SEA STATEMENT *of the* GRID25

Implementation Programme 2011-2016

Strategic Environmental Assessment

FEBRUARY 2013

GRID25

DELIVERING IRELAND'S ELECTRICITY FUTURE

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Section 1 - Introduction

1.1 Terms of Reference

This is the SEA Statement of the Grid25 Implementation Programme (IP) 2011-2016 Strategic Environmental Assessment (SEA).

1.2 SEA Definition

SEA is a systematic process of predicting and evaluating the likely environmental effects of implementing a plan, or other strategic action, in order to ensure that these effects are appropriately addressed at the earliest appropriate stage of decision-making on a par with economic and social considerations.

1.3 Legislative Context

Directive 2001/42/EC of the European Parliament and of the Council, of 27 June 2001, on the assessment of the effects of certain plans and programmes on the environment, referred to hereafter as the SEA Directive, introduced the requirement that SEA be carried out on plans and programmes which are prepared for a number of sectors, including energy. The SEA Directive was transposed into Irish Law through the European Communities (Environmental Assessment of Certain Plans and Programmes) Regulations 2004 (Statutory Instrument Number (SI No. 435 of 2004) and the Planning and Development (Strategic Environmental Assessment) Regulations 2004 (SI No. 436 of 2004). Both sets of Regulations became operational on 21 July 2004. The Regulations have been amended by the European Communities (Environmental Assessment of Certain Plans and Programmes) (Amendment) Regulations 2011 (SI No. 200 of 2011) and the Planning and Development (Strategic Environmental Assessment) (Amendment) Regulations 2011 (SI No. 201 of 2011).

The SEA Directive and the instruments transposing it into Irish Law require that after the adoption of a plan or programme, the plan or programme making authority is required to make a Statement available to the public, the competent environmental authorities and, where relevant, neighbouring countries. This Statement is referred to as an SEA Statement (DEHLG,2004)[1].

1.4 The Grid25 Implementation Programme

Grid25[2] is a high-level strategy outlining how EirGrid intends to undertake the development of the electricity transmission grid in the short-, medium-, and longer-terms, to support a long-term sustainable and reliable electricity supply.
The Grid25 strategy thereby seeks to implement the provisions of the 2007 Government White Paper on Energy - "Delivering a Sustainable Energy Future for Ireland" in terms of development of electricity transmission infrastructure.

The Grid25 Implementation Programme (IP) is a practical strategic overview of how the early stages of Grid25 are intended to be implemented. The IP, identifies the best current understanding of those parts of the transmission system that are envisaged as likely to be developed over the next five years – this is separately set out in EirGrid's annual Transmission Development Plan (the identified projects of which are reproduced in Chapter 4 and Appendix A of the IP) to give effect to current Government Policy. The IP identifies the issues, objectives and associated processes that will need to be adopted when making decisions about how and where developments will occur. In this way it establishes the parameters and criteria for the processes by which subsequent decisions will be made.

The IP incorporates advice and comments received from both the Environmental Protection Agency (EPA) and the National Parks and Wildlife Service section (NPWS) of the Department of the Arts, Heritage and the Gaeltacht (DAHG), as

[1] Department of the Environment, Heritage and Local Government (2004) Implementation of SEA Directive (2001/42/EC): Guidelines for Regional Authorities and Planning Authorities Dublin: Government of Ireland.

[2] Grid25 – "A Strategy for the Development of Ireland's Electricity Grid for a Sustainable and Competitive Future", published by EirGrid in October 2008.

well as from other parties during the period of public consultation in respect of the draft IP. It is accompanied by an SEA Environmental Report, which has been undertaken following a scoping exercise, in line with emerging best practice for the carrying out of SEAs for National-scale programmes. The SEA Environmental Report has been revised in response to submissions made during the period of public consultation.

It is intended that following adoption, the IP and associated SEA will have a 5- year lifespan, with the review and drafting process for the subsequent IP and SEA commencing within the final year of that lifespan. However, the content of these documents will be subject to ongoing review and update over the period of Grid25, in the context of the EirGrid Transmission Development Plan (TDP), which is updated annually. An Environmental Appraisal Report will be produced to accompany each annual TDP, and to demonstrate how the TDP is in accordance with the provisions of the IP and SEA, or to identify any updates to these documents. Ongoing monitoring measures as set out in the SEA will also be addressed in each annual Environmental Appraisal Report. This relationship is set out graphically at Figure 1.1

1.5 Implications of SEA for the Programme

As a result of the aforementioned legislation, the IP was required to undergo SEA. The SEA influenced the content of the IP (as discussed under Section 2 of this Statement) and the findings of the SEA were expressed in an Environmental Report in March 2011 which accompanied the Draft IP.

The Environmental Report was updated by way of an Addendum to the Environmental Report 'Responses to Submissions and Proposed Amendments Arising' to take account of changes arising to both the Draft IP and Environmental Report on foot of submissions. On adoption of the IP, the Addendum was used to update the original Environmental Report into a final, consolidated Environmental Report which is available alongside the adopted IP, which incorporates updates arising from submissions.

1.6 Content of the SEA Statement

This SEA Statement is required to include information summarising:

a) how environmental considerations have been integrated into the IP,

b) how
   - the environmental report,
   - submissions and observations made to EirGrid on the Draft IP and Environmental Report, and
   - any transboundary consultations

   have been taken into account during the preparation of the IP,

c) the reasons for choosing the IP, as adopted, in the light of the other reasonable alternatives dealt with, and

d) the measures decided upon to monitor the significant environmental effects of implementation of the IP.

This SEA Statement includes the required information and is in compliance with the SEA Directive and transposing Regulations as amended.

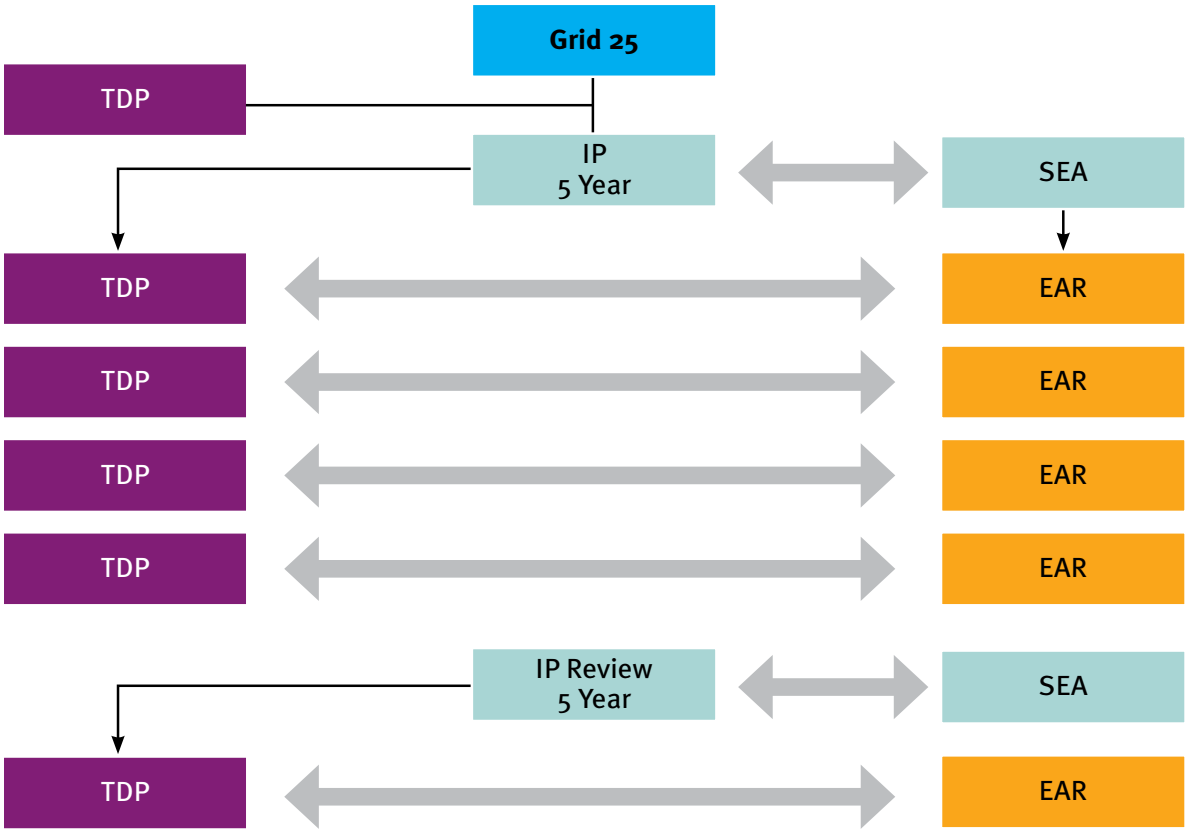


Figure 1.1 Structure for Grid25 strategy and associated Implementation Programme, SEA and Transmission Development Plan

Section 2 - How Environmental Considerations were integrated into the IP

2.1 Introduction

Environmental considerations were integrated into the Implementation Programme through:

- Consultations with environmental authorities;
- Consideration of environmental constraints and opportunities throughout the process;
- Appropriate Assessment; and
- Mitigation measures.

The IP (prepared by EirGrid), the SEA Environmental Report (prepared by EIServices) and the Appropriate Assessment (also prepared by EIServices) were prepared in an iterative manner whereby multiple revisions of each document were prepared, each informing subsequent iterations of the others.

2.2 Consultations

To facilitate the iterative approach employed by the SEA, numerous meetings were held between EirGrid and EIServices and a number of meetings were held between EirGrid and EIServices and representatives from the Environmental Protection Agency (EPA) and the former Department of the Environment, Heritage and Local Government (DEHLG). In addition to these interactions there was an ongoing interaction between the SEA and Appropriate Assessment (AA) teams.

As environmental authorities identified under the SEA Regulations, the Environmental Protection Agency (EPA), the Department of Environment, Heritage and Local Government (DEHLG) and the Department of Communications, Energy and Natural Resources (DCENR)[3] were all sent SEA scoping notices - which included the information specified by the SEA Regulations and a draft Scoping Report - by EirGrid on 18 December 2009 indicating that submissions or observations in relation to the scope and level of detail of the information to be included in the environmental report could be made to EirGrid. These notices were accompanied by a draft Scoping Report which included a brief outline of the likely content of the IP. The relevant authorities in Northern Ireland were also sent non-statutory SEA scoping notices. No responses were received.

Written submissions on the scope of the SEA were received from the EPA and DEHLG and these were taken into account during the formulation of the scope of the SEA.

In addition, a number of submissions were made on the Draft IP and Environmental Report while they were on public display by various bodies/persons (see Section 3.3).

Consultations as outlined above occurred throughout the process from the early stages of preparing the Grid25 Implementation Programme to the preparation of the final, adopted IP and accompanying SEA Environmental Report.

Further information on submissions is provided under Section 3.

2.3 Environmental Constraints and Opportunities

Environmental constraints and opportunities were considered throughout the process and environmental considerations were integrated into the Draft IP before it was placed on public display for the first time.

[3] The Marine function of the Department of Communications, Marine and Natural Resources has been transferred to the Department of Agriculture Food and Fisheries.

Strategic Environmental Constraints Mapping was simultaneously prepared by RPS Consultants on behalf of EirGrid in order to provide relevant information on environmental constraints so that environmental issues could be taken into consideration from the earliest possible stages of strategic transmission reinforcement. The Strategic Environmental Constraints Mapping was used to inform the communication of environmental considerations to the IP preparation team throughout the SEA process.

Ecology and the landscape were determined during the SEA scoping process as environmental components most at risk of potential negative impacts arising from implementation of the Implementation Programme (IP). Consequently these environmental components are considered in greater detail than other components.

Mapping was provided for a variety of environmental components including:

- Natura 2000 sites;
- National Parks and UNESCO Sites;
- National Visual Sensitivity Mapping;
- National Topographical Mapping; and
- Opportunity Areas.

Samples of ecological and landscape mapping are provided as Figure 2.1 and Figure 2.2 of this report.

Overall Development Potential Rating[4] mapping was prepared as part of the Strategic Environmental Constraints Mapping which combines the ecological mapping, the UNESCO Sites and National Parks mapping and the landscape mapping to provide a high level assessment of the main constraints associated with the development of the transmission system.

In addition to the constraints, Opportunity Areas were included to identify locations which represent potential opportunities to develop transmission infrastructure with a reduced environmental impact.

Using Geographical Information System (GIS) software, each of the constraints and opportunities were given a value - as detailed below - and overlaid upon each other.

Eight constraint factors were attributed a rating of 10 points:

- SACs;
- SPAs;
- Ramsar Sites;
- National Parks;
- UNESCO Sites;
- Elevation > 200m;
- Slope > 30 Degrees; and,
- Settlements[5].

[4] also referred to as Overall Constraints Rating
[5] Settlements are the urban areas as indicated on the most recent OSI 1:50,000 Discovery Series of maps

Three constraint factors were attributed a rating of 5 points:

- NHAs/Proposed NHAs;
- Natural Land Use Types; and,
- Lands and Estuaries.

Two opportunity factors were attributed a weighting of -10 to -1 points:

- Existing Transmission Lines (Proximity range 0-1km); and,
- National primary roads which have been dualled (Proximity range 0-1km).

Two opportunity factors were attributed a weighting of -5 points:

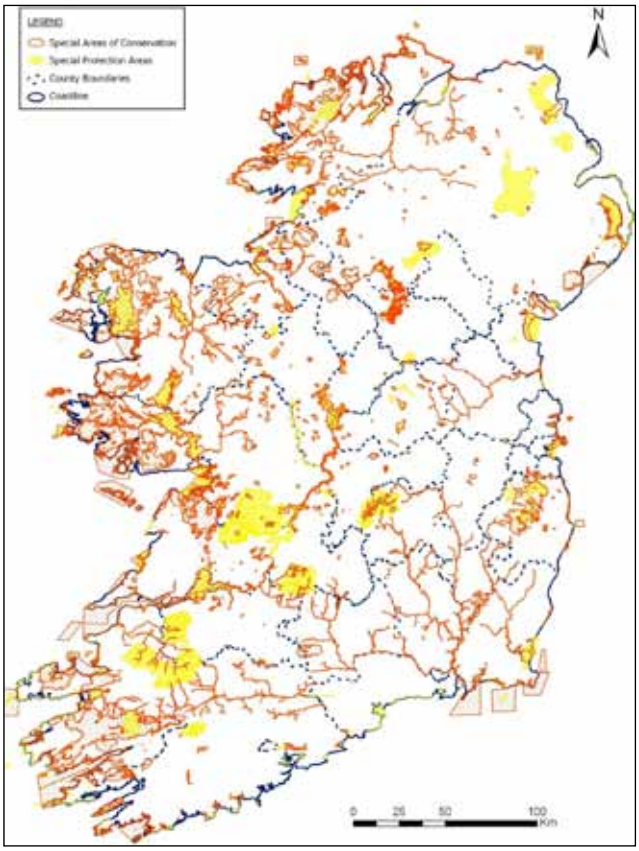
- Areas of land within 3km of the 200km contour and under 200 metres and with a slope between 5 degrees and 30 degrees; and,
- Non Natural Land Uses excluding settlements and urban fabric.

Figure 2.3 shows the Overall Development Potential Rating at a national level. Areas of constraints are indicated by red colours while areas of opportunities are indicated by green colours. In general, and on a national level, constraints occur in greatest concentrations in the western half of the country while opportunities occur in greatest extents in the eastern half of the Country.

2.4 Appropriate Assessment

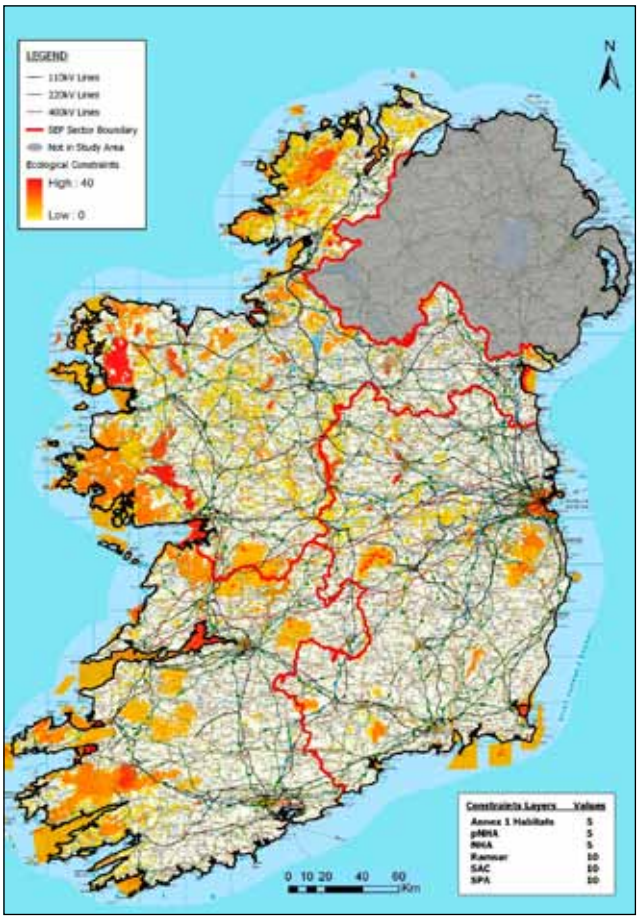
An Appropriate Assessment (AA) under Article 6 of the Habitats Directive has been undertaken on the IP. The requirement for AA is provided under the EU Habitats Directive (Directive 1992/43/EEC). The preparation of the IP, SEA and AA have taken place concurrently and the findings of the AA have informed both the IP and the SEA.

Measures which have been integrated into the IP which provide for the protection of ecological sensitivities - including Natura 2000 Sites have been developed by and alongside the AA process.



Natura 2000 Sites

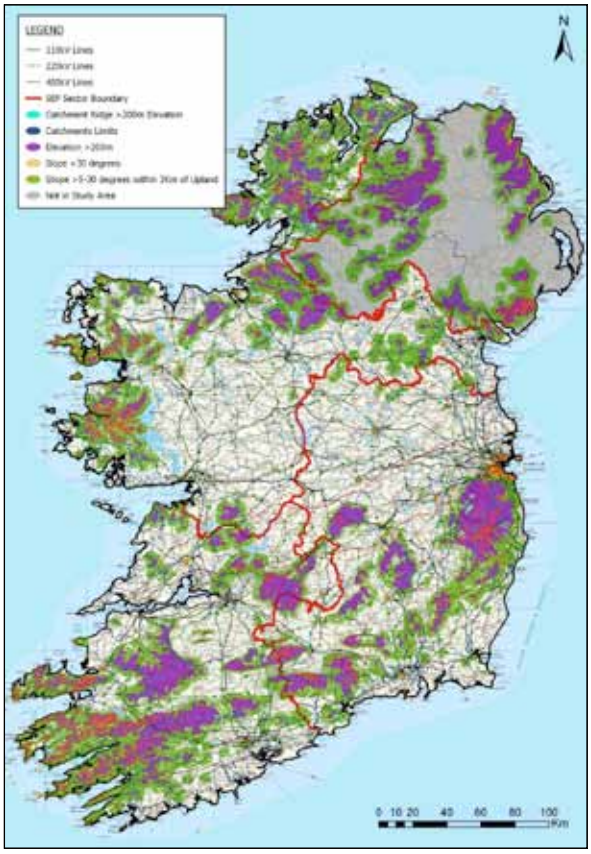
Natural Parks and UNESCO Sites



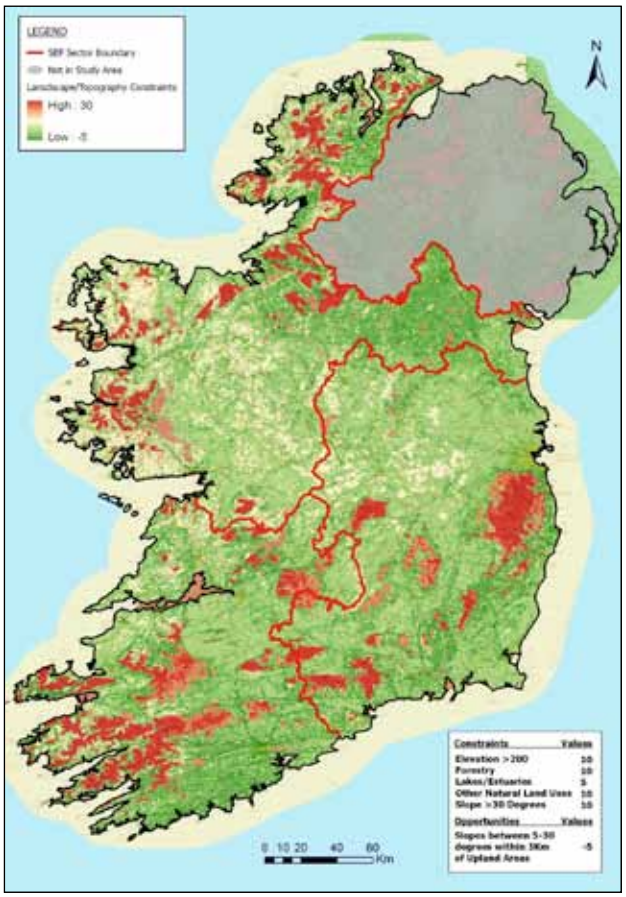
National Ecological Constraints Rating

Figure 2.1 Ecological Mapping

National Visual Sensitivity Mapping



National Topographical Mapping



National Landscape Constraints and Opportunities Rating

Figure 2.2 Landscape Mapping

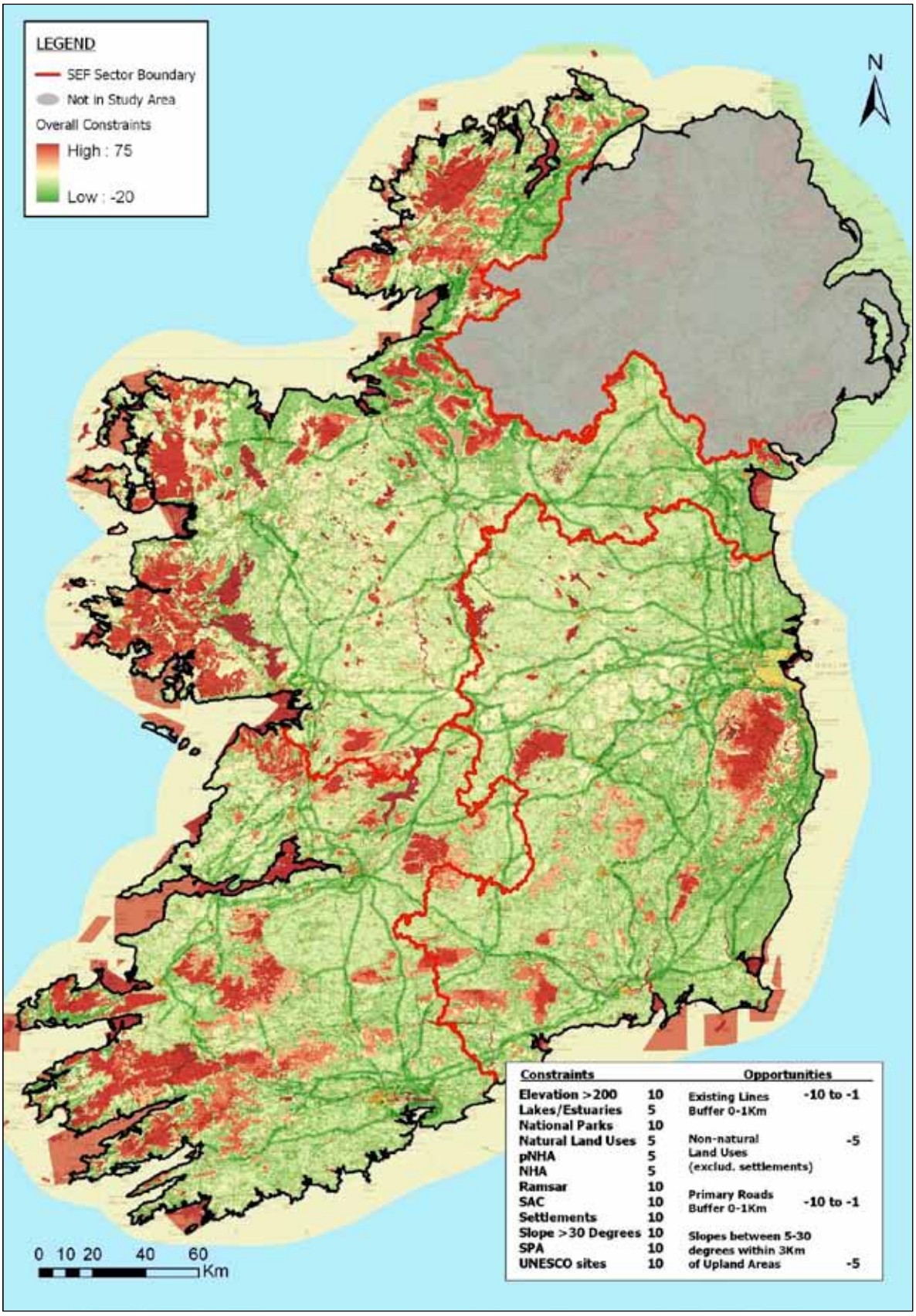


Figure 2.3 National Overall Development Potential Rating Mapping

2.5 Mitigation

2.5.1 Introduction

Mitigation measures are measures envisaged to prevent, reduce and, as fully as possible, offset any significant adverse impacts on the environment of implementing the IP.

Mitigation involves ameliorating significant negative effects. Where there are significant negative effects, consideration is given in the first instance to preventing such effects or, where this is not possible for stated reasons, to lessening or offsetting those effects. Mitigation measures can be roughly divided into those that: avoid effects; reduce the magnitude or extent, probability and/or severity of effects; repair effects after they have occurred, and; compensate for effects, balancing out negative impacts with other positive ones.

There are two types of mitigation measures associated with the SEA of the IP. The first involves high-level preventative mitigation measures that were incorporated into the drafting of the IP document or by bringing about changes in organisational and working practices within EirGrid. These include seven major procedures, identified below and outlined in the subsequent sections of this chapter, which will be employed to identify and avoid environmental effects of grid related development::

EMM 1 Full Integration of Planning and Environmental Considerations in Transmission System Planning[6];

EMM 2 Preparation of Strategic Environmental Constraints Mapping;

EMM 3. Preparation of Evidence-based Environmental Guidelines, consisting of:
a. Environmental Benchmarking Studies;
b. Evidence-Based Environmental Design Guidelines; and
c. Guidelines on EIA for Transmission Projects in Ireland;

EMM 4 Consideration of the Broadest Possible Range of Alternatives in all future Energy Transmission Strategies;

EMM 5. Preparation of Transmission Development Plan Environmental Appraisal Report;

EMM 6. Ongoing Co-operation in preparation of Renewable Energy Generation Guidelines and Strategies; and,

EMM 7. Integrating Offshore Grid connectivity requirements and environmental considerations in EirGrid's Strategic Environmental Framework (SEF).

The second type of mitigation measures involves those that address the implementation of the IP. These are identified in Section 2.5.9 of this report and have been fully integrated into the IP. Project teams should refer to these interim indicative mitigation measures. These measures will be extended and augmented by the output from the Environmental Benchmarking Studies and Evidence-Based Environmental Design Guidelines referred to above and outlined below. It is noted that there are linkages between various mitigation measures and that the mitigation of certain effects will be contributed towards by multiple measures.

Additional, more detailed mitigation measures to those identified below are likely to be required by lower tier environmental assessments and would need to be integrated into relevant specific plans and projects. It should be noted that many of the identified lower tier mitigation measures are procedures and processes that are now adopted by EirGrid.

The mitigation measures set out under Sections 2.5.2 to 2.5.8 below were recommended by the SEA and AA processes to be integrated into an earlier draft of the IP. The IP preparation team took on board this recommendation and fully integrated the measures into a new Section 5 in the IP.

The status of implementing all mitigation measures is detailed on Table 2.1 overleaf.

[5] Note EMM = Environmental Mitigation Measure

Table 2.1 Status of Implementing Mitigation Measures

Mitigation Measure Code	Mitigation Measure Title	Status
EMM1	Full Integration of Planning and Environmental Considerations in EirGrid's Transmission System Planning	Has already occurred; changes will continue to be implemented.
EMM2	Preparation of Strategic Environmental Constraints Mapping	Has already occurred; will be updated on an ongoing basis, as appropriate, to include most up-to-date, relevant environmental data.
EMM3	Preparation of Evidence-based Environmental Guidelines	Has begun; Guidelines to be published.
EMM4	Consideration of the Broadest Possible Range of Alternatives in all Future Energy Transmission Strategies	IP now adopted; measure to be adhered to as relevant.
EMM5	Preparation of Transmission Development Plan Environmental Appraisal Report	IP now adopted; measure to be radhered to as relevant.
EMM6	Ongoing Co-operation in preparation of Renewable Energy Generation Guidelines and Strategies	IP now adopted; measure to be adhered to as relevant.
EMM7	Integrating Offshore Grid connectivity requirements and environmental considerations in EirGrid's Strategic Environmental Framework (SEF)	IP now adopted; measure to be adhered to as relevant.
EMM8	Other measures integrated into the IP, including those that will help to protect/manage biodiversity and flora and fauna, water resources, soils and geology, landcapes, noise, spillages and wastes.	IP now adopted; measure to be nadhered to as relevant. Measures to be extended and augmented by the output from the Environmental Benchmarking Studies and Evidence-Based Environmental Design Guidelines

2.5.2 EMM1 Full Integration of Planning and Environmental Considerations in EirGrid's Transmission System Planning

Considerable changes of procedures and personnel have been put in place to ensure that environmental factors are considered at the earliest stage of EirGrid's Transmission Planning System – as a result of the parallel SEA process. These are preventative measures aimed at anticipating strategic decisions that would be likely to result in avoidable adverse environmental effects.

This Strategic Environmental Framework (SEF) changes has resulted in four major types of interventions;

1. The EirGrid Transmission System planning procedures have been strengthened to incorporate environmental considerations as an early determinant and as a critical stage in the process of decision making. These systems are now operational.

2. EirGrid has established an Environmental Management Team and new positions of responsibility within the organisation that provide senior planning and ecological advice to the Transmission System Planning team. Appointments have been made to these positions.

3. EirGrid is implementing Strategic Environmental Constraints Mapping that provides decision-makers and system planners with high-level environmental data that can be used for the conceptual development stage of Transmission Planning (see Section 2.5.3 below)

4. Procedures to be followed on a project-by-project basis for the detailed consideration, weighting and evaluation of likely environmental effects – including cumulative effects – having particular regard to the requirements of the Habitats Directive[7]. Such procedures include the need for timely consultation with relevant planning and environmental authorities such as the NPWS, the evaluation of up-to-date mapping, designations and development plans, policies, and a consideration of any relevant sectoral guidelines.

In addition, EirGrid will continue to work proactively with the Department of Arts, Heritage and the Gaeltacht (DAHG) and with local planning authorities and regional authorities to identify critical policies, objectives and constraints - e.g. critical river crossing points – in Development Plans and Regional Planning Guidelines, to ensure that the planning and development of national strategic transmission infrastructure occurs in the context of best environmental practice, and in accordance with the principles of proper planning and sustainable development.

EirGrid will also continue to work alongside ESB Networks, Bord Gais, the National Transport Authority, the National Road Authorities and other key strategic bodies in order to ensure that sustainable development, spatial planning and transport and Grid infrastructure are promoted in an integrated manner.

[7] Referenced statutory obligation

2.5.3 EMM2 Preparation of Strategic Environmental Constraints Mapping

The Scoping Report for the SEA identified the need to put Strategic Environmental Constraints Mapping in place *in order to ensure that environmental considerations are included at the earliest stage of project inception and in the consideration of alternatives*. A study was commissioned and completed while consultations were being undertaken for the SEA and the information contained in the Study informed numerous sections of this SEA Environmental Report.

The Strategic Environmental Constraints Mapping comprises mapping of the environmental considerations – both constraints and opportunities – that need to be incorporated into strategic decisions about projects and other developments likely to give rise to environmental effects. The mapping is of sufficient detail to provide an overview of the likelihood of encountering environmental challenges when planning routes though particular areas – at a regional level – and should assist in more detailed consideration of potential route corridors and in the selection of routing alternatives. The mapping should form a framework for more detailed mapping – on a project by project basis – of site specific sensitivities for ecology and cultural heritage and for local development plan designations of scenery and visual vulnerability.

The constraints mapping will become part of EirGrid's Standard Operational Procedure as part of the overall SEF to which designers are required to have regard. It is hoped that the constraints mapping can ultimately be updated to include Northern Ireland and will be updated periodically to ensure the use of the most up-to-date, relevant environmental baseline data.

2.5.4 EMM3 Preparation of Evidence-based Environmental Guidelines

TThrough the SEA scoping process the concept of a series of authoritative studies examining the actual effects of the construction and existence of power transmission projects in Ireland were recommended to be prepared and these have been commissioned.

These authoritative, *ex post*[8] studies will provide benchmarks to facilitate the preparation, presentation and defence of power projects that will be robust and will rigorously assess the impacts of transmission projects in Ireland. Details of the three types of studies that will contribute towards the mitigation of impacts by anticipation and avoidance and that will contribute towards environmentally sustainable grid planning and development are as follows:

1. Environmental Benchmarking Studies

Studies will be carried out[9] 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, visual impact, and impact upon human beings.

The study 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 topics in specific environments – these will be compared to unaffected areas, on the one hand,

[8] *Ex post is the Latin for "after the fact"*. In models where there is uncertainty that is resolved during the course of events, the ex post values (e.g. of expected gain) are those that are calculated after the uncertainty has been resolved.

[9] Note that these studies are underway.

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

IIn 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.

In addition to the Typical Condition there will also be an examination of two other conditions – *Non-standard and Worst Case conditions* - that can be used to determine the parameters within which the benchmarking of the environmental effects can be deemed to be reliably predicted.

Non-standard Conditions

Locations will be identified and agreed with key stakeholders which are 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 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 such adverse effects occurred, and how they might be avoided in future.

Lessons Learned

Each topic 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 Wetlands'. 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* [see below].

On-going Studies

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

2. Evidence-Based Environmental Design Guidelines

The primary objective is that these Design Guidelines will provide practical guidance on how best to incorporate each type of power project into each aspect 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 the 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

TThe reports from the *Environmental Benchmarking Studies* the will be examined to determine the routing, design and construction methods that produce the most environmentally sustainable outcomes. These reports will also describe and detail evidence of environmental degradation that may have 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.

3. Guidelines on EIA for Transmission Projects in Ireland

The *EIA Guideline*s 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 ensure long term sustainable development, operation and maintenance of grid related development and 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 reflect 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 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. It will also make key determinations more robust and 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[10] – available DEHLG Guidance 'Appropriate Assessment of Plans and Projects in Ireland' (2009) should be considered as appropriate in this regard.

2.5.5 EMM4 Consideration of the Broadest Possible Range of Alternatives in all Future Energy Transmission Strategies

Alternative routes and regional grid development strategies will consider the broadest range possible of spatial and environmental alternatives at the next level of environmental assessment – i.e. that of relevant transmission plans, multiple or individual projects. All projects will be subject to detailed constraints and routes study.

2.5.6 EMM5 Preparation of Transmission Development Plan Environmental Appraisal Report

EirGrid produces an annual rolling operational document, the Transmission Development Plan[11] (TDP), as required by regulation 8(6) of SI 445/2000, and submitted for approval to the CER (Commission for Energy Regulation).

In compliance with SI 435 of 2004, TDPs will be screened for the need to undertake SEA and AA. Notwithstanding the outcome of screening, an Environmental Appraisal Report will be prepared to accompany each annual TDP which will describe any effects arising that will be significantly greater, different or more significant than those anticipated by the SEA or AA.

The Environmental Appraisal Report which accompanies the next TDP shall take into account maritime mapping and issues emerging from the separate SEA in respect of the current Offshore Renewable Energy Development Plan, as appropriate.

[10] Referenced statutory obligation
[11] The TDP is a five year plan which is subject to annual review

2.5.7 EMM6 Ongoing Cooperation in preparation of Renewable Energy Generation Guidelines and Strategies

Some parts of the country are better situated for generation of renewable supplies of energy than others. However, there is currently no governing terrestrial renewable energy strategy detailing where renewable energy generation should occur in Ireland. A number of policies and objectives exist in various County Development Plans and County Wind Energy Strategies which promote the development of renewable energy at appropriate locations in their jurisdictions.

There is clear merit in the preparation of Regional Renewable Energy Generation Guidelines, as renewable energy developments may often traverse county and regional boundaries. EirGrid will continue to support, co-operate and participate in the preparation of Regional Renewable Energy Generation Guidelines, Regional Renewable Energy Strategies, County Wind Energy Strategies and County Renewable Energy Strategies. Furthermore, EirGrid will continue to support the implementation of aspects of the National Renewable Energy Action Plan 2010 where applicable.

2.5.8 EMM7 Integrating Offshore Grid connectivity requirements and environmental considerations in EirGrid's Strategic Environmental Framework (SEF)

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 due to 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 inshore and terrestrial environments.

The SEA Directive[12] requires the identification of a range of environmental effects including those which are indirect. Interconnection across water and renewable energy generation infrastructure enabled by the IP, for example, can cause potential indirect and cumulative effects on both the onshore and offshore environments. Currently available offshore environmental data is not sufficiently complete to facilitate a comprehensive evaluation of likely impacts to the transition zone between terrestrial and marine environments. The OREDP will be reviewed and updated and integration will become more apparent with time. It is anticipated that improved offshore data will become available in the period following this SEA, particularly as a result of the SEA which is currently being undertaken for offshore renewable resources. This data will be taken into account in the Environmental Appraisal Report for forthcoming annual TDPs (Section 2.5.6) and in the SEAs of future iterations of the IP.

Figure 2.4 illustrates a qualitative indication of general, potential locations for land/sea connections where there are less sensitive onshore environments in the vicinity of coasts. This qualitative indication was determined by the sensitivity of onshore environments in the vicinity of coasts, as illustrated by the Overall Development Potential Rating mapping[13] for the various regions[14] to which Grid25 relates as well as relevant corresponding data - including that relating to landscape and ecological

[12] Referenced statutory obligation

[13] The Overall Development Potential Rating combines mapping of environmental constraints associated with the development of the transmission system with opportunity areas which represent potential opportunities to develop transmission infrastructure with a reduced environmental impact.

[14] The Border Region, the Midlands Region, the South-East Region, the West Region, the Mid West Region, the South-West Region and the Dublin and Mid-East Regions.

constraints - for Northern Ireland. It would be useful if offshore grids generally aimed to make landfall in these areas and it would be desirable for such decisions to consider comparable, equivalent on-shore and offshore data.

Any consideration of alternative routes/locations for land/sea connections will be required to consider spatial and environmental alternatives at the next level of environmental assessment - i.e. that of lower tier plans, multiple or individual projects - as is required by mitigation measure EMM4 under Section 2.5.5 which has been integrated into the IP.
(see Figure 2.4 opposite)

2.5.9 EMM8 Other Measures Integrated into the IP

Mitigation measures described below have been worded to facilitate direct transcription and incorporation into the Implementation Programme.

Note that the following mitigation measures will be extended and augmented by the output from the Environmental Benchmarking Studies and Evidence-Based Design Guidelines described above.

2.5.9.1 EMM8A Biodiversity and Flora and Fauna

EMM8A(i) Designated European and National Sites of Nature Conservation Interest

Every effort will be made to avoid designated sites of conservation importance. However, where this is not possible, routing will be selected to ensure no significant impacts on the integrity of the site. Restricted working areas will be imposed to ensure minimal disturbance to sensitive habitats.

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.

EMM8A(ii) 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.
- Use of bog-mats to minimise the impact of heavy machinery on vegetation and soils.
- Minimise extent of works areas.
- 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.

EMM8A(iii) Bogs and Peatland areas

- Areas of deep and active peat shall be avoided.
- 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.

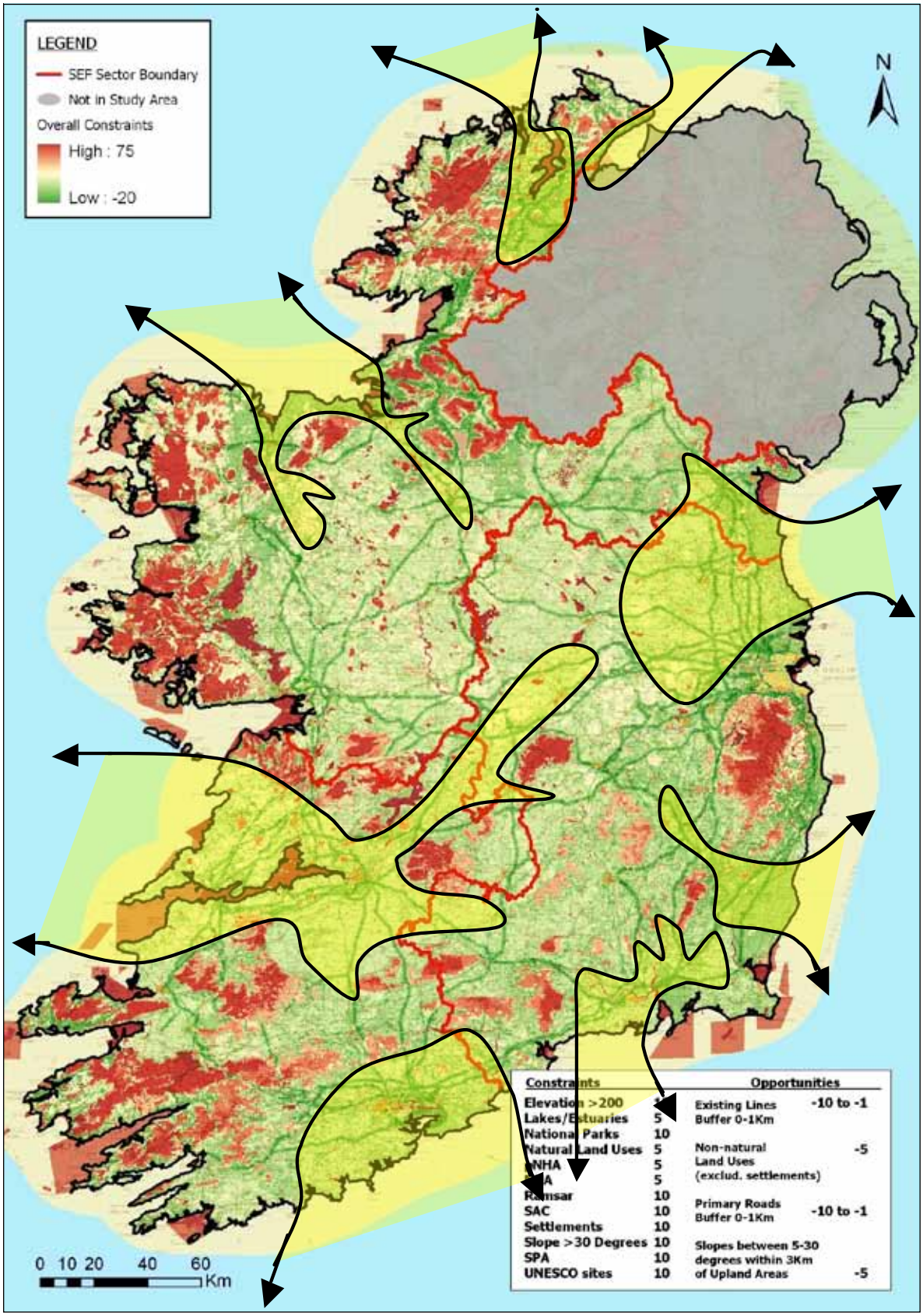


Figure 2.4 Less Sensitive[15] Areas for Land/Sea Connections (identified in yellow)

[15] Presence of less environmental sensitivities

- 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.

EMM8A(iv) 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.

EMM8A(v) 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.

EMM8A(vi) Otters

- Destruction of active otter holts shall be avoided
- No works shall be undertaken within 150m of any holts at which breeding females or cubs are present.
- No wheeled or tracked vehicles (of any kind) should be used within 20m of active, but non-breeding, otter holts. Light work, such as digging by hand or scrub clearance should also not take place within 15m of such holts, except under licence.

EMM8A(vii) Other protected species

- The breeding and resting sites of protected species shall be avoided during the appropriate seasons.
- Heavy machinery shall not be used within 30m of an occupied badger sett.

- A derogation licence from the respective Wildlife Acts[16] shall be sought – and works shall not be commenced without such consent where it appears that protected flora and fauna species are likely to be unavoidably disturbed.

EMM8A(viii) Protected Surface Water or Riparian Habitats

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.

EMM8A(ix) Freshwater Pearl Mussel Catchments

- Action measures as outlined in the 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 populations of Freshwater Pearl Mussels the following additional mitigation measures shall be employed;-
  - There shall be no Stream crossing by machinery.
  - Silty water will be collected in settlement ponds prior to discharge to watercourse.
  - Buffering strips will beprovided near watercourses.

EMM8A(x) Fisheries

- All works adjacent to designated fisheries waters will be done in consultation with Inland Fisheries Ireland.
- All works involving open cut crossings shall be conducted 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 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 [See also 2.5.9.2].
  - 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.

EMM8A(xi) 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.

EMM8A(xii) Hedgerows

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 hedges of particular value are encountered the extent and duration of the works shall be minimised. For species-rich banks, turf will

[16] Referenced statutory obligation

be stripped and stored separately for replacement on re-instatement.

2.5.9.2 EMM8B Water Resources

EMM8B(i) Accidental spillage of fuel chemicals or sewage 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.

EMM8B(ii) Suspended solids & sediment deposition

- Precautions shall be put in place to avoid or minimise the generation and release of sediments[17] into all watercourses.

EMM8B(iii) 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.

EMM8B(iv) Flooding

- Within known floodplains measures shall be taken to avoid any potential impact of construction or existence of the works on the capacity for floodwater storage.
- Damage to any flood defence embankments shall be immediately repaired to a standard equal to or better than the existing embankments.
- EirGrid shall carefully examine development proposals to ensure consistency with the requirements of The Planning System and Flood Risk Management: Guidelines for Planning Authorities (DEHLG, 2009)[18].

- EirGrid shall engage with planning authorities at an early stage, utilising arrangements for pre-planning application consultation with regard to any flood risk assessment issues that may arise.
- EirGrid shall carry out a site-specific flood risk assessment, as appropriate, and comply with the terms and conditions of any grant of planning permission with regard to the minimisation of flood risk.

2.5.9.3 EMM8C Soils and Geology

EMM8C(i) Geological Features

- Site investigations shall be undertaken at intervals and specific locations along the power circuit route. This information shall be used to plan sitework operations to anticipate, avoid or minimise construction impacts arising from disturbance of sub-surface conditions.
- Cut and fill operations should be avoided unless absolutely necessary.
- Route selection and lower tier assessments should consult Geological Survey of Ireland as appropriate in relation to geological heritage sites either recommended for NHA or County Geological Site designation.

[17] Sediments in this instance include all soils including peat.
[18] Referenced statutory obligation

EMM8C(ii) Soil

- Height of stockpiles should be limited to less that 3 m and storage time will be minimised.
- Material handling and reinstatement operations should follow good practice to avoid inadequate or over compaction of the materials.
- Route selection and lower tier assessments for peatland areas should consider relevant government guidelines on development in these areas as well as relevant datasets including the Geological Survey of Ireland's landslide dataset and Teagasc's subsoils dataset.

EMM8C(iii) Mineral Resources

The power circuit shall be routed to avoid disturbance to existing or planned operations of areas of extraction and licensed mineral reserves.

EMM8C(iv) Contaminated Land

- A ground investigation may be undertaken to survey, analyse and assess the areas where there is a potential for this risk to arise.
- Following this, method statements shall be prepared to deal with any area of contaminated ground.

EMM8C(v) Bedrock

- Route selection and lower tier assessments should consider Geological Survey of Ireland's bedrock data as appropriate in order to anticipate engineering difficulties.
- Route selection and lower tier assessments should consider Irish National Seabed Survey data and INFOMAR survey data as appropriate to anticipate the nature and depth of stable substrate for offshore projects foundations and connection to onshore grid.

2.5.9.4 EMM8D Cultural Heritage

- Where the proposed route is in close proximity to archaeological sites the working area shall be kept to a minimum.
- Pre-construction works shall be carried out in those unrecorded areas identified as having archaeological potential.
- There will be full implementation of an Archaeological Plan including, pre-construction works, watching brief and excavation.
- Where previously unrecorded finds are uncovered during construction, adequate archaeological investigation and recording will be carried out before construction works in these areas are continued.

2.5.9.5 EMM8E Landscape and Visual

Routes shall be selected according to the following criteria;-

- Avoidance of areas designated as being of scenic sensitivity or significance.
- Avoidance of areas that would disproportionately impinge upon sensitive landscape features – such as prominent skyline ridges, shores, river crossings.
- Avoid areas that would disproportionately impinge upon sensitive areas or sites of cultural or historic significance – including monuments, listed and protected structures and their contexts and sites.
- Route selection and lower tier assessments should consider (as appropriate) data from the landscape character assessments contained in the development plans of local authorities.

2.5.9.6 EMM8F Noise

In relation to noise sensitive receptors, the constraints mapping shall have identified areas of high building density and therefore any route corridors selected shall attempt to minimise impacts on built up areas.

2.5.9.7 EMM8G Liquid Effluent and Spillages

Portable toilets will be provided at the site offices. They will be emptied regularly by a specialist contractor as appropriate.

2.5.9.8 EMM8H Solid Wastes

Waste Management Plans will be prepared as part of the overall project design. This will identify likely waste arisings, approximate quantities and appropriate handling and disposal methods.

2.5.9.9 EMM8I Construction of New Substations and Extension of Existing Substations

EMM8I(i) The construction of new substations can have a significant impact particularly where the area is undeveloped. Site selection needs to ensure sensitive landscapes and habitats are avoided. Opportunities for natural screening from topography and vegetation should be maximised and used wherever possible as this will provide the best opportunity for integrating the facility into the existing landscape.

EMM8I(ii) It will be important to ensure that substations are not located within the floodplain of major watercourses, which could impact on the access and functioning of the substation. Also, it will also be important to ensure that new substation locations avoid designated conservation sites and sensitive habitats where possible.

EMM8I(iii) Where existing substations need to be extended it will be important to ensure the extension does not impact on any nearby built up areas 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.

2.5.9.10 EMM8J Reinforcement of the Transmission System in the Regions[19]

EMM8J(i) Midlands Region

The Midlands 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. It should be recognised that large areas of cut-over peat lands may not be suitable low-resistance routing options as many of these sites are nearing the end of production and most if not all will shortly be reinstated as peat land sites that are likely to be deemed to be sensitive - if not protected - habitats.

New major grid projects in this Region will 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.

[19] Note that no specific measure are stated here for the Border and West Regions; all other mitigation measures apply as relevant

EMM8J(ii) South-East Region

Larger scale grid developments in the South East 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.

Most major routes within this region follow the transition between uplands and lowlands and cause little adverse environmental effect. If future development continues this general pattern there is a low potential for significant effects to arise.

EMM8J(iii) Mid-West Region

Major grid development works in the Mid-West 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. High levels of rural dwellings in some areas may require sub-optimal proximity to some environmental sensitivities, such as cultural heritage.

EMM8J(iv) South-West Region

If new grid development continues patterns of following the strongly east-west trending river valleys in the South-West Region 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.

The development of new transmission lines between Moneypoint and Cork City would need to carefully consider ecological and visual impact issues, especially in upland areas. Alternatives should consider the reuse of existing power and transport links.

EMM8J(v) Dublin & Mid-East Region

It would be useful to integrate 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 the Dublin and Mid-East Region during the period to 2025. It would also be of merit, for working in existing and emerging urban and peri-urban areas, to clearly identify criteria that would lead to determining when and where to underground electricity infrastructure. Land Use Plans for Urban Areas should be encouraged to specifically zone land for sub-stations and to protect existing strategic corridors from inappropriate development .

2.5.9.11 EMM8K National and EU Legislation and Plans/ Programmes

Where grid related development is proposed, EirGrid will seek to contribute towards the protection of environmental features, as relevant and appropriate to EirGrid's responsibilities and obligations under national and EU environmental legislation and including those which relates to specific regional/national plans/programmes for particular aspects of the environment e.g. Catchment Flood Risk Assessment and Management Study Plans, River Basin District Management Plans and Fresh Water Pearl Mussel Sub Basin Management Plans[20].

[20] Referenced statutory obligation

Section 3 - Environmental Report and Submissions and Observations

3.1 Introduction and Overview

This section details how both the Environmental Report and submissions and observations made to EirGrid on the Environmental Report and SEA process have been taken into account during the preparation of the Implementation Programme (IP).

3.2 SEA Scoping Submissions

A written submission on the scope of the SEA was received from the EPA dated 10 February 2010. This submission included information under the following headings:

- Scope of SEA and GRID25 Implementation Programme;
- EPA SEA Process Checklist;
- Up-to-date Environmental Monitoring Data etc.;
- Geographical Information Systems;
- Appropriate Assessment;
- Scoping Meetings/Workshops;
- Alternatives;
- Consultation;
- Assessment of Likely Significant Effects;
- Mitigation of Significant Effects;
- Monitoring Proposals;
- Process and SEA-Environmental Report Compliance;
- Integration of SEA and Plan/Programme;
- Documentation of the SEA Process;
- Possible Proposed Amendments to the Draft Programme;
- Information on the Decision/SEA Statement;
- SEA Guidance /Methodology;
- Environmental Authorities;
- Environmental Impact Assessment (EIA);
- Obligations with respect to National Plans and Policies and EU Environmental Legislation etc.; and,
- EPA Report: Ireland's Environment 2008 "Main Environmental Challenges".

A written submission on the scope of the SEA was also received from the former DEHLG dated 5 February 2010. This submission included information on:

Archaeology

- International Conventions;
- National Policies, Plans and Programmes;
- Relevant Policies and Plans at County Level; and,
- Development Issues

Nature Conservation

- Habitats Directive Appropriate Assessment;
- The need for an iterative approach;
- In combination and cumulative effects;
- Interactions with the Offshore Renewable Energy Plan;
- Consideration of likely environmental and ecological effects;
- Protection of Natura 2000 sites and the integrity of these sites;
- Protected species; and,
- Strategic Environmental Objectives (SEOs).

In addition, meetings were held between EirGrid, EIS[ervices] and the EPA at which the approach to be taken in the preparation of the IP, the development of the Strategic Environmental Framework and the development of the SEA scope was discussed.

Also, a meeting was held between EirGrid and representatives from the DEHLG at which advice and guidance on the Appropriate Assessment was provided.

The information provided in the written responses to the SEA scoping notice by environmental authorities and the information provided at meetings with these authorities was taken into account throughout the process including through the preparation of the Scoping Report, during the preparation of the Environmental Report, including the mitigation measures.

The relevant authorities in Northern Ireland were also sent non-statutory SEA scoping notices. No responses were received.

3.3 Submissions and Observations

3.3.1.1 Overview

The Draft IP and the Environmental Report were placed on public display in March 2011.

22 submissions were made on the documents while they were on public display. The information contained in these submissions was taken into account by the SEA as well as the Appropriate Assessment which was undertaken for the Plan.

Submissions were received from the following Bodies/Persons:

1. Office of Minister for Agriculture, Fisheries and Food
2. Monaghan County Council
3. National Roads Authority
4. Pat Swords
5. Dublin and mid-East Regional Authorities
6. Geological Survey of Ireland (Submission I)
7. Inland Fisheries Ireland
8. Heritage Council
9. Geological Survey of Ireland (Submission II)
10. Magahy Broderick Associates (on behalf of landowners on Innishowen Peninsula, Donegal)
11. Development Application Unit, Heritage Policy and Architectural Protection, Department of Environment, Heritage and Local Government
12. South-East Regional Authority
13. ESB
14. Endessa Ireland
15. ESB Wind Generation
16. Foreshore Unit, Department of Environment, Heritage and Local Government
17. ERMS Planning and Development Consultants on behalf of Natural Hydro Energy/ Spirit of Ireland
18. Natural Hydro Energy/Spirit of Ireland
19. County Monaghan Anti-Pylon Committee
20. SIAC Holdings Ireland
21. Environmental Protection Agency
22. Co-ordination Unit, Department of Communications, Energy and Natural Resources

An Addendum to the Environmental Report 'Responses to Submissions and Proposed Amendments Arising' responds to each submission and details, where appropriate, changes to the IP/SEA/AA arising. In addition to the formal submissions listed above, appropriate communication took place at Department level with the Department of Enterprise, Trade and Investment (DETI). The topics addressed by the DETI's submission and the consequent updates made were also detailed in the Addendum.

On adoption of the IP, the Addendum was used to update the original Environmental Report into a final, consolidated Environmental Report which is available alongside the adopted IP. Changes to the documents arising from the submissions include those detailed in the subsections below.

3.3.1.2 Updating the Implementation Programme[21]

To insert the following into Section 1.4:

- Some 58% of current demand for electricity is in gateway cities and towns, as identified in the National Spatial Strategy (NSS). The NSS defines gateways as having a strategic location, nationally and relative to their surrounding areas and providing national-scale social and economic infrastructure and support services. The Grid25 strategy will contribute to achieving the NSS goal of developing gateways and achieving balanced regional development. In this strategic context, the provisions and policies of the various Regional Planning Guidelines are of essential importance.

  EirGrid publishes a Transmission Forecast Statement annually which highlights opportunities for the connection of demand at 31 points on the grid. The document presents the opportunities for generator connections identified through the Gate 3 connection process and outlines the generation opportunities arising from Grid25. Each Planning Authority is required to provide an objective within its Development Plan for the provision/facilitation of infrastructure including energy. In addition, Section 10 (1B) of the Planning and Development Acts 2000-2010 requires that all planning authorities shall, within one year after making Regional Planning Guidelines, prepare a Core Strategy. The Core Strategy must show that County Development Plan objectives are consistent with national and regional development objectives in the National Spatial Strategy and Regional Planning Guidelines. This ensures that the strategic vision of these higher-level planning and policy documents are appropriately and adequately reflected in local Development Plan policies and objectives.

  The core strategy must, among other aspects:

  - Detail and take account of existing and proposed transmission infrastructure in a county;
  - Provide the framework for deciding on the scale, phasing and location of new development, having regard to existing serviced and planned investment over the coming years.

  Consequently, key electricity projects which are critical to the future development of a county and region can be prioritised.

To include a new Section 3 entitled Towards a Planning and Environmental-led Approach to Electricity Transmission Infrastructure Development.

To insert Figure 8.1 'Less Sensitive Areas for Land/ Sea Connections (identified in yellow)' from the SEA ER.

To insert detail on which projects under 'Public Planning Process' will involve EIA/AA in Appendix A.

3.3.1.3 Changes to Section 2 of the SEA ER 'Context for the Implementation Programme'

To add the following text to Section 2.5.5 National Spatial Strategy & Regional Planning Guidelines:

- Ireland is divided into eight regional forward planning regions, Dublin, Midlands, Mid East, Mid-West, South East, South West, West and Border, each with its own Regional Planning Authority composed of Elected Members selected by the constituent local government councils. Regional planning authorities are

[21] Changes to the IP also include some of those detailed under previous subsections, in particular those relating to mitigation measures under Section 3.3.1.7

required, under the Planning and Development Regulations 2001 to 2011, to draw up regional planning guidelines (RPGs), long term strategic planning frameworks, for their relevant region. The RPGs aim to give regional effect to the National Spatial Strategy and to guide the development plans for each county.

Regional Planning Authorities have the primary roles of preparing and implementing RPGs and promoting co-ordination in the provision of public services in their relevant region, which includes promoting cooperation and joint action betwee Authorities have responsibility to review the provision of public services and the overall development needs of their relevant region.

To insert a new Section 2.5.10 as follows 'Taking into account local authority plans':

- Information contained in the plans and other relevant documents of local authorities including County Development Plans, Landscape Character Assessments, Heritage Plans and Biodiversity Plans was considered in the assessment of environmental effects as appropriate (see in particular Section 8.3) - including cumulative and in-combination effects.

  Information is not included on this data in Section 4 'Environmental Baseline' of this report due to, inter alia, the extent of variability between the provisions of and data contained within these documents across the country, however: it is acknowledged that these documents will be taken into account as appropriate by lower tier decision making through, inter alia, route selection and lower tier assessments.

To provide additional description of the Strategic Environmental Framework (this has been provided in Section 2.7 and in the Glossary of the SEA ER).

3.3.1.4 Changes to Section 3 of the SEA ER 'SEA Methodology'

To insert the following sentence into Section 3.10 of the SEA ER, 'Difficulties Encountered':

- The Landscape Constraints Rating mapping does not identify certain micro landscape features, such as drumlins and steep sided stream valleys, at a regional level. Such features will be taken into account as appropriate through route selection and lower tier assessments (EIS and Environmental Reports).

3.3.1.5 Changes to Section 4 of the SEA ER 'Environmental Baseline'

To insert the following text into Section 4.9:

- The EU has set legally binding targets to reduce the greenhouse gases across the EU by at least 20% by 2020, compared with 1990 levels. To facilitate this two carbon emission reduction methods exist at EU level. One method is applied through the Emissions Trading Scheme (ETS) while a second emission reduction target is applied in the non-ETS sector. Taken together, the combined ETS and non-ETS EU-wide reductions will result in an overall EU wide reduction of 14% compared to 2005, which is equivalent to a reduction of 20% compared to 1990.

  Any generation plants greater than 50MW fall under the EU Large Combustion Plant directive (2001/80/EC). This directive was transposed

into Irish law by the Large Combustion Plant Regulations 2003 (S.I. No. 644 of 2003) and limits the emissions of certain pollutants into the air from large combustion plants. There are also some combustion plants associated with other facilities (i.e. where energy production is not the main activity) which are also licensed under the directive. The EPA is charged with ensuring that generation plants meet their requirements under these directives.

There are a number of other EU directives and national policy initiatives that apply restrictions to emissions from generation units.

3.3.1.6 Changes to Section 5 of the SEA ER 'Strategic Environmental Objectives'

To add the following in a footnote to Strategic Environmental Objective (SEO) B3:

- See definition of 'Wildlife Sites' under Section 5.2.1.10.

To add the following text into SEOs W1 and W2:

- , in line with the recommendations outlined in the River Basin Management Plans.

3.3.1.7 Changes to Section 8 of the SEA ER 'Evaluation of Implementation Programme Provisions'

To expand Section 8.3 of the SEA ER and 3.3 of the NIS to provide more detail on indirect and cumulative effects.

To add the following sentence to Section 8.6.2 of the SEA ER 'Underground Power Lines':

- Construction of underground cables may involve significant direct impacts on archaeological heritage.

Also to rename Figure 9.1 and corresponding Figure 4.1 in the SEA ER as follows:

- Less Sensitive Areas for Land/Sea Connections (identified in yellow).

3.3.1.8 Changes to Section 9 of the SEA ER 'Mitigation Measures'

To update Section 9.1 with the following text:

- These measures will be extended and augmented by the output from the Environmental Benchmarking Studies and Evidence-Based Environmental Design Guidelines referred to above and outlined below. It is noted that there are linkages between various mitigation measures and that the mitigation of certain effects will be contributed towards by multiple measures. This is indicated on Table 11.1 whereby specific likely significant effects are linked to mitigation measures.

  To add the following sentence to EMM1 Full Integration of Planning and Environmental Considerations in EirGrid's Transmission System Planning:

- 4. Procedures to be followed on a project-by-project basis for the detailed consideration, weighting and evaluation of likely environmental effects – including cumulative effects – having particular regard to the requirements of the Habitats Directive. Such procedures include the need for timely consultation with relevant planning and environmental authorities such as the NPWS, the evaluation of up-to-date mapping, designations and development plans, policies, and a consideration of any relevant sectoral guidelines.

To insert the following sentence into EMM1 Full Integration of Planning and Environmental Considerations in EirGrid's Transmission System Planning:

- In addition, EirGrid will continue to work pro-actively with the Department of Arts, Heritage and the Gaeltacht (DAHG).

To add the following sentence to EMM3 Preparation of Evidence based Environmental Guidelines (3. Guidelines on EIA for Transmission Projects in Ireland):

- 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 106 – available DEHLG Guidance 'Appropriate Assessment of Plans and Projects in Ireland' (2009) should be considered as appropriate in this regard.

To add the following sentence to subsection 9.6 EMM5 'Preparation of Transmission Development Plan Environmental Appraisal Report':

- In compliance with SI 435 of 2004, TDPs will be screened for the need to undertake SEA and AA. Notwithstanding the outcome of screening, an Environmental Appraisal Report will be prepared to accompany each annual TDP which will describe any effects arising that will be significantly greater, different or more significant than those anticipated by the SEA or AA.

To add of the following measures under EMM8C Soils and Geology:

- Route selection and lower tier assessments for peatland areas should consider relevant government guidelines on development in these areas as well as relevant datasets including the Geological Survey of Ireland's landslide dataset and Teagasc's subsoils dataset.
- Route selection and lower tier assessments should consult Geological Survey of Ireland as appropriate in relation to geological heritage sites either recommended for NHA or County Geological Site designation.

- Route selection and lower tier assessments should consider Geological Survey of Ireland's bedrock data as appropriate in order to anticipate engineering difficulties.
- Route selection and lower tier assessments should consider Irish National Seabed Survey data and INFOMAR survey data as appropriate to anticipate the nature and depth of stable substrate for offshore projects foundations and connection to onshore grid.

To add the following measures under EMM8A(ii) 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.

To add the following measures under EMM8A(iii) Bogs and Peatland areas:

- Areas of deep and active peat shall be avoided.
- 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.

To add the following measures under EMM8A(v) 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.

To add the following measures under EMM8A(vi) Otters:

- Destruction of active otter holts shall be avoided
- No works shall be undertaken within 150m of any holts at which breeding females or cubs are present.
- No wheeled or tracked vehicles (of any kind) should be used within 20m of active, but nonbreeding, otter holts. Light work, such as digging by hand or scrub clearance should also not take place within 15m of such holts, except under licence.

To add the following measure under EMM8A(viii) Protected Surface Water or Riparian Habitats:

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.

To add the following measure under EMM8A(ix) Freshwater Pearl Mussel Catchments:

- Action measures as outlined in the Sub Basin Management Plans shall be taken into account where development is considered adjacent to areas associated with Freshwater Pearl Mussels.

To add the following measure under EMM8A(x) Fisheries:

- All works adjacent to designated fisheries waters will be done in consultation with Inland Fisheries Ireland.

To add the following measure under EMM8E Landscape and Visual:

- Route selection and lower tier assessments should consider (as appropriate) data from the landscape character assessments contained in the development plans of local authorities.

To add the following measures under EMM8I Construction of New Substations and Extension of Existing Substations:

- EMM8I(i) The construction of new substations can have a significant impact particularly where the area is undeveloped. Site selection needs to ensure sensitive landscapes and habitats are avoided. Opportunities for natural screening from topography and vegetation should be maximised and used wherever possible as this will provide the best opportunity for integrating the facility into the existing landscape.
- EMM8I(ii) It will be important to ensure that substations are not located within the floodplain of major watercourses, which could impact on the access and functioning of the substation. Also, it will also be important to ensure that new substation locations avoid designated conservation sites and sensitive habitats where possible.

- EMM8I(iii) Where existing substations need to be extended it will be important to ensure the extension does not impact on any nearby built up areas 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.

To add the following measures under EMM8J Reinforcement of the Transmission System in the Regions:

- EMM8J(i) Midlands Region - The Midlands 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. It should be recognised that large areas of cut-over peat lands may not be suitable low-resistance routing options as many of these sites are nearing the end of production and most if not all will shortly be reinstated as peat land sites that are likely to be deemed to be sensitive - if not protected - habitats. New major grid projects in this Region will 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.
- EMM8J(ii) South-East Region - Larger scale grid developments in the South East 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. Most major routes within this region follow the transition between uplands and lowlands and cause little adverse environmental effect. If future development continues this general pattern there is a low potential for significant effects to arise.
- EMM8J(iii) Mid-West Region - Major grid development works in the Mid-West 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. High levels of rural dwellings in some areas may require sub-optimal proximity to some environmental sensitivities, such as cultural heritage.

- EMM8J(iv) South-West Region - If new grid development continues patterns of following the strongly east-west trending river valleys in the South-West Region 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. The development of new transmission lines between Moneypoint and Cork City would need to carefully consider ecological and visual impact issues, especially in upland areas. Alternatives should consider the reuse of existing power and transport links.
- EMM8J(v) Dublin & Mid-East Region - It would be useful to integrate 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 the Dublin and Mid-East Region during the period to 2025. It would also be of merit, for working in existing and emerging urban and peri-urban areas, to clearly identify criteria that would lead to determining when and where to underground electricity infrastructure. Land Use Plans for Urban Areas should be encouraged to specifically zone land for sub-stations and to protect existing strategic corridors from inappropriate development.

To add the following measure under 'Other measures integrated into the IP':

- EMM8K National and EU Legislation and Plans/Programmes

  Where grid related development is proposed, EirGrid will seek to contribute towards the protection of environmental features, as relevant and appropriate to EirGrid's responsibilities and obligations under national and EU environmental legislation and including those which relates to specific regional/ national plans/programmes for particular aspects of the environment e.g. Catchment Flood Risk Assessment and Management Study Plans, River Basin District Management Plans and Fresh Water Pearl Mussel Sub Basin Management Plans.

To assign codes to mitigation measures.

To merge the mitigation measure entitled 'Consultations with DEHLG and Planning Authorities' into the measure entitled 'Involvement of Planning and Environmental Considerations in EirGrid's Transmission System Planning'.

To identify measures which are statutory obligations included as 'mitigation measures' in this section as statutory obligations by way of footnotes.

3.3.1.9 Changes to Section 10 of the SEA ER 'Monitoring Measures'

To add the following text to Section 10.2:

- The Monitoring Programme may be updated to deal with specific environmental issues - including unforeseen effects - as they arise. Such issues may be identified by EirGrid or identified to EirGrid by other agencies. EirGrid has responsibility for updating the ER.

To add the following text to Section 10.4:

EirGrid will report on the IP implementation and associated SEA and AA monitoring during the lifetime of the programme. It is envisaged that this monitoring will occur every 2-3 years.

To add the following text to Section 10.5:

- A high level / strategic indicator which will be used to examine the overall performance state of the IP monitoring indicators will be an increase in the reporting on the effects - including cumulative - arising from energy related plans and projects. This will be measured by identifying energy related plans and projects which have occurred over a period of time and examining whether either SEA, EIA, AA or a non-mandatory type of environmental assessment have been undertaken as appropriate.

3.3.1.10 Updating the Appropriate Assessment[23]

To insert Figure 8.1 'Less Sensitive Areas for Land/Sea Connections (identified in yellow)' from the SEA ER.

[23] Changes to the AA also include some of those detailed under previous subsections, in particular those relating to mitigation measures under Section 3.3.1.7.

Section 4 - Alternatives

4.1 Introduction

The SEA Directive requires that reasonable alternatives (taking into account the objectives and the geographical scope of the IP) are identified described and evaluated for their likely significant effects on the environment.

This section identifies and describes different alternative development scenarios, taking into account higher level objectives as well as the geographical scope of the IP. Also provided are the reasons for choosing the IP, as adopted, in the light of the other reasonable alternatives dealt with.

4.2 Description of the Alternative Scenarios

4.2.1 Scenario 1: *Business as Usual*

This scenario involves the dilution or withdrawal of the overarching Government target to meet 40% of electricity consumption from renewable energy, thereby resulting in a reduced need to further significantly develop the transmission network (and new energy generation).

4.2.2 Scenario 2: Grid 25 *(continuation of existing planning and economic development policy)*

This scenario consists of the retention of the overarching Government target to meet 40% of electricity consumption from renewable energy, and the continuation of existing national planning and economic policy, thereby resulting in a need to significantly develop the transmission network (and new energy generation) in regions across the country.

4.2.3 Scenario 3: Grid 25 *(alteration of existing planning and economic policy)*

This scenario consists of the retention of the overarching Government target to meet 40% of electricity consumption from renewable energy and the alteration of existing national planning and economic policy which would favour more concentrated investment and growth in the centres of population and growth along the eastern and southern coast, coupled with a greater concentration of offshore renewable energy generation in the east to take advantage of marine grid developments in the area and export to UK markets. This scenario results in a need to significantly develop the transmission network (and new energy generation) within or adjacent to this area (including in the offshore environment).

4.3 Evaluation of the Alternative Scenarios

4.3.1 Introduction and Methodology

This section summarises the relative merits of three alternative development scenarios of the 3 alternative scenarios described under Section 4.2 for the development of the national transmission network through a succinct and focused evaluation. This determination identifies the interactions between each of the scenarios and the receiving environment as well as compliance with national energy, planning and economic development policy.

The written description and supporting maps of the environmental baseline of Section 4 of the Environmental Report (which are referred to in

Section 3.2 of this document) were used in the evaluation. In particular, the National Overall Development Potential Rating Mapping of environmental sensitivities and opportunities (see Figure 2.3) is used in order to indicate the spatial distribution of ecological and landscape sensitivities (coloured red) as well as opportunity areas (coloured green) across the Country and to broadly identify locations where conflicts would be likely to occur in the future and where future development would be likely to be more easily absorbed. Strategic Environmental Objectives (SEOs) as outlined on Table 4.1 are also used in the evaluation.

SEOs are methodological measures against which the environmental effects of the Implementation Programme (IP) for Grid25 - and the alternatives - can be tested. If complied with in full, SEOs would result in an environmentally neutral impact from realisation of the IP. The SEOs are set out under a range of topics and are used as standards against which the provisions of the IP can be evaluated in order to help identify areas in which potential significant adverse impacts may occur
.

Table 4.1 SEOs

SEO Code	SEO
B1	To ensure compliance with the Habitats Directive with regard to the protection of Natura 2000 Sites and Annexed habitats and species
B2	To ensure compliance with Article 10 of the Habitats Directive with regard to the management of other environmental features – which by virtue of their linear and continuous structure or their function act as stepping stones - which are of major importance for wild fauna and flora and essential for the migration, dispersal and genetic exchange of wild species
B3	To avoid significant impacts on relevant habitats, species, environmental features or other sustaining resources in Wildlife Sites[24]
L1	To avoid significant adverse impacts on the landscape, especially with regard to those arising from impacts on the factors which comprise the Landscape Constraints Rating Map
CH1	To avoid unauthorised impacts upon archaeological heritage (including entries to the RMP) and architectural heritage (including entries to the RPSs)
C1	To help to facilitate the achievement of higher level government targets contained in the Government's Energy White Paper Delivering a Sustainable Energy Future for Ireland - the Energy Policy Framework 2007-2020 and relating to the Kyoto Protocoll
HH1	Minimise proximity of development to concentrations of population in order to reduce actual and perceived environmental effects
W1	To prevent impacts upon the status of surface waters in line with the recommendations outlined in the River Basin Management Plans
W2	To prevent pollution and contamination of ground water in line with the recommendations outlined in the River Basin Management Plans
MS1	To minimise effects upon the sustainable use of land, mineral resources or soils

[24] See definition of 'Wildlife Sites' under Section 5.2.1.10 of the main Environmental Report or under Section 177R(1) of the Planning and Development Act 2000, as amended.

4.3.2 Scenario 1: *Business as Usual*

A reduced need to further significantly develop the transmission network (and new energy generation) would result in continued use of non-renewable energy sources. This would give rise to increases in greenhouse gas emissions but would involve fewer new projects with less potential environmental effects. This scenario would not be in compliance with international energy objectives, greenhouse gas emission objectives, the National Development Plan or the National Spatial Strategy.

4.3.3 Scenario 2: Grid 25 *(continuation of existing planning and economic development policy)*

The development of the transmission network (and new energy generation) in regions across the country would present potential conflicts with environmental sensitivities which occur in greatest concentrations in the western half of the country (see Figure 2.3). Conflicts with sensitivities could be avoided, reduced or offset through investment in mitigation measures. This scenario would be in compliance with international energy and greenhouse gas emission objectives as well as with the National Development Plan and the National Spatial Strategy.

4.3.4 Scenario 3: Grid 25 *(alteration of existing planning and economic policy)*

The development of the transmission network (and new energy generation) within or adjacent to centres of population and growth along the eastern and southern coast would avoid the greatest concentrations of environmental sensitivities (see Figure 2.3). Conflicts with sensitivities located in this more robust part of the country could be avoided, reduced or offset through investment in mitigation measures (this investment would be likely to be less than that which would be required under Scenario 2). This scenario would be in compliance with international energy and greenhouse gas emission objectives and parts of the National Development Plan however it would conflict with the National Spatial Strategy.

4.3.5 Evaluation against SEOs

Table 4.2 provides an evaluation of each of the alternative development scenarios for the IP against the Strategic Environmental Objectives (SEOs).

4.3.6 The Reasons for choosing the IP in light of the other reasonable alternatives dealt with

Scenario 2: *Grid 25 (continuation of existing planning and economic development policy)* was selected in order to contribute towards the achievement of Government Policy, namely:

- the achievement of the 40% renewable energy target and the actions outlined in the Government White Paper, and;
- the achievement of the objectives of national planning and economic policy to develop the transmission network (and new energy generation) in regions across the country.

4.3.7 Evaluation of Provisions prepared to realise the Selected Alternative Development Scenario

Section 8 of the Environmental Report evaluates the provisions of the IP for Grid25 which have been prepared to realise Scenario 2 (the selected Alternative Scenario). Potential adverse effects will be mitigated by a range of measures which have emerged through both the AA and SEA processes and which have been integrated into the IP.

4.3.8 Note on Alternatives for Projects contained in the Implementation Strategy

The consideration of alternatives is limited to the consideration of scenarios as outlined above. Scenario 2: *Grid 25 (continuation of existing planning and economic development policy)* was selected as it conforms with, and will contribute towards, the achievement of Government Policy.

Appendix A of Grid25 sets out the range of Technical Options for Grid Development which includes a consideration of the environmental considerations of each option. Alternative routes and regional grid development strategies will consider spatial and environmental alternatives at the next level of environmental assessment – i.e. that of lower tier plans, multiple or individual projects. All projects will be subject to detailed constraints and routes study.

Table 4.2 Evaluation of Alternative Development Scenarios against SEOs

	Likely to **Improve** status of SEOs	Probable **Conflict** with status of SEOs - unlikely to be mitigated	Potential **Conflict** with status of SEOs - would be mitigated		
			Least Potential Conflict	Potential Conflict	**Most** Potential Conflict
Scenario 1: **Business as Usual**		C1 (would not be in compliance with energy or greenhouse gas objectives or with the National Development Plan or National Spatial Strategy) L1 (unavoidable impacts upon the landscape, some of which would be mitigated)	B1 B2 B3 CH1 HH1 W1 W2 MS1 (a reduced significant need to further develop the transmission network and new generation would involve less new projects with less potential effects)		
Scenario 2: **Grid 25 (continuation of existing planning and economic development policy)**	C1 (would be in compliance with energy and greenhouse gas objectives and with the National Development Plan and National Spatial Strategy)	L1 (unavoidable impacts upon the landscape, some of which would be mitigated; more probable conflict than Scenario 3 as development would not avoid the greatest concentration of landscape sensitivities)		HH1 (Need to avoid excessive proximity of development to concentrations of population – in particular, western energy generation has to be linked eastwards to areas of higher demand and UK markets – the additional new cross country routes)	B1 B2 B3 (more potential conflict than with Scenario 3 as development would not avoid the greatest concentration of ecological sensitivities) MS1 W1 W2 CH1 (more potential conflict than with Scenario 3 as western energy generation has to be linked eastwards to areas of higher demand and UK markets – additional new routes and increased conflict with water courses and archaeological sites)
Scenario 3: **Grid 25 (alteration of existing planning and economic policy)**	C1 (would be in compliance with energy and greenhouse gas objectives and parts of the National Development Plan but not with National Spatial Strategy)	C1 (would not be in compliance with the National Spatial Strategy but would be in compliance with energy and greenhouse gas objectives and parts of the National Development Plan) L1 (unavoidable impacts upon the landscape, some of which would be mitigated; less probable conflict than Scenario 2)		B1 B2 B3 (less potential conflict than with Scenario 2 as development would avoid the greatest concentration of ecological sensitivities) MS1 W1 W2 CH1 (less potential conflict than with Scenario 2 as eastern and southern energy generation does not have to be linked westwards across the country – less potential conflicts between cultural heritage and water resources) HH1 (Need to avoid excessive proximity of development to concentrations of population – in particular, around the Dublin area)	

Section 5 - Monitoring Measures

5.1 Introduction

The SEA Directive requires that the significant environmental effects of the implementation of plans and programmes are monitored. The SEA Environmental Report puts forward proposals for monitoring the likely significant effects of implementing the IP which are reproduced in this section.

By specifying indicators and targets, monitoring enables, at an early stage, the identification of unforeseen adverse effects and the undertaking of appropriate remedial action. In addition to this, monitoring can also play an important role in assessing whether the IP is achieving environmental objectives and targets - measures which the IP can help work towards - whether these need to be reexamined and whether the proposed mitigation measures are being implemented.

Note that the following monitoring measures will be extended and augmented by the output from the Environmental Benchmarking Studies and Evidence-Based Design Guidelines described above.

5.2 Indicators and Targets

Monitoring is based on the indicators which were chosen earlier in the SEA process. These indicators allow quantitative measures of trends and progress over time, relating to the Strategic Environmental Objectives (see Table 4.1), to be used in the evaluation. Focus is given to indicators which are relevant to the likely significant environmental effects of implementing the IP. Existing monitoring arrangements will be used in order to monitor the selected indicators. Each indicator to be monitored is accompanied by the target(s) which were identified for the relevant legislation.

Table 5.1 shows the indicators and targets which have been selected for monitoring the likely significant environmental effects of implementing the IP.

The Monitoring Programme may be updated to deal with specific environmental issues - including unforeseen effects - as they arise. Such issues may be identified by EirGrid or identified to EirGrid by other agencies. EirGrid has responsibility for updating the ER.

5.3 Sources

Existing monitoring sources exist for each of the indicators and include those maintained by the relevant authorities e.g. the Environmental Protection Agency, the National Parks and Wildlife Service and the National Monuments Service.

Where significant adverse environmental effects - including positive, negative, cumulative and indirect - are likely to occur as a result of implementing relevant lower-tier plans and programmes such instances should be identified and recorded and should feed into the monitoring evaluation.

Consultations with the relevant authorities will also enable data to be sourced for certain indicators.

5.4 Implementation and Reporting Timeframes

EirGrid is responsible for the implementation of the monitoring programme set out in this section. This includes collating existing relevant monitored data, the preparation of preliminary and final monitoring evaluation reports, the publication of these reports and, if necessary, the carrying out of corrective action. A Steering Committee will be established within EirGrid to oversee the monitoring process.

Preliminary data on monitoring the likely significant environmental effects of implementing the IP will be used on an annual basis to inform the Environmental Appraisal Report of all new Transmission Development Plans (see Section 2.5.6).

EirGrid will report on the IP implementation and associated SEA and AA monitoring on an annual basis within each Environmental Appraisal Report.

A stand-alone Monitoring Report on the likely significant environmental effects of implementing the IP will be prepared in order to inform the preparation of the next IP and accompanying SEA.

5.5 Cumulative/Indirect 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 8.2 in the SEA Environmental Report identifies the principle plans, policies and programmes that are likely to give rise to developments causing effects that could combine or interact with those of the Implementation Programme. There are two types of cumulative/indirect effects arising from implementation of the Implementation Programme;

(1) Those directly attributable to the development of the grid - e.g. the cumulative impact on the landscape which could occur as a result of the addition of further lines, in an area that already contains transmission lines.

(2) Those attributable to the development of new energy generation infrastructure and other economic development which will be facilitated by the grid e.g. the development of settlements, wind farms, industry etc.

The monitoring of the effects of developments identified under (1) will refer to the indicators set out on Table 5.1. In addition, the undertaking of the studies which were recommended as mitigation measured and integrated into the IP will provide further baseline against which effects of implementing the IP will be monitored.

Effects identified under (2) arise due to an interaction of a wider range of factors arising from national and sectoral policies. Such national effects identified under (2) are monitored by the EPA State of the Environment Report, the DAHG report of the implementation of the measures contained in the Habitats Directive - as required by Article 17 of the Directive - and other national monitoring programmes.

A high level / strategic indicator which will be used to examine the overall performance state of the IP monitoring indicators will be an increase in the reporting on the effects - including cumulative - arising from energy related plans and projects. This will be measured by identifying energy related plans and projects which have occurred over a period of time and examining whether either SEA, EIA, AA or a non-mandatory type of environmental assessment have been undertaken as appropriate.

5.6 Thresholds

Thresholds, at which corrective action will be considered, may need further consideration during implementation and include

- court cases taken by the DAHG regarding impacts upon archaeological heritage including entries to the Record of Monuments and Places; and,
- complaints received from statutory consultees regarding avoidable environmental impacts resulting from plans or projects which are prepared or undertaken under the IP.

Table 5.1 Selected Indicators, Targets and Monitoring Sources

Environmental Component	Selected Indicator(s)	Selected Target(s)	Source	Monitoring Frequency
Biodiversity, Flora and Fauna	B1: Conservation status of habitats and species as reported upon under Article 17 of the Habitats Directive	B1: Maintenance of favourable conservation status for all habitats and species protected under national and international legislation to be unaffected by implementation of the IP[25]	a) DAHG report of the implementation of the measures contained in the Habitats Directive - as required by Article 17 of the Directive; b) Consultations with the NPWS; &, c) Monitoring of the effects of development required under separate processes	a) Every 6 years b) Annually, to inform Environmental Appraisal Report which will accompany annual TDPs c) Various - determined by monitoring programmes provided for by EIAs
	B2: Percentage loss of functional connectivity without remediation resulting from development provided for by the IP	B2: No significant ecological networks or parts thereof which provide functional connectivity to be lost without remediation resulting from development provided for by the IP	a) Consultations with the NPWS; &, b) Monitoring of the effects of development required under separate processes	a) Annually, to inform Environmental Appraisal Report which will accompany annual TDPs b) Various - determined by monitoring programmes provided for by EIAs
	B3: Number of significant impacts on relevant habitats, species, environmental features or other sustaining resources in Wildlife Sites resulting from development provided for by the IP	B3: Avoid significant impacts on relevant habitats, species, environmental features or other sustaining resources in Wildlife Sites resulting from development provided for by the IP	a) Consultations with the NPWS; &, b) Monitoring of the effects of development required under separate processes	a) Annually, to inform Environmental Appraisal Report which will accompany annual TDPs b) Various - determined by monitoring programmes provided for by EIAs
Landscape	L1: Number of complaints received from statutory consultees regarding avoidable impacts on the landscape resulting from development provided for by the IP	L1: No avoidable impacts on the landscape resulting from development provided for by the IP	a) Complaints from statutory consultees; &, b) Monitoring of the effects of development required under separate processes	a) To be collated annually, to inform Environmental Appraisal Report which will accompany annual TDPs b) Various - determined by monitoring programmes provided for by EIAs
Cultural Heritage	CH1i: Number of unauthorised developments occurring which result in full or partial loss to entries to the RMP and the context of the above within the surrounding landscape where relevant, resulting from development provided for by the IP	CH1i: No unauthorised developments occurring which result in full or partial loss to entries to the RMP and the context of the above within the surrounding landscape where relevant, resulting from development provided for by the IP	a) Consultations with the DAHG; &, b) Monitoring of the effects of development required under separate processes	a) Annually, to inform Environmental Appraisal Report which will accompany annual TDPs b) Various - determined by monitoring programmes provided for by EIAs
	CH1ii: Number of unauthorised developments occurring which result in full or partial loss to entries to the RPSs and the context of the above within the surrounding landscape where relevant, resulting from development provided for by the IP	CH1ii: No unauthorised developments occurring which result in full or partial loss to entries to the RPSs and the context of the above within the surrounding landscape where relevant, resulting from development provided for by the IP	a) Consultations with the DAHG; &, b) Monitoring of the effects of development required under separate processes	a) Annually, to inform Environmental Appraisal Report which will accompany annual TDPs b) Various - determined by monitoring programmes provided for by EIAs
Climatic Factors	C1: Percentage electricity consumption from renewable energy	C1: Contribute towards an increase in electricity consumption from renewable energy (ultimately 40% by 2020)	Consultations with the Sustainable Energy Authority of Ireland	Annually, to inform Environmental Appraisal Report which will accompany annual TDPs

[25] Except as provided for in Section 6(4) of the Habitats Directive, viz.There must be:
(a) no alternative solution available,
(b) imperative reasons of overriding public interest for the plan to proceed; and
(c) adequate compensatory measures in place.

Environmental Component	Selected Indicator(s)	Selected Target(s)	Source	Monitoring Frequency
Population and Human Health	HH1i: Occurrence (any) of a spatially concentrated deterioration in human health arising from environmental factors resulting from development provided for by the IP, as identified by the Health Service Executive and Environmental Protection Agency	HH1i: No spatial concentrations of health problems arising from environmental factors resulting from development provided for by the IP	a) Consultations with EPA and Health Service Executive; &, b) Monitoring of the effects of development required under separate processes	a) Annually, to inform Environmental Appraisal Report which will accompany annual TDPs; &, b) Various - determined by monitoring programmes provided for by EIAs
	HH1ii: Maximum noise level emanating from the installation at the façade of any near sited residential properties	HH1ii: Ensure that the maximum noise level emanating from the installation does not exceed 30 dB LAeq at the façade of any near sited residential properties, in line with the requirements of BS 4142 (1997), "Method of Rating Industrial Noise Affecting Mixed Residential and Industrial Areas	Monitoring of the effects of development required under separate processes	Various - determined by monitoring programmes provided for by EIAs
	HH1iii: Compliance of the standard route planning criteria, including general proximity to settlements and dwellings, adopted for the development of the Network with all authoritative international and national guidelines for ELF EMF exposure	HH1iii: Ensure compliance of the standard route planning criteria adopted for the development of the Network with all authoritative international and national guidelines for ELF EMF exposure	Monitoring of the effects of development required under separate processes	Various - determined by monitoring programmes provided for by EIAs
Water	W1i: Classification of Overall Status (comprised of ecological and chemical status) under the European Communities Environmental Objectives (Surface Waters) Regulations 2009 (SI No. 272 of 2009)	W1i: Not to cause deterioration in the status of any surface water or affect the ability of any surface water to achieve 'good status' by 2015	a) Data issued under the Water Framework Directive Monitoring Programme for Ireland (EPA, 2006); &, b) Monitoring of the effects of development required under separate processes	a) Unknown b) Various - determined by monitoring programmes provided for by EIAs
	W1ii: Poor, Sufficient, Good and Excellent classifications of bathing water as set by Directive 2006/7/EC	W1ii: Not to cause deterioration in bathing waters or affect the ability of bathing waters to achieve - as a minimum - the 'Sufficient' classification as set by Directive 2006/7/EC, and where possible the 'Good' or 'Excellent' classifications	As above	a) Annually b) Various - determined by monitoring programmes provided for by EIAs
	W2: Groundwater Quality Standards and Threshold Values under Directive 2006/118/EC	W2: Not to affect the ability of groundwaters to comply with Groundwater Quality Standards and Threshold Values under Directive 2006/118/EC	As above	a) Unknown b) Various - determined by monitoring programmes provided for by EIAs
Material Assets and Soil	MS1i: The extent of greenfield areas sterilised by the development of new transmission lines and associated infrastructure	MS1i: To minimise the extent of greenfield areas sterilised by the development of new transmission lines and associated infrastructure	a) EirGrid assessment of projects undertaken; &, b) Monitoring of the effects of development required under separate processes	a) Annually, to inform Environmental Appraisal Report which will accompany annual TDPs; &, b) Various - determined by monitoring programmes provided for by EIAs
	MS1ii: The reinforcement of existing transmission lines and the integration of new transmission infrastructure in proximity (0-1km) to motorways and dualled national primary roads	MS1ii: To maximise the reinforcement of existing transmission lines and the integration of new transmission infrastructure in proximity (0-1km) to motorways and dualled national primary roads	As above	

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