximity to a number of heritage features (RMP sites, RPS sites and NIAH sites). Surveys to date were focused primarily on identifying any previously unrecorded Areas of Archaeological Potential.
The emerging preferred cable routes are close to or cross a number of townland boundaries. Townland boundaries are considered to possess moderate archaeological and cultural heritage significance. Those that contain watercourses possess increased archaeological potential – along with their margins. There were no previously unrecorded sites of archaeological potential noted during the field inspection. Based on the overall surveys to date, no significant archaeological constraints have been identified for the proposed development.

The archaeological, architectural and cultural heritage assessment will provide an assessment of the archaeological, architectural and cultural heritage potential within, and in the vicinity of the proposed development. The principal aim of the assessment will be to anticipate and avoid significant effects on cultural, archaeological and architectural resources.

The Department of Arts, Heritage and the Gaeltacht (now the Department of Culture, Heritage and the Gaeltacht) guidelines, *"Architectural Heritage Protection Guidelines for Planning Authorities"*, will be taken into account in undertaking the assessment. Consultation will be undertaken with relevant statutory bodies including Wicklow County Council and the National Monuments Service during the assessment.

The assessment will include a desktop survey of the area to establish existing architectural and archaeological conditions. The following sources will be consulted:

- Record of Monuments and Places;
- Register of Historic Monuments;
- National Museum of Ireland Topographical Files;
- Wicklow County Development Plan and Arklow Town Local Area Plan;
- Record of Protected Structures;
- Database of Irish Excavations;
- Irish Architectural Archive;
- Cartographic and photographic sources;

- National Inventory of Architectural Heritage (NIAH); and
- Other published sources, including local histories.

Site visits have been undertaken by an archaeological, architectural and cultural heritage specialist.

The likely significant effects (both direct/indirect) on physical heritage features will be assessed for the construction, operation and decommissioning phases, and appropriate monitoring and mitigation measures will be recommended as required. The likely effects of the proposed development on cultural heritage assets of a social type will also be addressed. Cumulative impacts, indirect effects and interactions will be included in the assessment.

Construction presents the greatest potential for significant effects on archaeological features, as there will be the potential that unrecorded or unknown sub-surface features will be encountered. Given the nature of the proposed development, effects during operation could comprise indirect visual impacts on features of archaeological, architectural and cultural heritage value. Decommissioning is unlikely to have an effect on cultural heritage features.

6.3.7 Landscape and Visual Impact

Under the European Landscape Convention, the term 'landscape' refers equally to areas of rural countryside and urban – built up – areas (typically historically referred to as 'townscape') and is defined as follows:

"An area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors".

The proposed development will be considered in terms of two separate but closely related aspects. These are the effects on the landscape character of the existing setting within the Arklow area, including residential settlements and other sensitive land/river uses, and visual impacts, i.e. the extent to which the proposed development can be seen.

The landscape and visual impact assessment will address the likely significant effects of the proposed development during the construction, operational and decommissioning phases in accordance with the following guidelines:

- Guidelines for Landscape and Visual Impact Assessment, 3rd Edition (Landscape Institute and Institute of Environmental Management & Assessment, 2013).
- Draft Guidelines on the information to be contained in Environmental Impact Assessment Reports (EPA, 2017); and will have regard to:
- EPA Consultation Draft Advice Notes on the preparation of Environmental Impact Statements' (EPA, 2015);
- 2002 and 2003 versions of the Guidelines and Advice Notes from the EPA.

The landscape and visual impact assessment will be prepared in the context of the Wicklow County Development Plan 2016 to 2022. The landscape assessment prepared as part of the Plan process describes the Landscape Character Areas (LCA) in County Wicklow. Arklow Town is described as an "Urban Area" and the Plan states the following with regard to this classification:

"In terms of landscape classification, these settlements have already been deemed suitable for development (of the type allowed by the settlement strategy and the development standards of this plan) and the impacts on the wider landscape of such development has already been deemed acceptable. Therefore, it will not be necessary for developments in urban areas to have regard to the surrounding landscape classification or to carry out landscape or visual impact assessment".

The landfall site at Johnstown North and the northern part of the cable route are situated within the coastal zone of County Wicklow. They are within the area designated as a Coastal Area of Outstanding Natural Beauty (AONB) - Southern Coastal Area in the Wicklow County Development Plan. The Plan has specific policies and requirements for the protection of the visual amenity and landscape of the coastal area. As not all coastal areas have the same characteristics or pressures, the County has been divided into coastal 'cells' as shown on Maps 11.01 A & B and 11.02 of the County Development Plan.

The landfall site is in coastal zone cell CZ10 Sallymount/Johnstown. The policies for this cell include:

"3. *Development that is detrimental to the quality or amenity of heritage features will not be permitted, including views and prospects, archaeological features, protected trees/structures*."

"7. *To strictly control the development of new entrances and access driveways on the R750 to those which can be proven to be necessary for either traffic safety reasons or the normal functioning of the landholding*."

"10. To facilitate the provision of necessary infrastructure, include water and energy infrastructure, to serve the local settlements/area."

The landscape objective in the Plan relevant to AONBs is as follows:

"*NH50 Any application for permission in the AONB which may have the potential to significantly adversely impact the landscape area shall be accompanied by a Landscape / Visual Impact Assessment, which shall include, inter alia, an evaluation of visibility and prominence of the proposed development in its immediate environs and in the wider landscape, a series of photos or photomontages of the site / development from clearly identified vantage points, an evaluation of impacts on any listed views / prospects and an assessment of vegetation / land cover type in the area (with particular regard to commercial forestry plantations which may be felled thus altering character / visibility). The Assessment shall demonstrate that landscape impacts have been anticipated and avoided to a level consistent with the sensitivity of the landscape and the nature of the designation*."

The landfall site and the northern part of the cable route are also in the viewshed of views and prospects to be protected.

As part of the Landscape and Visual Impact Assessment, a review will be undertaken of planning documents, Ordnance Survey mapping and aerial photography. The existing character of the substation site and surrounding area will be assessed and recorded. A photographic survey of the site, surrounding landscape context and visual receptor types will be undertaken. Photomontages will be prepared for a number of locations and the impact on those views assessed. A cumulative impact assessment will be included.

The likely direct and indirect effects on the landscape/townscape character and surrounding residential settlements, and the visual environment within and surrounding the proposed development will be assessed during both the construction, operation and decommissioning phases. The substation will include a number of buildings and permanent above ground structures and the connection to the grid will include 3 no. new transmission towers and a replacement tower as well as additional overhead power lines.

The construction of the landfall and cable route will involve short-term above ground construction activity. Once construction has been completed, and the ground has been reinstated, the only visible above ground features at the landfall and along the cable route will be small marker posts and manhole covers at jointing bays. There will be access tracks required from each joint bay to the public roads which will be within the planning boundary, the details of which are currently being finalised.

As detailed in Section 3.4 herein, when and if, the proposed development reaches the end of its useful life it will be decommissioned. All buildings and above ground structures on the substation site will be removed. All above ground structures along the cable route will be removed. It is likely that the ducts and cables will be left in place, as to remove them would be likely to cause a more substantial environmental impact than leaving them in-situ.

Measures will be proposed to avoid, reduce and or remediate landscape/ townscape and visual impacts. Mitigation measures will be in compliance with national and local policy guidelines.

6.3.8 Land and Soils

The land and soils chapter of the EIAR cover the potential effects of the proposed development on land, soils, geology and hydrogeology. The approach to the assessment of these aspects is outlined below.

6.3.8.1 Land, Soils and Geology

The assessment of the likely significant effects on the land, soils and geology environment will take account of both the importance of an attribute and the magnitude of the effects on it.

Potential significant effects to land, soils and geology associated with the proposed development include:

- Removal of soil and rock from the ground during construction, including crossings, could result in ground movement and a risk of settlement to buildings, infrastructure or utilities in the immediate vicinity;
- There is potential for contamination hotspots to be uncovered along the cable route, particularly in proximity to the historic landfill site on the approach to the substation site, and on the substation site itself; and
- Leakage or spillage of construction or decommissioning related materials on site during the construction and decommissioning stages, respectively, could cause ground contamination in the soil.

- There is a potential impact on the marine environment and coastal processes during Horizontal Directional Drilling at the landfall.

The operational phase has little potential for negative effects on land, soils and geology.

The assessment will determine the likely significant effects on land, soils and geology associated with the construction, operation and decommissioning of the proposed development.

In determining the effects of the proposed development on the baseline geological conditions, a number of documents and sources will be referred to including information from previous ground investigations in the area, where relevant and available, and the site walkovers carried out in January 2020, for the substation site appraisal, and May-June 2020, for cable route appraisal.

Land, soils and geology will be described under a number of criteria, where relevant including their removal, erosion or extraction; stability/ground conditions; suitability for growing plants; value as a material asset and use as a resource. The bedrock and subsoil types, their mineralogy and engineering properties, degree of weathering and vertical and horizontal extent will be described. Any structural, geological and geomorphic features will be identified and described. Each soil type present on site will be described in terms of its classification, soil profile, site characteristics (relief, slope, vegetation, etc.), drainage conditions and properties such as texture, structure, colour and root development.

The substation site was a former industrial plant. The potential for contamination to affect the proposed development and potential site users shall be considered, together with the potential for the development works to disturb contaminated soils. If soil excavation is necessary to remove contamination, the volume shall be quantified and the appropriate disposal mechanism identified.

During construction the likely effects on land, soils and geology would be associated with activities such as excavation and trenching. Additionally, consideration will be given to the potential consequences and mitigation of accidents, such as spillage of fuels, on soil quality.

Likely significant effects on the geological environment will be assessed by classifying the importance of the relevant attributes at key constraints and their locations. The likely magnitude of any effect will then be quantified. This effect will be assessed through the review of the construction methodology.

Following the assessment of effects, specific mitigation measures will be developed to avoid, reduce and, if possible, remedy any significant adverse effects on land, soils and geology during the construction, operation and decommissioning of the proposed development.

The cumulative effects of the proposed development, in terms of land, soils and geology will also be assessed as part of the EIAR.

6.3.8.2 Hydrogeology

The assessment of likely significant effects on the hydrogeological environment will take account of both the importance of an attribute and the magnitude of the effects on it. Potential significant effects associated with the proposed development include:

- Trenching, horizontal directional drilling and deep excavations during the construction phase could permanently alter any underlying aquifers and have the potential to impact on the groundwater environment by altering groundwater flow directions and reducing storage in the aquifer along and in the vicinity of the proposed development;
- Any dewatering associated with construction could also potentially impact the groundwater environment and any surface water feature dependant on the groundwater by lowering the water table;
- Altering the groundwater flow direction temporarily or permanently could change the direction of any groundwater contamination that may currently exist; and
- Leakage or spillage of construction or decommissioning related materials on site during the construction and decommissioning stages, respectively, could cause ground contamination in the groundwater.

The operational phase has little potential for negative effects on the soils and geology.

The assessment will determine the likely significant effects on the hydrogeological environment associated with the construction, operational and decommissioning phases of the proposed development.

In determining the effects of the proposed development, a number of documents and sources will be referred to including information from previous ground investigations in the area, where relevant and available.

The hydrogeological properties of the strata present at the sites and along the cable route will be described, consistent with the descriptions of soils and geology. The impacts of any structural, geological and geomorphic features on the hydrogeological environment will be identified and described. The hydrogeological assessment will comprise a detailed review of the site investigation data to determine the unsaturated zone thickness, direction of groundwater flow and characteristic water quality which will be used to prepare a Conceptual Site Model. It will inform the design of the proposed development.

Consistent with the soils and geology assessment, the extent of any groundwater contamination will be assessed and, where necessary, the effects on the environment and potential site users will be described. If necessary, the assessment will quantify the volume of soil to be removed in order to reduce the groundwater contamination to an acceptable environmental level. Should any groundwater remediation be required this will be assessed alongside the effects of the proposed development.

Likely significant effects (including cumulative effects) on the hydrogeological environment will be assessed and the magnitude of any effect will be quantified. This effect will be assessed through the review of the construction methodology.

Following the assessment of the likely significant effects, if necessary, specific mitigation measures will be developed to avoid, reduce and, if possible, remedy any significant adverse effects on the hydrogeological environment during the construction of the proposed development.

6.3.9 Water

The Water Framework Directive (Directive 2000/60/EC) of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy has been transposed into Irish legislation. The objective of the Directive is to achieve 'good' status in all waters, prevent deterioration in water quality and reverse pollution trends. Environmental Quality Standards are used to assess the risk of pollutant effects on water quality and aquatic plants and animals and reflect the requirements of the Directive.

The emerging preferred cable routes will include a number of watercourse crossings including the Johnstown North, Johnstown South, Ticknock, Coolboy, Templerainey, Kilbride, Kilbride Church and Sheepwalk Streams. The Shelton Abbey Canal flows west to east along the southern boundary of the substation site also.

Construction in close proximity to and across watercourses has the potential for the following effects on water quality, species and habitats:

- Direct removal of riverine and bankside habitat;
- Creation of barriers to fish movement;
- Short-term construction impacts;
- Pollution from road run-off;
- Pollution from accidental hazardous spillage; and
- Impacts on river geomorphology.

The hydrological assessment will address the likely significant effects, both positive and negative, of the proposed development on surface watercourses and features in proximity to the site. Likely significant effects will be assessed during the construction, operation and decommissioning of the proposed development.

The hydrological assessment will include the following:

- A regional overview and characterisation of the hydrological environment;
- Assessment of likely significant effects on the existing hydrological environment;
- Provide appropriate monitoring and mitigation measures and provide an assessment of residual effects; and

Current water protection legislation will also be reviewed, and details of baseline water quality data presented where available.

A Stage 3 Flood Risk Assessment will be undertaken for the proposed development in accordance with *"The Planning System and Flood Risk Management. Guidelines for Planning Authorities"* (DEHLG, 2009).

The flood risk assessment will address the risk of flooding elsewhere in the catchment, as a result of to the proposed development, as well as the risk of the development flooding.

The Avoca River flows west to east c. 250m south of the proposed substation site. The substation site itself is afforded protection from the Avoca River flooding by a flood defence embankment along the south-eastern, south-western and western perimeters of the Avoca River Business Park. Run-off from the proposed substation site is collected in the local drain system to the south of the site and then attenuated in a pond in the south-eastern corner of the Avoca River Business Park. There is an over-pumping system beside the pond, to the south west of the site, to pump water from the attenuation pond into the Avoca River. There is also an over-pumping system in place directly to the south east of the substation site to pump water into the Shelton Abbey Canal which flows eastwards parallel to the Avoca River. A minor watercourse, the Sheepswalk Stream, flows from the north to the east of the site.

During construction and decommissioning, there is the potential for pollution of surface and ground water features from sediment loading and polluting substances entering watercourses/aquifers/marine environment, e.g. as a result of surface water runoff or spills on-site.

Mitigation measures will be proposed where necessary and include measures to protect water bodies. The measures will include employing best practice construction methods for undertaking work adjacent to, on, under and over watercourses, and for adequately dealing with surface water run-off and controlling the sources of pollution, including relevant CIRIA guidance. Significant effects on natural watercourses and flood risk during construction will also be minimised by applying sound design principles and by following good work practices.

6.3.10 Resource and Waste Management

A description of the likely waste types and quantities to be generated in the proposed development, and mitigation measures to handle and manage the waste, will be provided as part of the assessment.

Waste will be generated by the proposed development during construction. This waste is likely to include waste generated from excavation (including possibly contaminated material), trenching and site clearance activities as well as waste from construction compounds. The operational phase will generate waste including end-of-life electrical components. It is not likely that the quantities will be significant. Appropriate measures will be identified to deal with any contaminated waste material associated with the proposed development, including quantification of volumes and treatment/disposal mechanisms. The decommissioning phase will generate demolition waste as the buildings and above ground structures will be removed.

Mitigation measures will be identified where appropriate to minimise the amount of resources used, reduce the quantity of waste sent for final disposal and to promote sustainable waste management practices in accordance with the waste hierarchy. Where practicable, on-site re-use of materials arising from excavation activities will be prioritised.

Mitigation measures will require that waste is re-used, recycled or recovered, that resource efficiency is increased and that all waste generated will be managed in accordance with the principles of the waste hierarchy, project and site management plans and relevant statutory requirements.

6.3.11 Population and Human Health

The population and human health assessment will examine the likely significant social and economic effects of the construction, operation and decommissioning of the proposed development on the local community and wider population. The assessment will include:

- The impact of scheme related traffic, including construction traffic;
- Socio-economic and employment effects during construction, operation and decommissioning;
- Residential, land-use and amenity effects; and
- Other effects, such as on tourism and nearby businesses.

Data from the Central Statistics Office and the County Development Plan will be used to define the socio-economic baseline.

The potential impacts on health and safety from the underground high voltage alternating current cables and the substation will be assessed. This will include the potential for health effects from electromagnetic fields generated by the electrical equipment. The proposed development is not likely to have a significant effect on human health and safety.

Other effects relevant to human wellbeing such as noise, vibration and visual impacts, will also be considered when classifying effects, but will be addressed in more detail in the relevant assessment chapters of the EIAR.

The main-land uses in the area will be described using Corine 2012 land cover data and this data will be verified by subsequent walkovers and drive-by surveys. All areas of scenic beauty in addition to heritage, culture and leisure facilities in the areas will be identified. A review of the main recreational activities in the area likely to be affected will be conducted. Residential amenities and recreational facilities such as forestry in public ownership, walking paths and sports facilities will be recorded and potential impacts assessed.

An assessment will be conducted to ascertain any potential impacts that may arise which could directly or indirectly affect land use, recreational activity or an amenity. This assessment will be prepared giving cognisance to other disciplines such as cultural heritage, hydrology and ecology.

The general receiving environment at the landfall and emerging preferred cable routes is rural, with agriculture being the predominant land use. The settlement pattern is one of individual farms and small clusters of roadside housing. The cable will, for the most part, be laid underground through farmland, with smaller sections along roads. The substation will be located on a brownfield site within a business park.

The construction and decommissioning of the proposed development have the potential to have short-term negative effects on residential amenity for the duration of the construction and decommissioning phases.

Once the cables, overhead line and substation are operational, the potential for significant effects on residential amenity is likely to be low.

Mitigation measures will be recommended as required to avoid or reduce significant adverse effects during the construction and decommissioning phase. As the development will be designed to EU and Irish standards for such installation, it is not anticipated that any additional mitigation measures will be required for the operational phase.

During the operational phase, the development will provide a significant positive indirect effect to the local environment as it will be an integral part of the provision of power from a renewable source.

6.3.12 Material Assets

This assessment will examine the likely significant effects of the construction, operation and decommissioning of the proposed development on assets of material value, including land use and ownership, built services, utilities and infrastructure. Typical services, utilities and infrastructure likely to be located in the vicinity of the proposed development include:

- Electricity;
- Gas;
- Foul and storm water drainage;
- Water supply; and
- Telecommunications.

Other material assets, which will be addressed in other assessment chapters, include:

- Transport assets and infrastructure, which will be addressed in the Traffic and Transportation Assessment;
- Heritage assets, which will be addressed in the Archaeological, Architectural and Cultural Heritage assessment;
- Sensitive views, which will be addressed in the Landscape and Visual Impact assessment;
- Natural Resources, which will be addressed in the Land and Soils and Resource and Waste Management assessments; and
- Amenity and community values, which will be addressed in the Population and Human Health assessment.

The material assets chapter will provide a description of the material assets (not discussed in other chapters) and outline any likely significant effects on those material assets during construction, operation and decommissioning.

Where appropriate, the relevant authorities, statutory undertakers and service providers will be consulted, and agreements will be reached on mitigation measures. Mitigation measures will prioritise the continued supply of services and utilities throughout construction, operation decommissioning phases, and solutions will be developed to mitigate significant effects arising from the relocation or diversion of utilities and services.

6.3.13 Major Accidents and Natural Disasters

Major accidents and natural disasters and the risk of consequential significant adverse effects on the environment will be addressed.

It is considered that a major accident means an event on or off site that threatens immediate or delayed serious damage to human health, welfare and/or the environment and requires the use of resources beyond those of SPL or its contractors to manage. A disaster is considered a naturally occurring phenomenon such as an extreme weather event like a storm, flood, or extremely low or high temperature, or ground-related hazardous event, including a subsidence, landslide or earthquake, with the potential to cause an event or situation that meets the definition of a major accident. The terms major accident and natural disaster comprise events which happen either internally or externally to the proposed development, where the presence of the proposed development could contribute to serious damage. Serious damage includes the loss of life or permanent injury and/or permanent or long-lasting damage to an environmental receptor which cannot be restored through minor clean-up and restoration efforts.

Given the nature of the construction activities, the operation of the substation at high voltages and the potential vulnerability of the landfall site, cable route and substation site to natural disasters, including flooding, coastal erosion and sea level rise and the location of a COMAH site in the vicinity of the proposed substation, an assessment of major accidents and natural disasters is proposed. The assessment will determine the level of hazard posed and probability of events that may result in serious damage to receptors. The assessment will identify risks, define relevant receptors and categorise relevant risks that may result in significant effects on those receptors, including population and human health, biodiversity, land, soil, water, air and climate, material assets, cultural heritage and landscape.

Specifically, the assessment will draw on other chapters to identify, describe and evaluate in the appropriate manner, the credible worst case direct and indirect effects. The assessment will identify the vulnerability of the proposed development to risks, credible source-pathway-receptor linkages and the likelihood of serious damage to environmental receptors.

Mitigation measures will be outlined to eliminate, reduce, isolate and control significant credible risks and associated significant adverse effects. It is anticipated that there will be an appropriate risk management structure in place to mitigate and ensure that the risk of major accidents and natural disasters is as low as reasonably practicable for the proposed development.

6.4 Summary Chapter

The summary chapters which will follow the assessments chapters will be as follows:

6.4.1 Approach to Assessment of Interactions, Indirect Effects and Cumulative Effects

This chapter will describe the approach adopted in the EIAR to the assessment of direct or indirect effects which are caused by the interaction of environmental aspects.

It will also address the approach to the assessment of the potential for other projects or proposals, including other elements of the overall Arklow Bank Wind Park Phase 2 project, and other relevant existing and permitted projects to exacerbate or create larger, more significant effects, when combined with the effects of the proposed development. The other projects will include, Arklow Bank Wind Park Phase 1, the existing and permitted businesses in the Avoca River Business Park including the Crag Digital Limited data centre, the M11, the Dublin – Rosslare railway, the 220kV and 110kV high voltage overhead power lines, the Arklow Wastewater Treatment Plant project and the Arklow Flood Relief project. A planning search will be conducted to identify other projects with the potential to have a significant cumulative effect. Indirect effects and cumulative and interactive effects will be considered in detail in the assessment chapter for each environmental aspect, as appropriate, and they will be summarised in this chapter.

6.4.2 Summary of Monitoring, Mitigation and Residual Effects

This chapter will summarise the proposed monitoring, mitigation measures and residual effects identified in the assessment chapters. Where appropriate, consultation will be undertaken with the relevant authorities and stakeholders throughout the preparation of the EIAR to determine the practicality, acceptability, enforceability and appropriateness of the proposed mitigation and monitoring measures. All residual effects will be described in accordance with the recommended terminology from the EPA (outlined in Table 1).

6.5 Additional Documents

6.5.1 Volume 1 – Non-Technical Summary

Volume 1 of the EIAR will be the non-technical summary. This will present the findings of the main volume of the EIAR in a clear, accessible format that will use non-technical language and supporting graphics.

The non-technical summary will describe the proposed development, existing environment, effects and mitigation measures, and relevant aspects of the EIAR in a manner that can be easily understood by the general public.

6.5.2 Volume 3 – Figures

Volume 3 of the EIAR will comprise the figures to support Volume 2, including relevant drawings and photomontages to support the Landscape and Visual Impact Assessment.

6.5.3 Volume 4 – Technical Appendices

Volume 4 of the EIAR will comprise the technical appendices that will support and be cross-referenced with Volume 2. Volume 4 may include drawings, survey data sheets, modelling outputs, background reports and/or supporting documents, as necessary.

The technical appendices contain all relevant information referred to in the main volume of the EIAR, that is not in the public domain.

7 Indicative Table of Contents

An indicative table of contents for the EIAR is presented below. The final version will be informed by the responses to the scoping process and any further modifications considered appropriate to account for the iterative EIA process.

VOLUME 1 - NON-TECHNICAL SUMMARY

VOLUME 2 – MAIN REPORT

Chapter 1: Introduction

1.1 Introduction

1.2 Study Area

1.3 Approach to the EIA

1.5 Consultation Undertaken

1.6 Competent Experts

1.7 Difficulties Experience in Preparing the EIAR

1.8 References

Chapter 2: Policy and Legislation

2.1 Introduction

2.2 EU and National Policy Guidance

2.3 Regional Policy Guidance

2.4 Local Policy Guidance

2.5 Non-Statutory Energy and Planning Policy

2.6 References

Chapter 3: Consideration of Alternatives

3.1 Introduction

3.2 Do-nothing Alternative

3.3 Sites and Cable Route Selection

3.5 Technology and Methodology Choices

3.6 Mitigation and Monitoring Measures

3.7 Consultation Inputs

3.8 References

Chapter 4: Description of Development

4.1 Introduction

4.2 Design of the Proposed Development

4.3 Operation of the Proposed Development

4.4 References

Chapter 5: Construction Strategy

5.1 Introduction

5.2 Duration and Phasing

5.3 Land Use Requirements

5.4 Site Preparation and Enabling Works

5.5 Construction Methods

5.6 Employment

5.7 Hours of Working

5.8 Construction Safety

5.9 Construction Environmental Management Plan

5.10 Decommissioning Activities

5.11 References

Chapter 6: EIAR Methodology

6.1 Definition of EIA

6.2 Legislative Context

6.3 Guidance

6.4 Structure of the EIAR

Chapter 7: Air Quality

7.1 Introduction

7.2 Impact Assessment Methodology

7.3 Baseline Environment

7.4 Likely Significant Effects

7.5 Mitigation Measures and Monitoring

7.6 Cumulative Effects

7.7 Residual Effects

7.8 References

Note: The following assessment chapters will follow the same structure as Chapter 7 above.

Chapter 8: Climate

Chapter 9: Land and Soils (includes soils, geology and hydrogeology)

Chapter 10: Water (includes hydrology, water quality and flooding)

Chapter 11: Noise and Vibration

Chapter 12: Biodiversity

Chapter 13: Traffic and Transportation

Chapter 14: Landscape and Visual

Chapter 15: Archaeology, Architectural and Cultural Heritage

Chapter 16: Resource and Waste Management

Chapter 17: Material Assets

Chapter 18: Population and Human Health

Chapter 19: Major Accidents and Disasters

Chapter 20: Inter-Related Effects

Chapter 21: Summary of Cumulative Effects

Chapter 22: Summary of Mitigation, Monitoring and Residual Effects

VOLUME 3 – FIGURES

VOLUME 4 - APPENDICES

8 References

British Standards Institute (BSI), 2019a. BS4142:2014+A1:2019 Methods for rating and assessing industrial and commercial sound. BSI, UK.

BSI, 2014a. BS5228-1:2009+A1:2014 Code of Practice for Noise and Vibration Control on Construction and Open Sites (Part 1 – Noise). BSI, UK.

BSI, 2014a. BS5228-2: 2009+A1:2014 Code of Practice for Noise and Vibration Control on Construction and Open Sites (Part 2 – Vibration). BSI, UK.

BSI, 2003. BS7445-1:2003 Description and environment of environmental noise – Part 1: Guide to quantities and procedures. BSI, UK.

CIEEM, 2019. Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal. CIEEM, UK.

Department of Arts, Heritage and the Gaeltacht, 2011. Architectural Heritage Protection Guidelines for Planning Authorities. Dublin, Ireland.

Department of Arts, Heritage and the Gaeltacht, 2014. Guidance to Manage the Risk to Marine Mammals from Man-made Sound Sources in Irish Waters. Dublin, Ireland.

Department of the Environment, Heritage and Local Government (DoEHLG), Rev. Feb. 2010. Appropriate Assessment of Plans and Projects in Ireland - Guidance for Planning Authorities. DoEHLG, Dublin, Ireland.

DoEHLG, 2009. The Planning System and Flood Risk Management. Guidelines for Planning Authorities, November 2009. DoEHLG, Dublin, Ireland.

DoEHLG, 2006. Best Practice Guidelines on the Preparation of Waste Management Plans for Construction and Demolition Projects. DoEHLG, Dublin, Ireland.

DoEHLG, 2000. Landscape and Landscape Assessment. Consultation Draft of Guidelines for Planning Authorities. DoEHLG, Dublin, Ireland.

Department of Housing, Planning, Community and Local Government (DHPCLG), 2017a. Transposition of 2014 EIA Directive (2014/52/EU) in the Land Use Planning and EPA Licencing Systems. DHPCLG, Dublin, Ireland.

DHPCLG, 2017b. Circular PL 1/2017 - Implementation of Directive 2014/52/EU on the effects of certain public and private projects on the environment (EIA Directive): Advice on the Administrative Provisions in Advance of Transposition. DHPCLG, Dublin, Ireland.

DHPCLG, 2017c. Circular PL 8/2017 - Implementation of Directive 2014/52/EU on the effects of certain public and private projects on the environment (EIA Directive): Advice on the electronic notification requirements. DHPCLG, Dublin, Ireland.

Department of Transport (UK), 1988. Calculation of Road Traffic Noise (CRTN). Department of Transport, Welsh Office.

Environmental Protection Agency (EPA), 2002.Guidelines on the Information to be Contained in an Environmental Impact Statement. EPA, Wexford, Ireland.

EPA, 2003. Advice Notes on Current Practice (in the preparation of Environmental Impact Statements. EPA, Wexford, Ireland.

EPA, 2015a. Revised Guidelines on the Information to be Contained in Environmental Impact Statements Draft. EPA, Wexford, Ireland.

EPA, 2015b. Advice Notes for Preparing Environmental Impact Statements Draft September 2015. EPA, Wexford, Ireland.

EPA, 2016. Guidance Note for Noise: Licence Applications, Surveys and Assessments in Relation to Scheduled Activities (NG4), EPA, Wexford, Ireland

EPA, 2017. Draft Guidelines on the Information to be contained in Environmental Impact Assessment Reports (Draft August 2017). EPA, Wexford, Ireland.

EPA Envision Viewer. Air Quality. Air Zones. http://gis.epa.ie/Envision

Environmental Protection Agency (EPA) Office of Environmental Enforcement (OEE) *'Guidance Note for Noise: Licence Applications, Surveys and Assessments in Relation to Scheduled Activities (NG4)'*.

European Commission (EC), 2019. Managing Natura 2000 Sites. Office for Official Publications of the European Communities, Luxemburg.

EC, 2002. Assessment of plans and projects significantly affecting Natura 2000 sites. Office for Official Publications of the European Communities, Luxemburg.

EC, 2007. Guidance document on Article 6(4) of the Habitats Directive 92/43/EEC. Office for Official Publications of the European Communities, Luxemburg.

Fossitt, J., 2000. A Guide to Habitats in Ireland. The Heritage Council of Ireland, Kilkenny, Ireland.

Heritage Council, 2011. Best Practice Guidance for Habitat Survey and Mapping. Heritage Council, Kilkenny, Ireland.

Highway Agency (UK), 2017. Design Manual for Roads and Bridges. Highways Agency, Birmingham, England.

Institute of Ecology and Environmental Management (IEEM), 2006. Guidelines for Ecological Impact Assessment in the United Kingdom. IEEM, Hampshire, UK.

Institute of Environmental Management and Assessment (IEMA), 2014. Guidelines for environmental noise impact assessment. IEMA, Lincoln, UK.

International Organisation for Standardisation (ISO), 1993. ISO 9613-1: Attenuation of Sound Propagation Outdoors – Part 1: Calculation of the absorption of sound by the atmosphere. ISO, Geneva, Switzerland.

ISO, 1996. ISO 9613-2: Attenuation of Sound Propagation Outdoors – Part 2: General Method of Calculation. ISO, Geneva, Switzerland.

Joint Nature Conservation Committee (JNCC), Rev 2010. Handbook for Phase 1 habitat survey - a technique for environmental audit. JNCC, Peterborough, UK.

Wicklow County Council, 2010. Wicklow County Development Plan 2010-2016. Wicklow County Council, Wicklow Town, Co.Wicklow, Ireland.

Landscape Institute, 2013. Guidelines on Landscape and Visual Impact Assessment (3rd Ed). Landscape Institute, London, UK.

McCarthy Hyder MCOS Joint Venture (2001). Greater Dublin Drainage Study – Final Strategy Report. Dublin, Ireland.

National Monuments Service, 2015. Archaeological Survey of Ireland (ARI) Sites and Monuments Record (SMR), Department of Arts, Culture and the Gaeltacht, Dublin, Ireland.

National Parks and Wildlife Service and DoEHLG, 2006. Bat Mitigation Guidelines for Ireland. DoEHLG, Dublin, Ireland.

National Parks and Wildlife Service. Map Viewer http://webgis.npws.ie/npwsviewer/

National Roads Authority (NRA), 2014. Guidelines for the treatment of noise and vibration in National Road Schemes. NRA, Dublin, Ireland.

NRA, 2006. Environmental Assessment and Construction Guidelines. NRA, Dublin, Ireland.

NRA, 2010. Guidelines on the Management of Noxious Weeds and Non-Native Invasive Plant Species on National Roads, Revision 1. NRA, Dublin, Ireland.

TA Luft, 2002. Technical Instructions on Air Quality.

Transport Research Laboratory (TRL), 2000. Report 429 Groundborne Vibration Caused by Mechanised Construction Works. TRL Limited, Berks, UK.

Appendix A

List of Consultees

This EIA Scoping Report will be sent to the following bodies:

- An Bord Pleanála – SID unit
- Wicklow County Council
- Commission for Regulation of Utilities
- EirGrid
- Department of Culture, Heritage and the Gaeltacht
- Department of Housing, Planning and Local Government
- Department of Communications, Climate Action and Environment
- Department of Agriculture, Food and the Marine
- Development Applications Unit: The National Parks and Wildlife Service and the National Monuments Service
- Department of Transport, Tourism and Sport
- Eastern & Midland Regional Assembly
- Environmental Protection Agency
- Transport Infrastructure Ireland
- National Transport Authority
- Irish Water
- ESB Group
- Gas Networks Ireland
- Health and Safety Authority
- Health and Safety Executive
- Inland Fisheries Ireland
- Heritage Council
- Fáilte Ireland
- An Chomhairle Ealaíon (The Arts Council)
- Marine Institute
- Office of Public Works
- An Taisce
- Birdwatch Ireland
- Irish Wildlife Trust
- Bat Conservation Ireland
- IDA
- Enterprise Ireland
- Aer Corps