

1 INTRODUCTION

1.1 CONTEXT OF THE PROPOSED DEVELOPMENT

1.1.1 Introduction

1 EirGrid plc (EirGrid) and System Operator Northern Ireland (SONI) (the respective applicants)¹ are jointly planning a major cross-border electricity transmission development between the existing high-voltage transmission networks of Ireland² and Northern Ireland. The overall interconnection project (which is termed the ‘proposed interconnector’, for the purposes of this Environmental Impact Statement (EIS)) is a 400 kV overhead line (OHL) circuit linking the existing 400 kV substation in Woodland, County Meath with a planned substation in Turleenan, County Tyrone; it will provide a second high capacity electricity interconnector between Ireland and Northern Ireland. The existing interconnector, a 275 kV double circuit OHL, connects the existing Tandragee and Louth substations. The proposed interconnector is planned to traverse the counties of Tyrone, Armagh, Monaghan, Cavan and Meath.

2 Given its location across two jurisdictions, the proposed interconnector consists of two related and complementary developments, as follows:

- 1) A development being proposed by SONI for that portion of the overall interconnection project located in Northern Ireland (the SONI proposal); and
- 2) A development being proposed by EirGrid for that portion of the overall interconnection project located in Ireland (i.e. in counties Monaghan, Cavan and Meath), which forms the subject matter of this application for planning approval. The application is titled the ‘North-South 400 kV Interconnection Development’ or ‘the proposed development’ for the purposes of this Environmental Impact Statement (EIS) (the EirGrid proposal).

3 **Section 1.1.3** describes the evolution of the relevant planning applications for these two jurisdictional elements of the proposed interconnector.

¹ The planning of that portion of the proposed interconnector within Northern Ireland was originally undertaken by NIE. However, NIE was obligated by the European Commission to transfer its investment planning function (the “Planning Function”) to SONI. The SONI transmission system operator licence (the “Licence”) was amended on 28th March 2014 to take account of the transfer of the Planning Function following a consultation process by the Northern Ireland Authority for Utility Regulation (NIAUR). The Licence amendments took effect on 30th April 2014. Accordingly, responsibility for the pursuance of the planning application in respect of the proposed interconnector within Northern Ireland has been transferred from NIE to SONI.

² Often referred to as ‘Republic of Ireland’ or ‘ROI’.

- 4 The indicative alignment of the proposed interconnector, which will form part of the all-island transmission network, is illustrated by a dashed red line in **Figure 1.1**.

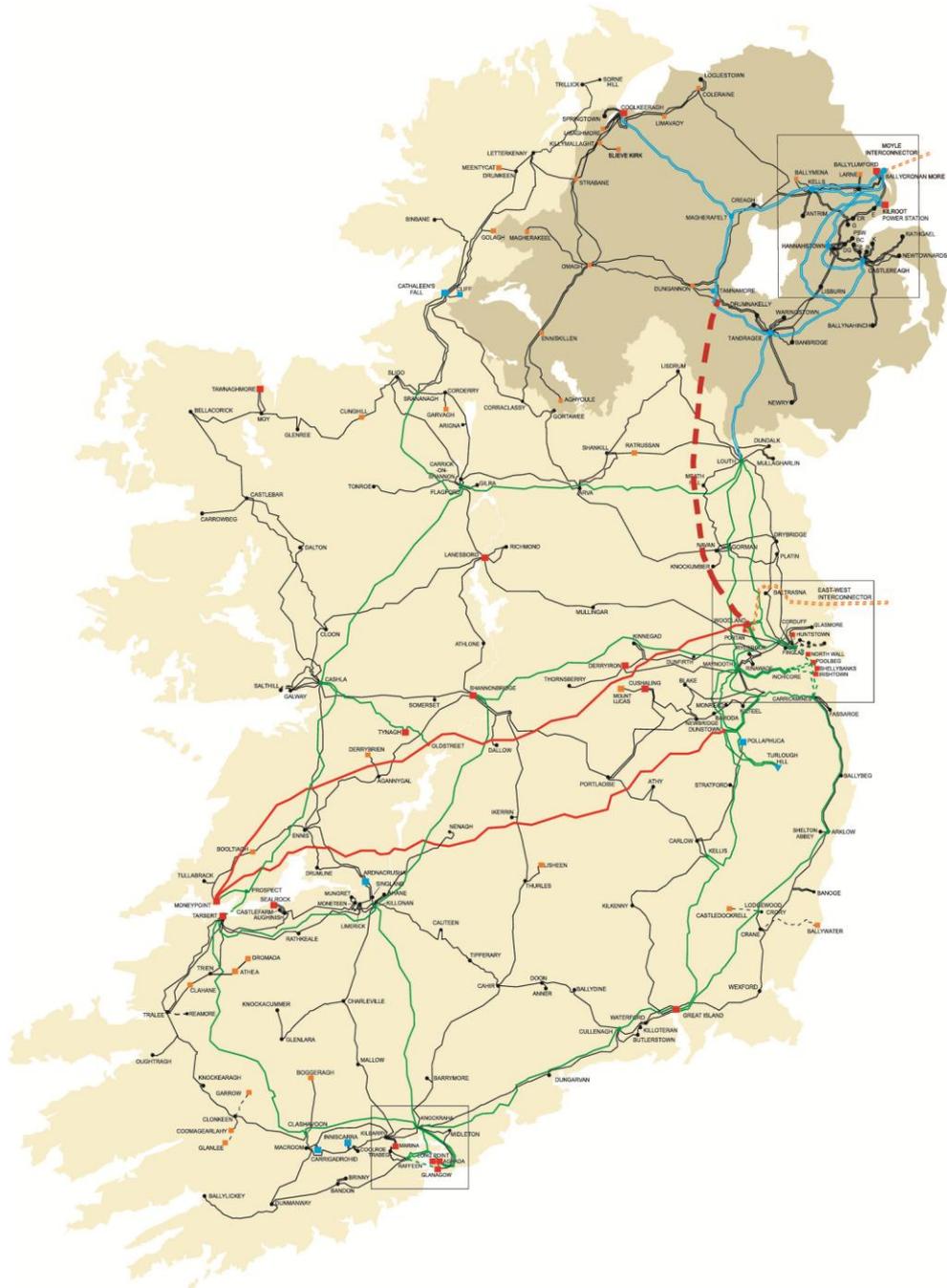


Figure 1.1: All-island Transmission Network

(The proposed interconnector is indicated in dashed red)



1.1.2 The Proponents of the Proposed Interconnector

1.1.2.1 EirGrid

- 5 With the enactment and coming into force³ of the *Electricity Regulation Act, 1999* ('the 1999 Act'), the liberalisation of the electricity sector commenced. This liberalisation has been driven in large part by European directives – in particular Directives 96/92/EC,⁴ 2003/54/EC⁵ and 2009/72/EC. The 1999 Act established the Commission of Electricity Regulation (now the Commission for Energy Regulation (CER)) as the independent regulator of the electricity industry in Ireland. The liberalisation of the electricity industry has involved the separating of or unbundling of various functions which were once concentrated in the Electricity Supply Board (ESB). The function of Transmission System Operator (TSO) has been conveyed to EirGrid plc⁶ (EirGrid), whilst the function of Distribution System Operator has been conveyed to ESB Networks Limited (ESBNL). The Transmission System Owner (TAO) is the ESB⁷. On June 29 2006, the CER issued a TSO Licence to EirGrid pursuant to Section 14(1)(e) of the 1999 Act, as inserted by Regulation 32 of the European Communities S.I. No. 445/2000 (Internal Market in Electricity) Regulations, 2000 ('the 2000 Regulations'). Thus, from July 1 2006, EirGrid has assumed the role of TSO.
- 6 Regulation 8(1)(a) of S.I. No. 445/2000 provides that EirGrid, as TSO, has the exclusive function to operate and ensure the maintenance of and, if necessary, develop a safe, secure, reliable, economical and efficient electricity transmission system. EirGrid also owns SONI Limited (SONI), the System Operator of Northern Ireland. The Single Electricity Market Operator (SEMO) is the market operator of the all-island wholesale electricity trading system. SEMO is a joint venture between EirGrid and SONI. EirGrid operates and develops the national electricity grid power system, providing services to all users of the electricity transmission system⁸. This includes all generators, suppliers, and high voltage customers.

³ The *Electricity Regulation Act, 1999* came into force in February 2000.

⁴ The 1999 Act and the *European (Internal Market in Electricity) Regulations, 2000*; The *European (Internal Market in Electricity) (Amendment) Regulations, 2002*; The *European (Internal Market in Electricity) (Amendment) Regulations, 2003* were amongst the measures enacted / passed to give effect to this directive.

⁵ The *European (Internal Market in Electricity) Regulations, 2005*, The *European (Internal Market in Electricity) Regulations, 2006* and The *European (Internal Market in Electricity) (Electricity Supply Board) Regulations, 2008* were amongst the measures enacted / passed to give effect to this directive.

⁶ EirGrid is a public limited company established pursuant to Regulation 34 of the European Communities (Internal Market in Electricity) Regulations 2000 (S.I. No. 445/2000) and the licensed Transmission System Operator for Ireland pursuant to Section 14 of the *Electricity Regulation Act, 1999*.

⁷ ESB is the licensed Transmission System Owner (TAO) for Ireland pursuant to Section 14 of the *Electricity Regulation Act, 1999*.

⁸ The transmission network essentially refers to the higher voltage grid of 400 kV, 220 kV and 110 kV. The lower voltage distribution network is primarily developed as 38 kV, 20 kV or 10 kV infrastructure.

- 7 The ESB, a statutory corporation, is the licenced TAO in Ireland. The ESB owns the transmission system and is responsible for its construction and the execution of maintenance. However, EirGrid is responsible for making applications to An Bord Pleanála (or relevant planning authority) for planning approval.
- 8 The role of the TSO is as independent operator of the transmission system, thus ensuring a clear separation between the operation of the electricity transmission system from the companies that generate, distribute and sell electricity in Ireland.

1.1.2.2 System Operator Northern Ireland Ltd (SONI)

- 9 EirGrid plc and SONI are jointly planning a major cross-border electricity transmission development between the existing transmission networks of Ireland and Northern Ireland. The planning of that portion of the proposed interconnector within Northern Ireland was originally undertaken by NIE. However, NIE was obligated by the European Commission⁹ to transfer its investment planning function (the “Planning Function”) to SONI. The SONI transmission system operator licence (the “Licence”) was amended on 28th March 2014 to take account of the transfer of the planning function following a consultation process by the Northern Ireland Authority for Utility Regulation (NIAUR). The Licence amendments took effect on 30th April 2014. Accordingly, responsibility for the pursuance of the planning application in respect of the proposed interconnector within Northern Ireland has been transferred from NIE to SONI.
- 10 Following the transfer of its planning function to SONI, NIE will continue to be responsible for the construction, ownership and maintenance of the transmission system in Northern Ireland. Subject to development consent being obtained for the proposed interconnector within Northern Ireland, NIE will be responsible for its construction, in accordance with said consents.
- 11 For the avoidance of doubt in this regard, any reference to NIE in the plans and particulars of this application for approval in relation to the proposed interconnector should now be understood as referring to SONI in the context of its newly acquired functions, which include the pursuance of the planning application in respect of the proposed interconnector within Northern Ireland. However, certain references to NIE within the application particulars refer to matters actually undertaken by NIE prior to the transfer of the planning function to SONI. These references include but are not limited to certain documents prepared by NIE in relation to the

⁹ In accordance with European Commission Decision of 12th April 2013 made pursuant to Article 3(1) of Regulation (EC) No. 714/2009 and Article 10(6) of Directive 2009/72/EC - United Kingdom (Northern Ireland) – SONI / NIE.

current application for development consent in respect of that portion of the proposed interconnector within Northern Ireland.

- 12 The NIAUR is responsible for regulating the ongoing operation of SONI and for protecting the long term interests of customers. NIAUR is, amongst other things, specifically required to promote effective competition between persons engaged in the sale or purchase of electricity through the Single Electricity Market (SEM) (see *Planning Report, Volume 2A* of the application documentation).

1.1.3 Overall Interconnection Project - Outline

- 13 As the proposed interconnector traverses a jurisdictional boundary, the project is required to be separated into its jurisdictional elements for the purposes of seeking statutory approval. In this respect, separate applications for development consent of those elements of the interconnection project within Ireland, and within Northern Ireland, have been submitted by the respective applicants to the relevant competent authorities in Ireland and Northern Ireland. The application in each jurisdiction is accompanied by an EIS and Environmental Statement (ES) respectively¹⁰, prepared in accordance with the requirements of the EIA Directive and the respective applicable national legislation and guidelines.
- 14 This unavoidable separation of the proposed interconnector into its two jurisdictional elements does not diminish the extent of coordination and cooperation that has occurred, over many years, by the respective applicants in the progression of the overall interconnection project, and which, subject to development consent, will continue during the eventual construction and operation of the proposed interconnector. This issue is addressed in more detail in a *Joint Environmental Report* (see **Volume 4** of the application documentation). In addition, all potential transboundary impacts of the EirGrid project have been set out in **Chapter 9** of this volume of the EIS.
- 15 In 2004, the Governments of Ireland and Northern Ireland, and their respective energy regulators, formally acknowledged and confirmed the need and intention to construct an additional interconnector between the two jurisdictions. This provided the regulatory context for the ESB National Grid (ESBNG) – now EirGrid - and NIE to jointly propose the construction of the major cross-border electricity interconnector linking the existing transmission networks of Ireland and Northern Ireland.

¹⁰ The Environmental Statement that was submitted in Northern Ireland in 2013 was originally submitted by Northern Ireland Electricity (NIE). For the purposes of this EIS it will be referred to as the 'Consolidated ES'.

1.1.3.1 SONI Proposed Development

Tyrone–Cavan Interconnector Application (2009-present)

- 16 In December 2009, an application for the SONI proposal, defined as the ‘Tyrone-Cavan Interconnector’, was submitted, to the Northern Ireland Planning Service for that portion of the proposed cross-border transmission infrastructure development located in Northern Ireland (Ref. O/2009/0792/F). This application was accompanied by an ES.
- 17 In August 2010, the Northern Ireland Environment minister referred the SONI proposal to the Planning Appeals Commission (PAC) for a public inquiry. Subsequently, further information was requested in respect of the application. Addenda to the ES were submitted in January 2011 and October 2011. The public inquiry commenced in March 2012 and, as at the date of this EIS, stands adjourned. At the public inquiry, the PAC made a number of requests for additional information with regard to the application. When adjourning the public inquiry, the PAC requested that a consolidated ES be prepared. In May 2013 a second application was submitted for planning permission for works associated with the construction of the main infrastructure under the 2009 application (Ref. O/2013/0214/F). Subsequently a consolidated ES was submitted in June 2013. The 2013 consolidated ES assesses the environmental effects of both the main infrastructure works under the 2009 application and the associated works under the 2013 application. SONI submitted an Addendum to the consolidated ES in June 2015. The consolidated ES and consolidated ES addendum are included as Appendix C and D of the *Joint Environmental Report*, which comprises **Volume 4** of the application documentation.
- 18 The SONI proposal comprising that portion of the proposed interconnector occurring in counties Tyrone and Armagh is detailed below:
- The construction and operation of a new 275 kV / 400 kV (source) substation at Turleenan townland, north-east of Moy, County Tyrone;
 - The construction and operation of two 275 kV terminal towers to enable connection of the Turleenan Substation to NIE’s existing 275 kV OHL and the removal of one existing 275 kV tower;
 - The construction and operation of a single circuit 400 kV overhead transmission line supported by 102 towers for a distance of 34.1km from the source substation (at Turleenan) to the border where it will tie into the future ESB network. The OHL will continue on into the Republic of Ireland with all further towers being promoted by EirGrid for placement within that jurisdiction. Because of the meandering nature of the border, the OHL will oversail a portion of land within the Northern Ireland townland of Crossbane for a short distance of 0.2km; and

- Associated works to include site levelling, site preparation works, modification of existing access points, construction of new access points, construction of new access lanes, construction of working areas, stringing areas, guarding, site boundary fencing and related mitigation works. Formation of access tracks and other associated works at the substation and at the tower locations.

1.1.3.2 EirGrid Proposed Development

Meath-Tyrone 400 kV Interconnection Development (2009-2010)

19 In December 2009, EirGrid submitted an application to An Bord Pleanála (the Board) for development consent for that portion of the proposed cross-border transmission infrastructure development located in counties Monaghan, Cavan and Meath (An Bord Pleanála Ref. VA0006). That application, known as the 'Meath-Tyrone 400 kV Interconnection Development', was accompanied by an EIS. The scope of that development previously proposed by EirGrid primarily consisted of:

- i. The continuation of the 400 kV single circuit OHL from the area where the circuit crosses the jurisdictional border in the townland of Lemgare, County Monaghan, to the existing 400 kV substation at Woodland, County Meath, traversing lands in counties Monaghan, Cavan and Meath;
- ii. A new 400 kV substation in the townland of Moyhill, County Meath, in the vicinity of the intersection of the proposed north-south oriented transmission circuit with the existing east-west oriented 220 kV OHL between Flagford and Louth Substations;
- iii. The associated diversion of the existing Flagford-Louth 220 kV OHL into the planned Moyhill Substation, thereby providing a connection between the two transmission circuits; and
- iv. Associated works required in the existing Woodland Substation to accommodate the proposed 400 kV circuit.

20 During the period January-March 2010, An Bord Pleanála invited written submissions from identified prescribed bodies, other stakeholders, members of the public and all other parties. In May 2010, An Bord Pleanála commenced an Oral Hearing in respect of the proposed development. However, in June 2010, the EirGrid application was withdrawn. As such, the previous application for planning approval made by EirGrid was not determined by the Board.

The Re-evaluation Process (2010-2013)

- 21 During the period since the withdrawal of the previous application for planning approval, EirGrid has undertaken a comprehensive re-evaluation of that portion of the proposed interconnector located between the existing substation at Woodland, County Meath and the border with Northern Ireland. The re-evaluation process included a review of the previous application in order to ascertain whether the scope, content, conclusions of, and rationale for that development proposal remain applicable for the purposes of informing and shaping the current application for planning approval of the proposed development.
- 22 As part of this review process, EirGrid published a *Preliminary Re-evaluation Report* in May 2011, which concluded with the identification of an indicative line route within an emerging Preferred Route Corridor (refer to **Appendix 1.1, Volume 3B Appendices**, of the EIS). The *Preliminary Re-evaluation Report* was the subject of public consultation, in order to obtain feedback from landowners, stakeholders and members of the public, primarily in relation to any new issues arising, or new insights on aspects of the proposed development, subsequent to the withdrawal of the previous application for planning approval.
- 23 EirGrid has also considered documents issued since the publication of the *Preliminary Re-evaluation Report*, which are relevant to the overall re-evaluation process. These documents include the *Meath-Tyrone Report Review by the International Expert Commission August – November 2011*, published in January 2012; *Government Policy Statement on the Strategic Importance of Transmission and Other Energy Infrastructure*, July 2012; *Grid25 Implementation Programme (IP) 2011-2016* and accompanying *Strategic Environmental Assessment (SEA)* both May 2012; and EirGrid's *Project Development and Consultation Roadmap*, 2012.
- 24 The conclusions of these documents, and of feedback received in respect of the *Preliminary Re-evaluation Report*, are addressed in a *Final Re-evaluation Report* published in April 2013 (refer to **Appendix 1.2, Volume 3B Appendices**, of the EIS). The *Final Re-evaluation Report* concluded with the identification of an Indicative Line Route for the transmission circuit within an identified Preferred Route Corridor linking the high voltage networks of Ireland and Northern Ireland, to be located in counties Monaghan, Cavan and Meath. However, no significant detail regarding the specific location and siting of this Indicative Line Route was provided in the report.
- 25 Following on from the *Final Re-evaluation Report*, the *Preferred Project Solution Report* was published in July 2013 (refer to **Appendix 1.3, Volume 3B Appendices**, of the EIS); which provided detail regarding the Preferred Line Design for the proposed development. The Preferred Line Design is derived from the Indicative Line Route as identified in the *Final Re-evaluation Report*, and also included the identification of feasible locations for and design of, the planned transmission line infrastructure, such as tower positions, tower types and associated construction related details (e.g. temporary access tracks). The *Preferred Project Solution*

Report, including the Preferred Line Design, was subject to public consultation, with a focus on landowner engagement particularly in respect of the specific siting of structures on lands. The ultimate output of this process is the line design of the proposed development that is the subject of this application for planning approval.

The Proposed Development

26 The proposed development comprises that portion of the proposed interconnector occurring within Ireland in counties Monaghan, Cavan and Meath. The proposed development, 103.35km long, consists of the following principal elements:

- i. A new single circuit 400 kV overhead transmission line (covering a distance of approximately 100.5km in the counties of Monaghan, Cavan and Meath) extending in a generally southerly alignment from the jurisdictional border with Northern Ireland (between the townland of Doohat or Crossreagh, County Armagh, and the townland of Lemgare, County Monaghan) to the townland of Bogganstown (Electoral District (ED) Culmullin), County Meath. In addition the proposed transmission line crosses the jurisdictional border with Northern Ireland at two points - from the townland of Lemgare, County Monaghan into the townland of Crossbane, County Armagh and back into the townland of Lemgare, County Monaghan. This transmission line comprises 299 No. new lattice steel support structures (ranging in height from approximately 26m to 51m over ground level), with associated conductors, insulators, and other apparatus.
- ii. Modifications are required to three existing 110 kV overhead lines. The modifications comprise the insertion of additional polesets and / or replacement of existing structures with polesets of shorter height (ranging in height from approximately 11.5m to 19m over ground level) in the following locations:
 - Where the proposed 400 kV overhead transmission line intersects with the Lisdrum–Louth 110 kV transmission line in Drumroosk, County Monaghan.
 - Where the proposed 400 kV overhead transmission line intersects with the Louth-Rathrussan 110 kV transmission line in Corrinenty and Corbane, County Monaghan.
 - Where the proposed 400 kV overhead transmission line intersects with the Arva-Navan 110 kV transmission line in Diméin Bhaile Ghib (Gibstown Demesne and Tailtin (Teltown), County Meath.
- iii. The addition of a new 400 kV circuit for approximately 2.85km along the currently unused northern side of the existing Oldstreet to Woodland 400 kV transmission line, extending eastwards from the townland of Bogganstown (ED Culmullin) to the existing

ESB Woodland 400 kV Substation, in the townland of Woodland, County Meath. The existing double circuit lattice steel support structures along this existing line range in height from approximately 52m to 61m over ground level.

- iv. Associated works on a site of approximately 0.544ha within and immediately adjacent to the existing ESB Woodland 400 kV Substation, in the townland of Woodland, County Meath to include: a western extension of the existing compound (of approximately 0.231ha) including associated modifications to the existing 2.6m high palisade boundary fence; the addition of electrical equipment and apparatus including circuit breaker, current transformers, inductive voltage transformers, disconnectors, pantograph disconnecting switches, surge arresters, support insulators and support insulator bars (all ranging in height from approximately 7.4m to 13.7m); gantry structures (approximately 28m); and a lightning monopole (approximately 28m); and all associated ancillary construction and site development works.
- v. An associated temporary construction material storage yard to be located in the townlands of Monaltyduff and Monaltybane, Carrickmacross, County Monaghan, on a site of approximately 1.4ha, including associated site works, new site entrance onto the L4700 Local Road, associated 2.6m high boundary palisade fencing (with noise barrier affixed) and associated ancillary staff facilities and parking.
- vi. All associated and ancillary development including permanent and temporary construction and excavation works.

27 It is necessary to evaluate the proposed development within a single EIS but, given the overall geographical extent of this linear development, it is considered appropriate to present that evaluation in two sections. This approach will facilitate review by the public concerned and other parties of that section of the project which is of most importance to them, rather than having to seek this information as part of a much larger study area. The two study areas are:

- **Cavan-Monaghan Study Area (CMSA):** previously termed Cross Border Study Area (CBSA) in the application for planning approval of the Meath-Tyrone 400 kV Interconnection Development. The CMSA is primarily situated between the jurisdictional border with Northern Ireland to the north and the area of the existing Flagford-Louth 220 kV overhead transmission line (west of Kingscourt, County Cavan) to the south.
- **Meath Study Area (MSA):** previously termed North East Study Area (NESA) in the application for approval of the Meath-Tyrone 400 kV Interconnection Development. The MSA is situated on a generally north-south axis between the area of the Flagford-Louth 220 kV overhead transmission line (west of Kingscourt, County Cavan) in the north and the existing Woodland 400 kV Substation in County Meath in the south.

28 The proposed development located within these two study areas comprises the following:

- **CMSA – New 400 kV Line:** The proposed development in the CMSA comprises a single circuit 400 kV overhead transmission circuit supported by 134 towers (Tower 103 to Tower 236) extending generally southwards from the jurisdictional border with Northern Ireland (between the townland of Doochat or Crossreagh, County Armagh, and the townland of Lemgare, County Monaghan) to the townland of Clonturkan, County Cavan for a distance of approximately 46km. It includes lands traversed by the conductor from the jurisdictional border to Tower 103 and from Tower 103 to Tower 236 inclusive and lands traversed by the conductor strung from Tower 236 to Tower 237 (the first tower on the MSA section of the proposed development).¹¹ It also includes modifications to existing 110 kV transmission overhead lines, and all associated and ancillary development works including permanent and temporary construction and excavation works.

The proposed development also comprises an associated temporary construction material storage yard to be located on a site of approximately 1.4ha in the townlands of Monaltyduff and Monaltybane, Carrickmacross, County Monaghan.

MSA – New and Existing 400 kV Line: The proposed development in the MSA comprises a new single circuit 400 kV overhead transmission circuit supported by 165 new towers (Tower 237 to Tower 401) extending for a distance of approximately 54.5km from Tower 237 in the townland of Clonturkan, County Cavan to Tower 402 (an existing double circuit tower on the Oldstreet to Woodland 400 kV transmission line) in the townland of Bogganstown (ED Culmullin), County Meath. It also includes modifications to an existing 110 kV transmission overhead line, and all associated and ancillary development works including permanent and temporary construction and excavation works.

The proposed development also comprises the addition of a new 400 kV circuit for some 2.85km along the currently unused (northern) side of the existing double circuit 400 kV overhead transmission line (the Oldstreet to Woodland 400 kV transmission line) extending eastwards from Tower 402 in the townland of Bogganstown (ED Culmullin), County Meath to Tower 410 and the Woodland Substation in the townland of Woodland, County Meath.

¹¹ Between Tower 106 and Tower 107 the proposed transmission line crosses the jurisdictional border with Northern Ireland at two points - from the townland of Lemgare, County Monaghan into the townland of Crossbane, County Armagh and back into the townland of Lemgare, County Monaghan. This results in a section of the span between Tower 106 and Tower 107 oversailing Northern Ireland. The oversail section forms part of the SONI proposal.

It also includes an extension to and works within the existing ESB Woodland Substation, in the townland of Woodland, County Meath.

29 The proposed interconnector within both jurisdictions is illustrated in **Figure 1.2**.

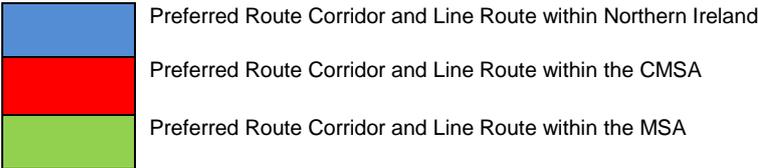
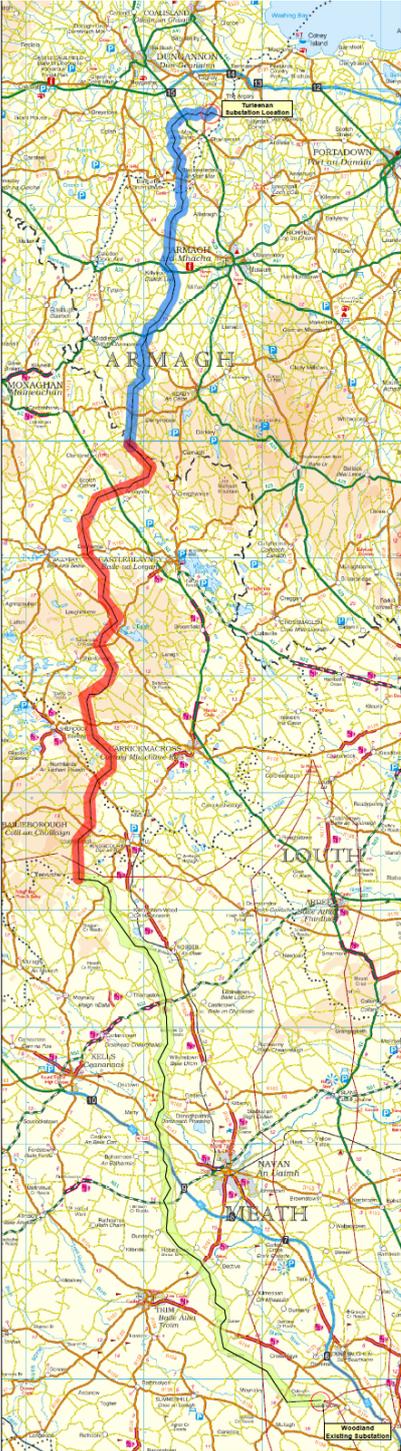


Figure 1.2: The Proposed Interconnector

1.1.3.3 Project of Common Interest (PCI)

30 Under Regulation (EU) No. 347/2013 of the European Parliament and of the Council of 17th April 2013 on guidelines for trans-European energy infrastructure and repealing Decision No. 1364/2006/EC and amending Regulations (EC) No. 713/2009 and (EC) No. 715/2009, the European Commission has identified 12 strategic trans-European energy infrastructure priorities. The implementation of these energy infrastructure priorities by 2020 is essential for the achievement of the Union's energy and climate policy objectives. Significantly, one of the four 'Priority Electricity Corridors' identified in Annex I to EU Regulation No. 347/2013 is:

“(2) North-South electricity interconnections in Western Europe ('NSI West Electricity'): interconnections between Member States of the region and with the Mediterranean area including the Iberian peninsula, notably to integrate electricity from renewable energy sources and reinforce internal grid infrastructures to foster market integration in the region.

Member states concerned: Austria, Belgium, France, Germany, Ireland, Italy, Luxemburg, Netherlands, Malta, Portugal, Spain, the United Kingdom.”

31 Article 7 of Regulation 347/2013 references the 'priority status' of 'Projects of Common Interest'¹² (PCIs) in respect of 'Permit Granting and Public Participation'. It sets out:

“1. The adoption of the Union list shall establish, for the purposes of any decisions issued in the permit granting process, the necessity of these projects from an energy perspective, without prejudice to the exact location, routing or technology of the project.

2. For the purposes of ensuring efficient administrative processing of the application files related to projects of common interest, project promoters and all authorities concerned shall ensure that the most rapid treatment legally possible is given to these files.

3. Where such a status exists in national law, projects of common interest shall be allocated the status of the highest national significance possible and be treated as such in permit granting processes – and if national law so provides, in spatial planning – including those relating to environmental assessments, in the manner

¹² 'Project of Common Interest' means a project necessary to implement the energy infrastructure corridors and areas as set out in Annex 1 and which is part of the Union list of projects of common interest referred to in Article 3 of EU Regulation No. 347/2013.

such treatment is provided for in national law applicable to the corresponding type of energy infrastructure.”

32 The proposed interconnector was formally submitted by EirGrid as a PCI as part of the initial determination of projects for funding allocation through a new funding mechanism, *Connecting Europe Facility (CEF)*, which includes the provision of €5.85 billion for the period 2014-20 for improving the trans-European energy infrastructure to support the objectives of Regulation 347/2013.

33 European Commission Delegated Regulation 1391/2013, issued on 14 October 2013, identified the projects to be part of the first EU list of PCIs and described the process which led to the identification of such projects. The final list contained some 248 projects, which were listed as stand-alone PCIs or clusters of PCIs because of their interdependent or competing nature. The Annex to Delegated Regulation 1391/2013 under the heading “2. *Priority corridor North-South electricity interconnections in Western Europe (“NSI West Electricity”)*” lists at No. 2.13:

“Cluster Ireland – United Kingdom (Northern Ireland) interconnections, including one or more of the following PCIs:

2.13.1. Ireland – United Kingdom interconnection between Woodland (IE) and Turleenan (UK – Northern Ireland).”

1.2 REQUIREMENT FOR ENVIRONMENTAL IMPACT ASSESSMENT

1.2.1 European Legislation

34 The original Environmental Impact Assessment (EIA) Directive 85/337 and its three amending Directives¹³ have been codified by the EIA Directive 2011/92/EU of December 2011¹⁴. The EIA Directive aims to protect the environment, while ensuring approximation of national laws with regard to the assessment of the environmental effects of public and private projects. The means of achieving this objective are laid down in Article 2(1) of the Consolidated EIA Directive, which states that, before development consent is given, certain public and private projects likely to have significant environmental effects by virtue, *inter alia*, of their nature, size or location are subject to a requirement for development consent and an EIA. The EIA Directive harmonises the principles of EIA by introducing minimum requirements, in particular with regard to the type

¹³ Directives 97/11/EC, 2003/35/EC and 2009/31/EC.

¹⁴ Directive 2011/92/EU of the European Parliament and of the Council of 13 December 2011 on the assessment of the effects of certain public and private projects on the environment (codification)

of projects that should be subject to assessment, the main obligations of developers, the content of the assessment and the participation of the competent authorities and the public¹⁵.

35 Thus, the EIA Directive specifies the classes of project for which an EIA will be required and the information which must be furnished in an EIS, prepared in connection with the proposed development. By virtue of the requirements of Article 4(1), all projects listed in Annex I to the EIA Directive must be made subject to an EIA in accordance with Articles 5 to 10. Accordingly, a mandatory EIA is required for, *inter alia*:

“20. Construction of overhead electrical power lines with a voltage of 220 kV or more and a length of more than 15 km.”

36 In addition, pursuant to the provisions of Article 5 of the Consolidated EIA Directive, Member States are required to adopt the necessary measures to ensure that a developer supplies, in an appropriate form, the information specified in Annex IV. Thus, Annex IV to the Consolidated EIA Directive sets out the information which should be contained in an EIS.

37 Directive 92/43/EEC (the Habitats Directive), is a European Union legislative instrument in the field of nature conservation that establishes a common framework for the conservation of wild animal and plant species and natural habitats of Community importance and provides for the creation of a network of special areas of conservation (Natura 2000). Annex I (as amended) lists 233 European natural habitat types, including 71 priority habitats.

38 The Natura 2000 sites comprise Special Areas of Conservation (SACs) designated under the Habitats Directive (1992) and Special Protection Areas (SPAs) designated under the Birds Directive (1979)¹⁶. As yet, the existing candidate Special Areas of Conservation (cSACs) have not been formally designated as SACs; however, the same level of protection is afforded to cSACs as if those areas had been formally designated as SACs.

39 A key protection mechanism is the requirement to consider the possible nature conservation implications of any plan or project on the Natura 2000 site network before any decision is made to allow that plan or project to proceed. The Habitats Directive requires that any activities, plans or projects inside or outside a Natura 2000 site that are likely to have a significant effect on the conservation status of the site's features shall be the subject of an appropriate assessment on the implications for the site in view of the site's conservation objectives.

¹⁵ Directive 2014/52/EU of 16 April 2014 amends Directive 2011/92/EU. Member states have until 16 May 2017 to transpose the Directive into national legislation and apply the new rules

¹⁶ Directive 2009/147/EC of 30th November 2009 updates 79/409/EEC.

- 40 The Directive also requires that individual plans and projects cannot be viewed in isolation; consequently, any possible cumulative or interactive effects must be taken into account.

1.2.2 National Legislation

- 41 The obligations set out in the EIA Directives have been implemented into Irish law (for the purposes of an application for development consent for the proposed development) by the relevant provisions of the *Planning and Development Act 2000* (as amended) (the 2000 Act) and the *Planning and Development Regulations 2001* (as amended). The requirement in the EIA Directive, to the effect that an EIA is required for overhead electrical power lines with a voltage of 220 kV or more and a length of more than 15km, is mirrored in Irish law pursuant to the provisions of section 176 of the *Planning and Development Act 2000* (as amended) and article 93 of, and Schedule 5 to, the *Planning and Development Regulations 2001* (as amended).
- 42 In addition, section 4 of the *Planning and Development (Strategic Infrastructure) Act 2006* inserted new sections into Part XI of the *Planning and Development Act 2000*, namely sections 182A, 182B and 182E, which relate to the provision of electricity transmission development. Thus, section 182A of the 2000 Act, as inserted, provides that, where a person (the ‘undertaker’) intends to carry out a development comprising or for the purposes of electricity transmission, an application shall be prepared and submitted to An Bord Pleanála for planning approval of the proposed development. Pursuant to the provisions of section 172 of the 2000 Act, as amended, An Bord Pleanála is required to carry out an EIA of any proposed development under Part XI of the Act where such proposed development is of a class specified in Schedule 5 to the *Planning and Development Regulations 2001* (as amended) which exceeds a quantity, area or other limit specified in that Schedule (which equates to Annex I to the EIA Directive). As noted above, one of the classes of project listed in Schedule 5, Part 1 is:

“20. Construction of overhead electrical power lines with a voltage of 220 kilovolts or more and a length of more than 15 kilometres.”

- 43 Section 182A(9) of the 2000 Act confirms that ‘transmission’ in relation to electricity shall be construed in accordance with Section 2(1) of the *Electricity Regulation Act 1999*. Section 182A clarifies that ‘transmission’ shall also be construed as meaning the transport of electricity by means of (a) a high voltage line where the voltage would be 110 kV or more, or (b) an interconnector, whether ownership of the interconnector will be vested in the undertaker or not.
- 44 Accordingly, as the proposed development has a voltage of 400 kV and an overall length of approximately 103.35km the application for planning approval is made to An Bord Pleanála pursuant to section 182A and is accompanied by an EIS.

45 The EIS has also been undertaken having regard to *inter alia* the following documents:

- European Commission, *Guidelines for the Assessment of Indirect and Cumulative Impacts as well as Impact Interactions* (May 1999);
- European Commission, *Guidance on EIA Screening* (June 2001);
- European Commission, *Guidance on EIA Scoping* (June 2001);
- Environmental Protection Agency (EPA), *Guidelines on the information to be contained in Environmental Impact Statements* (March 2002);
- EPA, *Advice Notes on Current Practice (in the preparation of Environmental Impact Statements)* (September 2003) and, in particular, guidelines given for Type 20 projects outlined in that document;
- European Commission, *Guidance on the Application of the Environmental Impact Assessment Procedure for Large-scale Transboundary Projects* (May 2013);
- European Commission, *Guidance on Integrating Climate Change and Biodiversity into Environmental Impact Assessment* (April 2013); and
- A Scoping Opinion on the information to be contained in the EIS, prepared by An Bord Pleanála (see **Section 1.3.2** of this volume of the EIS and **Appendix 1.4, Volume 3B Appendices**, of the EIS).

46 Additional specialist guidance documents are referred to throughout this EIS.

47 In addition, the requirements of the Habitats Directive have, for the purposes of this application for development consent, been transposed into Irish law principally by the relevant provisions of Part XAB and section 182A(2) and 182B(1) of the *Planning and Development Act 2000* (as inserted). In the circumstances of this application, EirGrid (as the applicant for consent for proposed development) is furnishing a Natura Impact Statement (NIS) to the competent authority in relation to the proposed development (see **Volume 5** of the application documentation).

- 48 The NIS will assist the Board to conduct an appropriate assessment (AA), including making a determination under Article 6(3) of the Habitats Directive, before development consent may be given, as to whether the proposed development would adversely affect the integrity of a European site.

1.2.3 Conclusion on Requirements for an Environmental Impact Assessment and Appropriate Assessment

- 49 Having regard to the provisions of the codified EIA Directive, the Habitats Directive and the relevant provisions of the *Planning and Development Act 2000* (as amended) and the *Planning and Development Regulations 2001* (as amended), it is considered that the proposed development requires an EIA and an AA to be conducted by the competent authority (in this case, An Bord Pleanála). In this context, both an EIS and NIS are required to be submitted with the application for planning approval to be made to the Board.

- 50 Whilst the terms EIA and EIS (and, to a lesser extent, AA and NIS) are often used interchangeably, it should be understood that both EIA and AA are ongoing iterative and participative processes of assessment undertaken by the competent authority, whilst an EIS and NIS are documents prepared by the developer, and submitted to the competent authority and which set a certain context for the EIA process carried out by the competent authority. Furthermore, submissions and observations made to An Bord Pleanála by all other parties in respect of the proposed development will also form part of the EIA and AA conducted respectively by the competent authority as part of the Board's ultimate decision-making process.

1.3 PREPARATION OF THE ENVIRONMENTAL IMPACT STATEMENT

1.3.1 Overview of Environmental Impact Assessment Process

- 51 There are various stages in the EIA process, which can be summarised as follows:
- The requirement for an EIS for the project is considered, having regard to the requirements of Annex I to the EIA Directive (mandatory EIA) and, in respect of Annex II projects, thresholds and other criteria (referred to as 'screening');
 - Once the obligation to prepare and submit an EIS is confirmed, the applicant may request an opinion (referred to as a 'scoping opinion') from the competent authority as to what information should be contained in an EIS, and information may be provided by the applicant to assist the competent authority in formulating this opinion;

- Thereafter, the developer must submit an EIS which identifies and describes the direct and indirect effects on the environment of the proposed development;
- The environmental authorities, the public and, in the circumstances of this proposed development, affected Member States must be informed and consulted;
- The competent authority carries out an EIA in respect of an application for consent for proposed development, taking into consideration the: EIS, any further information furnished to the competent authority, and / or the Board, any submissions or observations made in relation to the environmental effects of the proposed development; results of consultations; and
- Once the decision of the competent authority is made, the competent authority shall inform the applicant for consent and the public of the decision (including information for the public on the procedures available to review the legality of the decision).

52 The stages of the EIA process are illustrated in **Figure 1.3**.

1.3.2 Preparation of the Environmental Impact Statement

53 The first stage in the process is to determine if an EIA is required for a particular project. This is referred to as screening. Guidance in relation to screening is provided in European Commission *Guidance on EIA Screening* (June 2001) and in the EPA *Guidelines on the information to be contained in Environmental Impact Statements* (March 2002).

54 A screening exercise was carried out for the proposed development. In this instance, an EIA is required, as the proposed development falls within the scope of Schedule 5, Part 1 of the *Planning and Development Regulations 2001* (as amended) which requires an EIA for projects involving “*construction of overhead electrical power lines with a voltage of 220 kilovolts or more and length of more than 15 kilometres*”. This is set out in **Section 1.2.2**.

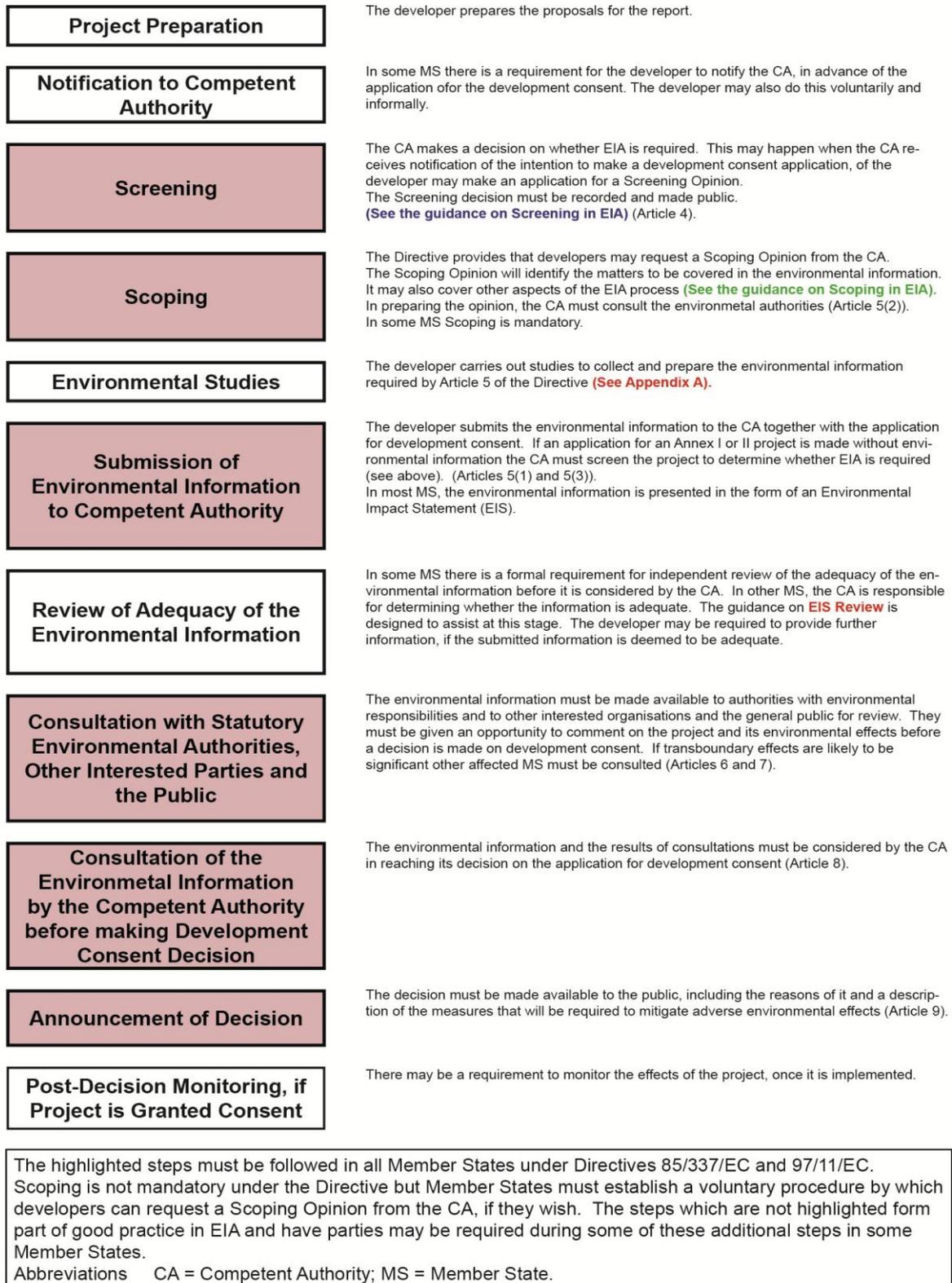


Figure 1.3: Key Stages of the EIS Process

(Source: European Commission, *Guidance on EIA Scoping* (June 2001))

- 55 The second stage in the process, having considered the requirement for EIA, is to identify the information which should be included in, or the scope of, the EIS. The process of identifying issues to be included in the EIS (or ‘scoping’) involves assessing the likely main effects of the development and, therefore, the topics on which the EIS should focus (including, considering alternatives and deciding which impacts are likely to occur and are likely to be significant, having regard to the nature, extent and location of the proposed development). Guidance in relation to scoping is provided in European Commission *Guidance on EIA Scoping* (June 2001) and in the EPA *Guidelines on the information to be contained in Environmental Impact Statements* (March 2002). An applicant can undertake an informal scoping exercise and consult with various parties in relation to this exercise, including the general public; however, scoping, as understood by section 182E of the 2000 Act (as amended), is carried out by the competent authority. The competent authority shall, on receipt of such a request from the applicant, provide such a scoping opinion in writing after consulting the prospective applicant and such bodies as may be specified by the Minister. The competent authority has the discretion to consult with any person who may, in the opinion of the competent authority, have information which is relevant for the purposes of consultation in relation to the proposed development, before providing such a scoping opinion.
- 56 In August 2013, EirGrid requested the Board to provide a scoping opinion in respect of the proposed development. The Board consulted with various parties before providing its scoping opinion on 11th December 2013. The scoping consultation processes for the proposed development is set out in **Chapter 3**, of this volume of the EIS, and the Board’s Scoping Opinion is included at **Appendix 1.4, Volume 3B Appendices** of the EIS.
- 57 The third stage in the process involves the preparation of the EIS by the developer for submission to the competent authority. This stage involves a baseline assessment to determine the status of the existing environment, impact prediction and evaluation, and determination of appropriate mitigation measures, including monitoring and reinstatement, where necessary. Article 5 of, and Annex IV to, the EIA Directive prescribe the requirements for an EIS, whilst an EIS is defined in Irish law as meaning, "*a statement of the effects, if any, which proposed development, if carried out, would have on the environment and shall include the information specified in Annex IV of Council Directive No. 2011/92/EU*".
- 58 The fourth stage in the process follows the application for development consent, and involves consultation with prescribed bodies, the public and ‘the public concerned’. This stage provides for public input and participation in the EIA process.
- 59 The fifth stage, the actual EIA, is required to be undertaken pursuant to section 171A of the 2000 Act (as inserted) and must identify, describe and assess in an appropriate manner, in light

of each individual case and in accordance with Articles 4 to 11 of the EIA Directive the direct and indirect effects of a proposed development on the following:

- (a) human beings, flora and fauna;
- (b) soil, water, air, climate and the landscape;
- (c) material assets and the cultural heritage, and
- (d) the interaction between the factors mentioned in paragraphs (a), (b) and (c).

60 The EIA process concludes when a determination is issued by the competent authority and the public is subsequently informed of the decision and the fact that a person may question the validity of a decision of the Board by way of an application for judicial review (including a statement describing where practical information on the review mechanism can be found): There may however be conditions attached to any consent, which require post-consent monitoring and reporting and additional actions on foot of monitoring. The purpose of monitoring is to compare predicted with actual impacts.

1.3.3 Consultation and EIA

61 Consultation is an essential part of the EIA process. It provides prescribed bodies, interest groups (with specific environmental responsibility) and the public (in particular those that may be directly affected by the proposed development e.g. landowners) with an opportunity to:

- Comment on the information supplied by the developer;
- To participate in the relevant environmental decision-making procedure; and
- Express comments and opinions when all options are open to the competent authority before the decision on the application for planning approval is made (pursuant to Article 6 of the EU Directive).

62 The scoping and pre-planning consultation processes for the proposed development is set out in **Chapter 3**, of this volume of the EIS. **Appendix 1.4, Volume 3B Appendices** of the EIS includes correspondence between An Bord Pleanála and various statutory authorities and agencies, including those in Northern Ireland, which informed the Board's Scoping Opinion.

1.3.4 Structure of the Environmental Impact Statement

63 This EIS has been prepared in accordance with the 'grouped format' structure set out in the EPA *Guidelines on the information to be contained in Environmental Impact Statements* (March

2002); where an EIS is prepared in a format which examines each environmental topic as a separate section. To facilitate this process, a schematic structure has been used to provide coherent documentation of the varied aspects of the environment considered. The schematic structure of the EIS (as set out in Chapters 1–14 of **Volumes 3C** and **3D**) is listed below with a brief outline of each specific stage:

1) Methodology:

To facilitate evaluation of the EIS, a list of references / guidelines and descriptive standards are included where appropriate. Details as to how the chapter was prepared including the collation of any site investigation studies; how the particular environmental topic was assessed; and details of the criteria for assessing the likely significant effects of the proposed development on that aspect of the environment are provided.

2) Existing Environment (Baseline Situation):

A description of the specific environment into which the proposed development will fit, taking account of other developments likely to occur is provided. The particular aspects of the environment are discussed in terms of their context, character, significance and sensitivity.

3) Potential Impacts:

a) The potential impact of the proposed development, including a 'worst case' scenario, comprises a general description of the possible types of impacts the proposed development would be likely to produce during the construction, operational and decommissioning phases; before the proposed mitigation measures become fully effective.

b) This includes a consideration of the 'Do-Nothing' impact. The 'Do-Nothing' impact describes the environment as it would be in the future if no development of any kind is carried out.

4) Mitigation Measures:

A description of any specific remedial or reductive measures considered necessary and practicable resulting from the assessment of potential impacts of the proposed development described at (3a) above are recommended.

5) Residual Impact:

The degree of environmental change (if any) that will occur as a result of the proposed development after the proposed mitigation measures have taken effect as planned.

64 In addition, transboundary and cumulative impacts, interaction of impacts / inter-relationships are addressed in **Chapters 9** and **10** of this volume of the EIS.

65 As noted previously, this EIS has been undertaken having regard to *inter alia* the most recent EC Guidance documents, for example:

- European Commission, *Guidelines for the Assessment of Indirect and Cumulative Impacts as well as Impact Interactions* (May 1999);
- European Commission, *Guidance on EIA Screening* (June 2001);
- European Commission, *Guidance on EIA Scoping* (June 2001);
- European Commission, *Guidance on the Application of the Environmental Impact Assessment Procedure for Large-scale Transboundary Projects* (May 2013); and
- European Commission, *Guidance on Integrating Climate Change and Biodiversity into Environmental Impact Assessment* (April 2013).

1.4 STRUCTURE AND CONTENT OF THIS EIS

1.4.1 Environmental Impact Statement Structure

66 The EIS comprises **Volume 3** (a single EIS in multi-volume) of the application documentation and is itself presented in 4 main volumes with associated appendices and figures as follows:

- **Volume 3A – Non-Technical Summary;**
- **Volume 3B** deals with strategic issues which are common to the overall proposed development;
 - Volume 3B - Common Chapters (CMSA and MSA)
 - Volume 3B - Appendices
 - Volume 3B - Figures
 - Volume 3B – Reference Material
- **Volume 3C** provides details of the environmental appraisal of the project primarily as it passes through counties Cavan and Monaghan (The Cavan Monaghan Study Area - CMSA), and comprises:
 - Volume 3C - Cavan – Monaghan Study Area (CMSA)

- Volume 3C - Appendices
- Volume 3C - Figures
- **Volume 3D** provides details of the environmental appraisal of the project primarily as it passes through County Meath (The Meath Study Area - MSA), and comprises:
 - Volume 3D - Meath Study Area (MSA)
 - Volume 3D - Appendices
 - Volume 3D - Figures

67 The following documents are included in **Volume 3B Appendices** of the EIS:

- **Appendix 1.1** *Preliminary Re-evaluation Report* (May 2011);
- **Appendix 1.2** *Final Re-evaluation Report* (April 2013);
- **Appendix 1.3** *Preferred Project Solution Report* (July 2013);
- **Appendix 1.4** Scoping Opinion from An Bord Pleanála;
- **Appendix 2.1** *The Need for a Second North-South Electricity Interconnector EirGrid and SONI* (2015);
- **Appendix 2.2** SEMC to EirGrid plc Re North South Interconnector (2015);
- **Appendix 5.1** *The Potential for Partial Undergrounding of the Line to Mitigate Significant Impacts on Landscapes* (2015)
- **Appendix 7.1** *Outline Construction Environmental Management Plan (CEMP)* (2015);
- **Appendix 7.2** *Outline Traffic Management Plan (TMP)* (2015); and
- **Appendix 7.3** *North-South 400 kV Interconnection Development Identification and Resolution of Conflicts with Existing Overhead Line Infrastructure* (2015).

68 In addition, other background / historic reports and reference material, particularly those published by or on behalf of EirGrid, and which may be considered by the Board to be of relevance to its EIA process, are provided in **Volume 3B Reference Material**. The Bibliography at the end of this volume of the EIS identifies those reports and material included in Volume 3B Reference Material.

69 The structure of the multi-volume EIS is set out in **Table 1.1**. As set out in paragraph 27 (**Section 1.1.3.2**) it is considered appropriate to present that evaluation in two sections. In this regard, it is noted that the same specialists have been responsible for the preparation of the environmental appraisal for both the CMSA and MSA sections of the project.

Table 1.1: Structure of the EIS

Volume 3A of the EIS contains the Non-Technical Summary	
<p>Volume 3B of the EIS (this volume) deals with strategic issues which are common to the overall proposed development, including Consideration of Alternatives, Cumulative Impacts and Impact Interactions and Transboundary Impacts.</p> <p>Volume 3B Appendices contains the Appendices associated with this volume of the EIS, some of which are contained on a disc as referenced in this volume of the EIS.</p> <p>Volume 3B Figures contains the 1:5,000 mapping for the project at A1 scale.</p> <p>Volume 3B Reference Material contains the key reports and documents referred to in this volume of the EIS.</p>	
<p>Volume 3C of the EIS considers the CMSA section of the project.</p> <p>This volume provides an appraisal of the area of the proposed development from the area of the proposed border crossing at locations between the townlands of Doohat or Crossreagh, and Crossbane, County Armagh, and Lemgare, County Monaghan to the townland of Clonturkan, County Cavan.</p>	<p>Volume 3D of the EIS considers the MSA section of the project.</p> <p>This volume provides an appraisal of the area of the proposed development, from the townland of Clonturkan, County Cavan to the existing Woodland Substation in County Meath.</p>
<p>Volume 3C Appendices contains the Appendices associated with Volume 3C.</p>	<p>Volume 3D Appendices contains the Appendices associated with Volume 3D.</p>
<p>Volume 3C Figures contains the Figures associated with Volume 3C.</p>	<p>Volume 3D Figures contains the Figures associated with Volume 3D.</p>

70 Accordingly, **Volume 3B** of the EIS (this volume) deals with issues which are common to the project including:

Chapter 1	Introduction
Chapter 2	Strategic Need
Chapter 3	Scoping the EIS

Chapter 4	Consideration of Alternatives - Technology
Chapter 5	Consideration of Alternatives - Routing
Chapter 6	Description of Proposed Development - Transmission Circuit and Substation Works
Chapter 7	Construction
Chapter 8	Background – Human Beings - EMF
Chapter 9	Transboundary
Chapter 10	Cumulative Impact and Impact Interactions
Chapter 11	Summary of Mitigation Measures

1.4.2 Environmental Impact Statement Content

71 The content of this EIS has been completed in accordance with the relevant provisions of the Consolidated EIA Directive, *Planning and Development Act 2000* (as amended) and the *Planning and Development Regulations 2001* (as amended). In particular, as required by the EIA Directive (Article 3), the EIS must identify, describe and assess in an appropriate manner, the direct and indirect effects of a project on the following factors:

(a) *“human beings, fauna and flora;*

(b) soil, water, air, climate and the landscape;

(c) material assets and the cultural heritage; and

(d) the interaction between the factors referred to in points (a), (b) and (c).”

72 **Table 1.2** summarises the information that is required and identifies where in the EIS the relevant information can be found.

Table 1.2: Information in the EIS

Requirement	Location of Information in this EIS
<p>1. A description of the project, including in particular:</p> <p>(a) A description of the physical characteristics of the whole project and the land-use requirements during the construction and operational phases;</p> <p>(b) A description of the main characteristics of the production processes, for instance, the nature and quantity of the materials used;</p> <p>(c) an estimate, by type and quantity, of expected residues and emissions (water, air and soil pollution, noise, vibration, light, heat, radiation, etc.) resulting from the operation of the proposed project.</p>	<p>Chapter 6, Volume 3B</p> <p>Included in each environmental chapter (Volumes 3C and 3D)</p>
<p>2. An outline of the main alternatives studies by the developer and an indication of the main reasons for this choice, taking into account the environmental effects.</p>	<p>Chapters 4 and 5, Volume 3B</p>
<p>3. A description of the aspects of the environment likely to be significantly affected by the proposed project, including, in particular, population, fauna, flora, soil, water, air, climatic factors, material assets, including the architectural and archaeological heritage, landscape and, the inter-relationship between the above factors.</p>	<p>Volumes 3C and 3D</p>
<p>4. A description of the likely significant effects (including direct, indirect, secondary, cumulative, short, medium and long term, permanent and temporary, positive and negative effects) of the proposed project on the environment resulting from:</p> <p>(a) the existence of the project,</p> <p>(b) the use of natural resources,</p> <p>(c) the emission of pollutants, the creation of nuisances and the elimination of waste.</p>	<p>Volumes 3C and 3D</p>
<p>5. The description by the developer of the forecasting methods used to assess the effects on the environment referred to in point 4.</p>	<p>Volumes 3C and 3D</p>
<p>6. A description of measures envisaged to prevent, reduce and where possible offset any significant adverse effects on the environment.</p>	<p>Volumes 3C and 3D</p>
<p>7. A non-technical summary of the information provided under headings 1 to 6.</p>	<p>Volume 3A</p>
<p>8. An indication of any difficulties (technical deficiencies or lack of know-how) encountered by the developer in compiling the required information.</p>	<p>Chapter 1, Volume 3B (this chapter)</p>

1.4.3 Transboundary Impacts

73 The potential transboundary effects of the project and the measures envisaged to reduce or eliminate such effects are important, as the proposed interconnector, comprising a 400 kV OHL linking the existing 400 kV substation in Woodland, County Meath with a planned substation in Turleenan, County Tyrone, is a cross-border interconnector between Ireland and Northern Ireland [in the United Kingdom (UK)].

74 Article 7 of the consolidated EIA Directive 2011/92/EU provides the basis for consultation between Member States in relation to the likely significant effects of proposed development in one state on the environment in another Member State. The principal obligation is in respect of information and consultation and is imposed by Article 7(1):

“Where a Member State is aware that a project is likely to have significant effects on the environment in another Member State or where a Member State likely to be significantly affected so requests, the Member State in whose territory the project is intended to be carried out shall send to the affected Member State as soon as possible and no later than when informing its own public, inter alia:

(a) a description of the project, together with any available information on its possible transboundary impact;

(b) information on the nature of the decision which may be taken,”

75 Accordingly, this EIS has regard to the potential transboundary impacts associated with the proposed development (see **Chapter 9** of this volume of the EIS). Cumulative impacts and interactions are addressed in respect of each of the environmental topics in **Chapter 10** of this volume of the EIS.

76 As noted in **Section 1.1.3**, the proposed interconnector, extending across lands within Ireland and Northern Ireland, is separated into its jurisdictional elements for the purposes of applying for development consent. An EIS and ES have been submitted in respect of the separate applications for consent of those elements of the proposed interconnector within Ireland, and within Northern Ireland. Both documents (EIS / ES) address transboundary impacts associated with the respective elements within Ireland and Northern Ireland.

77 In addition, a *Joint Environmental Report* has been prepared by the respective applicants to provide an overview of the proposed development, and its predicted environmental impact, as presented in the separate EIS / ES documents. The report also provides an overview of transboundary impacts in a manner consistent with a suggested approach of recent European Commission guidance, *Guidance on the Application of the Environmental Impact Assessment*

Procedure for Large-scale Transboundary Projects (May 2013). The *Joint Environmental Report* comprises **Volume 4** of the application documentation.

1.4.4 EIS Study Team

78 The EIS team and the section of the document they prepared are listed in **Table 1.3**.

Table 1.3: EIS Study Team

Role	Company
EIS Coordinator - Volume 3B	RPS
Specialist Environmental Topics Manager and EIS Coordinator - Volume 3C	ESBI
Specialist Environmental Topics Manager and EIS Coordinator - Volume 3D	TOBIN
Project Designers	ESBI and GasNatural fenosa (previously SOCOIN)
Specialist Environmental Topics	
Human Beings - Population & Economic	ESBI
Human Beings - Land Use	Curtin Agricultural Consultants Ltd
Human Beings - Tourism & Amenity	ESBI
Human Beings - Electric and Magnetic Fields	Exponent
Flora and Fauna	TOBIN
Solis, Geology and Hydrogeology	TOBIN
Water	TOBIN
Air - Noise and Vibration	TOBIN / AECOM
Air – Quality and Climate	ESBI
Landscape	AECOM
Material Assets – General	TOBIN
Material Assets - Traffic	TOBIN
Cultural Heritage	Moore Group

1.5 DIFFICULTIES ARISING DURING PREPARATION OF THE EIS

79 The EIA Directive and Irish regulations require that difficulties such as technical deficiencies, lack of information or knowledge encountered in compiling the EIS be described. During the preparation of the EIS, restricted access to private lands was the principal difficulty encountered, as detailed below.

1.5.1 Restricted Access to Lands

80 In many instances, access was denied by landowners or occupiers to personnel attempting to conduct technical or environmental survey work associated with the proposed development, including preparation of this EIS. Land access difficulties were experienced notwithstanding a proactive landowner engagement strategy (refer to the *Public and Landowner Consultation Report* in **Volume 2B** of the application documentation). The result was that the final proposed alignment was designed, and environmental and technical appraisals had to be undertaken, without the entire line route being walked-over or physically accessed by environmental consultants.

1.5.2 Addressing Restricted Access to Lands

81 Despite the difficulties encountered in compiling certain information arising from refusal of access to lands, it is the case that EirGrid and its technical and environmental consultants were granted access to approximately 25% of identified landholdings along and adjacent to the proposed alignment which enabled both direct and vantage point environmental surveys to be undertaken. In addition to this, Light Detection and Ranging (LiDAR) surveys (see below and **Section 1.5.3**), aerial surveys and a suite of detailed desk top appraisals were undertaken and completed for the entire route.

82 Moreover, and as addressed in more detail in Chapter 3 (Human Beings-Land Use) of **Volumes 3C** and **3D** of the EIS, it is the case that there is considerable homogeneity of land type along the alignment of the proposed development. Reference to CORINE Land Cover mapping, which is an established authoritative data source for land type in Ireland, confirms that approximately 99% of the proposed alignment is classified as agricultural (in particular improved grassland), which is inherently robust from an environmental perspective. As addressed in the *Preferred Project Solution Report*, comprising **Appendix 1.3, Volume 3B Appendices**, of the EIS, structures have been specifically located within areas of improved grassland where land access has not been possible or sufficient to eliminate, at this stage, the potential for significant impact upon a more ecologically sensitive land type or feature, for example hedgerows. This has ensured that the proposed alignment is set within a receiving environment of relatively low sensitivity. In addition, the attention and expertise given to the specific routing of the proposal

undertaken by experienced professionals has ensured the identification and avoidance of more sensitive ecological and other environmental receptors within the receiving environment.

83 Having regard to this, and to other measures addressed below, notwithstanding land access difficulties, it was possible to carry out a robust appraisal of the likely significant environmental impacts associated with the proposed development.

84 Important considerations, and alternative means of obtaining baseline in this regard include:

a. The nature of the proposed development. Relative to other types of linear infrastructure, or indeed, other development in general such as dwellings, farm buildings, farmyards, industrial facilities, roads, etc., the physical footprint of an OHL development is small. As set out in more detail in **Chapter 7** of this volume of the EIS, this primarily entails the excavation (and eventual backfilling) of 4 holes at the legs of each structure. This combined with the appropriate routing of the alignment, which has sought to avoid sensitive ecological and other habitats, and to maximise distance from dwellings and public viewpoints in the first instance, ensures that the potential environmental impact of this (and any such) transmission infrastructure development is minimised.

b. Desk-based assessments of existing published data sources. Comprehensive and detailed published data sources are available, and in this instance (and indeed in respect of all transmission infrastructure development projects), were used to inform the baseline description and quantitative and qualitative impact assessments. This includes *inter alia* the list of National Monuments, Record of Monuments and Places (RMPs), Historic Maps, CORINE database, An Foras Taluntais (Soil Map of Ireland), Geological Survey of Ireland mapping, CSO, available data on identified wetlands, identified woodlands, identified grassland sites, general bat records, badger surveys and bird populations in the area etc. The use of such data, combined with a route identification strategy which avoided any likely significant environmental constraint to the greatest extent possible, has ensured that the proposed development now occurs within an extremely robust receiving environment.

c. Detailed analysis of high quality OSI aerial photography and LiDAR orthophotography along the entire proposed line route. The aerial photography used is of an extremely high quality and definition, providing clear images of the landscape below, thereby facilitating identification of features on the ground. This is a significantly useful tool for the routing of OHL and other transmission infrastructure development, even in instances where access to land is unrestricted, as it can identify features, for example by shadows or field marks, that are not readily identifiable at ground level.

LiDAR is a remote sensing technology that measures distance by illuminating a target with a laser and analysing the reflected light. Such airborne laser scanning surveys, combined with high-technology automated transmission line design software (e.g. PLS-CADD), are nowadays the standard method for full 3-D design of OHL, again also in circumstances where access to land is unrestricted.

LiDAR surveys of proposed transmission line corridors generally utilise helicopters flying at approximately 150 - 300m altitude. The laser scanner systems generally utilise pulsed laser scanners to measure the distance and direction from the sensor to ground. The sensors typically give a similar swathe width on the ground as the flying height – for example, for a 200m flying height, the width of coverage on the ground would be 200m. The position and orientation of the aircraft is determined using GPS (Global Positioning Systems) and INS (Inertial Navigation System) measurements. The measurements are combined with the LiDAR range / direction measurements to give precise 3-D coordinates for the laser footprint on the ground.

With high frequency laser scanners, point densities in excess of 25 points per square metre can pick up every feature in the corridor, including ground levels (and variations in levels), topography, vegetation, buildings, OHL etc.

1.5.3 LiDAR and the Proposed Development

- 85 Detailed aerial imagery available for the proposed line route, including LiDAR imagery from September 2009 and Aerial Mapping from October 2010, has been used in the process of identification of the final proposed line route, and the environmental appraisal of the proposed development. In addition, updated imagery produced from a subsequent LiDAR survey (October 2013), provides the most up-to-date details of the baseline environment along the alignment of the proposed development, and proximate lands on either side thereof. From the LiDAR it is possible to determine local changes to the baseline environment since the previous LiDAR imaging of 2009. Where possible, this is also verified by on the ground survey, even where direct access to private land has been denied (e.g. from vantage point surveys from public roads, adjoining lands etc.).
- 86 For example, it has been noted from field / vantage point surveys adjacent to the alignment of the proposed development that areas of locally significant habitat have been 'reclaimed' or otherwise modified - these local modifications have also been confirmed by LiDAR. Similarly, new and / or widened drainage ditches can also be identified through the use of LiDAR, and where possible, confirmed by land or vantage point survey. This ensures the confidence of the project team and environmental specialists contributing to this EIS that the LiDAR surveys, (and other detailed aerial imagery) are an appropriate substitute for direct land access where such access has not been facilitated by landowners.

- 87 In particular in respect of ecology, LiDAR allows for the identification of the general structure of hedgerows, confirming whether or not mature trees are present, and an accurate width and height of hedgerows to be determined in GIS. This informs a quantitative impact assessment of treelines which will be lopped / removed under the line. PLS-CADD analysis of zone of impact can also be applied to LiDAR data to further improve determination of the zone of impact and accuracy of the assessment.
- 88 As a practical example of the application of LiDAR to provide an understanding of the baseline ecological environment, **Figure 1.4** shows a sample of LiDAR imagery that captures a mature hedgerow. From this image the structure and likely key species (including hawthorn – red berries and gorse) can be discerned. This imagery clearly indicates land management activities and management around the hedgerow.

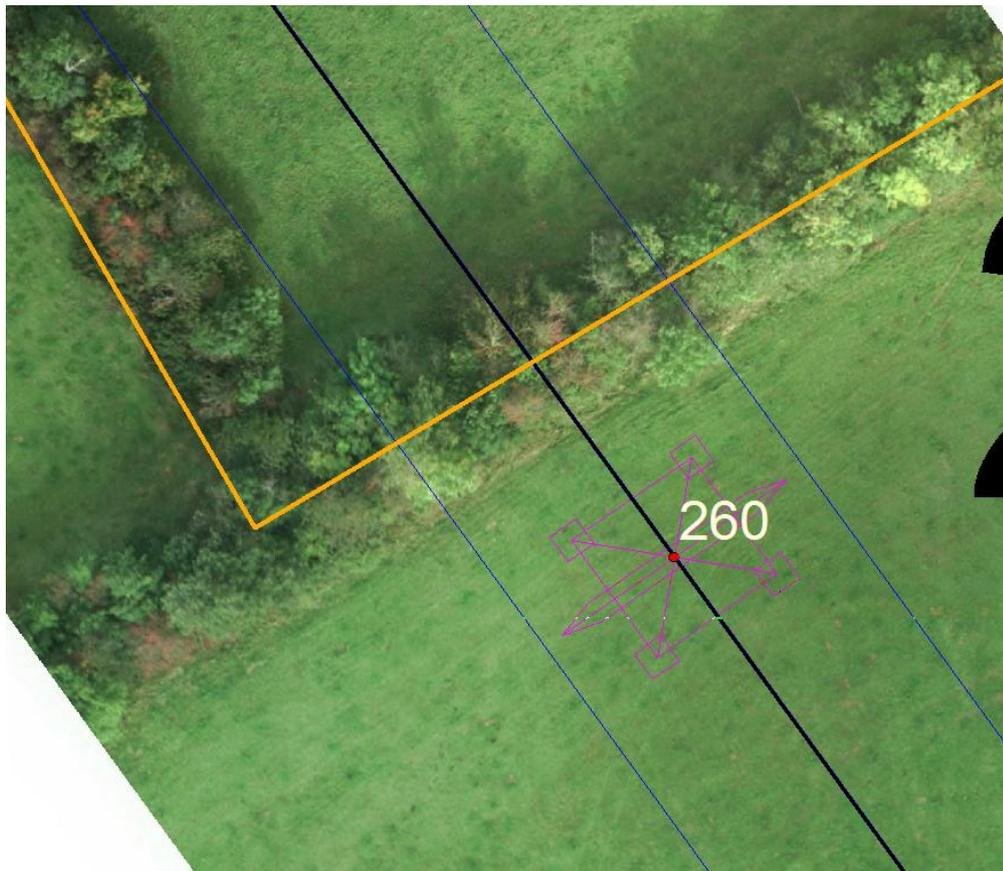


Figure 1.4: LiDAR Imagery showing Overgrown Hedgerow

89 **Figure 1.5** shows LiDAR imagery for the same hedgerow with point data attaching, from which the height above datum can be ascertained. This data can be measured against the level of the ground to give an accurate measurement of hedgerow and tree height. This assists in detailing the habitat category and is used to determine which trees will require lopping. This is reflected in the plan and profile drawings for the proposed development.

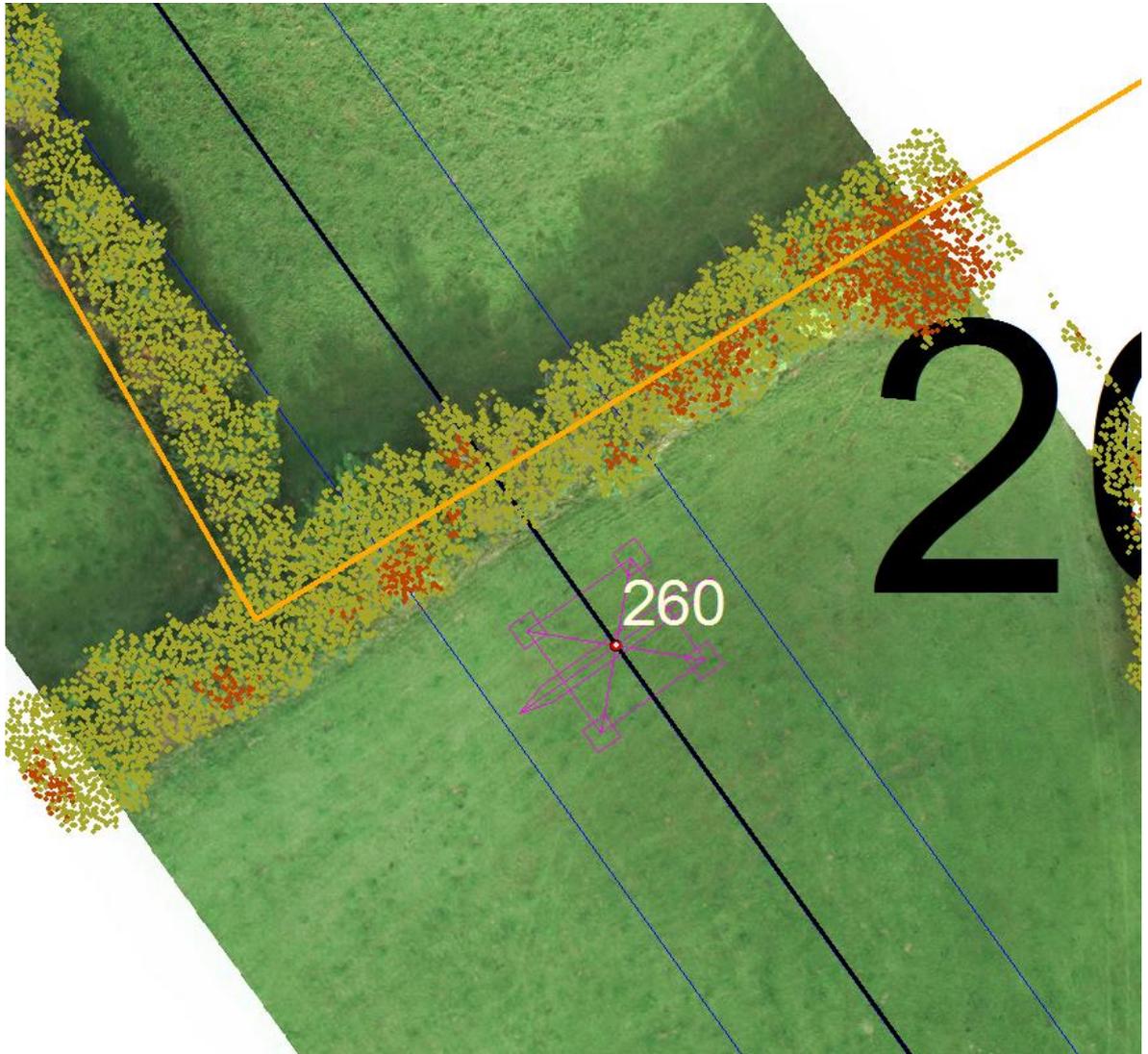


Figure 1.5: LiDAR Imagery with Point Data

- 90 In addition to this, the LiDAR data can be converted to an ArcGIS (a Geographical Information Systems - GIS) format which can also be used to display vegetation in 3D as shown in **Figure 1.6**.

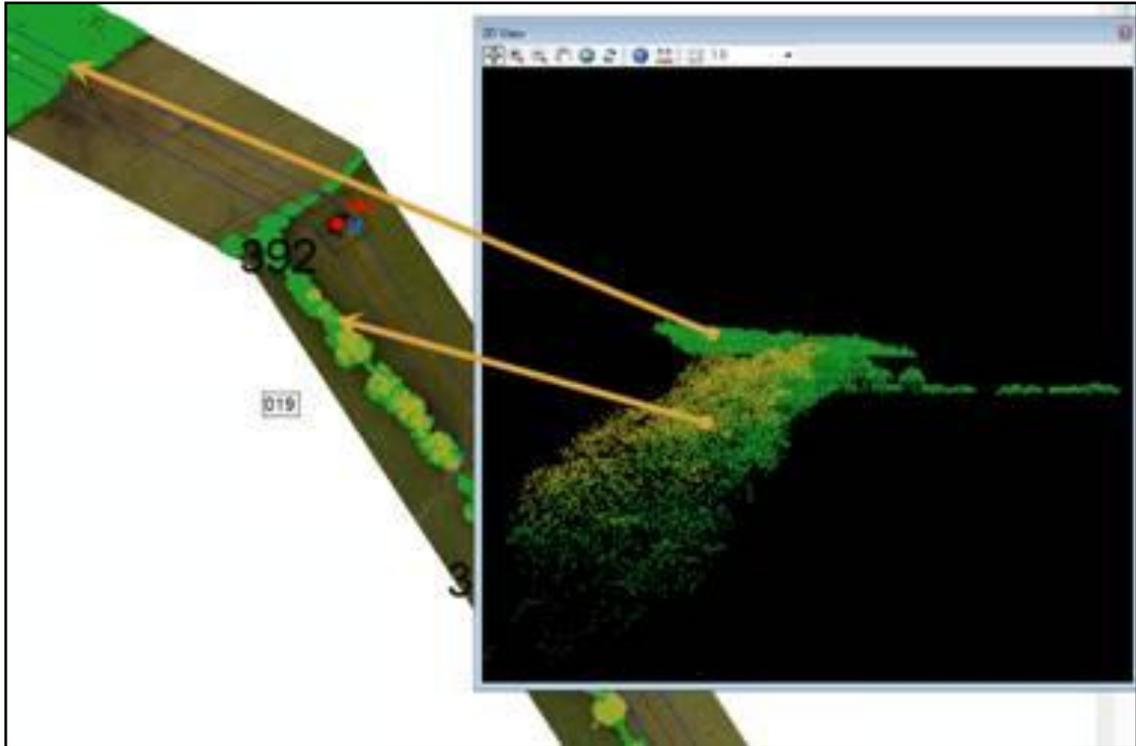


Figure 1.6: Vegetation in 3D in ArcGIS Format

- 91 Similarly, in terms of understanding the baseline cultural heritage environment, LiDAR data was used to assess inaccessible landholdings along the line route with greater accuracy; it was also used to verify and / or enhance survey data on lands where access had been permitted. The high resolution orthophotography enabled the project team to cross reference cultural heritage features collected by both aerial photography and LiDAR. The usefulness of aerial photographs and LiDAR is that they allow for a different perspective, what might be termed 'the distant view'.
- 92 Archaeological features may show up on the ground surface, depending on their state of preservation, by light and shadow contrasts (shadow marks), tonal differences in the soil (soil marks) or differences in height and colour of the cultivated cereal (crop marks). Such features might not always be visible on the ground, and therefore might not always be identified by land access survey.
- 93 Of particular note, an expanded LiDAR survey was commissioned and undertaken for the Teltown area of County Meath, identified by the project team's Cultural Heritage specialist as an area of archaeological significance. The survey was specifically carried out for the purpose of determining the potential impact of the proposed development on the cultural heritage resource

in this archaeologically sensitive area. This is addressed in more detail in Chapter 14 of **Volume 3D** of this EIS.

- 94 Features that are difficult to distinguish on the ground or even through aerial photography can be identified by overlaying hillshades on a digital terrain model (DTM) created with artificial illumination from various angles, as with the example from past horizons, included as **Figure 1.7** – an image from the Teltown assessment.

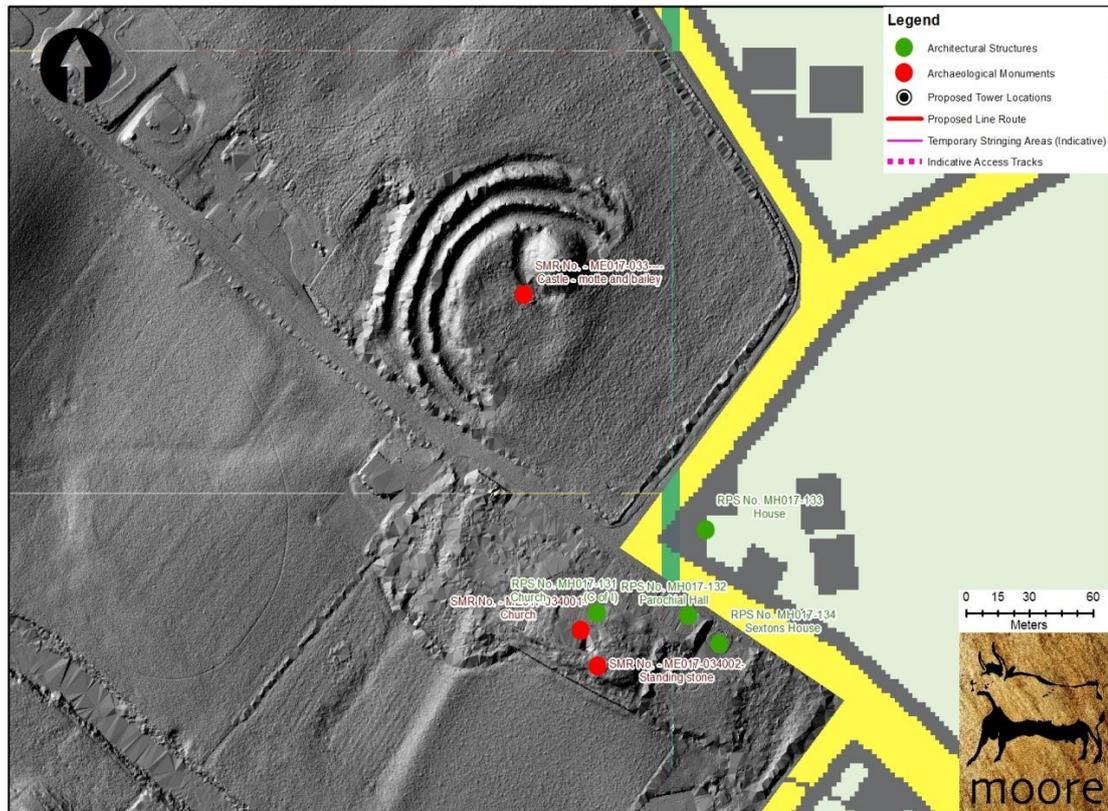


Figure 1.7: LiDAR Derived Imagery Showing Shading

1.5.4 Other Relevant Measures

- 95 Overall, it is considered that the use of high-quality aerial photography, and LiDAR imaging, has ensured that the baseline environment of the proposed development is fully understood, both in the scenario where direct access to land has been provided, and in the scenario where it has not. This, combined with the other matters and measures set out in this section, has ensured a comprehensive and robust evaluation of the environmental impact of the proposed development upon its receiving environment.

- a. **Walkover surveys and visual surveys (from public roadways and / or adjacent lands) along the proposed line route.** There is an extensive network of public roads throughout the study area, and including in proximity to the alignment of the proposed

development. Visual surveys were conducted from these public areas; of particular importance, this includes all locations where the proposed line route crosses public roads. This has ensured an appropriate understanding both of the immediate vicinity of the proposed development, as well as the wider receiving environment of the line route.

In addition, where access was granted to landholdings along the alignment, it was possible to carry out a visual survey of adjoining landholdings where such access had not been granted. Given the low value habitats (from an ecological and environmental perspective) in which the vast majority of towers are located - primarily comprising improved grassland (this is also addressed above and in Chapters 3 of **Volumes 3C** and **3D** of this EIS), this allowed confirmation that the desktop evaluation undertaken in respect of the proposed development was accurate.

- b. The findings of ongoing ecological studies, including those undertaken over an extended period of time.** Very extensive winter bird, breeding bird and bat surveys have been undertaken over a number of seasons (refer to Chapters 6, of **Volumes 3C** and **3D** of this EIS). For example, wintering bird surveys have been undertaken every season between 2007 and 2014. These have produced a very significant body of information to inform the ecological evaluations, and to ensure that appropriate mitigation measures can be applied to avoid or minimise potential environmental impact upon sensitive ecological receptors.
- c. Avoidance of areas of potential ecological significance.** As outlined above, it has been a guiding principle for the line design of the proposed development – and indeed all transmission infrastructure development, to seek to avoid any significant impact on sites of known ecological importance. In the case of sites of potential ecological importance, site surveys and assessments have been carried out where possible to determine the presence of, and nature of, ecological features and species.

Where it has not been possible to secure access to lands to undertake such surveys, or indeed where on-site survey has revealed the presence of significant ecological species and habitats, EirGrid has sited the various OHL structures away from areas of potential ecological importance. In particular this includes hedgerows and wetlands, with structures proposed in adjacent managed agricultural fields, i.e. into a modified habitat where the ecological sensitivity is clearly low. This strategy, which is based on taking an extremely cautious approach to the siting of transmission infrastructure, has been discussed with the National Parks and Wildlife Service (NPWS) of the Department of Arts, Heritage and the Gaeltacht.

Notwithstanding this approach, however, it is important to note, in reference to the National Roads Authority (NRA) 2009 *Guidelines for Assessment of Ecological Impacts of National Road Schemes*, key ecological receptors are, fundamentally, the significant

ecological elements for consideration in the ecology assessment, rather than all ecological receptors. This is also the basis for ecological assessment set out in EirGrid's *Ecology Guidelines for Electricity Transmission Project – A Standard Approach to Ecological Impact Assessment of High Voltage Transmission Projects* (2012) and which, as the title suggests, is applied to all transmission infrastructure development. Key ecological receptors are features that are evaluated as being of Local Importance (Higher Value) or greater (up to International Importance). The relevant key ecological receptors have been identified based on the ecological assessment works carried out – this is addressed in more detail in Chapters 6 of **Volumes 3C** and **3D** of this EIS.

In some cases, key ecological receptors cannot be accurately identified e.g. bat roosts, which are notoriously difficult to confirm, even where access to land for ecological survey is permitted. In most cases, a precautionary assessment is undertaken, based on aerial imagery and LiDAR imagery as addressed above, to inform potential roost areas. This information is augmented with roadside bat activity surveys. Using the best practice approaches, as addressed in the NRA and EirGrid Guidelines, standard precautionary mitigation measures have been applied in respect of the proposed development – in much the same way as they would be applied to all linear transmission infrastructure development proposals.

Furthermore, in accordance with established good practice, site specific pre-construction ecological (and other environmental) verification and monitoring, the nature of which are outlined in this EIS, will be carried out by appropriately qualified consultants, prior to actual construction works being carried out.

1.5.5 Conclusions Regarding Restricted Access to Lands

96 Overall, while it would always be preferable that access to the entirety of a development site occurs for the purposes of assisting in the environmental appraisal of a proposed development, this has not been possible in the case of the proposed development. However, it is considered that the approach of EirGrid and its project team to (a) the routing of the alignment – avoiding key sensitive receptors, (b) the siting of the proposed structures – and the construction methodology that will be employed, and (c) the range of alternative and complementary tools and measures to gather the necessary information regarding the baseline receiving environment – in particular including the use of aerial photography, LiDAR imagery, vantage point survey, and extended ecological survey, has ensured that an adequate and robust EIS has been prepared in respect of the proposed development.

97 Having regard to the above, it is the case that, despite the difficulties encountered in compiling this EIS (including the inability to access the entire extent of the alignment of the proposed development), EirGrid and its project team are satisfied that a comprehensive and objective EIS has been prepared in respect of the proposed development, which is more than adequate to meet the requirement that it alerts the competent authority, the public and public concerned and prescribed authorities to the potential effects of the proposed development on the environment.

1.6 CONCLUSION

98 The proposed cross-border electricity infrastructure will provide a second high capacity electricity interconnector between Ireland and Northern Ireland. Under the provisions of the codified EIA Directive, an EIA is required for overhead electrical power lines with a voltage of 220 kV or more and a length of more than 15km. This requirement of the EIA Directive is mirrored in Irish law pursuant to the provisions of section 176 of the *Planning and Development Act 2000* (as amended) and article 93 of, and Schedule 5 to, the *Planning and Development Regulations 2001* (as amended).

99 In addition, under the requirements of the Habitats Directive, an appropriate assessment (AA), including making a determination under Article 6(3) of the Habitats Directive, “*before development consent may be given, as to whether the proposed development would adversely affect the integrity of a European site*” must be carried out by the competent authority in respect of the proposed development.

100 Having regard to the provisions of the codified EIA Directive, the Habitats Directive and the relevant provisions of the *Planning and Development Act 2000* (as amended) and the *Planning and Development Regulations 2001* (as amended), it is considered that the proposed development requires an EIA and an AA to be conducted by the competent authority). Accordingly this application for planning approval includes both an EIS and NIS to assist the Board in its consideration of whether to grant development consent for the proposed development.

101 The EIS has been prepared in accordance with Schedule 6 of the *Planning and Development Regulations 2001* (as amended), and applicable guidance documents, and conforms to the relevant requirements as specified therein. Difficulties encountered in compiling this EIS, arising principally from the refusal by some landowners to permit access to land for the purposes of technical and environmental appraisal, have been overcome by the approach of EirGrid to the routing and siting of the proposed development, and the range of alternative sources of information and survey data which have been used to understand the baseline receiving environment in compiling the EIS.