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NATURA IMPACT STATEMENT *in* SUPPORT *of the* APPROPRIATE ASSESSMENT *of the* GRID25 Implementation Programme

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Section 1 - Introduction

1.1 Background

This is the Natura Impact Statement for the Grid25 Implementation Programme (the IP) in accordance with the requirements of Article 6(3) of the EU Habitats Directive[1]. This report is divided into these four sections:

Section 1 **Introduction**
Section 2 **Stage 1 Screening**
Section 3 **Stage 2 Appropriate Assessment**
Section 4 **Mitigation Measures**

1.2 Legislative Context

The Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora, better known as "The Habitats Directive", provides legal protection for habitats and species of European importance. Articles 3 to 9 provide the legislative means to protect habitats and species of Community interest through the establishment and conservation of an EU-wide network of sites known as Natura 2000. This comprises candidate Special Areas of Conservation (cSACs) designated under the Habitats Directive and Special Protection Areas (SPAs) designated under the Conservation of Wild Birds Directive (79/409/EEC).

Articles 6(3) and 6(4) of the Habitats Directive set out the decision-making tests for plans and projects with potential to affect Natura 2000 sites.

Article 6(3) establishes the key requirement for Appropriate Assessment (AA) as follows:

"Any plan or project not directly connected with or necessary to the management of the (Natura 2000) site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subjected to appropriate assessment of its implications for the site in view of the site's conservation objectives. In light of the conclusions of the assessment of the implications for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public.

If, in spite of a negative assessment of the implications for the (Natura 2000) site and in the absence of alternative solutions, a plan or project must nevertheless be carried out for imperative reasons of overriding public interest, including those of a social or economic nature, Member States shall take all compensatory measures necessary to ensure that the overall coherence of Natura 2000 is protected. It shall inform the Commission of the compensatory measures adopted.

Where the site concerned hosts a priority natural habitat type and/or a priority species the only considerations which may be raised are those relating to human health or public safety, to beneficial consequences of primary importance for the environment or, further to an opinion from the Commission, to other imperative reasons of overriding public interest."

1.3 Stages of Appropriate Assessment

This Natura Impact Statement has been prepared in accordance with the following guidance:

- Appropriate Assessment of Plans and Projects in Ireland. Guidance for Planning Authorities. Department of the Environment, Heritage and Local Government, 2009.
- Assessment of plans and projects significantly affecting Natura 2000 sites: Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC, European Commission Environment DG, 2000.
- Managing Natura 2000 sites: The Provisions of Article 6 of the Habitats Directive 92/43/EEC: European Commission, 2000

[1] Directive 92/43/EEC.

As set out in these guidance documents, AA comprises up to four stages:

Stage One: Screening

The process which identifies the likely impacts upon a Natura 2000 site of a project or plan, either alone or in combination with other projects or plans, and considers whether these impacts are likely to be significant.

Stage Two: Appropriate Assessment

The consideration of the impact on the integrity of the Natura 2000 site of the project or plan, either alone or in combination with other projects or plans, with respect to the site's structure and function and its conservation objectives. Additionally, where there are adverse impacts, an assessment of the potential mitigation of those impacts.

Stage Three: Assessment of Alternative Solutions

The process which examines alternative ways of achieving the objectives of the project or plan that avoid adverse impacts on the integrity of the Natura 2000 site.

Stage Four: Assessment where no alternative solutions exist and where adverse impacts remain

An assessment of compensatory measures where, in the light of an assessment of imperative reasons of overriding public interest (IROPI), it is deemed that the project or plan should proceed.

The Habitats Directive promotes a hierarchy of avoidance, mitigation and compensatory measures. Firstly, the plan should aim to avoid any impacts on Natura 2000 sites by identifying possible effects early in the plan-making process and altering the plan or project in order to avoid such impacts. Secondly, mitigation measures should be applied, if necessary, during the AA process to the point where no adverse impacts on the site(s) remain. If significant effects on the site(s) are likely, and no further practicable mitigation is possible, the Plan or project may not proceed unless for imperative reasons of overriding public interest (IROPI test) under Article 6(4) of the Habitats Directive, in which case compensation measures are required for any remaining adverse effect(s).

This report documents the first two of these stages. Its conclusion that significant impacts on Natura 2000 sites are unlikely means that further AA stages are not required.

Section 2 - Screening

2.1 Description of the Implementation Programme

2.1.1 Introduction

EirGrid is a state-owned commercial company with a duty to provide transmission and market services for the benefit of electricity consumers, operating and maintaining the national transmission system as well as developing key infrastructural projects.

EirGrid's Grid25 Implementation Programme (the IP) provides an outline of how EirGrid plan on undertaking the development of the transmission network/Grid in order to support a long-term sustainable and reliable electricity supply. Grid25 has been prepared to contribute towards the achievement of the 40% renewable energy target and the actions outlined in the Government White Paper. The main provisions of the IP include:

- Upgrading 2,530 km of the existing network
- Building 828 km of new infrastructure

2.1.2 The Grid Development Strategy

Grid25 is aimed at delivering an efficient and high-quality National electricity transmission network. It will ensure the necessary capacity to reliably transport future anticipated power levels from renewable and conventional generators and interconnectors to the cities, towns, villages, homes, and other key markets where the power is required. The National electrical transmission network is a dynamic and meshed system that is constantly subject to change, and where the change of a single variable has the potential to change the system at large. This makes future predictions a complex and dynamic process, which are likely to change over time as demand, generation, flows and grid capacity fluctuate and change.

Figure 2.1 has been extracted from EirGrid's Transmission Development Plan 2010, and provides a high-level indicative overview and regional breakdown of the general strategy for the future development of the grid, as per the provisions of Grid25. The arrows coloured green on the figure provide an indicative representation of the strategy for transmission of the potential flow of electricity (between demand/load centres, generators and the system at large).

It should be noted that the figure derives from an un-scaled map with indicative representation. As such, these arrows represent the overall intended development strategy, and do not purport to represent specific projects; nor is it intended to suggest that the eventual realisation of these projects will be contained within the area of these arrows.

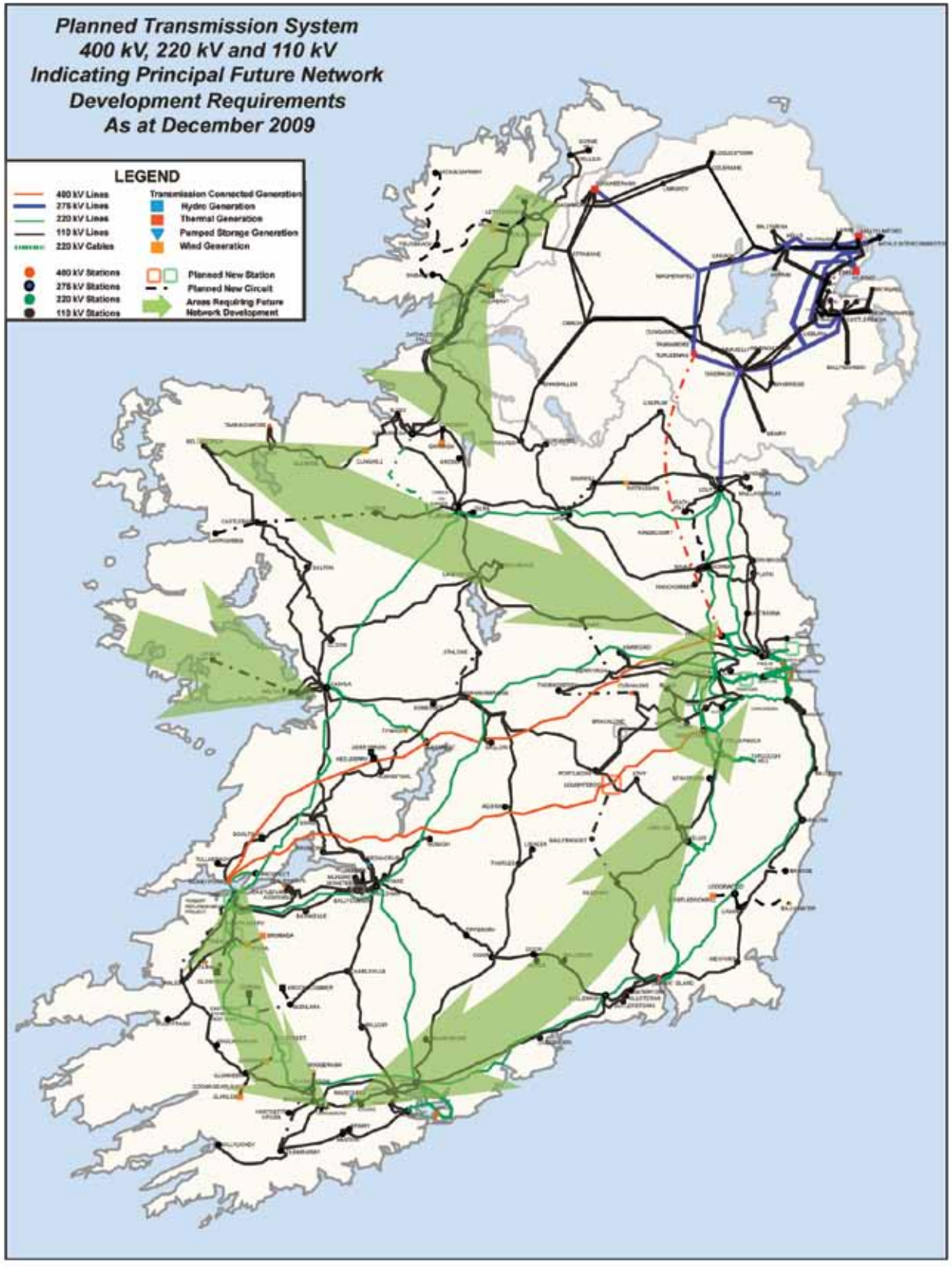


Figure 2.1 **Strategic Transmission Potential in Ireland**

Note: Unscaled map with indicative representation. It does not purport to represent specific projects, nor does it suggest that the eventual realisation of these projects will be contained within the areas identified in green.

2.1.3 The Existing Grid

The National Grid plays a vital role in the supply of electricity, providing the means to transport power from the generators to the demand centres using a system comprising 400 kV, 220 kV and 110 kV networks. It is electrically connected to the transmission system of Northern Ireland by means of one 275 kV double circuit connection at Louth and two 110 kV connections at Letterkenny in Co. Donegal and Corraclassy in Co. Cavan.

The 400 kV and 220 kV networks form the backbone of the national electrical transmission network (the Grid). These have higher capacity and lower losses than the 110 kV network. The 400 kV network provides a high capacity link between Moneypoint generation station and Galway on the west coast and Dublin on the east. The 220 kV network comprises a number of single circuit loops around the country. Large generation stations (greater than 100 MW) are typically connected to the 220 kV or 400 kV networks.

The 110 kV lines, which constituted the entire transmission system prior to the 1960s, provide parallel paths to the 220 kV systems. It is the most extensive element of the Grid, reaching into every county in the Republic of Ireland. The transmission system generally comprises overhead lines, except in limited circumstances, such as in the city centres of Dublin and Cork, where underground cables are used. Transformers are required to link the different voltage networks, providing paths for power to flow from the higher to the lower voltage networks.

2.1.4 Renewable Generation

There is significant potential in Ireland for generation of renewable energy through both on and offshore wind energy and in future marine renewable energy generation. The potential exists to make use of these natural resources to provide for Ireland's internal energy needs, meet our commitments to reduce CO_2 emission under the Kyoto Protocol agreement and make Ireland more energy secure.

The Government's renewable generation target for 2020 is to meet 40% of electricity consumption from renewable energy resources. EirGrid's Grid Development Strategy, as outlined in Grid25, involves planning and developing the transmission system to meet the anticipated generation/demand needs.

Where new electricity generators are proposed, connection to the electricity grid will be required. The electricity transmission infrastructure will be required to be strengthened to facilitate their connection and will result in the requirement to both upgrade some of the existing infrastructure and to construct new high voltage electricity transmission infrastructure.

2.1.5 Onshore Grid

The 220 kV network was first introduced in the early 1960s and the 400 kV network was built in the early 1980s. Since the mid-1980s this bulk power network has changed little while demand in the same period has grown by over 150%, leaving little capacity for further growth. The anticipated increasing power flows on the system mean that between now and 2025 the capacity of the bulk transmission system will need to be significantly increased. The 110 kV network, which brings power from the bulk networks to bulk supply points serving population centres, also needs to be substantially upgraded.

The following indicates the amount of infrastructural development required to strengthen the grid.

- Approximately 828km of new circuits will be required between now and 2025 to meet the needs of consumers and generators. This represents an increase of about 14% on the total length of the existing network. Of this, 586 km

will need to be at 400 kV; 92 km will need to be at 220 kV or higher; the remaining 150 km will be at 110 kV. In addition to these circuits, others will be needed to connect many of the new generators to the Grid.

- 2,530 km of the existing transmission network will need to be upgraded between now and 2025 to provide greater capacity. This includes 740 km or 29% of the existing 220 kV network and 1,790 km of the 110 kV network.

The requirement for this amount of infrastructural development is included in the IP. However, the IP does not prescribe exactly the location of infrastructure. Instead it provides an indicative overview of the general approach proposed for the future development of the grid. This approach and how it will broadly impact on the Natura 2000 network is outlined further in Section 2.3.2.

2.1.6 Offshore Generation and Distribution

A number of scenarios for future electrical generation and transmission in Ireland involve the development of off-shore grid infrastructure. This has the potential to occur in many areas off the Irish coast, on account of developments including the exploitation of off-shore renewable resources (wind, wave and tidal), and increased interconnection with other EU Member States and the participation of Ireland in a Pan-European offshore grid. This has potentially significant implications for grid development and for interactions with terrestrial and inshore environments.

2.1.7 Interconnectors

EirGrid and Northern Ireland Electricity (NIE) are currently progressing the planning of a second major interconnector between the Republic of Ireland and Northern Ireland. In addition, EirGrid is developing the 500MW East-West Interconnector between Ireland and Wales. This has a scheduled completion date of 2012. These, and potential future additional interconnectors, could play a significant role in internationalising the Irish energy market, and in facilitating the anticipated high levels of renewable generation on the island, by providing a means to export excess generation when output from renewable generation is high, and to import power when it is low. Both of these projects could have potentially significant implications for grid development and for interactions with terrestrial and inshore environments and are subject to individual environmental impact assessment procedures.

2.1.8 Planned Network Developments

As part of the IP, EirGrid has progressed a number of network development projects to the point where they are preferred options. These projects, which are in the pre-planning stage, are outlined in Tables 2.1 to 2.3. These projects have been included in the scope of this AA. However, as individual projects, they will also be subject to project level assessment for compliance with the Habitats Directive. Section 2.4 of this document outlines further the process of environmental assessment to be carried out for each project.

Table 2.1

Network Reinforcement Projects

CP No.	Project Title & Description	Estimated Completion Date	Phase
CP0501	Clashavoon-Dunmanway 110kV New Line Construction of a new 110 kV line from Clashavoon to Dunmanway station and associated stations works.	Mar-14	Outline Design and EIA
CP0580	Carrickmines 220 kV GIS Development Replacement of existing air-insulated switchgear with gas-insulated switchgear (GIS); Installation of a new 4th 220/110 kV transformer.	Dec-12	Outline Design or EIA
CP0585	Laois /Kilkenny Reinforcement New Station & Associated Lines & Station Works New 400/110 kV transmission station in Co. Laois. The station will be looped into the existing Dunstown-Moneypoint 400 kV line and Carlow-Portlaoise 110 kV line. A new 110 kV circuit from the new station to Kilkenny using the existing Ballyragget-Kilkenny 38 kV line which is built to 110 kV standards. A new 110/38 kV station at Ballyragget to cater for loss of the Kilkenny-Ballyragget 38 kV line.	Dec-14	Outline Design or EIA
CP0596	New 110kV Circuit To Mullingar Construction of a new 110 kV circuit to Mullingar 110 kV station from either Kinnegad or Derryiron 110 kV stations.	Oct-14	Outline Design or EIA
CP0597	Reinforcement of the Ardnacrusha & Ennis Area Uprating of the Moneypoint-Tullabrack-Booltiagh-Ennis 110 kV circuit to equivalent of 430mm2 ACSR @80 o C. Dependent on Moneypoint 400/220/110 kV GIS Development, see CP0688	Dec-14	Outline Design and EIA
CP0250	Castlebar-Tonroe 110 kV Line A new Castlebar-Tonroe line constructed at 220 kV and operated at 110 kV	On-Hold	Outline Design and EIA
CP0699	Cathaleen's Fall - Srananagh 1 110kV Line Uprate Uprate line to equivalent of 430mm2 ACSR @ 80 o C	Oct-12	Outline Design and EIA
CP0709	Dunmanway 110kV Station Upgrade	Dec-14	Outline Design and EIA
CP0707	Barrymore 110kV station extension - Loop into Cahir - Knockraha 110kV line	Jun-13	Outline Design and EIA
CP0619	New Capacitors at Shankill Installation of 15 Mvar and 30 Mvar re-deployable capacitor units at Shankill 110 kV station	On-Hold	Outline Design and EIA

Table 2.2

DSO Connection Projects

CP No.	Project Title & Description	Estimated Completion Date	Phase
CP0437a	North Dublin 220kV Project - New 220kV Station A new 220 kV station in the Balgriffin area and associated networks. The development is part of a wider TSO/DSO agreed reinforcement strategy to enhance the network in the northern fringe of Dublin city. The station will be tail fed from Finglas 220 kV using cable and constructed with GIS. The process of acquisition of a new site for this project is currently underway.	Dec-14	Outline Design or EIA
CP0506	Finnstown 220kV Project (Adamstown) - New 220kV Station Finnstown 220 kV station, south of Lucan, a new 220 kV station looped into the Inchicore-Maynooth No. 1 and No.2 220 kV lines. The station will be initially a single transformer 220 kV station, but allow final development for a four transformer station. Due to space restrictions on potential sites an entirely GIS station is proposed.	Mar-14	Outline Design or EIA
CP0644	Bracklone 110 kV Station & Loop In New 110 kV station to be looped into Portlaoise-Newbridge 110 kV Line. Built on new site to replace existing Portarlington 38 kV station.	Dec-12	Outline Design or EIA
CP0649	Drumline 110 kV Station Works Two 20 MVA Transformers supplying 12.2 MW New load and 11.4 MW transferred load from existing Drumline transformers.	Jun-13	Outline Design or EIA
CP0627	Bandon 110 kV Station New Transformer Bay	On-Hold	Outline Design or EIA
CP0075	Ballycummin 110kV New Station New station looped into the Limerick-Moneteen 110 kV line.	On-Hold	Outline Design or EIA

Table 2.3

Generator Connection Projects

CP No.	Project Title & Description	Estimated Completion Date	Phase
CP0603	IPP088 Mulreavy Connection Connection of a new 110 kV station for connection of a new windfarm	Jan-12	Outline Design or EIA
CP0500	North Kerry Project A new 220 kV station looped into the existing Clashavoon-Tarbert 220 kV line. The work includes connection works for Athea, Dromada and Cloghboola windfarms	Apr-14	Outline Design or EIA
CP0608	IPP119 Cloghboola Wind Farm Connection –of new windfarm into existing Trien 110 kV station	Apr-14	Outline Design or EIA
CP0615	Glenree 110kV Station Connection of a new 110 kV station, looped into the existing Cunghill-Moy 110 kV line. This station will facilitate the connection of new DSO windfarms.	Sep-11	Outline Design or EIA
CP0648	Garrow 110 kV Station Extension Works for a new 110 kV transformer bay for the provision of renewable energy.	Aug-11	Outline Design or EIA
CP0650	Millstreet 220/110 kV station New 220/110 kV station looped into the existing Clashavoon-Tarbert line for the connection of wind farms	Aug-14	Outline Design or EIA
CP0651	East Kerry & North-West Cork reinforcement 220 kV Station A new 220 kV station looped into the existing Clashavoon-Tarbert 220 kV line for the connection of wind farms. Two new 110 kV lines will be constructed, one to Glenlaraand the other to the planned Cordal station in Co. Kerry. Knockacummer connection into Glenlara is also part of this project.	Jan-14	Outline Design or EIA
CP0602	IPP044 Keelderry Wind Farm Connection of a new windfarm to a new station, looped into the existing Agannygal-Derrybrien 110 kV line.	On-Hold	Preliminary Design
CP0641	IPP118 Nore Power Station Extension works in the existing Kilkenny station for the connection of a new OCGT.	On-Hold	Outline Design or EIA

2.2 Natura 2000 Network

2.2.1 SACs and SPAs

The European Union's Habitats Directive (Council Directive 92/43/EEC on the conservation of natural habitats and of wild flora and fauna), in conjunction with the Birds Directive (Council Directive 79/409/EEC on the conservation of wild birds, now codified in Parliament and Council Directive 2009/147/EC) is the main legal tool of the European Union for nature conservation. The EU Directive on the conservation of wild birds was adopted in 1979, and was the first EU Directive on nature conservation. Since its adoption it has been a vital legal instrument for the conservation of all birds that occur naturally across the EU, acting in the broadest public interest to conserve Europe's natural heritage for present and future generations.

The Habitats Directive was adopted in July 1992. The stated aim of the Directive is to contribute to the maintenance of biodiversity within the European territory of the Member States through the conservation of natural habitats and of wild fauna and flora of Community interest. The Birds and Habitats Directive together offer useful legal conceptual models and a set of standards and norms in common use.

The Habitat Directive seeks to establish "Natura 2000", a network of protected areas throughout the European Community. It is the responsibility of each member state to designate Special Areas of Conservation (SACs) to protect habitats and species, which, together with the Special Protection Areas (SPAs) designated under the EU Birds Directive, form Natura 2000.

Member States are required to maintain or restore at 'favourable conservation status' the habitats and species of Community Importance listed in Annex I and II of the Directive.

According to the Habitats Directive (Article 1(l)) a Special Area of Conservation (SAC) means a site of Community importance designated by the Member States through a statutory, administrative and/or contractual act where the necessary conservation measures are applied for the maintenance or restoration, at a favourable conservation status, of the natural habitats and/or the populations of the species for which the site is designated.

Special Protection Areas (SPAs) are classified under Article 4 of the Birds Directive. These areas are designated in order to protect endangered bird species listed in Annex I or migratory species.

To date, Ireland has transmitted 420 sites to the European Commission as candidate Special Areas of Conservation[2]. These cover an area of approximately 10,000 km2. Across the EU, over 12,600 sites have been identified and proposed, covering an area of 420,000 km2. In Ireland to date, 110 SPAs have been designated. A further 25 sites have been notified to landowners. Approximately 25 SPAs are also designated as SACs. The Irish SPAs join a total of around 3,000 sites across the European Union.

It is general practice, when screening a plan or project for compliance with the Habitats Directive, to identify all Natura 2000 sites within the functional area of the plan itself and within 15 km of the boundaries of the area the plan applies to. This approach is currently recommended in the Department of the Environmental, Heritage and Local Government's document Guidance for Planning Authorities and as a precautionary measure, to ensure that all potentially affected Natura 2000 sites are included in the screening process. As the IP applies to the entire Republic of Ireland and may have synergistic effects beyond Ireland's borders, a screening exercise was carried out on all Natura 2000 sites within the Republic and Northern Ireland. Appendix I of this report contains a complete list of all Natura 2000 sites within the Republic of Ireland and Northern Ireland along with their qualifying features.

[2] At present, all SACs in Ireland are candidate SACs. cSACs are afforded the same protection as SACs. This NIS refers to all such candidate sites as SACs, in conformance with nomenclature used in NPWS databases.

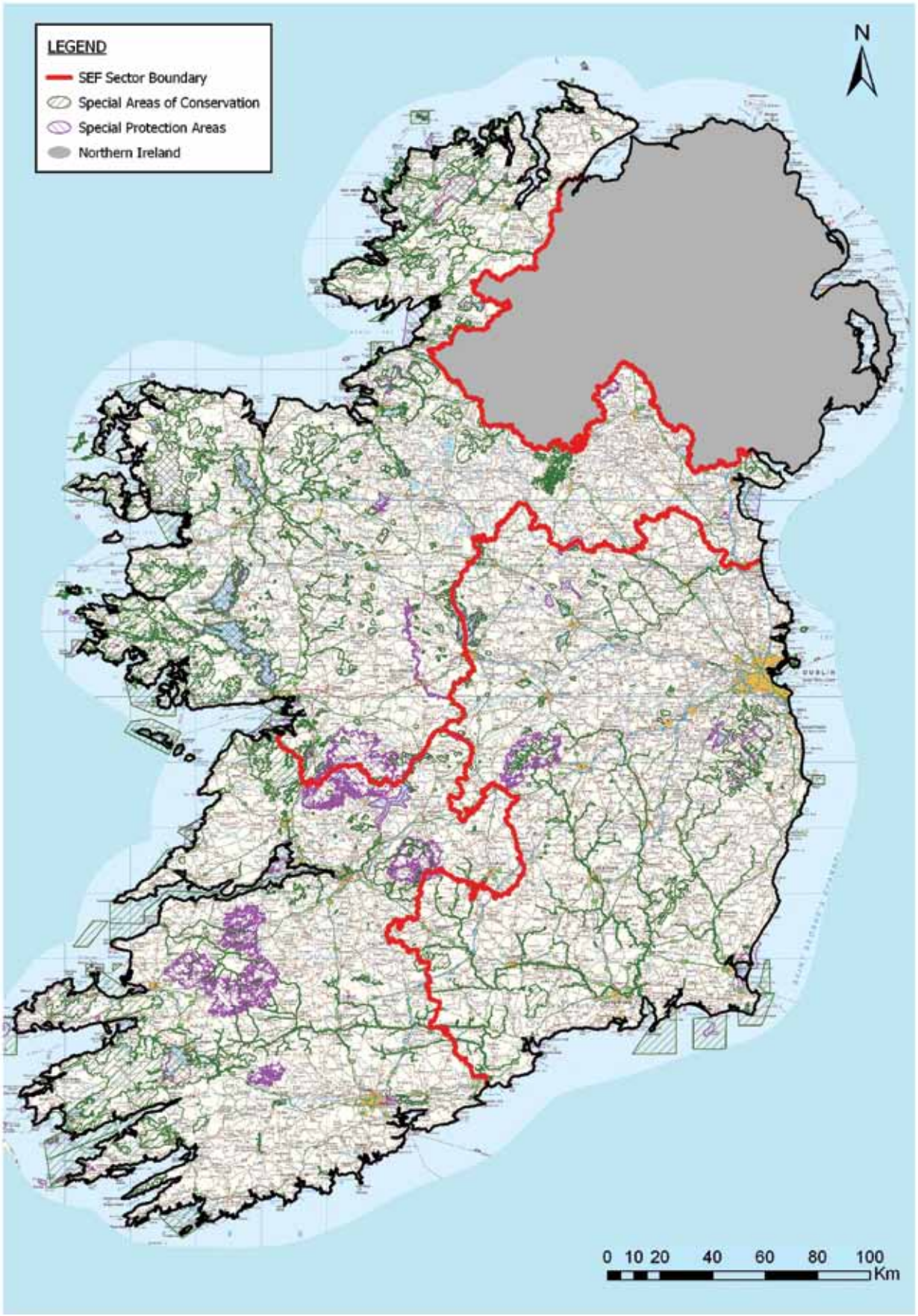


Figure 2.2 **Natura 2000 Sites in Ireland**

2.3 Assessment Criteria

2.3.1 Direct, Indirect or Secondary Impacts

This section of the NIS includes a preliminary examination of the types of effects that may arise as a result of the IP. The type of impact that may arise through implementation of the IP depends on the type of infrastructure constructed, including:

- Site based infrastructure e.g. electricity generating stations, transformers etc.
- Linear infrastructure e.g. overhead lines, underground cables

Impacts that could potentially occur through the implementation of the IP can be categorised under a number of headings:

- Loss/Reduction of habitat area
- Disturbance to key species
- Habitat or species fragmentation
- Reduction in species density
- Changes in key indicators of conservation value such as decrease in water quality and quantity

These impact categories are taken from the European Commission's document "Assessment of plans and projects significantly affecting Natura 2000 sites: Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC".

Loss/Reduction of habitat area may occur where construction of facilities such as transformer stations and infrastructure such as transmission lines and access roads are built within or close to the boundaries of a Natura site. Habitat loss associated with the installation of new transmission lines would be confined to tower/pole bases. Hydrological/ drainage effects may occur where towers/poles are located in bog habitats. Peat soils and peatland habitats can be the most impacted habitat type to be affected in this way and the slowest to recover. Construction of any infrastructure associated with the implementation of the Grid25 IP may lead to disturbance to key species of protected mammal and bird species (e.g. Otter, whooper swan), particularly during construction and maintenance of transmission lines.

Transmission lines in particular can impact negatively on birds, leading to fragmentation of species range and reduction in density. Powerlines can create a collision and/or electrocution risk for some bird species where flightlines cross route corridors. Migrating birds flying at heights of 20 m to 50 m are at considerable risk of collision at night, when flying in flocks, particularly large and heavy birds of limited manoeuvrability.

Construction of any infrastructure associated with the implementation of the Grid25 IP may lead to impacts on water quality, which is a key indicator of conservation value for any surface or ground water dependant Natura site. Changes in water quality are mainly caused by construction and/or ongoing maintenance and could cause direct or indirect effects. Any of the following would have deleterious effects on fish, plants and invertebrates if allowed to enter watercourses:

- Suspended sediment due to runoff of soil from construction areas
- Raw or uncured concrete and grouts
- Fuels, lubricants and hydraulic fluids for equipment used on the development site

2.3.2 Natura 2000 Sites potentially affected by the Implementation Programme

As a high level strategy or vision for the development of the electricity network within the Republic of Ireland, the Grid25 IP, provides an indication of the types of infrastructural requirements likely to arise in the future, given Government policy on renewable energy and predicted growth in demand. The Grid is a fully dynamic system that is constantly subject to change, where the change of a single variable

has the potential to change the system at large. This makes future predictions complicated, dynamic and subject to change over time as demand, generation, flows and grid capacity fluctuate and change. The IP therefore does not prescribe exactly the location of infrastructure such as generation plants or transformers, or the route of transmission lines. Instead it provides an indicative overview of the general approach proposed for the future development of the grid.

Figure 2.1 provides a high-level indicative overview of the general strategy for the future development of the grid, as per the provisions of Grid25. The arrows coloured green on the map, provide an indicative representation of the strategy for transmission of the potential flow of electricity (between demand/load centres, generators and the system at large). It should be noted that these figures do not represent specific projects; nor is it intended to suggest that all future projects will be contained within the areas covered by these figures. For the purposes of describing where infrastructure associated with the Grid25 IP may be located, the Country has been divided into a number of regions:

- Border Region
- Midlands Region
- South East Region
- West Region
- Mid West Region
- South West Region
- Mid East Region

The General Strategy for the future development of the grid was overlain with the National Overall Development Potential Rating Map (Figure 2.3). The Rating Map was prepared as part of the Strategic Environmental Constraints Mapping which combines ecological mapping, National Parks mapping and landscape mapping to provide a high level assessment of the main constraints associated with the development of the transmission system. The overlay allowed a determination to be made in relation to which designated sites may be impacted on a regional basis. Using the precautionary principle, it can be assumed that development of any electricity infrastructure within these regions may potentially impact significantly on the Natura 2000 sites within those regions. As such, all Natura 2000 sites within the following counties have been screened in and are thus brought forward to Stage 2 Appropriate Assessment:

- Border Region – Donegal, Fermanagh, Tyrone, Leitrim, Sligo
- Midlands Region – Westmeath, Longford, Roscommon
- South East Region – Cork, Tipperary, Kilkenny, Carlow
- West Region – Mayo, Sligo, Galway
- Mid/South West Region – Kerry, Cork, Limerick
- Mid East Region – Dublin, Kildare, Wicklow, Meath

Due to the nature of the IP, impacts can only be described in a general manner. Any of the impacts outlined may potentially affect any of the sites that are screened in.

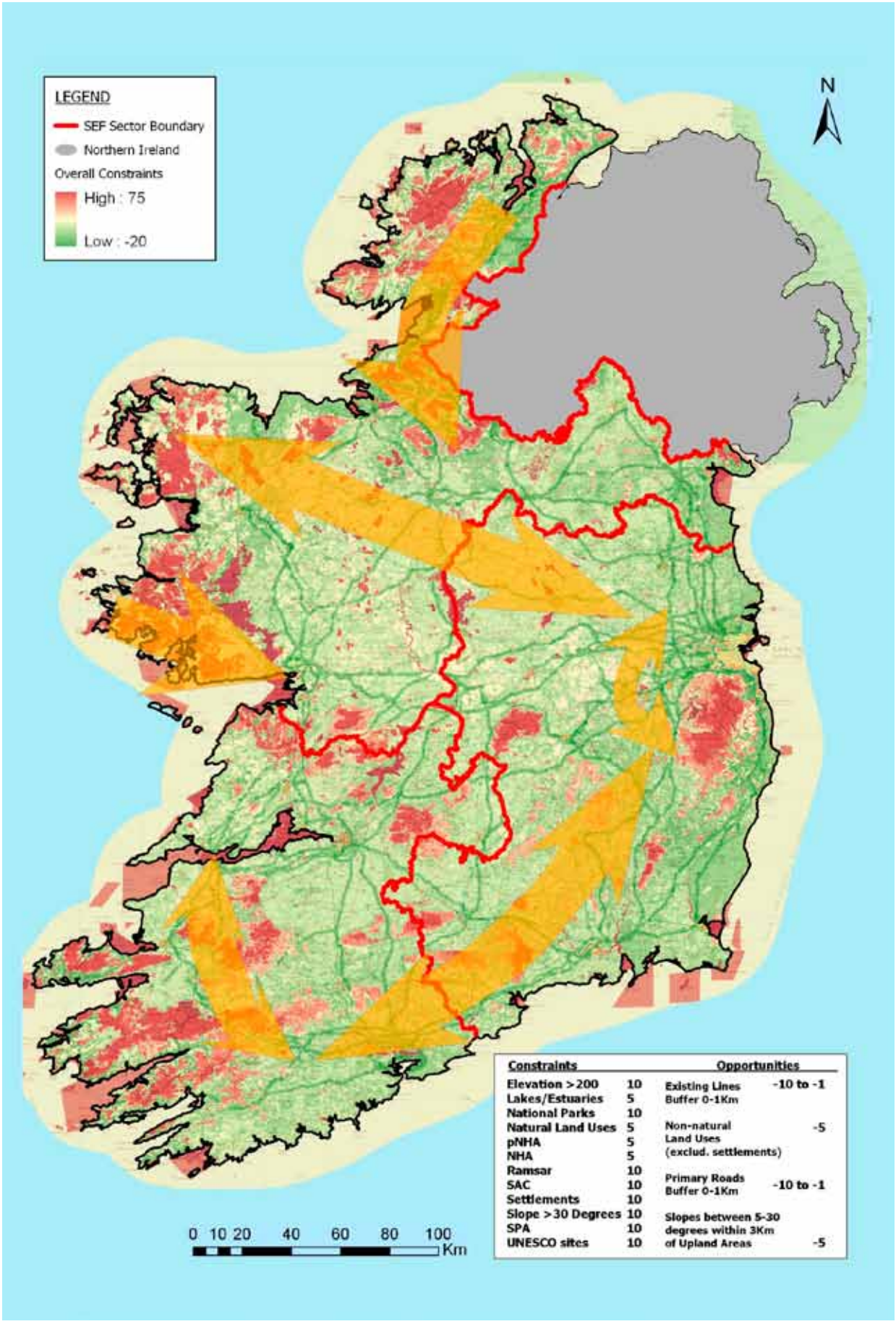


Figure 2.3 Overlay of Strategy on National Overall Development Potential Rating Map

Note: Representation on this map is indicative only. It does not purport to represent specific projects, nor does it suggest that the eventual realisation of these projects will be contained within the areas identified in green.

2.4 Project Specific Impacts

As outlined in Section 2.1.7, the IP includes a number of network developments that have progressed to pre-planning and detailed design stage, although the location and route of these projects is not fixed by the IP. The Natura 2000 sites listed in Table 2.4 are those located in closest proximity and therefore have potential to be affected by the individual projects in question.

The projects listed in Table 2.4 are all separately subject to specific environmental and other assessment, in accordance with Statutory procedures and best practice. These projects will be subject to AA screening as well as constraints and route/site selection which will follow the Habitats Directive hierarchy of avoidance-mitigation.

220kV double circuit transmission line

Table 2.4

Network Reinforcement Projects and Impacts on Natura 2000 sites

Project Title & Description	Potential for Impacts	Natura 2000 site/s
Clashavoon-Dunmanway 110kV New Line	Yes	The Gearagh SAC/SPA Bandon River SAC
Carrickmines 220 kV GIS Development	Development restricted to onsite upgrades and construction. No new transmission lines to be installed. Significant impacts not likely. Impacts will be localised and unlikely to affect Natura 2000 sites.	N/A
Laois /Kilkenny Reinforcement - New Station & Associated Lines & Station Works	Yes	River Barrow And River Nore SAC
New 110kV Circuit To Mullingar	Yes	Lough Ennell SAC/SPA
Tarbert Re-development - New 220/110kV station and loop in of associated 220kV and 110kV circuits	Yes	Lower River Shannon SAC River Shannon and River Fergus SPA
Reinforcement of the Ardnacrusha & Ennis Area	Yes	Lower River Shannon SAC River Shannon and River Fergus SPA
Castlebar-Tonroe 110 kV Line	Yes	River Moy SAC
Cathaleen's Fall - Srananagh 1 110kV Line Uprate	Yes	Louch Melvin, Lough Gill and BenBulben, Gleniff and Glenade Complex SAC Sligo Leitrim Uplands SPA Cumeen Strand SPA
Dunmanway 110kV Station Upgrade	Yes	Bandon River SAC
Barrymore 110kV station extension - Loop into Cahir - Knockraha 110kV line	Yes	Blackwater Callows SPA Blackwater River SAC
New Capacitors at Shankill	Development restricted to onsite upgrades and construction. No new transmission lines to be installed. Significant impacts not likely. Impacts will be localised and unlikely to affect Natura 2000 sites.	
North Dublin 220kV Project - New 220kV Station.		North Dublin Bay SAC South Dublin Bay SAC North Bull Island SPA Sandymount Strand/Tolka Estuary SPA

Project Title & Description	Potential for Impacts	Natura 2000 site/s
Finnstown 220kV Project (Adamstown) - New 220kV Station	No	N/A
Bracklone 110 kV Station & Loop In	Yes	River Barrow And River Nore SAC
Drumline 110 kV Station Works	Yes	Lower River Shannon SAC River Shannon and River Fergus SP
Bandon 110 kV Station	Development restricted to onsite upgrades and construction. No new transmission lines to be installed. Significant impacts not likely. Impacts will be localised and unlikely to affect Natura 2000 sites.	
Ballycummin 110kV New Station	Yes	Lower River Shannon SAC River Shannon And River Fergus Estuaries SPA
IPP088 Mulreavy Connection	Yes	Donegal Bay (Murvagh) SAC Lough Eske And Ardnamona Wood SAC Donegal Bay SPA
New North Kerry 220/110kV station	Yes	Lower River Shannon SAC Moanveanlagh Bog SAC
IPP119 Cloghboola Wind Farm	Yes	Stack's To Mullaghareirk Mountains, West SPA
Glenree 110kV Station	Yes	Lough Gara SPA Lough Arrow SPA Bricklieve Mountains and Keishcorran SAC Lough Arrow
Millstreet– 220/110 kV station	Yes	Blackwater River (Cork/Waterford) SAC Mullaghanish To Musheramore Mountains SPA Killarney National Park, Macgillycuddy'S Reeks And Caragh River Catchment SAC
East Kerry & North-West Cork reinforcement - new 220 kV Station	Yes	Blackwater River (Cork/Waterford) SAC Stack's To Mullaghareirk Mountains, West SPA
IPP044 Keelderry Wind Farm	Yes	Slieve Aughty Mountains SPA
IPP118 Nore Power Station	Yes	River Barrow/ River Nore SAC

2.5 Conclusion

The likely impacts that will arise from the application of the Implementation Programme have been examined in the context of a number of factors that could potentially affect the integrity of the Natura 2000 network. On the basis of the findings of this Screening for Appropriate Assessment, it is concluded that the IP:

(i) is not directly connected with or necessary to the management of a Natura 2000 site; and

(ii) may have potential significant impacts on the Natura 2000 sites as set out in Appendix 1 and Table 2.4.

Therefore, applying the Precautionary Principle and in accordance with Article 6(3) of the Habitats Directive, a Stage 2 Appropriate Assessment is required. That stage is set out in Section 3 of this report.

Section 3 - Appropriate Assessment

3.1 Introduction

The main objective of this stage (Stage 2) in the AA is to determine whether the IP (either alone or in combination with other plans, programmes and projects) would result in significant adverse impacts to the integrity of any Natura 2000 site with respect to the site's structure, function and/or conservation objectives.

The Stage 1 Screening has created lists of sites with potential to be affected by the IP. Therefore, a Stage 2 Appropriate Assessment is required. The potential adverse effects considered at this stage will either be effects occurring as a result of the application of the IP alone or in-combination with other plans, programmes and/or projects.

3.2 Conservation Objectives

It is the goal of NPWS to draw up conservation plans for all areas designated for nature conservation. These plans will, among other things, set clear objectives for the conservation of the features of interest within a site. Where no Management Plan is yet available, NPWS have provided generic Conservation Objectives for Natura 2000 Sites.

One generic Conservation Objectives has been provided for SPAs, as follows:

- To maintain the bird species of special conservation interest for which the SPA has listed, at favourable conservation status.

Generic Conservation Objectives for cSACs have been provided as follows:

- To maintain Annex I habitats and Annex II species for which the cSAC has been selected at favourable conservation status.
- To maintain the extent of species richness and biodiversity of the entire site.
- To establish effective liaison and co-operation with landowners, legal users and relevant authorities.

Favourable conservation status of a species can be described as being achieved when: "population data on the species concerned indicate that it is maintaining itself, and the natural range of the species is neither being reduced or likely to be reduced for the foreseeable future, and there is, and will probably continue to be, a sufficiently large

habitat to maintain its populations on a long-term basis."

Favourable conservation status of a habitat can be described as being achieved when: "its natural range, and area it covers within that range, is stable or increasing, and the ecological factors that are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future, and the conservation status of its typical species is favourable".

3.3 Other Plans and Programmes

3.3.1 General

The developments that make up the Grid25 IP have the potential to create cumulative impacts on the Natura 2000 network. The principle cumulative effect is that Grid25 will facilitate the development of energy projects – particularly wind – in peripheral areas that contain the highest national concentrations of environmental sensitivities. Other plans that have the potential to create a cumulative effect together with the Grid25 IP include developments covered in EirGrid's Transmission Development Plans (Section 5.5.1 and Appendix I of the IP), developments under SEAI's Offshore Renewable Energy Development Plan, any developments arising from a National Terrestrial Renewable Energy Generation Strategy and any developments arising from a high level plan for high level transmission requirements.

Taken together, these strategies will help to facilitate the achievement of higher level government targets contained in higher level national and international energy and greenhouse gas emission policies however they will also facilitate the development of new energy generation infrastructure and other economic development (as also provided for by the National Development Plan and National Spatial Strategy).

The development of new energy generation infrastructure and other economic development will potentially lead to habitat and/or species loss, species/population fragmentation and changes in water quality/quality. These potential conflicts will be mitigated by measures outlined in Section 4 of this appropriate assessment and they will be addressed by lower tier environmental assessment, as appropriate.

3.3.2 Cumulative Effects

Cumulative effects are those that arise when the effects of the implementation of one plan occur in combination with those of other plans or developments. Table 3.1 identifies the principal plans, policies and programmes that are likely to give rise to developments causing effects that could combine or interact with those of the IP for Grid25.

The assessment of the likely combination of effects requires knowledge of the likely effects of all plans/developments under consideration. Table 3.1 describes the extent of knowledge of the likely effects of the implementation of these plans, policies and programmes. This analysis shows that - other than statutory Development Plans - there has been very limited assessment of the likely effects of the types of developments that could occur in combination with the implementation of the IP of Grid25.

Table 3.1

Plans & Projects Likely to Cause In-Combination Effects

Policy, Plan, Programme or Projects	Spatially Specific?	Interactions resulting in Cumulative Impacts
National		
National Development Plan	No	Potential in-combination impacts may arise where there is a requirement to provide for new infrastructure under the National Spatial Strategy. Provision of related transmission infrastructure may result in • Habitat loss and disturbance. All terrestrial based designated sites may be affected, depending on where infrastructure and transmission lines are located/routed • Alterations to local hydrology and effect on adjacent habitats. Groundwater dependant habitats such as fens, turloughs and bogs are most likely to be affected. • Sediment pollution and associated hydrological impacts where surface water dependant species and habitats are affected. Salmon, lamprey, white clawed crayfish and freshwater pearl mussel may potentially be affected • Contamination of surface and ground water with pollutants (eg fuels, lubricants, concrete) during construction. Salmon, lamprey, white clawed crayfish and freshwater pearl mussel may potentially be affected. • Disturbance of species during construction and maintenance activities. Species that may be affected include nesting and overwintering birds in coastal and freshwater SPAs; otters and kingfishers, where development occurs adjacent to or crossing watercourses; Bats, where development affects woodlands, hedgerows or roosting sites
National Renewable Energy Action Plan	No	Unknown
Offshore Renewable Energy Development Plan	Yes	In-combination impacts may arise at the interface between offshore and on shore infrastructure. Impacts that may occur include: • Habitat loss and disturbance. All terrestrial based designated sites may be affected, depending on where infrastructure and transmission lines are located/routed. Loss of habitats may also occur in the littoral and coastal zones. Habitat loss will be greater where underground cables are installed. • Sediment pollution and associated hydrological impacts where surface water dependant species and habitats are affected. Salmon, lamprey, white clawed crayfish and freshwater pearl mussel may potentially be affected • Contamination of surface and ground water with pollutants (eg fuels, lubricants, concrete) during construction. Salmon, lamprey, white clawed crayfish and freshwater pearl mussel may potentially be affected. • Disturbance of species during construction and maintenance activities. Species that may be affected include nesting and overwintering birds in coastal and freshwater SPAs; marine mammals, where interconnection between offshore and onshore infrastructure occurs; otters and kingfishers, where development occurs adjacent to or crossing watercourses; Bats, where development affects woodlands, hedgerows or roosting sites
National Hazardous Waste Management Plan	No	None

Policy, Plan, Programme or Projects	Spatially Specific?	Interactions resulting in Cumulative Impacts
Transport 21	Yes	Potential in-combination impacts may arise where new or upgraded transport corridors are constructed in line with new or upgraded transmission infrastructure. Impacts may include the following: • Habitat loss and disturbance. All terrestrial based designated sites may be affected, depending on where infrastructure and transmission lines are located/routed • Alterations to local hydrology and effect on adjacent habitats. Groundwater dependant habitats such as fens, turloughs and bogs are most likely to be affected. • Sediment pollution and associated hydrological impacts where surface water dependant species and habitats are affected. Salmon, lamprey, white clawed crayfish and freshwater pearl mussel may potentially be affected • Contamination of surface and ground water with pollutants (eg fuels, lubricants, concrete) during construction. Salmon, lamprey, white clawed crayfish and freshwater pearl mussel may potentially be affected. • Disturbance of species during construction and maintenance activities. Species that may be affected include nesting and overwintering birds in coastal and freshwater SPAs; otters and kingfishers, where development occurs adjacent to or crossing watercourses; Bats, where development affects woodlands, hedgerows or roosting sites • Risk of bird strike where overheard transmission cables are installed near SPAs or across bird flight lines.
Government White Paper – Delivering a Sustainable Energy Future for Ireland	No	Grid25 to contribute towards objectives
Regional		
River Basin Management Plans	Yes	Significant in-combination impacts are not likely
Regional Planning Guidelines	Yes	Potential in-combination impacts may arise where new infrastructure is provided under the Regional Planning Guidelines. Likely significant impacts are as previously outlined.
Flood Risk Management Plans	Yes	Significant in-combination impacts are not likely
Regional Waste Management Plans	Yes	Potential in-combination impacts may arise where new waste infrastructure and new transmission infrastructure occur together within or in close proximity to a designated site. Likely significant impacts are as previously outlined.
Groundwater Protection Schemes	Yes	Significant in-combination impacts are not likely
Water Services Strategic Plans	Yes	Significant in-combination impacts are not likely

Policy, Plan, Programme or Projects	Spatially Specific?	Interactions resulting in Cumulative Impacts
County		
County and Town Development Plans	Yes	Potential in-combination impacts may arise where there is a requirement to provide for new infrastructure through implementation of County and Town Development Plans. Provision of related transmission infrastructure may result in likely significant impacts as previously described.
County Wind Energy Strategies	Yes	Unknown
Offshore Renewable Energy Development Plan	Yes	Potential in combination impacts may arise where there is a requirement for interconnection between windfarms and the national grid. County wind energy strategies will partially influence where transmission infrastructure will be developed. Impacts may include the following: • Habitat loss and disturbance. All terrestrial based designated sites may be affected, depending on where infrastructure and transmission lines are located/routed • Alterations to local hydrology and effect on adjacent habitats. Groundwater dependant habitats such as fens, turloughs and bogs are most likely to be affected. • Sediment pollution and associated hydrological impacts where surface water dependant species and habitats are affected. Salmon, lamprey, white clawed crayfish and freshwater pearl mussel may potentially be affected • Contamination of surface and ground water with pollutants (eg fuels, lubricants, concrete) during construction. Salmon, lamprey, white clawed crayfish and freshwater pearl mussel may potentially be affected. • Disturbance of species during construction and maintenance activities. Species that may be affected include nesting and overwintering birds in coastal and freshwater SPAs; otters and kingfishers, where development occurs adjacent to or crossing watercourses; Bats, where development affects woodlands, hedgerows or roosting sites • Risk of bird strike where overheard transmission cables are installed near SPAs or across bird flight lines.
County Renewable Energy Strategies	Yes	Potential in combination impacts may arise where there is a requirement for interconnection between windfarms and the national grid. County wind energy strategies will partially influence where transmission infrastructure will be developed. Likely significant impacts are as previously outlined.
Biodiversity Action Plans	Yes (partial)	Significant in-combination impacts are not likely
Heritage Plans	Yes (partial)	Significant in-combination impacts are not likely

Table 3.1

Plans & Projects Likely to Cause In-Combination Effects

Policy, Plan, Programme or Projects	Spatially Specific?	Interactions resulting in Cumulative Impacts
Projects		
Projects included in the TDP	Yes	Potential in combination impacts may arise where development of more than one project occurs within or adjacent to a designated site or within the drainage catchment of surface water/groundwater dependant sites. These projects will involve installation of overhead transmission lines, underground cables and/or construction/expansion of substation and associated infrastructure. Details of impacts are as outlined in Section 3.4.2, 3.4.3 and 3.4.4.
Interconnectors	Yes	Potential in combination impacts may arise where development of more than one project occurs within or adjacent to a designated site or within the drainage catchment of surface water/groundwater dependant sites. These projects will involve installation of overhead transmission lines, underground cables and/or construction/expansion of substation and associated infrastructure. Details of impacts are as outlined in Section 3.4.2, 3.4.3 and 3.4.4.
Offshore energy generation projects	Yes	In-combination impacts may arise at the interface between offshore and on shore infrastructure. Impacts that may occur include: • Habitat loss and disturbance. All terrestrial based designated sites may be affected, depending on where infrastructure and transmission lines are located/routed. Loss of habitats may also occur in the littoral and coastal zones. Habitat loss will be grater where underground cables are installed. • Sediment pollution and associated hydrological impacts where surface water dependant species and habitats are affected. Salmon, lamprey, white clawed crayfish and freshwater pearl mussel may potentially be affected • Contamination of surface and ground water with pollutants (eg fuels, lubricants, concrete) during construction. Salmon, lamprey, white clawed crayfish and freshwater pearl mussel may potentially be affected. • Disturbance of species during construction and maintenance activities. Species that may be affected include nesting and overwintering birds in coastal and freshwater SPAs; marine mammals, where interconnection between offshore and onshore infrastructure occurs; otters and kingfishers, where development occurs adjacent to or crossing watercourses; Bats, where development affects woodlands, hedgerows or roosting sites
Onshore energy generation projects	Yes	Potential in combination impacts may arise where development of more than one project occurs within or adjacent to a designated site or within the drainage catchment of surface water/groundwater dependant sites. These projects will involve installation of overhead transmission lines, underground cables and/or construction/expansion of substation and associated infrastructure. Details of impacts are as outlined in Section 3.4.2, 3.4.3 and 3.4.4.
Economic development plans for rural areas e.g. housing and industry facilitated by improved electricity supply	No	Significant in-combination impacts are not likely
Economic development for urban areas e.g. housing and industry facilitated by improved electricity supply	Yes	Potential in-combination impacts may arise where housing and industry facilitated by improved electricity supply. Provision of related transmission infrastructure may result in likely significant impacts as previously described.

3.4 Potential Significant Effects

3.4.1 Introduction

As previously outlined, the Grid25 Implementation Programme provides an indicative overview of the general approach proposed for the future development of the grid and does not prescribe exactly the location of infrastructure. As such, this has the effect of limiting the level of assessment that can be undertaken and means that the assessment of potential significant effects has to be made in general terms. Therefore, a general examination of impacts and sensitivities is outlined over the following sections. All projects developed as a result of the Grid25 IP will be subject to examination of constraints, route selection (for linear infrastructure such as transmission lines) and project level AA. This will provide opportunities for avoidance of Natura sites and the development of project specific mitigation measures where impacts cannot be avoided.

3.4.2 Overhead Transmission Lines

The installation of overhead transmission lines may result in significant impacts from both construction activities and where the existence of lines and maintenance activities affect designated habitats and species. Impacts on designated habitats and species can be significant, particularly where sensitive habitats are crossed and roads need to be built to facilitate access.

Types of impacts will depend on the type of habitat or species affected. Installation of tower structures may result in a direct loss of habitat and vegetation at the base of the tower, and along access routes of machinery for installation. Disturbance and exposure of vulnerable peat soils can lead to peat erosion. If the habitat is groundwater dependant i.e. fens, peatlands, turloughs etc. installation of tower structures and construction and maintenance of access roads may affect the hydrology of these habitats. Impacts tend to be localised around the base of towers, however, installation of access tracks may lead to wider drainage impacts, leading to potential peat slippage where bogs and peatlands are affected. The movements of vehicles and machinery through peatlands during the construction stage will have the potential to result in the compaction of upper peat surfaces which can lead to the destruction of areas of regenerating peat surfaces in blanket bog habitats

Overhead transmission lines have the potential to negatively impact SPAs and the bird species for which they are designated. Migrating birds flying at heights of 20 m to 50 m are at considerable risk of collision, especially at night, when flying in flocks, and for large and heavy birds of limited manoeuvrability. Collision risk may also affect flightlines of birds between feeding and overwintering habitats outside of designated SPAs, leading to significant indirect impacts on SPA integrity.

Construction and maintenance of overhead transmission lines will have the potential for disturbance effects on terrestrial species such as bats, otters and birds.

Surface water dependant habitats and species may be adversely impacted where installation of towers and associated construction activities occur in close proximity to watercourses, in particular through indirect impacts associated with a deterioration in water quality. These impacts could arise as a result of:

- Increases in sediment loading to watercourses and subsequent movement of sediment throughout the catchment and settlement onto river beds resulting in alterations to aquatic habitats.

- Where heavy machinery is working in close proximity to watercourses the risk of spillages or other polluting substances.
- Release of highly alkaline cement-based products associated with construction could have the potential to adversely affect water quality.

3.4.3 Underground Cables

In many cases the impact of underground construction will have similar impacts to those associated with the construction of overhead lines. In order to construct the transmission line using underground methods, particularly on a cross country basis, a working area is required to allow construction machinery access along the length of the installation. This requires the removal of field boundaries and hedgerows (right of way preparation) followed by topsoil stripping to ensure machinery does not destroy soil structure and drainage properties.

Undergrounding cables would result in habitat loss, drainage of groundwater dependant habitats, disturbance of species and impacts on water quality similar in nature to those previously described. However, the option to underground cables through designated sites would represent a greater risk to the SAC/SPA than constructing overhead lines and would require reinstatement of habitats following construction. Sensitive habitats such as intact blanket bog would be difficult to reinstate and given that the temporary working area required to install the cable is much larger than the cable trench the area of habitat lost over linear projects of this nature can be significant.

There are also issues with controlling site drainage and ensuring sedimentation of watercourses does not occur. The construction of underground cables would also require large areas of topsoil to be stripped for prolonged periods to allow the cable to be installed. This has the potential for significant run-off issues from the exposed soil, affecting surface water dependant species such as salmon, lamprey, fresh water pearl mussel and white clawed crayfish. Cable trenches can act as drainage channels for surface water runoff or lead to the drainage of adjacent habitats. Where trenches are constructed on slopes the flow of water could lead to the erosion of soils which could enter watercourses and increase the rate of suspended solids. Should the installation of cables under rivers and watercourses be by trenchless technologies it is not anticipated that there would be a direct impact on otter habitat, however should open cut methods be used this has the potential to impact on otter holts.

The installation of underground cables requires heavy machinery which could lead to adverse impacts on drainage and from soil compaction.

3.4.4 Construction of New Substations and Extension of Existing Substations

Where new substations are constructed on Greenfield sites, this can have a significant impact through habitat loss, species disturbance and impacts on hydrology and water quality, particularly during the construction phase. Ongoing activities and maintenance during operational phases including traffic movements may lead to disturbance of species if substations are located within or close to a designated sites. Inappropriate lighting may impact negatively on bats. Site selection needs to ensure sensitive habitats are avoided.

Where existing substations need to be extended it will be important to ensure the extension does not impact on any nearby designated sites and that the extension is appropriately designed to ensure adequate integration with the existing environment. The scale of the extension should be suited to the surrounding area and should not be inappropriate given the size of the existing facility and its surroundings.

3.4.5 Reinforcement of the Transmission System in the Regions

As a high level strategy or vision for the development of the electricity network within the Republic of Ireland, the Grid25 IP provides an indication of the types of infrastructural requirements likely to arise in the future, given Government policy on renewable energy and predicted growth in demand. The IP therefore does not prescribe exactly the location of infrastructure such as generation plants or transformers, or the route of transmission lines. Instead it provides an indicative overview of the general approach proposed for the future development of the grid. This indicative overview is shown in Figure 2.1.

For the purposes of appropriate assessment under the Habitats Directive it is not possible at this strategic level to determine which designated sites may be affected through the implementation of the programme. The screening process identified approximately 340 SACs and 97 SPAs that could potentially be either directly or indirectly impacted through the development of infrastructure proposed by the IP. A further 18 SACs and 2 SPAs in Northern Ireland may be affected by cross border interconnectors. Even with this screening process, it cannot be said with certainty that impacts will be restricted to these identified sites as the nature of the IP is that it is dynamic and non prescriptive. This feature of the IP will allow for the installation of transmission lines, whether overhead or underground to be developed in such a way that direct impacts on designated sites will be avoided where possible.

3.4.5.1 Border Region

This region contains some of Ireland's most important energy resources as well as some of the country's highest concentrations of environmental designations. In general, the sensitivities are greater in the west of the region. Areas protected under the Habitats Directive in this region appear to have few published management plans or conservation objectives. Those that do appear to envisage little improvement or development of the long-established patterns of human settlement that have created and now sustain many of these habitats.

Many areas are also undergoing significant change due to restructuring of agriculture and the emergence of larger-scale forestry activities. These can have significant and adverse effects for water quality and sensitive fisheries unless there is careful and forward-looking land-use planning.

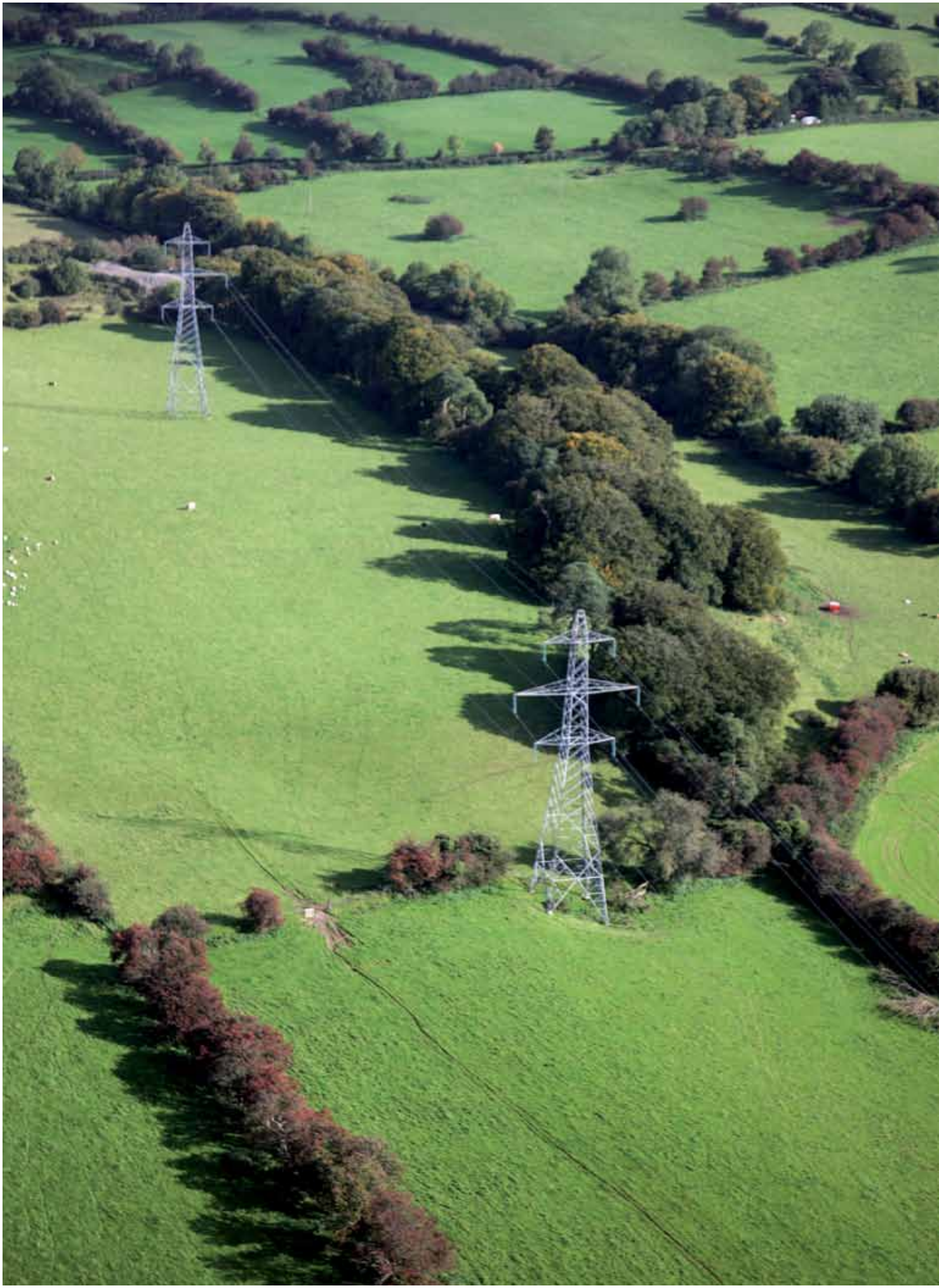
Future planning and development for the grid improvement that is necessary to develop these energy targets are likely to continually conflict with habitat protection policies unless management plans are prepared that include specific and proactive plans for human occupation, settlement and development. This is the region that has the least strategic environmental advantage for the realisation of the renewable energy objectives of Grid25. Major Grid developments should avoid the areas west of the Moy and south of Strabane.

3.4.6 Mid East Region

This is a mixed region containing areas of environmental sensitivity and areas that contain high levels of urbanisation. It contains a significant portion of Ireland's population and associated economic activity.

There are extensive areas of industrial peatlands in the western parts of the region, there are extensive upland areas of mountain bog and forestry in the south-east and the coast contains areas of ecological significance.

Urbanisation and consolidation of settlements in the Greater Dublin region is likely to continue in the north-eastern part of this region, along the coast



and along two corridors – one into east Kildare and north Carlow and the other into south-east Meath. It would be very helpful to work with Development plans – both at Regional and County level – to identify infrastructure corridors – ideally paralleling the existing and emerging major road and rail corridors that will develop in this region during the period to 2025. It would also be very helpful for working in existing and emerging urban and peri-urban areas to clearly identify criteria that would lead to deciding when and where to underground electricity infrastructure. Urban Areas should be encouraged to specifically zone land for sub-stations and overhead routes.

3.4.7 Midlands Region

This region's environmental sensitivities increase along a diagonal axis from a very robust south-east to an increasingly sensitive north-west. The latter arises because of the presence of the Shannon system of rivers, lakes and wetlands that are a nationally significant complex of ecological, scenic and cultural resources. Other large areas of peat and other wetlands create large areas of sparsely occupied uplands and lowlands.

The region is transected by many kilometres of major and minor grid infrastructure as well as having a significant concentration of junctions and substations – many associated with existing or former power stations. These routes and sites offer strong precedent that should be re-used wherever possible. New projects should be cautious about assuming that large areas of cut-over peat lands will continue to be suitable low-resistance routing options. Many of these sites are nearing the end of production and most if not all will shortly be reinstated as bogs that are likely to be deemed to be sensitive – if not protected – habitats.

New major grid projects in this region will all be challenged when trying to identify optimum crossing points over the sensitive Shannon system. Existing crossing points should be re-used or intensified wherever possible. Such crossing points should be identified and secured in regional and county development plans as a matter of urgency – they are nationally significant economic assets.

3.4.8 West Region

This region contains a number of very different, but sharply compartmentalised environmental sensitivities. The Burren and Galway Bay are the best known and most sensitive, though the less known Hills of Clare also contain extensive areas of sensitivity and significance. The Shannon Estuary and the Lower Shannon contain highly sensitive and significant ecological resources. Much of the west coast of this region is significant – though in a markedly different way from most of the rest of the West Coast of Ireland – in not having bays and peninsulas that create enclosure. The interior of Clare, west Limerick and south east Galway by contrast are all environmentally distinctive, yet robust.

This region has the largest concentration of installed grid infrastructure, has the lowest concentration of environmental sensitivities on Ireland's west coast and has extensive areas with wind resources in excess of 7 m/s. Strategically this confers the area with the optimum set of environmental conditions in Ireland achieving the renewable objectives of Grid25 at least environmental cost.

Major grid development works in this region should re-use or closely follow established routings or areas with established precedent of large-scale infrastructural and industrial development. New works should parallel the coasts and rivers – which contain dense corridors of anciently established settlement while avoiding more sensitive upland interiors.

3.4.9 Southeast Region

The environmental resources of this region are some of the least known in Ireland. They include upland areas of east Waterford, deeply incised major river valleys, sheltered bays and estuaries. These resources have ecological significance that may be vulnerable partly on account of being less familiar than similar, though larger scaled, equivalents in the west.

Lowland areas of long-established intense human occupation are located very close to areas with sensitive environmental characteristics. The challenge for power planners will be to familiarize themselves with the transitions between these areas, to minimise encroachment on the latter.

This is a region which also has long-established patterns of settlement and development in which the lowlands have a high capacity to sustainably absorb development. If previous patterns of grid development follow those already established then there is a low potential for direct or indirect effects to occur. Larger scale grid developments in this region should parallel coastal plains and major river systems – ideally occupying the transitional foothills – without encroaching on either the more sensitive uplands or the immediate environs of rivers and coasts.

3.4.10 Southwest Region

This region has a very wide range of environmental conditions and sensitivities. In general, sensitivity decreases in the east – except in the vicinity of the coast and major rivers. Outside of upland areas the centre of this region is environmentally robust. The boundaries of this region create very artificial environmental boundaries insofar as West Cork and Kerry have more in common with the sensitive West Coast while East Cork and East Kerry have much more in common with the environments of the more robust Southeast and South Midlands.

If new grid development continues patterns of following the strongly east-west trending river valleys there is a low potential for significant adverse effects on the environment. Major grid developments should be confined to the more environmentally robust centre and east of this region.

3.5 Project Specific Impacts

The Grid25 IP includes a number of network developments that have progressed to detailed design stage, although the location and route of these projects is not fixed by the IP. The Natura 2000 sites listed in Table 3.2 are those located in closest proximity and therefore have potential to be affected by the individual projects in question.

The projects listed in Table 3.2 are all separately subject to specific environmental and other assessment, in accordance with Statutory procedures and best practice. These projects will be subject to AA screening as well as constraints and route/site selection which will follow the Habitats Directive hierarchy of avoidance-mitigation.

Where a likely significant adverse effect has been identified or cannot conclusively be ruled out during the AA process, it may be possible to proceed with a proposal where mitigation measures can be implemented to address the adverse effect. Mitigation measures are proposed in Section 4 for impacts identified in the following tables.

Table 3.2

Network Reinforcement Projects and Impacts on Natura 2000 Sites

Project Title & Description	Natura 2000 site/s and qualifying features	Impacts
Clashavoon-Dunmanway 110kV New Line	The Gearagh SAC/SPA Bandon River SAC	Impacts may occur where this new transmission line crosses a designated watercourse or other river or stream within the catchment of a designated surface water dependant site. Impacts that may occur include: • Habitat loss and disturbance. All terrestrial based designated sites may be affected, depending on where infrastructure and transmission lines are located/routed • Alterations to local hydrology and effect on adjacent habitats. • Sediment pollution and associated hydrological impacts where surface water dependant species and habitats are affected, particularly where hew transmission lines cross watercourses. Salmon, lamprey, white clawed crayfish and freshwater pearl mussel may potentially be affected • Contamination of surface and ground water with pollutants (eg fuels, lubricants, concrete) during construction. Salmon, lamprey, white clawed crayfish and freshwater pearl mussel may potentially be affected. • Disturbance of species during construction and maintenance activities. Species that may be affected include nesting and overwintering birds in coastal and freshwater SPAs; otters and kingfishers, where development occurs adjacent to or crossing watercourses; Bats, where development affects woodlands, hedgerows or roosting sites • Risk of bird strike where overheard transmission cables are installed near SPAs or across bird flight lines.
Laois /Kilkenny Reinforcement - New Station & Associated Lines & Station Works	River Barrow And River Nore SAC	Impacts may occur where new transmission lines cross a designated watercourse or other river or stream within the catchment of a designated surface water dependant site. Impacts that may occur include: • Habitat loss and disturbance. All terrestrial based designated sites may be affected, depending on where infrastructure and transmission lines are located/routed • Alterations to local hydrogeology may lead to drainage of groundwater, leading to loss of groundwater dependant species and habitats such as vertigo snails and petrifying springs. • Sediment pollution and associated hydrological impacts where surface water dependant species and habitats are affected. Salmon, lamprey, white clawed crayfish and freshwater pearl mussel may potentially be affected • Contamination of surface and ground water with pollutants (eg fuels, lubricants, concrete) during construction. Salmon, lamprey, white clawed crayfish and freshwater pearl mussel may potentially be affected. • Disturbance of species during construction and maintenance activities. Species that may be affected include otters and kingfishers, where development occurs adjacent to or crossing watercourses; Bats, where development affects woodlands, hedgerows or roosting sites

New 110kV Circuit To Mullingar	Lough Ennell SAC Lough Ennell SPA	In-combination impacts may arise at the interface between offshore and on shore infrastructure. Impacts that may occur include: • Habitat loss and disturbance. All terrestrial based designated sites may be affected, depending on where infrastructure and transmission lines are located/routed. Loss of habitats may also occur in the littoral and coastal zones. Habitat loss will be grater where underground cables are installed. • Sediment pollution and associated hydrological impacts where surface water dependant species and habitats are affected. Salmon, lamprey, white clawed crayfish and freshwater pearl mussel may potentially be affected • Contamination of surface and ground water with pollutants (eg fuels, lubricants, concrete) during construction. Salmon, lamprey, white clawed crayfish and freshwater pearl mussel may potentially be affected. • Disturbance of species during construction and maintenance activities. Species that may be affected include nesting and overwintering birds in coastal and freshwater SPAs; marine mammals, where interconnection between offshore and onshore infrastructure occurs; otters and kingfishers, where development occurs adjacent to or crossing waterImpacts may occur where new transmission lines cross a designated watercourse or other river or stream within the catchment of a designated surface water dependant site or where flightlines of birds are crossed. Impacts that may occur include: • Habitat loss and disturbance. All terrestrial based designated sites may be affected, depending on where infrastructure and transmission lines are located/routed • Alterations to local hydrology and effect on adjacent habitats. • Alterations to local hydrogeology may lead to drainage of groundwater, leading to loss of groundwater dependant habitats such as alkaline fens. • Sediment pollution and associated hydrological impacts where surface water dependant species and habitats are affected. Salmon, lamprey, white clawed crayfish and freshwater pearl mussel may potentially be affected • Contamination of surface and ground water with pollutants (eg fuels, lubricants, concrete) during construction. Salmon, lamprey, white clawed crayfish and freshwater pearl mussel may potentially be affected. • Disturbance of species during construction and maintenance activities. Species that may be affected include nesting and overwintering birds in coastal and freshwater SPAs; otters and kingfishers, where development occurs adjacent to or crossing watercourses; Bats, where development affects woodlands, hedgerows or roosting sites • Risk of bird strike where overheard transmission cables are installed near SPAs or across bird flight lines.

Tarbert Re-development - New 220/110kV station and loop in of associated 220kV and 110kV circuits	Lower River Shannon SAC River Shannon and River Fergus Estuaries SPA	Impacts may occur where new transmission lines cross a designated watercourse or other river or stream within the catchment of a designated surface water dependant site or where flightlines of birds are crossed. Impacts that may occur include: • Habitat loss and disturbance. All terrestrial based designated sites may be affected, depending on where infrastructure and transmission lines are located/routed • Alterations to local hydrology and effect on adjacent habitats. • Alterations to local hydrogeology may lead to drainage of groundwater, leading to loss of groundwater dependant habitats such as alkaline fens. • Sediment pollution and associated hydrological impacts where surface water dependant species and habitats are affected. Salmon, lamprey, white clawed crayfish and freshwater pearl mussel may potentially be affected • Contamination of surface and ground water with pollutants (eg fuels, lubricants, concrete) during construction. Salmon, lamprey, white clawed crayfish and freshwater pearl mussel may potentially be affected. • Disturbance of species during construction and maintenance activities. Species that may be affected include nesting and overwintering birds in coastal and freshwater SPAs; otters and kingfishers, where development occurs adjacent to or crossing watercourses; Bats, where development affects woodlands, hedgerows or roosting sites • Risk of bird strike where overheard transmission cables are installed across bird flight lines
Reinforcement of the Ardnacrusha & Ennis Area	Lower River Shannon SAC River Shannon and River Fergus SPA	Impacts may occur where new transmission lines cross a designated watercourse or other river or stream within the catchment of a designated surface water dependant site or where flightlines of birds are crossed. Impacts that may occur include: • Habitat loss and disturbance. All terrestrial based designated sites may be affected, depending on where infrastructure and transmission lines are located/routed • Alterations to local hydrology and effect on adjacent habitats. • Alterations to local hydrogeology may lead to drainage of groundwater, leading to loss of groundwater dependant habitats such as alkaline fens. • Sediment pollution and associated hydrological impacts where surface water dependant species and habitats are affected. Salmon, lamprey, white clawed crayfish and freshwater pearl mussel may potentially be affected • Contamination of surface and ground water with pollutants (eg fuels, lubricants, concrete) during construction. Salmon, lamprey, white clawed crayfish and freshwater pearl mussel may potentially be affected. • Disturbance of species during construction and maintenance activities. Species that may be affected include nesting and overwintering birds in coastal and freshwater SPAs; otters and kingfishers, where development occurs adjacent to or crossing watercourses; Bats, where development affects woodlands, hedgerows or roosting sites • Risk of bird strike where overheard transmission cables are installed across bird flight lines.

Castlebar-Tonroe 110 kV Line	River Moy SAC	Impacts may occur where new transmission lines cross a designated watercourse or other river or stream within the catchment of a designated surface water dependant site: • Habitat loss and disturbance. All terrestrial based designated sites may be affected, depending on where infrastructure and transmission lines are located/routed • Alterations to local hydrology and effect on adjacent habitats. Groundwater dependant habitats such as fens, turloughs and bogs are most likely to be affected. • Sediment pollution and associated hydrological impacts where surface water dependant species and habitats are affected. Salmon, lamprey, white clawed crayfish and freshwater pearl mussel may potentially be affected • Contamination of surface and ground water with pollutants (eg fuels, lubricants, concrete) during construction. Salmon, lamprey, white clawed crayfish and freshwater pearl mussel may potentially be affected. • Disturbance of species during construction and maintenance activities. Species that may be affected include nesting and overwintering birds in coastal and freshwater SPAs; otters and kingfishers, where development occurs adjacent to or crossing watercourses; Bats, where development affects woodlands, hedgerows or roosting sites
Cathaleen's Fall - Srananagh 1 110kV Line Uprate	Louch Melvin, Lough Gill and BenBulben, Gleniff and Glenade Complex SACs Sligo Leitrim Uplands SPA Cumeen Strand SPA	Impacts may occur where new transmission lines cross a designated watercourse or other river or stream within the catchment of a designated surface water dependant site or where flightlines of birds are crossed. Impacts that may occur include: • Habitat loss and disturbance. All terrestrial based designated sites may be affected, depending on where infrastructure and transmission lines are located/routed • Alterations to local hydrology and effect on adjacent habitats. • Alterations to local hydrogeology may lead to drainage of groundwater, leading to loss of groundwater dependant habitats such as alkaline fens. • Sediment pollution and associated hydrological impacts where surface water dependant species and habitats are affected. Salmon, lamprey, white clawed crayfish and freshwater pearl mussel may potentially be affected • Contamination of surface and ground water with pollutants (eg fuels, lubricants, concrete) during construction. Salmon, lamprey, white clawed crayfish and freshwater pearl mussel may potentially be affected. • Disturbance of species during construction and maintenance activities. Species that may be affected include nesting and overwintering birds in coastal and freshwater SPAs; otters and kingfishers, where development occurs adjacent to or crossing watercourses; Bats, where development affects woodlands, hedgerows or roosting sites • Risk of bird strike where overheard transmission cables are installed across bird flight lines.

Dunmanway 110kV Station Upgrade	Bandon River SAC	Impacts may occur where expansion of stations takes place. Impacts that may occur include: • Habitat loss and disturbance. All terrestrial based designated sites may be affected, depending on where infrastructure and transmission lines are located/routed • Alterations to local hydrology and effect on adjacent habitats. • Alterations to local hydrogeology may lead to drainage of groundwater, leading to loss of groundwater dependant habitats such as alkaline fens. • Sediment pollution and associated hydrological impacts where surface water dependant species and habitats are affected. Salmon, lamprey, white clawed crayfish and freshwater pearl mussel may potentially be affected • Contamination of surface and ground water with pollutants (eg fuels, lubricants, concrete) during construction. Salmon, lamprey, white clawed crayfish and freshwater pearl mussel may potentially be affected. • Disturbance of species during construction and maintenance activities. Species that may be affected include nesting and overwintering birds in coastal and freshwater SPAs; otters and kingfishers, where development occurs adjacent to or crossing watercourses; Bats, where development affects woodlands, hedgerows or roosting sites
Barrymore 110kV station extension - Loop into Cahir - Knockraha 110kV line	Blackwater Callows SPA Blackwater River SAC	Impacts may occur where new transmission lines cross a designated watercourse or other river or stream within the catchment of a designated surface water dependant site or where flightlines of birds are crossed. Impacts that may occur include: • Habitat loss and disturbance. All terrestrial based designated sites may be affected, depending on where infrastructure and transmission lines are located/routed • Alterations to local hydrology and effect on adjacent habitats. • Alterations to local hydrogeology may lead to drainage of groundwater, leading to loss of groundwater dependant habitats such as alkaline fens. • Sediment pollution and associated hydrological impacts where surface water dependant species and habitats are affected. Salmon, lamprey, white clawed crayfish and freshwater pearl mussel may potentially be affected • Contamination of surface and ground water with pollutants (eg fuels, lubricants, concrete) during construction. Salmon, lamprey, white clawed crayfish and freshwater pearl mussel may potentially be affected. • Disturbance of species during construction and maintenance activities. Species that may be affected include nesting and overwintering birds in coastal and freshwater SPAs; otters and kingfishers, where development occurs adjacent to or crossing watercourses; Bats, where development affects woodlands, hedgerows or roosting sites • Risk of bird strike where overheard transmission cables are installed across bird flight lines.

North Dublin 220kV Project - New 220kV Station	North Dublin Bay SAC South Dublin Bay SAC North Bull Island SPA Sandymount Strand / Tolka Estuary SPA	Impacts may occur where new transmission lines cross a designated watercourse or other river or stream within the catchment of a designated surface water dependant site or where flightlines of birds are crossed. Impacts that may occur include: • Habitat loss and disturbance. All terrestrial based designated sites may be affected, depending on where infrastructure and transmission lines are located/routed • Alterations to local hydrology and effect on adjacent habitats. Groundwater dependant habitats such as fens, turloughs and bogs are most likely to be affected. • Sediment pollution and associated hydrological impacts where surface water dependant species and habitats are affected. Salmon, lamprey, white clawed crayfish and freshwater pearl mussel may potentially be affected • Contamination of surface and ground water with pollutants (eg fuels, lubricants, concrete) during construction. Salmon, lamprey, white clawed crayfish and freshwater pearl mussel may potentially be affected. • Disturbance of species during construction and maintenance activities. Species that may be affected include nesting and overwintering birds in coastal and freshwater SPAs; otters and kingfishers, where development occurs adjacent to or crossing watercourses; Bats, where development affects woodlands, hedgerows or roosting sites • Risk of bird strike where overheard transmission cables are installed near SPAs or across bird flight lines.
Drumline 110 kV Station Works	Lower River Shannon SAC River Shannon and River Fergus SPA	Impacts may occur where expansion of stations takes place. If this is accompanied by new transmission lines that cross a designated watercourse or other river or stream within the catchment of a designated surface water dependant site or where flightlines of birds are crossed, this may also result in impacts. Impacts that may occur include: • Habitat loss and disturbance. All terrestrial based designated sites may be affected, depending on where infrastructure and transmission lines are located/routed • Alterations to local hydrology and effect on adjacent habitats. • Alterations to local hydrogeology may lead to drainage of groundwater, leading to loss of groundwater dependant habitats such as alkaline fens. • Sediment pollution and associated hydrological impacts where surface water dependant species and habitats are affected. Salmon, lamprey, white clawed crayfish and freshwater pearl mussel may potentially be affected • Contamination of surface and ground water with pollutants (eg fuels, lubricants, concrete) during construction. Salmon, lamprey, white clawed crayfish and freshwater pearl mussel may potentially be affected. • Disturbance of species during construction and maintenance activities. Species that may be affected include nesting and overwintering birds in coastal and freshwater SPAs; otters and kingfishers, where development occurs adjacent to or crossing watercourses; Bats, where development affects woodlands, hedgerows or roosting sites • Risk of bird strike where overheard transmission cables are installed across bird flight lines.

Ballycummin 110kV New Station	Lower River Shannon SAC River Shannon And River Fergus Estuaries SPA	Impacts may occur where expansion/construction of stations takes place. If this is accompanied by new transmission lines that cross a designated watercourse or other river or stream within the catchment of a designated surface water dependant site or where flightlines of birds are crossed, this may also result in impacts. Impacts that may occur include: • Habitat loss and disturbance. All terrestrial based designated sites may be affected, depending on where infrastructure and transmission lines are located/routed • Alterations to local hydrology and effect on adjacent habitats. Groundwater dependant habitats such as fens, turloughs and bogs are most likely to be affected. • Sediment pollution and associated hydrological impacts where surface water dependant species and habitats are affected. Salmon, lamprey, white clawed crayfish and freshwater pearl mussel may potentially be affected • Contamination of surface and ground water with pollutants (eg fuels, lubricants, concrete) during construction. Salmon, lamprey, white clawed crayfish and freshwater pearl mussel may potentially be affected. • Disturbance of species during construction and maintenance activities. Species that may be affected include nesting and overwintering birds in coastal and freshwater SPAs; otters and kingfishers, where development occurs adjacent to or crossing watercourses; Bats, where development affects woodlands, hedgerows or roosting sites • Risk of bird strike where overheard transmission cables are installed near SPAs or across bird flight lines.
Bracklone 110 kV Station & Loop In	River Barrow And River Nore SAC	Impacts may occur where expansion/construction of stations takes place. If this is accompanied by new transmission lines that cross a designated watercourse or other river or stream within the catchment of a designated surface water dependant site or where flightlines of birds are crossed, this may also result in impacts. Impacts that may occur include: • Habitat loss and disturbance. All terrestrial based designated sites may be affected, depending on where infrastructure and transmission lines are located/routed • Alterations to local hydrology and effect on adjacent habitats. Groundwater dependant habitats such as fens, turloughs and bogs are most likely to be affected. • Sediment pollution and associated hydrological impacts where surface water dependant species and habitats are affected. Salmon, lamprey, white clawed crayfish and freshwater pearl mussel may potentially be affected • Contamination of surface and ground water with pollutants (eg fuels, lubricants, concrete) during construction. Salmon, lamprey, white clawed crayfish and freshwater pearl mussel may potentially be affected. • Disturbance of species during construction and maintenance activities. Species that may be affected include nesting and overwintering birds in coastal and freshwater SPAs; otters and kingfishers, where development occurs adjacent to or crossing watercourses; Bats, where development affects woodlands, hedgerows or roosting sites • Risk of bird strike where overheard transmission cables are installed near SPAs or across bird flight lines.

Table 3.2

Network Reinforcement Projects and Impacts on Natura 2000 Sites (cont.)

IPP088 Mulreavy Connection	Donegal Bay (Murvagh) SAC Lough Eske And Ardnamona Wood SAC Donegal Bay SPA	Impacts may occur where new transmission lines cross a designated watercourse or other river or stream within the catchment of a designated surface water dependant site or where flightlines of birds are crossed. Impacts that may occur include: • Habitat loss and disturbance. All terrestrial based designated sites may be affected, depending on where infrastructure and transmission lines are located/routed • Alterations to local hydrology and effect on adjacent habitats. Groundwater dependant habitats such as fens, turloughs and bogs are most likely to be affected. • Sediment pollution and associated hydrological impacts where surface water dependant species and habitats are affected. Salmon, lamprey, white clawed crayfish and freshwater pearl mussel may potentially be affected • Contamination of surface and ground water with pollutants (eg fuels, lubricants, concrete) during construction. Salmon, lamprey, white clawed crayfish and freshwater pearl mussel may potentially be affected. • Disturbance of species during construction and maintenance activities. Species that may be affected include nesting and overwintering birds in coastal and freshwater SPAs; otters and kingfishers, where development occurs adjacent to or crossing watercourses; Bats, where development affects woodlands, hedgerows or roosting sites • Risk of bird strike where overheard transmission cables are installed near SPAs or across bird flight lines.
New North Kerry 220/110kV station	Lower River Shannon SAC Moanveanlagh Bog SAC	Impacts may occur where expansion/construction of stations takes place. If this is accompanied by new transmission lines that cross a designated watercourse or other river or stream within the catchment of a designated surface water dependant site or where flightlines of birds are crossed, this may also result in impacts. Impacts that may occur include: • Habitat loss and disturbance. All terrestrial based designated sites may be affected, depending on where infrastructure and transmission lines are located/routed • Alterations to local hydrology and effect on adjacent habitats. Groundwater dependant habitats such as fens, turloughs and bogs are most likely to be affected. • Sediment pollution and associated hydrological impacts where surface water dependant species and habitats are affected. Salmon, lamprey, white clawed crayfish and freshwater pearl mussel may potentially be affected • Contamination of surface and ground water with pollutants (eg fuels, lubricants, concrete) during construction. Salmon, lamprey, white clawed crayfish and freshwater pearl mussel may potentially be affected. • Disturbance of species during construction and maintenance activities. Species that may be affected include nesting and overwintering birds in coastal and freshwater SPAs; otters and kingfishers, where development occurs adjacent to or crossing watercourses; Bats, where development affects woodlands, hedgerows or roosting sites • Risk of bird strike where overheard transmission cables are installed across bird flight lines.

IPP119 Cloghboola Wind Farm	Stack's To Mullaghareirk Mountains, West SPA	Impacts may occur where new transmission lines cross bird flightlines. Impacts may not just affect the Stack's To Mullaghareirk Mountains, West SPA. Indirect impacts may occur downstream of any affected watercourses. Impacts that may occur include: • Habitat loss and disturbance. All terrestrial based designated sites may be affected, depending on where infrastructure and transmission lines are located/routed • Alterations to local hydrology and effect on adjacent habitats. Groundwater dependant habitats such as fens, turloughs and bogs are most likely to be affected. • Sediment pollution and associated hydrological impacts where surface water dependant species and habitats are affected. Salmon, lamprey, white clawed crayfish and freshwater pearl mussel may potentially be affected • Contamination of surface and ground water with pollutants (eg fuels, lubricants, concrete) during construction. Salmon, lamprey, white clawed crayfish and freshwater pearl mussel may potentially be affected. • Disturbance of species during construction and maintenance activities. Species that may be affected include nesting and overwintering birds in coastal and freshwater SPAs; otters and kingfishers, where development occurs adjacent to or crossing watercourses; Bats, where development affects woodlands, hedgerows or roosting sites • Risk of bird strike where overheard transmission cables are installed near SPAs or across bird flight lines.
Glenree 110kV Station	Ox Mountain Bogs SAC River Moy SAC	This development will facilitate connection with proposed windfarms in the area, leading to widerspread and cumulative impacts. Impacts may occur where new transmission lines cross a designated watercourse or other river or stream within the catchment of a designated surface water dependant site or where flightlines of birds are crossed. Impacts that may occur include: • Habitat loss and disturbance. All terrestrial based designated sites may be affected, depending on where infrastructure and transmission lines are located/routed • Alterations to local hydrology and effect on adjacent habitats. • Alterations to local hydrogeology may lead to drainage of groundwater, leading to loss of groundwater dependant habitats such as alkaline fens. • Sediment pollution and associated hydrological impacts where surface water dependant species and habitats are affected. Salmon, lamprey, white clawed crayfish and freshwater pearl mussel may potentially be affected • Contamination of surface and ground water with pollutants (eg fuels, lubricants, concrete) during construction. Salmon, lamprey, white clawed crayfish and freshwater pearl mussel may potentially be affected. • Disturbance of species during construction and maintenance activities. Species that may be affected include nesting and overwintering birds in coastal and freshwater SPAs; otters and kingfishers, where development occurs adjacent to or crossing watercourses; Bats, where development affects woodlands, hedgerows or roosting sites • Risk of bird strike where overheard transmission cables are installed across bird flight lines.

Table 3.2

Network Reinforcement Projects and Impacts on Natura 2000 Sites (cont.)

Garrow 110 kV Station	Lough Gara SPA Lough Arrow SPA Bricklieve Mountains and Keishcorran SAC Lough Arrow	This development will facilitate connection with proposed windfarms in the area, leading to widerspread and cumulative impacts. Impacts may occur where new transmission lines cross a designated watercourse or other river or stream within the catchment of a designated surface water dependant site or where flightlines of birds are crossed. Impacts that may occur include: • Habitat loss and disturbance. All terrestrial based designated sites may be affected, depending on where infrastructure and transmission lines are located/routed • Alterations to local hydrology and effect on adjacent habitats. • Alterations to local hydrogeology may lead to drainage of groundwater, leading to loss of groundwater dependant habitats such as alkaline fens. • Sediment pollution and associated hydrological impacts where surface water dependant species and habitats are affected. Salmon, lamprey, white clawed crayfish and freshwater pearl mussel may potentially be affected • Contamination of surface and ground water with pollutants (eg fuels, lubricants, concrete) during construction. Salmon, lamprey, white clawed crayfish and freshwater pearl mussel may potentially be affected. • Disturbance of species during construction and maintenance activities. Species that may be affected include nesting and overwintering birds in coastal and freshwater SPAs; otters and kingfishers, where development occurs adjacent to or crossing watercourses; Bats, where development affects woodlands, hedgerows or roosting sites • Risk of bird strike where overheard transmission cables are installed across bird flight lines.
Millstreet reinforcement – new 220/110 kV station	Blackwater River (Cork/ Waterford) SAC Mullaghanish To Musheramore Mountains SPA Killarney National Park, Macgillycuddy Reeks And Caragh River Catchment SAC	This development will facilitate connection with proposed windfarms in the area, leading to widerspread and cumulative impacts. Impacts may occur where new transmission lines cross a designated watercourse or other river or stream within the catchment of a designated surface water dependant site or where flightlines of birds are crossed. Impacts that may occur include: • Habitat loss and disturbance. All terrestrial based designated sites may be affected, depending on where infrastructure and transmission lines are located/routed • Alterations to local hydrology and effect on adjacent habitats. Groundwater dependant habitats such as fens, turloughs and bogs are most likely to be affected. • Sediment pollution and associated hydrological impacts where surface water dependant species and habitats are affected. Salmon, lamprey, white clawed crayfish and freshwater pearl mussel may potentially be affected • Contamination of surface and ground water with pollutants (eg fuels, lubricants, concrete) during construction. Salmon, lamprey, white clawed crayfish and freshwater pearl mussel may potentially be affected. • Disturbance of species during construction and maintenance activities. Species that may be affected include nesting and overwintering birds in coastal and freshwater SPAs; otters and kingfishers, where development occurs adjacent to or crossing watercourses; Bats, where development affects woodlands, hedgerows or roosting sites • Risk of bird strike where overheard transmission cables are installed near SPAs or across bird flight lines.

East Kerry & North-West Cork reinforcement - new 220 kV Station	Blackwater River (Cork/ Waterford) SAC Stack's to Mullaghareirk Mountains, West SPA	This development will facilitate connection with proposed windfarms in the area, leading to widerspread and cumulative impacts. Impacts may occur where new transmission lines cross a designated watercourse or other river or stream within the catchment of a designated surface water dependant site or where flightlines of birds are crossed. Impacts that may occur include: • Habitat loss and disturbance. All terrestrial based designated sites may be affected, depending on where infrastructure and transmission lines are located/routed • Alterations to local hydrology and effect on adjacent habitats. Groundwater dependant habitats such as fens, turloughs and bogs are most likely to be affected. • Sediment pollution and associated hydrological impacts where surface water dependant species and habitats are affected. Salmon, lamprey, white clawed crayfish and freshwater pearl mussel may potentially be affected • Contamination of surface and ground water with pollutants (eg fuels, lubricants, concrete) during construction. Salmon, lamprey, white clawed crayfish and freshwater pearl mussel may potentially be affected. • Disturbance of species during construction and maintenance activities. Species that may be affected include nesting and overwintering birds in coastal and freshwater SPAs; otters and kingfishers, where development occurs adjacent to or crossing watercourses; Bats, where development affects woodlands, hedgerows or roosting sites • Risk of bird strike where overheard transmission cables are installed near SPAs or across bird flight lines.
IPP044 Keelderry Wind Farm	Slieve Aughty Mountains SPA	Impacts may occur where new transmission lines cross a designated watercourse or other river or stream within the catchment of a designated surface water dependant site or where flightlines of birds are crossed. Impacts that may occur include: • Habitat loss and disturbance. All terrestrial based designated sites may be affected, depending on where infrastructure and transmission lines are located/routed • Alterations to local hydrology and effect on adjacent habitats. Groundwater dependant habitats such as fens, turloughs and bogs are most likely to be affected. • Sediment pollution and associated hydrological impacts where surface water dependant species and habitats are affected. Salmon, lamprey, white clawed crayfish and freshwater pearl mussel may potentially be affected • Contamination of surface and ground water with pollutants (eg fuels, lubricants, concrete) during construction. Salmon, lamprey, white clawed crayfish and freshwater pearl mussel may potentially be affected. • Disturbance of species during construction and maintenance activities. Species that may be affected include nesting and overwintering birds in coastal and freshwater SPAs; otters and kingfishers, where development occurs adjacent to or crossing watercourses; Bats, where development affects woodlands, hedgerows or roosting sites • Risk of bird strike where overheard transmission cables are installed near SPAs or across bird flight lines.

Table 3.2

Network Reinforcement Projects and Impacts on Natura 2000 Sites (cont.)

IPP118 Nore Power Station	River Barrow/ River Nore SAC	Impacts may occur where new transmission lines cross a designated watercourse or other river or stream within the catchment of a designated surface water dependant site or where flightlines of birds are crossed. Impacts that may occur include: • Habitat loss and disturbance. All terrestrial based designated sites may be affected, depending on where infrastructure and transmission lines are located/routed • Alterations to local hydrology and effect on adjacent habitats. • Alterations to local hydrogeology may lead to drainage of groundwater, leading to loss of groundwater dependant habitats such as alkaline fens. • Sediment pollution and associated hydrological impacts where surface water dependant species and habitats are affected. Salmon, lamprey, white clawed crayfish and freshwater pearl mussel may potentially be affected • Contamination of surface and ground water with pollutants (eg fuels, lubricants, concrete) during construction. Salmon, lamprey, white clawed crayfish and freshwater pearl mussel may potentially be affected. • Disturbance of species during construction and maintenance activities. Species that may be affected include nesting and overwintering birds in coastal and freshwater SPAs; otters and kingfishers, where development occurs adjacent to or crossing watercourses; Bats, where development affects woodlands, hedgerows or roosting sites • Risk of bird strike where overheard transmission cables are installed across bird flight lines.

3.6 Integrity of Sites

Due to the strategic nature of the Grid25 IP, it cannot be conclusively stated at this stage that the IP will not adversely affect the integrity of the Natura 2000 network. Therefore, mitigation measures have been proposed to ensure that significant impacts are avoided. These are set out in the following section of this report.

Section 4 - Mitigation Measures

4.1 Introduction

Where a likely significant adverse effect has been identified during an Appropriate Assessment or cannot conclusively be ruled out, it may be possible to proceed with a proposal where mitigation measures can be implemented to address the adverse effect. This section outlines the mitigation measures proposed.

Two levels of mitigation measures are proposed. The first level of measures will guide the strategic approach to mitigating impacts and includes provisions for:

- Environmental Benchmarking Studies
- Evidence-Based Design Guidelines
- Guidelines on EIA for Transmission Projects in Ireland

The second level of mitigation measures are more impact specific and shall be applied where significant impacts are identified following project level Environmental Impact Assessment and Appropriate Assessment.

4.2 How the Measures will ensure that Impacts are Avoided and Mitigated

4.2.1 Avoidance

The Habitats Directive promotes a hierarchy of avoidance, mitigation and compensatory measures. The Grid25 IP is strategic and does not set out the exact routes or locations for future infrastructure. Therefore, changing the details of the Grid25 IP will not ensure that impacts on Natura 2000 are avoided. Therefore, avoidance measures will be carried out at the earliest opportunity at the project stage. Linear infrastructure that is developed through the implementation of this IP and EirGrid's Transmission Development Plans will be subject to Constraints Studies and Route Selection. Through these processes, direct and indirect impacts on Natura 2000 sites will be identified and avoided where possible. Appropriate Assessment will be carried out on all selected routes and where impacts are identified, mitigation measures will be proposed.

4.2.2 Strategic and Project Level Measures

In order to better inform both the AA and EIA process for individual projects and to remove the uncertainty about the types of impacts and their consequences, EirGrid have committed to

implementing a series of best practice guidelines (as outlined in Section 4.3). These studies will lead to a better understanding of the types of impacts that may arise through the construction and existence of a range of power transmission projects and will allow for better avoidance and mitigation measures to be included in project based AA. In addition, where site specific impacts are identified through the AA process for individual projects, the mitigation strategy shall include at the very least the measures outlined in Sections 4.4.3 to 4.4.10 inclusive.

4.2.3 Implementation of Measures

Implementation of these measures will be addressed by EirGrid through the introduction of a Strategic Environmental Framework (SEF) by which EirGrid approaches all projects for transmission infrastructure development. New positions have been created, including the creation of an in-house dedicated Grid25 Programme Management Office (PMO), and the direct employment of public planners and an ecologist; new structures and new datasets are in place, including the preparation of Strategic Environmental Constraints Mapping.

New Procedures for Transmission System Planning to take account of Planning and Environmental Considerations at each stage include:

- At Strategic Level, procedures and resources (staff and data) are put in place.
- At Technical Planning Level, a range of alternative approaches are considered – these include grid configuration and management, and re-use of existing assets, technical and routing options. EirGrid is currently considering the merits of capturing this in the form of regional Masterplans for grid development. The ongoing preparation of these Masterplans will be subject to environmental assessment as appropriate.
- At Project Level, once the need and technical configuration has been determined, further alternatives are considered, using a formal consideration of all alternatives – using AA and EIA techniques. This stage involves extensive pre-application consultation and scoping.
- At Permitting Level the application for consent is subject to formal EIA and there is formal public and agency consultation.

4.2.4 Strategic Environmental Framework

EirGrid has introduced procedures and resources to effectively address planning, environmental and community issues in Transmission System Planning. New positions have been created, including the creation of an in-house dedicated Grid25 Programme Management Office (PMO), and the direct employment of public planners and an ecologist. New structures and new datasets are in place, including the preparation of Strategic Environmental Constraints Mapping, as well as this Strategic Environmental Assessment and Appropriate Assessment, both of which have informed the IP. New procedures are used to ensure environmental input at all stages of pre-application decision making. Together, these comprise a Strategic Environmental Framework (SEF) by which EirGrid approaches all projects for transmission infrastructure development.

4.3 Strategic Measures

4.3.1 Background

A series of authoritative studies shall be prepared of the actual effects of the construction and existence of power transmission projects in Ireland.

These studies will provide benchmarks to facilitate the preparation, presentation and defence of power projects that will have a very high level of credibility. The benchmark studies will provide the factual basis for Evidence-Based Design Guidelines for Power Transmission Projects in Ireland. The benchmark studies and the design guidelines, in turn will

provide the basis for specialist EIA Guidelines for this sector. Details of the three types of studies that will mitigate impacts by anticipation and avoidance are set out in sections 4.3.2 to 4.3.4.

4.3.2 Environmental Benchmarking Studies

Studies will be carried out to determine the actual effect of the construction and existence of power projects in a representative range of typical Irish environmental conditions. The studies will focus on the principal topics of concern in environmental impact assessments – including ecology.

The studies will examine the effect on a typical area, habitat or circumstance that is commonly encountered – such as pastures in the lowlands, blanket bogs or the environs of a village. It will examine the effects of the construction and existence of a range of power transmission projects – including substations and a range of sizes of transmission lines ranging from 110 – 400kV.

Studies will describe the effect of power projects on specific environments – these will be compared to unaffected areas, on the one hand, and to non-standard and 'worst case' conditions on the other in order to establish the full range of conditions that could arise, as follows.

Typical Conditions
In each case an area will be identified – and agreed with stakeholders – as being typical of the specific conditions where the transmission project has interacted with the environmental topic. The area of interaction will be scrutinised and compared with an unaffected control area to describe the nature, magnitude and significance of the effects that have occurred.

Non-standard Conditions
Locations will be identified and agreed with key stakeholders which are otherwise typical of a landscape, habitat or landuse but which have objective circumstances or factors that increase the potential for environmental effect – such as steeper slope, greater age, different management regimes. These will be scrutinised and compared with both Typical Conditions and unaffected control area, in order to describe the nature, magnitude and significance of the effects that have occurred.

Worst Case Condition

Locations will be identified and agreed with stakeholders which are otherwise typical of a landscape, habitat or landuse in which there is objective evidence of adverse environmental effects due to the existence, construction or maintenance of the power project. The nature, magnitude and significance of the effects that have occurred will be described and evaluated to determine how the adverse effects occurred and how they could be avoided in future.

Lessons Learned
Each section will include a summary of what project designers can learn from this analysis in terms of what practices appear to give rise to the least and the greatest environmental effect. This advice will be clearly differentiated into best practice to bring about 'Legal Compliance' as well as 'Best Practice'.

Summary Study

All studies for each section of the countryside will be summarised into an overall route selection and project design guide for each component of the Irish countryside. For instance, there will be a section entitled 'Power Projects in Peatlands'. This will provide authoritative design advice on all aspects of each step of a power project – from route selection through to project design and contract implementation. Using this, designers will be able to anticipate, avoid or ameliorate adverse effects on communities, flora, fauna, water, landscape or cultural heritage. This information will be compiled into Evidence-Based Design Guidelines for Power Projects in Ireland.

On-going Studies
The studies are conceived as an on-going body of work that will be continuously updated and amended to take account of developments in understanding – arising from practice or research.

4.3.3 Evidence-Based Design Guidelines

The primary objective is that these Design Guidelines will provide practical guidance for how best to incorporate each type of power project into each part of the Irish environment in such a way as to anticipate and avoid adverse effects to the greatest extent possible. The secondary objective is to establish an evidence-based approach – accepted by stakeholders – that can be used to demonstrate that any residual effects are consistent with 'best practice'.

The Environmental Benchmarking Studies will identify evidence for the types of routes, designs, construction and maintenance methods that give rise to the least effect on the environment. This knowledge will be translated by project designers into Guidelines for route planners, project designers, managers and those responsible for construction and management of power assets.

The Design Guidelines will address the issues that arise at each of three stages of a project beginning at the Initiation stage where a project is first conceived, through the Planning Stage – where routes are selected – finishing with the Design Stage where detailed decisions are taken about how the project will be built. These issues are considered as follows:

- Project Initiation Issues
- Planning Issues
- Design Issues

The reports from the Environmental Benchmarking Studies will be examined to determine the routing, design and construction methods that produce the most environmentally suitable outcomes. These reports will also describe and detail evidence of environmental degradation that has occurred as highlighted in the 'worst case' evaluations. The advice from the Lessons Learned and the Summary Study sections of the Environmental Benchmarking Studies will be used as a basis for most of this material.

The emphasis throughout will be on providing concise, practical advice from practitioners to practitioners that will make the outcome of more detailed studies by specialists available in an immediately applicable way.

4.3.4 Guidelines on EIA for Transmission Projects in Ireland

The EIA Guidelines are meant to accompany the Evidence-Based Design Guidelines and are intended to provide an agreed and authoritative format for the preparation of EIA for power projects in Ireland. The objective is to minimise challenges and disputes about the procedures and content of the coverage of EIAs for power projects. It will achieve this by identifying and agreeing appropriate scope, content and structure for power project EIAs with all relevant stakeholders – in advance of any specific project.

It is proposed that the structure and content will exactly match that employed in the EPA's Advice Notes on Current Practice in the Preparation of Environmental Impact Statements. It will, however provide considerably more detail on each section.

These Guidelines will draw heavily on both the Environmental Benchmarking Studies and the Evidence-Based Design Guidelines to provide the detail about the scope of environmental studies on the one hand and to describe how the projects should be described on the other. They will also take into account, as appropriate, EirGrid's Ecology Guidelines for Electricity Transmission Projects which will be updated as appropriate following

completion of the benchmarking studies. One of the most important components of the Guidelines will be a standardised Glossary of Impacts.
This will collate a standardised and authoritative set of descriptions of levels of impact for power projects. This is intended to remove uncertainty in the preparation of Environmental Impact Statements by facilitating rapid and consistent scoping and screening by consenting authorities.
It will protect their decisions against any threats and disputes about the sufficiency of the data or the appropriateness of the methods employed.

The benchmark studies will provide the factual basis for Evidence-Based Design Guidelines for Power Transmission Projects in Ireland. The benchmark studies and the design guidelines, in turn will provide the basis for specialist EIA Guidelines for this sector.

It is noted that projects will also have to be screened with respect to the Habitats Directive Assessment/ Appropriate Assessment as required by Article 6 of the Habitats Directive[3] – available DAHG Guidance 'Appropriate Assessment of Plans and Projects in Ireland' (2009) shall be considered as appropriate in this regard.

4.3.5 Offshore Renewable Energy Development Plan

It is emerging that a number of scenarios for future electrical generation and distribution strategies in Ireland are likely to involve the development of offshore grid infrastructure. This has the potential to occur in areas off many parts of Ireland on account of various developments including the exploitation of offshore renewable resources (wind and wave), interconnectors with other EU Member States and the participation of Ireland in a pan-European offshore grid. All of these have significant implications for grid development and potential for significant interactions with onshore and terrestrial habitats and species.

At the strategic level it is not possible to dictate precisely where interconnections between the offshore and onshore grid will occur. As a result of environmental assessment at a strategic level, a map which illustrates general locations where there are less sensitive onshore environments in the vicinity of the coastline has been developed (Figure 4.1). In the development of offshore grids, landfall within the illustrated areas would result in the reduction in significance of impacts and would assist in maintaining the integrity of designated coastal sites.

[3] Referenced statutory obligation

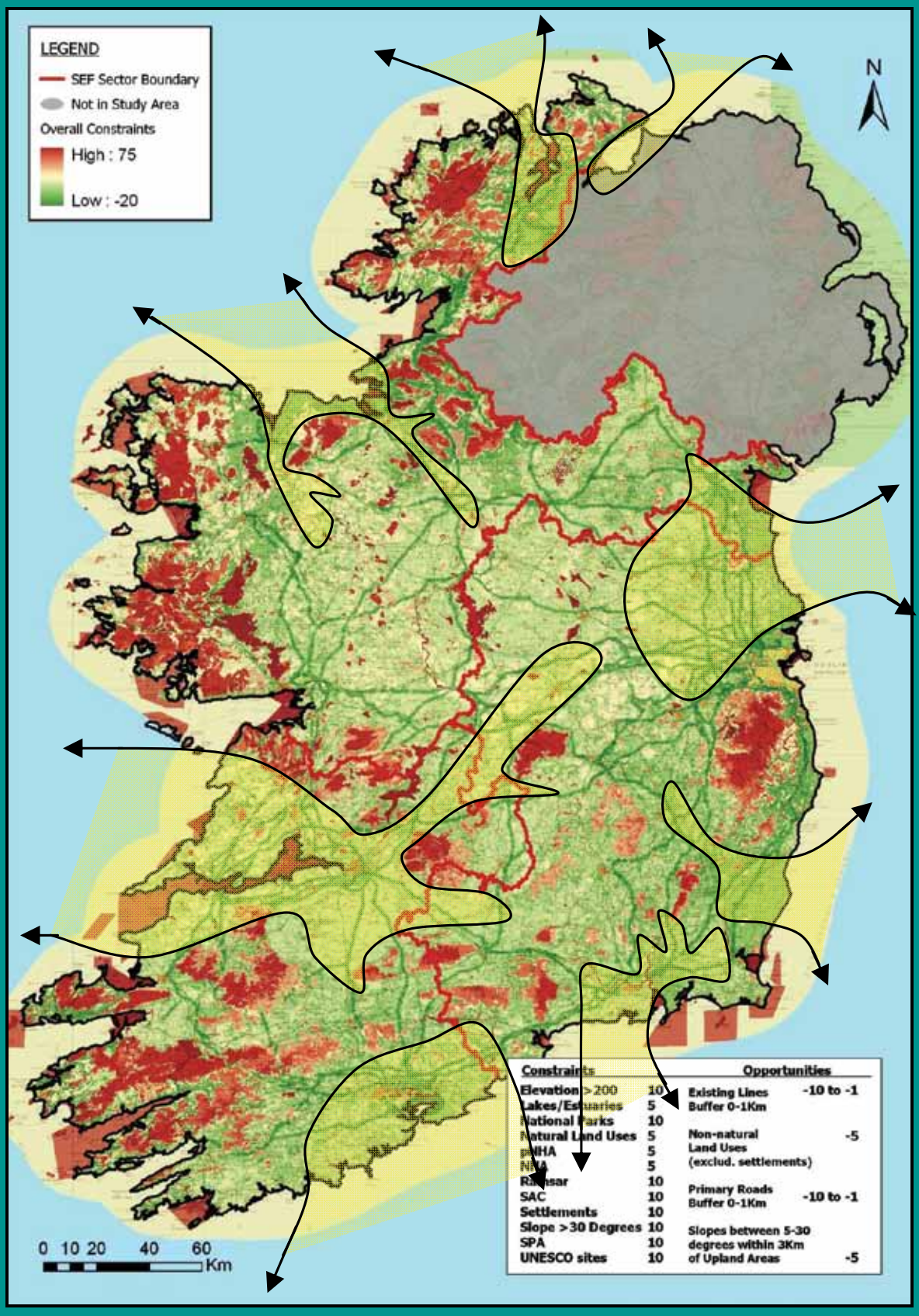


Figure 4.1 **Less Sensitive Areas for Land/Sea Connections (identified in yellow).**

4.4 Project Specific Mitigation Measures

4.4.1 Introduction

The following sections outline mitigation measures that can generally be applied to impacts stemming from projects arising from the Grid25 IP.

4.4.2 General

The Habitats Directive promotes a hierarchy of avoidance, mitigation and compensatory measures. In line with this, EirGrid has adopted a best practice approach to the development of linear infrastructure in order to avoid impacts on the integrity of the Natura 2000 network. This approach includes:

1. Identifying environmental constraints, including Natura 2000 sites, during a Strategic Constraints Scoping Phase
2. A Constraints and Route Selection phase where a preferred route corridor and the indicative route within that corridor will be identified
3. Statutory Phase, where the identified preferred route is subject to Environmental Impact Assessment and Appropriate Assessment under the Habitats Directive

This process offers the best opportunity to identify where significant impacts may occur, at the earliest opportunity and with a greater degree of certainty, and to thus avoid them.

4.4.3 Requirement for project level Appropriate Assessment

As a high level strategy or vision for the development of the electricity network within the Republic of Ireland, the Grid25 IP, provides an indication of the types of infrastructural requirements likely to arise in the future, given Government policy on renewable energy and predicted growth in demand. The IP therefore does not prescribe exactly the location of infrastructure such as generation plants or transformers, or the route of transmission lines. Instead it provides an indicative overview of the general approach proposed for the future development of the grid. Notwithstanding the dynamic nature of the IP, all projects that are developed through the programme will be subject to appropriate assessment.

Assessment of impacts for a project where the design details are known and where the location and route of infrastructure has been confirmed through constraints studies and route selection process will allow for accurate prediction of impacts on protected species and habitats to be carried out.

Appropriate Assessment of projects will include timely consultation with relevant planning and environmental authorities, the evaluation of up-to-date mapping, designations and development plans, policies, and a consideration of any relevant sectoral guidelines.

Available DEHLG Guidance 'Appropriate Assessment of Plans and Projects in Ireland' (2009) shall be adhered to when carrying out Appropriate Assessment.

Where impacts are identified at project level, appropriate mitigation will be developed to ensure the impacts do not adversely affect the integrity of the site concerned in view of the site's conservation objectives. In addition, 'best practice' measures identified during the Environmental Benchmarking Studies and included in the Evidence Based Design Guidelines will also be adhered to where relevant. The following measures will be incorporated into future project specific Natura Impacts Statements, where appropriate. This list of mitigation measures is not designed to be exhaustive and shall be supplemented by project and site specific mitigation developed by project level Appropriate Assessment and Environmental Impact Assessment.

4.4.4 General habitat loss and disturbance

- Where possible, direct habitat loss within designated sites will be avoided.
- When construction occurs within a designated site, sensitive construction techniques will be used such as the use of bog mats for machinery access, particularly if underground cables are proposed or in remote bogland areas. Aerial access will be considered – for both materials and workforce – in exceptionally sensitive sites.
- Ecological monitoring will be undertaken at sensitive sites during construction as appropriate. Such sites will be identified on a case by case basis.
- Restricted working areas will be imposed to ensure minimal disturbance to sensitive habitats.
- Re-distribute vegetation and soil stripped from the construction areas to provide a seedbank and do not re-seed with Perennial Ryegrass.
- Land within the working area will be reinstated as near as practical to its former condition.

4.4.5 Bogs and peatland areas

- Areas of deep and active peat shall be avoided, where possible.
- Detailed peat slip risk assessments should be carried out for all proposed developments in areas where peat substrates occur.
- Construction machinery should be restricted to site roads and designated access routes. Machinery should not be allowed to access, park or travel over areas outside development construction zones.
- Peat excavated during construction activity should not be stored (temporarily or otherwise) on areas of adjacent mire habitats or near flushes or drains. Temporary storage of spoil material excavated during the construction phase developments should be stored at suitable locations away from surface watercourses.
- All spoil material excavated during the construction phase should be reinstated following the completion of the construction phase of a proposed development.
- Where disturbance of peat soils cannot be avoided, there should be some consideration given to possible re-seeding with native species to stabilise the peat and accelerate recovery of the vegetation.

4.4.6 Birds

- Where feasible, site clearance involving the cutting or destruction of vegetation and hedgerows shall not take place in the bird breeding season between March 1st and August 31st inclusive.
- On the advice of relevant ornithological experts and agencies bird warning devices shall be put in place where crossings of sensitive flight corridors cannot be avoided.

4.4.7 Bats

- The removal of bat commuting and foraging habitat shall be avoided where possible, during the construction and operation phase of infrastructure.
- Where the removal of commuting or foraging habitat cannot be avoided alternative habitat should be established prior to such habitat removal.
- Trees scheduled for felling as part of site clearance shall be checked by a bat specialist for the presence of bats.
- Where bats are noted to be within a tree prior to felling operations, it will be necessary to

postpone felling to create the opportunity for bats to cease usage. If bats do not leave a tree or building within a reasonable time frame, it may be possible for a bat specialist to seek to exclude the bats (or otherwise remove them to safety). This shall be carried out by a qualified bat specialist with written permission from the National Parks and Wildlife Section of the Department of Arts, Heritage and the Gaeltacht by way of a licence to derogate from the protection afforded bats by Irish and EU law. All licences shall be in place prior to felling procedures as to destroy a roost without a licence is an offence.

4.4.8 Otters

- Works shall avoid active otter holts. In the event that an otter holt cannot be avoided by the works, it will be necessary to seek a derogation licence from NPWS to exclude otters from the holt. No works shall be undertaken within 150 m of any holts at which breeding females or cubs are present.
- No wheeled or tracked vehicles (of any kind) should be used within 20 m of active, but non-breeding, otter holts. Light work, such as digging by hand or scrub clearance should also not take place within 15 m of such holts, except under licence.

4.4.9 Other protected species

- The breeding and resting sites of protected species shall be avoided during the appropriate seasons.
- A derogation licence from the respective Wildlife Acts shall be sought, and works shall not be commenced without such consent, where it appears that protected species or their habitats are likely to be unavoidably disturbed.

4.4.10 Water Dependant Habitats and Species

The following measures are designed to mitigate impacts on surface water dependant habitats and species such as salmon, lamprey, freshwater pearl mussel and white clawed crayfish. In all cases where works have the potential to impact on protected surface water or riparian habitats, the Inland Fisheries Ireland document Requirements for the Protection of Fisheries Habitat during Construction and Development Works at River Sites shall be adhered to. Development of transmission infrastructure adjacent to designated fisheries shall be carried out in consultation with Inland Fisheries Ireland to minimise the potential effects on designated surface waters.

4.4.10.1 Freshwater Pearl Mussel

- Action measures as outlined in the Freshwater Pearl Mussel Sub Basin Management Plans shall be taken into account where development is considered adjacent to areas associated with Freshwater Pearl Mussels
- In the vicinity of waters that sustain a population of Freshwater Pearl Mussel the following mitigation measures shall be employed:
  - There shall be no in-stream crossing by machinery.
  - Silty water will be collected in settlement ponds prior to discharge to watercourses.
  - Buffering strips will be provided near watercourses.

4.4.10.2 Fisheries

- All works involving open cut crossings shall be carried out during the period May to September to avoid interruption of salmonid spawning runs, spawning, incubation of eggs and the early developmental stages.

- Where appropriate and practical, bank vegetation and bed material which has been removed shall be stored to facilitate its replacement when channel works in the vicinity of a watercourse have been completed.
- Works in the vicinity of a watercourse shall be carried out with reference to a water quality protection plan for each site which shall ensure that:
  - All necessary measures shall be taken to minimise the generation and release of sediments into all watercourses.
  - Levels of suspended solids in the river shall be monitored during the course of the works.
  - Precautions shall be put in place to avoid spillages of diesel, oil or other polluting substances.

4.4.10.3 Accidental spillage of fuel or chemicals causing pollution to water or ground

- Develop, implement and enforce a Water Pollution Prevention and Environmental Emergency Response Plan for all work sites. This should include good site practices as described in the Good Practice Guidance notes proposed by EA/ SEPA/EHS.

4.4.10.4 Suspended solids & sediment deposition

- Precautions shall be put in place to avoid or minimise the generation and release of sediments into all watercourses.

4.4.10.5 Physical Damage to watercourses

- Develop, implement and enforce a code of best practice for construction and reinstatement methods to be used for unavoidable construction works in the vicinity of watercourses.

4.4.11 Habitats not within designated sites

Article 10 of the Habitats Directive requires Member States to encourage the management of features of the landscape which are of major importance for wild flora and fauna. These features are those which, because of their linear and continuous structure or their function as "stepping stones" are essential for migration, dispersal and genetic exchange. In the context of the development of an electricity transmission network, it is important to ensure that features such as trees and hedgerows are afforded protection during construction and maintenance activities

4.4.11.1 Mature Trees

Where construction work is required close to trees, the National Joint Utilities Group 'Guidelines for the Planning Installation and Maintenance of Utility Services in Proximity to Trees' (NJUG 10) will be followed.

4.4.11.2 Hedgerows

- Where technically feasible every effort will be made to avoid significant negative impacts on hedgerows and boundaries identified as being of very high/high ecological value
- All disturbed hedgerows will be re-planted as soon as possible after construction, using Irish nursery stock and indigenous species. Planting will be maintained until vigorous re-growth has been established. Where hedgerows of particular value are encountered the extent and duration of the works shall be minimised. For species-rich banks, turf will be stripped and stored separately for replacement on re-instatement.

Section 5 - Conclusion

Stage 1 Screening and Stage 2 Appropriate Assessment of the Grid25 Implementation Programme has been carried out. The Grid25 Implementation Programme provides an indicative overview of the general approach proposed for the future development of the grid. As such, implementation of the IP has the potential to result in impacts to the integrity of the Natura 2000 network, if unmitigated.

The risks to the safeguarding and integrity of the qualifying interests and conservation objectives of the Natura 2000 network have been addressed by the inclusion of mitigation measures that will prioritise the avoidance of impacts in the first place and mitigate impacts where these cannot be avoided. In addition, all lower level projects arising through the implementation of the IP will themselves be subject to Appropriate Assessment when further details of design and location are known.

Having incorporated mitigation measures, it is considered that the Grid25 Implementation Programme will not have a significant adverse effect on the integrity of the Natura 2000 network. The appropriate assessment process therefore concludes at Stage 2 and there is no requirement for Stages 3 and 4.

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