SONI TRANSMISSION DEVELOPMENT PLAN FOR NORTHERN IRELAND 2018 - 2027

Strategic Environmental Assessment Statement

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ABBREVIATIONS

AA	Appropriate Assessment
AONB	Area of Outstanding Natural Beauty
AQMA	Air Quality Management Area
AQS	Air Quality Strategy
ASSI	Area of Special Scientific Interest
DAERA	Department of Agriculture, Environment and Rural Affairs
DAFM	Department of Agriculture, Food and the Marine
DCCAE	Department of Communications, Climate Action and the Environment
DCHG	Department of Culture, Heritage and Gaeltacht
DEFRA	Department for Environment, Food & Rural Affairs
DfI	Department for Infrastructure
DHPLG	Department of Housing, Planning and Local Government
DSD	Department for Social Development
EPA	Environmental Protection Agency
HRA	Habitats Regulation Assessment
LAQM	Local Air Quality Management
MCZ	Marine Conservation Zones
NHA	Natural Heritage Area
NIE	Northern Ireland Electricity
NIEA	Northern Ireland Environment Agency
NIO	Northern Ireland Office
PAH	Polycyclic Aromatic Hydrocarbons
PM	Particulate Matter
PNHA	Proposed Natural Heritage Area
PPC	Pollution Prevention and Control
RBD	River Basin District
RBMP	River Basin Management Plan
SAC	Special Area of Conservation
SEA	Strategic Environmental Assessment
SEO	Strategic Environmental Objective

SLNCI	Sites of Local Nature Conservation Importance
SMR	Site and Monuments Record
SONI	Systems Operator for Northern Ireland
SPA	Special Protection Area
TDPNI	Transmission Development Plan for Northern Ireland
TSO	Transmission System Operator
WFD	Water Framework Directive

1 INTRODUCTION

1.1 Purpose of this Report

This Strategic Environmental Assessment (SEA) Statement has been prepared as part of the SEA for the Transmission Development Plan for Northern Ireland (TDPNI) 2018 – 2027. This document provides information on the decision-making process and further details the ways in which environmental considerations, the views of consultees, the recommendations of the Environmental Report and the assessment carried out under Article 6 of the Habitats Directive have influenced and been taken into account by the TDPNI 2018 – 2027.

The SEA of the TDPNI 2018 – 2027 has been developed on behalf of the Systems Operator for Northern Ireland (SONI), which is the Transmission System Operator (TSO) in Northern Ireland under a license granted by the Northern Ireland Authority for Utility Regulation under Article 10(1)(b) of the Electricity (Northern Ireland) Order 1992 (the Order). SONI is responsible for operating and planning the development of a safe, secure, economic and reliable electricity system. Working in co-operation with the system owner Northern Ireland Electricity (NIE) Networks, SONI plans the development of the electricity grid infrastructure for Northern Ireland. Investment in grid development is required to improve the grid for reliability, to support economic growth, to enable competition, and to connect more renewable energy.

In line with its licence obligations as TSO in Northern Ireland, SONI is obliged to draft a 10 year Transmission Development Plan outlining projects that are needed for the operation of the transmission system. Using the most up to date information on the current and projected future requirements for the operation of a secure, reliable grid, the Transmission Development Plan for Northern Ireland 2018 – 2027 was compiled. The TDPNI presents the potential projects required in Northern Ireland over the next 10 years (2018-2027) to reinforce the electrical transmission grid and ensure the connection of generation and demand for Northern Ireland.

This SEA Statement has been prepared in accordance with the European Communities Directive 2001/42/EC on the assessment of the effects of certain plans and programmes on the environment (SEA Directive) and in accordance with the Environmental Assessment of Plans and Programmes Regulations (Northern Ireland) 2004 (S.R.280/2004).

2 SUMMARY OF SEA PROCESS

The SEA Directive requires that certain Plans and Programmes, prepared by statutory bodies, which are likely to have a significant impact on the environment, are subject to the SEA process. The SEA process is broadly comprised of the stages shown in Figure 2.1, which are given a summary description in Table 2.1.

Table 2.1 Summary Descriptions of Main Stages in SEA Process

Stage	Description	Status
Screening	Determines whether SEA is required for a Plan / Programme, in consultation with the designated statutory consultees.	Completed in February 2018
Scoping	Determines the scope and level of detail of the assessment for the SEA in consultation with the designated statutory consultees.	Completed in April 2018
Environmental Assessment	Formal and transparent assessment of the likely significant impacts on the environment arising from the Plan / Programme, including all reasonable alternatives. The output from this is an Environmental Report which must go on public display along with the draft Plan.	Completed in November 2018
SEA Statement	Summarises the process undertaken and identifies how environmental considerations and consultations have been integrated into the final Plan / Programme.	Current Stage

Figure 2.1 Overview of SEA Process

2.1 SEA Screening

On behalf of SONI, RPS carried out an SEA Screening in February 2018 for the TDPNI and determined that SEA of the TDPNI was required due to the following reasons:

- In line with its licence obligations as transmission operator in Northern Ireland, SONI is obliged to draft a 10 year Transmission Development Plan outlining projects that are needed for the operation of the transmission system.
- The subject of the TDPNI is Electricity Transmission (Energy industry).
- The TDPNI will set the framework for development of future electricity transmission system developments, upgrades and maintenance throughout Northern Ireland over the next 10 years, from 2018 to 2027.
- The implementation of the TDPNI and the projects that will be developed from the Plan in Northern Ireland may have the potential to have significant impacts on the integrity of several Special Protection Areas (SPAs), Special Area of Conservation (SACs) and Ramsar wetland sites throughout Northern Ireland.
- Only the smaller asset replacement projects that are included in the Plan, which are often limited to refurbishment or replacement of assets within existing substation sites, are likely to determine the use of small areas at local level.
- A draft Grid Strategy called Network 25 was commenced in 2013 by NIE. Network 25 was intended to set out the scale and range of grid development needed to facilitate achievement of the Department of Enterprise Trade and Investment's Strategic Energy Framework target of 40% of electrical consumption from renewable energy by 2020.However, Network 25 did not progress beyond an outline preparation stage and while an SEA Scoping Report was published for consultation, neither a draft strategy nor an SEA Environmental Report were complete. The TDPNI is a fresh look at the electricity transmission requirements within Northern Ireland, instigated by the transfer of planning to SONI in May 2014 and the requirement to produce a plan incorporated into its licence late 2017.

With this information SONI concluded that the TDPNI required SEA. Responses to the SEA Screening Determination from the Northern Ireland Environment Agency (NIEA), Environmental Protection Agency

(EPA), and the Department of Agriculture, Food and the Marine (DAFM) can be found in Appendix A of the SEA Environmental Report.

2.2 SEA Scoping

An SEA Scoping Report for the TDPNI was completed and circulated in April 2018 to the statutory consultees. The purpose of the Scoping Report was to provide sufficient information on the TDPNI to enable the consultees to form an opinion on the appropriateness of the scope, format, level of detail, methodology or assessment and the consultation period proposed for the Environmental Report.

Under Article 6 of the SEA Directive the competent authority (in this case SONI) preparing the plan or programme is required to consult with specific 'environmental authorities' (statutory consultees) on the scope and level of detail of the information to be included in the Environmental Report. As some projects and developments from the TDPNI may be close to the border with the Republic of Ireland and the potential cross-border nature of some of the SONI / EirGrid projects, there is the potential for transboundary impacts from implementation of the Plan. For this reason, there is a requirement to undertake transboundary consultations as part of this SEA process.

The statutory consultee established within the SEA legislation for Northern Ireland (S.R. 280/2004) is:

- The Department of Agriculture, Environment and Rural Affairs (DAERA)

The statutory consultees are established within the Irish national legislation, European Communities (Environmental Assessment of Certain Plans and Programmes) Regulations 2004 [S.I. 435/2004] and the Planning and Development (Strategic Environmental Assessment) Regulations 2004 [S.I 436/2004], and their recent amendments of European Communities (Environmental Assessment of Certain Plans and Programmes) (Amendment) Regulations 2011 [S.I. 200/2011] and the Planning and Development (Strategic Environmental Assessment) (Amendment) Regulations 2011 [S.I. 201/2011], as being:

- Environmental Protection Agency (EPA);
- Department of Housing, Planning and Local Government (DHPLG);
- Department of Agriculture, Food and the Marine (DAFM);
- Department of Communications, Climate Action and the Environment (DCCAE); and,
- Department of Culture, Heritage and Gaeltacht (DCHG).

The responses received in relation to the Scoping for this SEA can be found in Appendix B of the SEA Environmental Report. Where possible these responses were integrated into the TDPNI, the assessment process and the environmental report.

2.3 Environmental Assessment and Environmental Report

An SEA Environmental Report was completed that detailed the environmental assessments undertaken on the draft TDPNI. The preparation of an Environmental Report on the likely significant effect on the environment of the TDPNI included consideration of:

- Baseline data relating to the current state of the environment;
- Links between the TDPNI and other relevant Strategies, Policies, Plans, Programmes and Environmental Protection Objectives;
- Key environmental issues in the area of the TDPNI;
- Alternatives available;
- The likely significant positive and negative effects of a number of reasonable alternatives on the environment;
- Measures envisaged for the prevention, reduction and mitigation of any significant adverse effects; and
- Monitoring measures to ensure that positive and negative environmental effects will be identified, allowing for appropriate remedial action to be taken if necessary.

2.4 Consultations

Environmental factors have been taken into account throughout the development of the TDPNI and the supporting environmental assessments. The SEA Screening Report was produced in February 2018 and was sent to the statutory authorities listed in **Section 2.2**. Responses were received from NIEA, the EPA and the DAFM, as given in Appendix A of the SEA Environmental Report.

An SEA Scoping Report for the TDPNI was circulated in April 2018 to both the Northern Ireland and Republic of Ireland statutory consultees listed in **Section 2.2**. Non-statutory stakeholders were also provided with the SEA Scoping Report and all information was made publically available on the SONI

website in April 2018. The list of non-statutory stakeholders that were provided with the SEA Scoping Report for comment was as follows:

- NIE Networks;
- Department for the Economy, and
- Utility Regulator

Responses to the Scoping Report were received from the DAERA, the EPA and NIE Networks, all of which can be found in **Appendix B** of the SEA Environmental Report. All responses received from this consultation were incorporated into the environmental assessments where feasible.

Consultations on the draft TDPNI, SEA Environmental Report and HRA commenced in November 2018 and ran for 9 weeks. Documents were made available for viewing at the RPS offices in Belfast and digitally via the SONI website. All responses received during this consultation phase, and any subsequent action taken, are summarised in **Appendix A** of this SEA Statement.

2.5 Habitats Regulation Assessment

In addition to the SEA process, and in accordance with the EU Habitats Directive (92/43/EEC), the potential for the TDPNI to impact negatively on Natura 2000 sites, including Special Protection Areas (SPAs) for birds and Special Areas of Conservation (SACs) for habitats and species, was assessed. Article 6(3) of the Habitats Directive requires that;

"Any plan or project not directly connected with or necessary to the conservation of a site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives."

An Appropriate Assessment (AA) Screening (Stage 1 of the AA process) was undertaken for the TDPNI in order to identify the potential European sites that may be negatively impacted by development arising from the TDPNI. A Habitats Regulation Assessment (HRA) (AA Stage 2) was undertaken in parallel with the SEA process. The HRA investigated the potential direct and indirect impacts of the proposals on the integrity and interest features of European sites, alone and in-combination with other plans and projects, taking into account the sites' structure, function and conservation objectives. The findings of the HRA were used to guide the development of the options to be considered as part of the TDPNI and SEA.

2.6 SEA Statement

The main purpose of this SEA Statement is to provide information on the decision-making process for the TDPNI in order to illustrate how decisions were taken and used to make the development process more transparent. In doing so, the SEA Statement documents how the recommendations of both the SEA Environmental Report and the HRA, as well as the views of the statutory consultees and other submissions received during consultation, have influenced the preparation of the TDPNI. It further provides information on the arrangements put in place for monitoring the implementation of the TDPNI following its finalisation. The SEA Statement is available to the public, along with the adopted TDPNI.

The SEA Statement includes the following information:

- Summary of how environmental considerations have been integrated into the TDPNI;
- Summary of how submissions received during consultations have been taken into account in the TDPNI;
- Reasons for choosing the development options, in light of other reasonable alternatives considered; and
- Measures that are to be undertaken to monitor and mitigate any significant environmental effects of implementing the TDPNI.

2.7 Adoption of the Transmission Development Plan for Northern Ireland 2018 – 2027

Following the public and statutory consultation on the TDPNI, the Plan was then provided to the Utility Regulator for approval. The TDPNI was adopted in June 2019. This, along with the SEA Environmental Report and SEA Statement will be used for the purpose of informing further studies and the detailed design of the proposed options within the TDPNI.

3 INFLUENCE OF SEA ON THE TDPNI 2018 - 2027

The TDPNI has been developed to ensure all future requirements of the electrical network in Northern Ireland will be met. The TDPNI presents the potential projects required in Northern Ireland over the next 10 years (2018-2027) to reinforce the electrical transmission grid and ensure the connection of generation and demand for Northern Ireland. The TDPNI and environmental teams worked closely throughout the TDPNI development process. The SEA process identified the potential positive and negative impacts on the wider environment of constructing and operating these individual electricity transmission projects within the TDPNI, along with highlighting the potential cumulative / in-combination impacts of developing the projects. This SEA was designed to help support the future decision making in implementation of the TDPNI, to ensure that SONI and NIE Networks are fully aware of the environmental constraints and opportunities of these projects, and to help the future sustainable development of projects that come from the TDPNI.

3.1 Environmental Assessment of Development Options

The various developments available to the TDPNI were assessed in terms of their potential positive and negative impacts and the significance of these impacts on the environment against the SEA objectives. The purpose of this was to predict and evaluate, as far as possible, the environmental effects of the TDPNI, highlighting any significant environmental problems and / or benefits that are likely to arise from implementation of the TDPNI. Where possible, the assessment was quantitative, with a graphical output to aid public appreciation and understanding of the implications of each development option in the TDPNI.

The TDPNI was assessed via a Baseline Led Assessment. This method involved the assessment of each option available in the potential developments of the TDPNI against each of the following topics:

- Biodiversity, Flora & Fauna (BFF)
- Population & Human Health (PHH)
- Soils, Geology and Landuse (S)
- Water (W)
- Air (A)
- Climatic Factors (C)
- Material Assets & Infrastructure (MA)
- Cultural, Architectural & Archaeological Heritage (H)
- Landscape and Visual Amenity (L)

Each potential project in the TDPNI was assessed in the short, medium and long term for likely effects, the significance of the effects and whether they are positive or negative effects. Other impacts that have been assessed for significance were secondary effects, cumulative effects, synergistic effects, temporary and permanent effects, and the inter-relationship of effects. The scenario of "The Evolution of the Environment without the Plan" was also assessed in the same format. This was considered the Do-Nothing Scenario.

All potential positive and negative impacts were presented individually, with a text description, and then a summary graphic. In addition, a summary of the overall balanced potential effect was presented for each environmental issue area.

The scores assigned to impacts ranged from +3 to -3 as demonstrated in Table 3.1. If an alternative was thought to have the potential for unacceptable impacts a score of -999 could have been assigned, however none were encountered. The purpose of adding numerical scores was to assist in the ranking of options and for potential incorporation of the environmental and social criteria into future decision making by the TDPNI team, as a numerical score could easily be tied into a multi-criteria analysis of alternatives if desired.

Table 3.1 Description of SEA Environmental Impact Scores

Score	Description
+3	Significant positive environmental impacts
+2	Moderate positive environmental impacts
+1	Slight positive environmental impacts
0	No environmental impacts
-1	Slight negative environmental impacts
-2	Moderate negative environmental impacts
-3	Significant negative environmental impacts
-999	Unacceptable impacts

3.1.1 SEA Objectives

Each potential development was assessed against the SEA Objectives to examine the likely significant environmental impacts of their implementation. These were referred to as the Strategic Environmental Objectives (SEOs). The SEOs, Sub-Objectives, Indicators and Targets used are given in Table 3.2.

Table 3.2 Strategic Environmental Objectives

Environmental Topic	Objective		Sub-Objective		Indicators	Targets
Biodiversity, Flora & Fauna	1	Avoid damage to, and where possible enhance, biodiversity, flora and fauna.	A	Preserve, protect, maintain and where possible enhance internationally protected species and their key habitats.	Status, condition, area and number of internationally protected species and their key habitats. SACs, SPAs, Ramsar sites	Potential to maintain or enhance internationally protected species and their key habitats, in line with conservation objectives.
			B	Preserve, protect, maintain and where possible enhance national and local nature conservation sites and protected species, or other know species of conservation concern.	Status, condition, area and number of ASSI, NHA, pNHA, SLNCI and local conservation designations and their species.	Potential to maintain or enhance national and local conservation sites, in line with conservation objectives.
Population & Human Health	2	Minimise the risk to and provide benefit for the community and human health.	A	Minimise disruption and displacement to the local population, while providing robust transmission infrastructure.	Population density within proximity to potential transmission system developments.	Minimal potential disruption to the local population in development and operation of infrastructure.
			B	Minimise risks to human health and social deprivation, while providing robust transmission infrastructure.	Perceived health of the local population within proximity to potential transmission system developments. Socially sensitive areas within proximity to	Minimal potential disruption to sensitive and deprived communities in development and operation of infrastructure.

					potential transmission system developments.	
Soils, Geology and Landuse	3	Minimise damage to the function and quality of the soil resource in the study area in construction and operation of transmission infrastructure.	A	Minimise damage to the function and quality of the soil resource in the study area in construction and operation of transmission infrastructure.	Loss or damage to sensitive soils and land uses, e.g. peatlands, ancient woodland, commercial forestry, cultivated lands Interactions with potentially hazardous soils and activities, e.g. PPC sites, mines, quarries, historically contaminated sites Interactions with topographically difficult sites, e.g. steep slopes and uplands.	Minimal potential for disruption to and loss of sensitive soil and land resources. Potential to avoid hazardous sites and topographically unsuitable areas
Water	4	Avoid impacts and interaction with water quality, quantity and resource.	A	Avoid damage to or deterioration of water status, quality and resource.	WFD water status of surface, coastal, transitional and groundwater's within proximity to potential transmission system developments. Sensitive waterbodies, e.g. drinking and bathing waters within proximity to	Limited potential for deterioration of water status or quality, upstream or downstream, in development and operation of infrastructure.

					potential transmission system developments.	
			B	Avoid interactions with coastal, pluvial or fluvial flood extents.	Medium probability flood extents - Pluvial and fluvial 100 year and coastal 200 year flood extents.	Minimal potential development within medium probability flood extents, unless resilient to flooding.
Air	**5**	Minimise risk to local air quality and contribute to improving regional emissions	**A**	Minimise risk to local air quality and contribute to improving regional emissions	Development in air quality sensitive areas. Enable increased renewable energy connection to reduce requirements for fossil fuel burning.	Minimal potential development within air quality sensitive areas. Potential to reduce requirement for fossil fuel power station activity and emissions.
Climatic Factors	**6**	Adaption of infrastructure to potential climatic change and reduced GHG emissions	**A**	Adaption of infrastructure to potential climatic change and reduced GHG emissions	Medium probability climate change (cc) influenced flood extents - Pluvial and fluvial 100 year + cc and coastal 200 year +cc flood extents. Enable increased renewable energy connection to reduce requirements for fossil fuel burning.	Minimal potential development within medium probability climate change flood extents, unless resilient to flooding. Potential to reduce regional and national GHG emissions.

Material Assets & Infrastructure	**7**	Provide new, robust electrical transmission infrastructure with minimal disruption to other assets and infrastructure.	**A**	Provide new, robust electrical transmission infrastructure with minimal disruption to other assets and infrastructure.	Transmission infrastructure developed or upgraded. Potential for impacts on transport (road, rail, air) and energy infrastructure (gas). Potential for loss of or impacts to agricultural land assets.	New and reinforced electricity grid infrastructure, with minimal potential disruption to other assets and infrastructure.
Cultural, Architectural & Archaeological Heritage	**8**	Protect the historic environment and cultural heritage.	**A**	Protect the historic environment and cultural heritage.	Potential for impacts on, or the setting of, known archaeological heritage features. Potential for impacts on, or the setting of, known architectural heritage features.	Minimal potential impacts on, or the setting of, known archaeological and architectural heritage features, in development and operation of infrastructure.
Landscape & Visual Amenity	**9**	Minimise the potential for negative impacts on landscape and visual amenity.	**A**	Minimise the potential for negative impacts on landscape and visual amenity.	Landscape sensitivity to infrastructure development. Potential for impacts on visually sensitive areas, such as AONBs and country parks.	Minimal potential impacts on sensitive landscapes and visual amenity, in development and operation of infrastructure.

3.1.2 Objectives and Policies of the TDPNI 2018 - 2027

Within Section 4 of the TDPNI there are several sets of Policies and Objectives which are set out to assist in delivery of the grid strategy objectives in a sustainable manner. Environmental policies (ENVP) were compiled to ensure that SONI has due regard for existing environmental protection legislation and environmental best practice when developing projects. Environmental objectives (ENVO) were also developed for a number of environmental topics. These objectives ensure that legislative requirements and good environmental practice are integrated in the development of all Grid projects. The policies and objectives are set out in Section 2.3 of the SEA Environmental Report, and are grouped under the following headings:

- *General Environmental Policy (ENVP1)*
- *Biodiversity Policy (ENVP2 – ENVP4)*
- *Biodiversity Objective (ENVO1)*
- *Climate Change Policy (ENP5)*
- *Noise Policy (ENVP6)*
- *Noise Objectives (ENVO2 – ENVO3)*
- *Landscape Policy (ENVP7)*
- *Landscape Objective (ENVO4)*
- *Cultural Heritage Policy (ENVP8 – ENVP9)*
- *Water Policy (ENVP10 – ENVP12)*
- *Water Objective (ENVO5)*
- *Air Quality Policy (ENVP13 – ENVP14)*
- *Tourism Policy (ENVP15)*
- *Tourism Objective (ENVO6)*
- *Technology Policy (TP1 – TP2)*
- *Project Development Policy (PDP1 – PDP3)*
- *Planning and Consenting Policy (PCP1 – PCP3)*
- *Consultation and Engagement Policy (CEP1 – CEP3)*

Table 3.3 demonstrates the compatibility of the TDPNI Objectives and Policies with the SEOs. The purpose of this appraisal is to demonstrate how the Objectives and Policies of the TDPNI incorporate and reflect environmental topics. Green boxes with a ✓ demonstrate where TDPNI and SEA Objectives are

compatible, and the SEA Objective is incorporating the TDPNI Objective or Policy. Please note that Objectives / Policies not being compatible do not mean that they are in conflict, it only demonstrates where a TDPNI Objective and an SEA Objective are not similar. Table 3.4 within the SEA Environmental Report further demonstrates how TDPNI Objectives are encompassed with the SEOs.

Table 3.3 Compatibility of Objectives and Policies with SEOs

TDPNI Objective / Policy	SEA Objective								
	BFF	PHH	S	W	A	C	MA	H	L
ENVP1	✓	✓	✓	✓	✓	✓	✓	✓	✓
ENVP2	✓					✓			
ENVP3	✓		✓			✓			
ENVP4	✓		✓			✓			
ENVO1	✓					✓			
ENVP5					✓	✓			
ENVP6		✓			✓				
ENVO2		✓			✓				
ENVO3		✓			✓				
ENVP7									✓
ENVO4									✓
ENVP8								✓	
ENVP9								✓	
ENVP10				✓		✓			
ENVP11				✓		✓			
ENVP12				✓		✓			
ENVO5		✓		✓		✓			
ENVP13		✓			✓				
ENVP14		✓			✓				
ENVP15		✓					✓		
ENVO6		✓					✓		
TP1		✓					✓		
TP2							✓		
PDP1							✓		
PDP2							✓		
PDP3							✓		
PCP1							✓		
PCP2							✓		
PCP3							✓		

CEP1		✓	✓						
CEP2		✓	✓						
CEP3		✓							

4 FINAL TDPNI 2018 – 2027

The TDPNI is a Plan that prepares for future transmission infrastructure development; however SONI can only be reactive to the predicted supply and demand of electricity. While the developments that actually move on to the project level and construction are decided by SONI, funding for this work is assessed on a case by case basis by the Utility Regulator. Under SONI's licence, the Utility Regulator has the authority to direct derogation from the Transmission System Security and Planning Standards should it determine that any particular solution would not be economic for customers to fund through tariffs. Similarly the SEA Environmental Report does not identify preferred solutions for transmission infrastructure. However it provides SONI with very useful information for their future sustainable planning of grid reinforcement, should they decide that certain developments are required to move ahead to the project level to ensure continuing compliance with standards.

4.1 Transmission Projects Considered

The projects that were screened for environmental assessment as part of the SEA are presented in Table 4.1. These projects are summarised by the four general development types that were identified:

1. New transmission lines
2. Transmission Line Restring or Uprate
3. New Substation
4. Substation Extension or Upgrade

The development and maintenance works involved in these project types are summarised in Sections 7.1 to 7.3 of the SEA Environmental Report.

Table 4.1 Projects Screened In and Assessed as part of the SEA

Project ID	Project Name	Development Type
1	Coolkeeragh – Magherafelt 275 kV Circuits Restring	Transmission Line Restring / Uprate
2	Agivey 110/33 kV Cluster	New Substation and Transmission Line
3	Kells Wind 110/33 kV Cluster	New Substation and Transmission Line
4	Fair Head / Torr Head Tidal Scheme Connection	New Transmission Line
5	Belfast Power Station	New Transmission Line

6	Compressed Air Energy Storage Scheme Connection	New Transmission Line
7	Omagh Main – Omagh South Uprate	Transmission Line Restring / Uprate
8	Omagh Reactive Compensation	Substation Extension or Upgrade
9	Tamnamore Reactive Compensation	Substation Extension or Upgrade
10	Coleraine Reactive Compensation	Substation Extension or Upgrade
11	Kells/Creagh – Rasharkin New 110 kV Circuit	New Transmission Line
12	Tamnamore – Turleenan Uprate	Transmission Line Restring / Uprate
13	Coolkeeragh – Trillick new 110 kV Line	New Transmission Line
14	Turleenan – Omagh South – Co. Donegal new 275 kV Line	New Transmission Line
15	*North West of Northern Ireland Reinforcement* Kilroot – Coolkeeragh HVDC Link	New Transmission Line (Subsea)
16	*North West of Northern Ireland Reinforcement* Magherafelt – Coolkeeragh new 275 kV or 110 kV Circuit	New Transmission Line
17	*North West of Northern Ireland Reinforcement* Magherafelt – Strabane (new substation) new 275 kV or 110 kV Circuit	New Transmission Line
18	*North West of Northern Ireland Reinforcement* Agivey Cluster – Limavady new 110 kV Circuit	New Transmission Line and New Substation
19	*North West of Northern Ireland Reinforcement* Strabane – Omagh 110 kV Uprate	Transmission Line Restring / Uprate
20	*North West of Northern Ireland Reinforcement* Coolkeeragh – Strabane 110 kV Uprate	Transmission Line Restring / Uprate
21	*North West of Northern Ireland Reinforcement* Coolkeeragh – Killymallaght 110 kV Uprate	Transmission Line Restring / Uprate
22	*North West of Northern Ireland Reinforcement* Coolkeeragh – Limavady 110 kV Uprate	Transmission Line Restring / Uprate
23	*North West of Northern Ireland Reinforcement* Killymallaght – Strabane 110 kV Uprate	Transmission Line Restring / Uprate
24	Sydenham Road Main (new station)	New Substation
25	Ballylumford – Castlereagh 110 kV Circuit Restring	Transmission Line Restring / Uprate
26	*Drumnakelly and Armagh Development Plan* New 110/33 kV substation adjacent to Drumnakelly Main and 33 kV reinforcements to Armagh area	New Substation and Transmission Line
27	*Drumnakelly and Armagh Development Plan* New 110/33 kV substation at Armagh and 110 kV circuits from Tandragee or Drumnakelly	New Substation and Transmission Line

4.2 Option Selection

SONI are responsible for planning the transmission system. All projects must progress through SONI's grid development process before being handed over to NIE Networks for construction. Selection of projects for further investigation and construction depends on the outcome of this process, which includes consultation with stakeholders and an application for cost recovery from the Utility Regulator. These projects will only be developed when a need has been identified, i.e. if there is the development of an electricity generator that needs to transmit energy to the users, or if there is the requirement for significant uprating to cope with demands. The SEA Environmental Report has identified the potential positive and negative impacts on the wider environment of constructing and operating these individual electricity transmission projects within the TDPNI, along with highlighting the potential cumulative / in-combination impacts of developing the projects. This report is designed to help support the future decision making in implementation of the TDPNI, to ensure that SONI and NIE Networks are fully aware of the environmental constraints and opportunities of these projects, and to help the future sustainable development of projects that come from the TDPNI.

4.3 Recommended Mitigation Measures

Section 9.1 of the SEA Environmental Report demonstrates the proposed mitigation measures which were included within **Section 10** of the Final TDPNI. These measures are recommended where potential negative impacts on environmental topic areas have been identified from developing the project options. These mitigation measures aim to prevent, reduce and as fully as possible offset any significant adverse effects on the environment due to implementation of the projects within the TDPNI. Mitigation has been further enhanced following consultation on the draft TDPNI which is reflected in the following section below.

4.3.1 General Mitigation

The principal mitigation recommendation is that the predicted negative effects should be considered further during the next stage of detailed planning and design, when the specifics of the development infrastructure options can be optimised through detailed feasibility studies and design in order to limit the potential impacts on sensitive receptors.

Further environmental studies based on the more detailed designs and construction methodologies should be undertaken as appropriate. These studies may involve, but are not limited to, marine, aquatic and terrestrial ecology surveys, ornithological and bat surveys, fish surveys, landscape and visual assessments, WFD assessments, geotechnical investigations and heritage surveys. Further Appropriate Assessment, to meet the requirements of the Habitats Directive, of the detailed designs and construction methodologies will be required at the project level, where potential impacts have been identified in this SEA and accompanying HRA for the TDPNI.

Before any works are carried out, detailed method statements and management plans (construction and environmental) should be prepared, including timing of works, information on the specific mitigation measures to be employed for each works area, and mechanisms for ensuring compliance with environmental legislation and statutory consents.

The timing of construction and maintenance works should be planned to avoid any potential for negative cumulative impacts or inter-relationships with other schemes, plans or projects, yet look to optimise any potential positive cumulative impacts or inter-relationships.

Contractors should be required to prepare Construction Environmental Management Plans (CEMPs), which would include a requirement for related plans to be prepared, as appropriate, for project implementation, such as Erosion and Sediment Control, Invasive Species Management, Emergency Response, Traffic and Safety Management, Dust and Noise Minimisation, and Stakeholder Communication Plans.

Works should only be carried out once the method statements have been consulted on with competent authorities, such as the NIEA. At the project level it will not be sufficient to defer the production of construction method statements. These should be completed in the detailed design stage and may be subject to further Appropriate Assessment where potential impacts have been identified in this SEA and accompanying HRA for the TDPNI. Where there may be unavoidable impacts on protected habitats and/or species the necessary derogation licenses should be applied for prior to seeking planning permission or approval for a scheme.

Marine construction and in stream works have the greatest potential for negative impacts during spawning / breeding and early nursery periods for aquatic and marine protected species. No marine or instream works should occur during restricted periods for relevant species and consultation should be undertaken with the appropriate authorities in this regard.

Monitoring of project-level mitigation measures should be undertaken during and after works, to ensure effectiveness.

All works and planning of works should be undertaken with regard to all relevant legislation, licensing and consent requirements, and recommended best practice guidelines. Where required, an ecological clerk of

works should be appointed for environmental management of each infrastructure development, and where specific sensitive species may be impacted, an appropriate expert should also be appointed.

4.3.2 Mitigation by Environmental Impact

Table 4.2 demonstrates environmental impact specific mitigation measures adopted in Section 10 of the Final TDPNI that will be further adopted within the project stage development of options from the TDPNI to minimise the potential for any negative effects on the wider environment. These mitigation measures will be implemented and further developed at the next detailed design stage and project level study stage.

Table 4.2 SEA Mitigation Measures

Potential Impact	Proposed Mitigation
1 - Construction phase disturbance, such as noise and habitat degradation, to International, National or locally designated sites and species that are within close proximity to developments.	Good planning and timing of works, and good construction and management practices to keep impacts to a minimum. Environmental Management Plan (EMP) and Construction Management Plan (CMP) to be developed and agreed with relevant authorities and consultees prior to commencement of works. Adhere to SONI / EirGrid / best practice guidelines. Scoping of relevant specialist ecological surveys during the detailed planning stage and prior to any construction works. Where applicable, prior to any vegetation clearance an ecologist should be contracted to undertake a 'pre-vegetation clearance' survey for signs of nesting birds and important species. Should important species be found during surveys the sequential approach of avoid, reduce or mitigate should be adopted to prevent significant impacts. Vegetation clearance should only occur outside the main breeding bird season - September to March. Following construction, replanting, landscaping, natural revegetating and habitat enhancement, should be undertaken in line with appropriate guidelines that aim to improve local biodiversity and wildlife. This is likely to provide for medium and long term benefits to the biodiversity, flora and fauna near the working areas. Where possible, original sediment/soil should be reinstated to original levels to facilitate natural restoration and recolonisation of habitat. Restricted working areas should be imposed to ensure minimal disturbance to sensitive habitats.
2 - Construction phase sedimentation impacts on International, National or locally designated sites and species that are within close proximity to developments	Consultation with environmental bodies on construction methodology and appropriate timing of works to provide the least potential for sediment mobilisation to watercourses. Good planning and timing of works, and good construction and management practices to keep the potential for impacts to a

Potential Impact	Proposed Mitigation
and where pathways are evident, as constructions works may mobilise sediments into watercourses.	minimum. Minimise requirement for near or in-stream works through good planning. During construction and site establishment operations, silt fencing should be used to prevent disturbed soil reaching the aquatic zone. Any in-stream works should be carried out during low flow conditions and should cease during heavy rainfall and flood conditions, to reduce suspended solids in the river. Buffer zones along waterways can provide mitigation during construction activities. Buffer zones must be of adequate dimensions and impede all free flow to waterways. Heavy machinery and site traffic should be excluded from these areas.
3 - Increased risk of direct physical disturbance to International, National or locally designated sites and species that are within close proximity to developments, including hazards to birds through collision and electrocution.	To avoid or minimise the potential for bird collision with overhead conductors, bird flight deflectors or bird warning spheres should be installed in areas identified as being of high risk, or having bird species vulnerable to such impacts. Ornithological surveys should be undertaken during the detailed design stage to identify these sensitive areas and species. Any mitigation measures require monitoring programmes to ensure that they are effective,
4 - Increased rate of spread of invasive species during restring or line development works. Mobile construction equipment traversing through areas of invasive species, potentially carrying these species into new areas.	Cleaning of equipment and machinery along with strict management protocols to combat the spread of invasive species. Pre and post construction surveys for invasive species may be recommended in areas of known invasive species risk. If invasive species are found to be present, an Invasive Species Management Plan should be prepared to outline control and or removal measures to ensure such species are not spread during construction or operation of any future projects.
5 - Creation of a new vector for mobile invasive species in the development of new transmission lines. Corridor clearing may act as a pathway for invasive species.	Cleaning of equipment and machinery along with strict management protocols to combat the spread of invasive species. Pre and post construction surveys for invasive species may be recommended in areas of known invasive species risk. If invasive species are found to be present, an Invasive Species Management Plan should be prepared to outline control and or removal measures to ensure such species are not spread during construction or operation of any future projects.
6 - Electromagnetic disturbances to mobile / migratory, marine and aquatic species, e.g. Atlantic salmon, from the development of underwater / subsea transmission lines.	Some studies suggest that marine and aquatic species that use magnetic fields for navigation can be affected by EMF and thus mitigation measures may need to be adopted in some underwater/subsea transmission lines. The Fair Head/Torr Head Tidal Scheme Connection and the Kilroot – Coolkeeragh HVDC Link projects both encompass areas where Salmonid Rivers flow into the sea and therefore significant salmon migration activity is likely to occur. The extent and magnitude of the EMF produced by subsea transmission lines in these areas, and the potential for these aquatic species to come into close contact with the lines, may

Potential Impact	Proposed Mitigation
	need to be further studied for potential impacts at a more detailed level on a case by case basis.
7 - Construction phase disturbance impacts to marine or aquatic nursery and spawning grounds, such as noise / vibration pollution and physical habitat disturbance.	Consultation with DAERA Inland Fisheries and DAERA Marine Environment Division at the detailed feasibility stage. Known marine spawning and nursery grounds should be avoided where possible, or invasive works minimised in these areas. All works involving open cut crossings should be carried out during the period May to September to avoid interruption of salmonid spawning runs, spawning, incubation of eggs and the early developmental stages.
8 - Construction phase sedimentation impacts to marine or aquatic nursery and spawning grounds, as construction works may cause sediment displacement and blanketing / smothering.	The planning of developments should aim to avoid known marine or aquatic nursery or spawning grounds. Where this cannot be avoided, construction timing should be well planned and works duration and invasive workings should be kept to a minimum in these areas.
9 - Construction phase disturbance impacts, such as noise pollution (e.g. cable laying or excavation), to mobile marine and aquatic species (e.g. cetaceans) that are known to frequent the study area.	The planning of developments should aim to avoid known hotspot areas for mobile marine and aquatic species. Where this cannot be avoided, construction times should be kept to a minimum in these areas. Employing Marine Mammal Observers (MMOs) on board construction works vessels can help ensure that impacts of coastal works are minimised. Consultation with DAERA Inland Fisheries and DAERA Marine Environment Division at the detailed feasibility stage. Statutory nature conservation agency protocol for minimising the risk of injury to marine mammals from piling noise (JNCC, 2010[1]) should be followed for marine based cable laying activities. For SACs which have seals as a site selection feature, the following ranges should be used for when screening for either Harbour or Grey Seals: • All SACs within 135km of the project should be screening for Grey Seals (*Halichoerus grypus)* and • All SACs within 50km should be screened for Harbour Seals (*Phoca vitulina*)
10 - Construction phase noise pollution disturbance impacts to people in close proximity to developments.	Disturbances can be kept to a minimum with good working practices, planning and timing. Adoption of Construction Best Practice. Noise-producing activities such as excavation and piling should only take place during daylight hours and monitoring of these activities should be ongoing. Continued liaison with local

[1] JNCC, 2010. Handbook for Phase 1 habitat survey – a technique for environmental audit.

Potential Impact	Proposed Mitigation
	communities is advised with regard to complaints concerning noise and vibration emissions resulting from construction works.
11 - Construction phase dust and sediment releases in close proximity to the developments, causing disturbance and negative health impacts to local people.	Disturbances can be kept to a minimum with good working practices, planning and timing. Adoption of Construction Best Practice. Development of dust minimisation plans in advance of works. Dust suppression measures in place during construction, for example establishing appropriate speed limits over unmade surfaces and establishing wheel washing facilities on construction sites. Continued liaison with local communities is advised with regard to complaints concerning dust releases resulting from construction works.
12 - Construction / maintenance phase compaction or destabilisation of peat and other sensitive soils, from heavy equipment traversing an area.	The development of transmission infrastructure across areas of significant soil sensitivity should be avoided where possible at the design stage (e.g. areas of deep and active peat should be avoided where possible). Where areas of sensitive habitat need to be crossed during construction/maintenance works, measures to reduce the impact of vehicles on wetland or bog should be considered including the use, for example, of low pressure vehicles, wide wheel/tracks and the laying of protective geotextile on the vegetation to be crossed. Construction machinery should also 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. Where impacts cannot be avoided or reduced, further works should be carried out to compensate for these impacts, or to restore some aspect of the natural environment to an approximation of its previous condition (e.g. 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).
13 - Temporary or permanent loss of crops and/or agricultural land due to the disturbance of construction works required for the uprating of existing or development of new transmission infrastructure over agricultural areas.	Good site management practices and construction management plans and consultation with the competent and statutory authorities prior to any works should enable all impacts to be kept to a minimum over a short timescale. Adoption of Construction Best Practice. Consultation with landowners and/or tenants to identify speciality agricultural crops or lands that may require protection during construction. Consultation with landowners to develop compensation for lost crop value caused by construction works. Land within the working area should be reinstated as near as practical to its former condition.
14 - Construction phase disruption to current land uses, such as noise pollution and dust release from construction works.	Good site management practices and construction management plans and consultation with the competent and statutory authorities prior to any works should enable all impacts to be kept to a minimum over a short timescale. Adoption of Construction Best Practice. Noise and vibration producing activities such as piling and excavation should only take place during daylight hours and monitoring of these activities should be ongoing in sensitive areas.

Potential Impact	Proposed Mitigation
	Development of dust minimisation plans. Dust suppression measures in place during construction, for example establishing appropriate speed limits over unmade surfaces and establishing wheel washing facilities on larger construction sites. Continued liaison with local communities is advised with regard to complaints concerning noise pollutions and dust release resulting from construction works.
15 - Construction phase potential for contaminated materials to be mobilised and tracked through the study area from historically contaminated sites or hazardous soils and activities, impacting on nearby soils and land uses.	Identification of historically contaminated areas and sites and careful route planning during the design stage to avoid these sites where possible, to prevent further contamination. Good management, planning and working practices to minimise contamination of nearby soils and land uses if works crossing historically contaminated sites or hazardous soils cannot be avoided. Good working practices may include installation of wheel wash and plant washing facilities. Strict management and regulation of construction activities. Sampling and analysis of sites prior to construction works in potentially hazardous areas, to establish potential risk.
16 - Access difficulties in topographically unsuitable areas, such as upland and steep slope areas or historic mine sites, and where transport of construction equipment across these areas may be problematic.	Careful route planning during the design stage to avoid topographically unsuitable areas where possible. In some cases, where access for machinery is particularly difficult due to the sensitive nature of habitats or difficult terrain, the aerial transport of materials and machinery by helicopter may be considered.
17 - Construction phase sedimentation impacts to water bodies e.g. construction works may destabilise soil materials, river banks and shorelines.	Good management and planning to keep water quality disturbance to a minimum. Precautions should be put into place to avoid or minimise the generation and release of sediments into any watercourses. Any potential water quality issues from construction should be contained and treated to ensure no damage to natural waterbodies. Construction will have to be planned appropriately, using Best Available Techniques / Technology (BAT) at all times, to ensure water quality issues are kept to a minimum, with no significant adverse effects. Develop, implement and enforce an Erosion and Sedimentation Control Plan (ESCP) where risks are identified to downstream European sites.
18 - Construction phase pollution impacts to water bodies, e.g. construction works may accidentally release pollutants, such as fuels, oils and lubricants.	Pollution prevention guidance notes (PPGs) should be consulted, which provide detailed guidance and appropriate mitigation measures to avoid or reduce the impact on the water environment. 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/NIEA.

Potential Impact	Proposed Mitigation
	All protective coatings used would be suitable for use in the aquatic environment and used in accordance with best environmental practice. Storage facilities would contain and prevent the release of fuels, oils and chemicals associated with plant, refuelling and construction equipment into the environment. Emergency and spill response equipment should be kept on hand during construction.
19 - Difficult working conditions during construction and maintenance works due to interactions with coastal, pluvial or fluvial flood extents.	Individual developments to be subject to detailed Flood Risk Assessment at the detailed planning stage, where risk has been identified. Avoid flood extents where possible, or provide infrastructure that is both resilient to the potential flood risk and provides no transfer of flood risk once developed. Critical infrastructure should not be placed in floodplains where it may be impacted, or where it may be inaccessible during flood events.
20 - Increases in local air emissions and reductions in local air quality from construction plant emissions, in areas of the proposed developments.	Development of dust minimisation plans. Dust suppression measures in place during construction to include regular dampening down of stock piles, establishing appropriate speed limits over unmade surfaces and establishing wheel washing facilities on construction sites. Avoid the use of diesel or petrol powered generators and use mains electricity or battery powered equipment where practicable.
21 - Increases in local GHG emissions from construction plant emissions, in areas of the proposed developments.	Plan construction scheduling to minimise vehicle trips. Limit idling of heavy equipment unless needed for the safe operation of the equipment and verify through unscheduled inspections.
22 - Difficult working conditions during construction and maintenance works due to interactions with climate change exacerbated coastal, pluvial or fluvial flood extents.	Individual developments to be subject to detailed Flood Risk Assessment at the detailed planning stage, where risk has been identified, including for climate change scenarios. Avoid climate change flood extents where possible, or provide infrastructure that is both resilient to the potential flood risk and provides no transfer of flood risk once developed. Critical infrastructure should not be placed in floodplains where it may be impacted, or where it may be inaccessible during flood events.
23 - Temporary loss of GHG sequestering vegetation in clearance of development area, during and following the construction of new transmission lines, prior to re-establishment.	Good planning and timing of works to minimise construction footprint impacts. Following construction, replanting, landscaping, and natural revegetating, should be undertaken in line with appropriate guidelines that aim to improve local GHG sequestering vegetation cover.
24 - Construction phase disturbance impacts to existing material assets and	Development of good site management practices, traffic and construction management plans and consultation with the competent and statutory authorities prior to any works should

Potential Impact	Proposed Mitigation
infrastructure such as transport networks, agricultural, aquaculture, fisheries, and recreation and amenity areas as construction works may interfere with the functioning of these assets, e.g. road closure or temporary loss of agricultural lands.	enable all impacts to be kept to a minimum over a short timescale. Minimise the frequency and duration of road closures. Adoption of Construction Best Practice.
25 - Planning and construction constraints due to the presence of existing infrastructure or other planned developments.	Constraints should be identified, and described in as much detail as possible during the early stages of a project, so that awareness of them and their potential impact can be managed. Incorporation of potential impacts and risks associated with other planned developments at the detailed planning stage. Consultation with other asset owners to establish the best possible working arrangements with the least disturbance.
26 - Permanent, direct loss of existing material assets, such as agricultural land, in the development footprint of new transmission infrastructure, e.g. new substations.	Good spatial planning to minimise the potential for such impacts. Consultation with landowners to develop compensation for loss of assets, such as agricultural land, caused by development of new infrastructure. Good site management practices and construction management plans, and consultation with the competent and statutory authorities prior to any works should enable all impacts to be kept to a minimum over a short timescale. Adoption of Construction Best Practice.
27 - Construction phase impacts on the setting of heritage sites and features in close proximity transmission infrastructure, during uprating and construction works.	Where necessary a heritage impact assessment should be prepared in respect of any works to architectural or archaeological features in advance of any works being carried out to feed into detailed design. Consultation and agreement with the Department for Communities, Historic Environment Division, in advance of any works taking place in respect of protected archaeological or architectural features. Construction supervision by qualified project archaeologists, combined with sensitive construction methods and restoration to minimise potential for damages, in potentially sensitive areas. Heritage features damaged could be restored / preserved. Statutory consents and notices may be required prior to works taking place.
28 - Permanent impacts on the setting of heritage sites and features in close proximity transmission infrastructure.	Impacts could be kept to a minimum through sensitive design and planning. Planning and design advice from qualified archaeologists. Statutory consents may be required prior to works.
29 - Potential for loss of or damage to known and unknown heritage features in the development of transmission infrastructure.	Impacts could be kept to a minimum through sensitive design and planning. Planning and design advice from qualified archaeologists. Construction supervision by qualified project archaeologists, combined with sensitive construction methods and restoration to

Potential Impact	Proposed Mitigation
	minimise potential for damages, in potentially sensitive areas. Statutory consents may be required prior to works.
30 - Construction phase impacts on the local landscape and local visual amenity from construction equipment and works.	Impacts could be kept to a minimum through good site practice and planning (e.g. screened laydown areas and traffic management). Adoption of Construction Best Practice. Landscape and Visual Assessment of options at the detailed feasibility and detailed planning stages to minimise the potential for impacts and provide site specific mitigation measures.
31 - Permanent impacts on landscape and visual amenity from the development of new transmission infrastructure.	Impacts could be kept to a minimum through sensitive design and planning (e.g. vegetative screening and landscape management planning). Landscape and visual assessment and advice during detailed design. Public consultation on draft designs. Landscape and Visual Assessment of options at the detailed feasibility and detailed planning stages to minimise the potential for impacts and provide site specific mitigation measures.

4.3.3 HRA Mitigation

Table 4.3 demonstrates the HRA mitigation measures that were adopted into section 10 of the Final TDPNI, which are to be implemented and further developed at the next detailed design stage and project level study stage to minimise the potential for any negative impacts on the European sites.

Table 4.3 HRA Mitigation Measures

Potential Impact	Proposed Mitigation
1 – Construction phase disturbance impacts on feature species birds in European sites.	Mitigation measures to reduce disturbance effects on feature species birds may include the timing of works (e.g. avoiding works in or close to SPAs during the bird breeding season [March to August inclusive] or avoiding works in the vicinity of SPAs with over wintering birds between the months of November and March inclusive) and avoiding working simultaneously with other projects which could also cause disturbance. The screening of works could reduce disturbance impacts. On the advice of relevant ornithological experts and agencies, bird warning devices should be put in place where crossings of sensitive flight corridors cannot be avoided. Surveys focusing on feature species which can move outside the confines of a European site should be conducted to ensure any significant areas of supporting habitat (e.g. foraging areas for feature species birds in close proximity to, but outwith an SPA; or

Potential Impact	Proposed Mitigation
	otter holts out with an SAC, etc.) would be identified and avoided or appropriate mitigation measure put in place.
2 – Construction phase disturbance impacts on Otters.	Works should avoid active otter holts. In the event that an otter holt cannot be avoided by the works, it will be necessary to seek a derogation licence from NIEA to exclude otters from the holt. 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 30m of non-breeding otter holts. Light work, such as digging by hand or scrub clearance should also not take place within 30m of such holts, except as agreed with NIEA under licence.
3 – Construction phase habitat loss of a European site.	Any and all works in or in proximity to a European site will be supervised by an experienced ecologist acting as an Ecological Clerk of Works (ECoW). Direct habitat loss within European sites should be avoided for new-build infrastructure and avoided where reasonably practicable for refurbishment of infrastructure within European sites. 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 peatland areas. Ecological monitoring will be undertaken at sensitive sites during construction as appropriate. Such sites will be identified on a case by case basis. Restricted working areas will be imposed to ensure minimal disturbance to sensitive habitats. Re-distribute vegetation and soil stripped from the construction areas to provide a seedbank and do not re-seed with Perennial Ryegrass. Land within the working area will be reinstated to its former condition or as near as is reasonably practicable.

4.4 How Consultation Feedback has influenced the Final TDPNI 2018 – 2027

The draft TDPNI 2018-2027 issued for public consultation was accompanied by the SEA Environmental Report and HRA. Several submissions were received on these documents. All submissions relating to the TDPNI and environmental reports have been addressed as comprehensively as possible. The main themes of the comments received can be summarised as follows:

- Recommendations for future working by SONI to consider;
- Project specific recommendations for SONI to consider;
- Information on future licensing and consent requirements for SONI projects, and

- Recommendations for minor information updates for the TDPNI and SEA Environmental Report.

No significant changes were made to the TDPNI, SEA Environmental Report or HRA following comments received during the public consultation stage. A summary of the environmental submissions received and how they were actioned are provided in **Appendix A** of this SEA Statement.

The Utility Regulator undertook a separate consultation on the TDPNI, SEA Environmental Report and HRA in April and May 2019, however no environmental comments were received during the consultation, and no significant amendments were made to the TDPNI that required further assessment.

5 MEASURES TO MONITOR SIGNIFICANT ENVIRONMENTAL EFFECT OF IMPLEMENTING THE TDPNI 2018 – 2027

Article 10 of the SEA Directive requires that monitoring be carried out in order to identify, at an early stage, any unforeseen adverse effects due to the implementation of a plan or programme, and to be able to take remedial action. Monitoring is carried out by reporting on a set of indicators, which enable positive and negative impacts on the environment to be measured. The Environmental Monitoring Programme is based on these indicators and is discussed in more detail below. The proposed monitoring programme from the SEA Environmental Report is given in Table 5.1 and is based on the Targets and Indicators established in the SEA Objectives. The proposed monitoring has been adopted into Section 10 of the Final TDPNI. The data proposed to be used to monitor the impacts of implementing the TDPNI is all at strategic level, nationally consistent and freely available. The data proposed is collected and reported by other responsible and statutory bodies, such as the NIEA and NISRA.

Detailed monitoring for specific projects proposed will be re-scoped in consultation with the appropriate authorities at the detailed feasibility and design stages. This agreed detailed monitoring will then be undertaken before, during and after construction, where and when appropriate.

Table 5.1 Proposed Environmental Monitoring of the TDPNI

Environmental Topic	Objective		Sub-Objective		Indicators	Possible Data and Responsible Authority
Biodiversity, Flora & Fauna	1	Avoid damage to, and where possible enhance, biodiversity, flora and fauna.	A	Preserve, protect, maintain and where possible enhance internationally protected species and their key habitats.	Status, condition, area and number of internationally protected species and their key habitats. SACs, SPAs, Ramsar sites	NIEA / NPWS – Conservation Action Plans NIEA / NPWS reporting on Habitats and Species – Article 17 Reports, and Birds – Article 12 Reports
			B	Preserve, protect, maintain and where possible enhance national and local nature conservation sites and protected species, or other know species of conservation concern.	Status, condition, area and number of ASSI, NHA, pNHA, SLNCI and local conservation designations and their species.	NIEA / NPWS – Status of Protected Sites and Species in Northern Ireland / Ireland Reporting Local Authority – Local Area Plans
Population & Human Health	2	Minimise the risk to and provide benefit for the community and human health.	A	Minimise disruption and displacement to the local population, while providing robust transmission infrastructure.	Population density within proximity to potential transmission system developments.	NISRA – Census data
			B	Minimise risks to human health and social deprivation, while providing robust transmission infrastructure.	Perceived health of the local population within proximity to potential transmission system developments. Socially sensitive areas within proximity to potential transmission system developments.	NISRA – Census data NIO data on NI Peace Lines DSD data on Neighbourhood Renewal Areas

Soils, Geology and Landuse	3	Minimise damage to the function and quality of the soil resource in the study area in construction and operation of transmission infrastructure.	A	Minimise damage to the function and quality of the soil resource in the study area in construction and operation of transmission infrastructure.	Loss or damage to sensitive soils and land uses, e.g. peatlands, ancient woodland, commercial forestry, cultivated lands Interactions with potentially hazardous soils and activities, e.g. PPC sites, mines, quarries, historically contaminated sites Interactions with topographically difficult sites, e.g. steep slopes and uplands.	GSNI / NIEA data Woodland Trust, LPSNI, NIEA, GSNI, and Forest Service data Local Area Plans
Water	4	Avoid impacts and interaction with water quality, quantity and resource.	A	Avoid damage to or deterioration of water status, quality and resource.	WFD water status of surface, coastal, transitional and groundwater's within proximity to potential transmission system developments. Sensitive waterbodies, e.g. drinking and bathing waters within proximity to potential transmission system developments.	NIEA and WFD data
			B	Avoid interactions with coastal, pluvial or fluvial flood extents.	Medium probability flood extents - Pluvial and fluvial 100 year and coastal 200 year flood extents.	DfI Rivers data – flood extents / risk – Flood Risk Management Plans

Air	5	Minimise risk to local air quality and contribute to improving regional emissions	A	Minimise risk to local air quality and contribute to improving regional emissions	Development in air quality sensitive areas. Enable increased renewable energy connection to reduce requirements for fossil fuel burning.	Local Authorities, DAERA , DEFRA data – Annual air quality monitoring summaries and Continuous air quality monitoring
Climatic Factors	6	Adaption of infrastructure to potential climatic change and reduced GHG emissions	A	Adaption of infrastructure to potential climatic change and reduced GHG emissions	Medium probability climate change (cc) influenced flood extents - Pluvial and fluvial 100 year + cc and coastal 200 year +cc flood extents. Enable increased renewable energy connection to reduce requirements for fossil fuel burning.	DfI Rivers data – flood extents / risk – Flood Risk Management Plans Met Office regional information SONI / NIE – Annual Reporting and Plans
Material Assets & Infrastructure	7	Provide new, robust electrical transmission infrastructure with minimal disruption to other assets and infrastructure.	A	Provide new, robust electrical transmission infrastructure with minimal disruption to other assets and infrastructure.	Transmission infrastructure developed or upgraded. Potential for impacts on transport (road, rail, air) and energy infrastructure (gas). Potential for loss of or impacts to agricultural land assets.	SONI and NIE– Annual Reporting and Plans SGN data Transport NI and Translink data LPSNI data EEA - CORINE Landcover

Cultural, Architectural & Archaeological Heritage	8	Protect the historic environment and cultural heritage.	A	Protect the historic environment and cultural heritage.	Potential for impacts on, or the setting of, known archaeological heritage features. Potential for impacts on, or the setting of, known architectural heritage features.	NIEA, DfC Historic Environment Division, DAERA and UNESCO data
Landscape & Visual Amenity	9	Minimise the potential for negative impacts on landscape and visual amenity.	A	Minimise the potential for negative impacts on landscape and visual amenity.	Landscape sensitivity to infrastructure development. Potential for impacts on visually sensitive areas, such as AONBs and country parks.	Local Authority / NIEA – Landscape / Seascape Character Assessments Local Area Plans National Trust data EEA – CORINE Landcover

6 CONCLUSIONS AND NEXT STEPS

The SEA and HRA processes carried out during the preparation of the SONI TDPNI have ensured that the potential significant environmental impacts associated with implementation of the development options of the TDPNI have been identified, have been given appropriate consideration, and will influence their future detailed feasibility and planning. Consultation on the draft TDPNI and environmental reports has further contributed to the development and finalisation of the Final TDPNI. SONI will move forward in implementing the proposals of the TDPNI in a sustainable manner.

It is envisaged that the TDPNI will be reviewed annually in order to assess if the policies and actions proposed are still appropriate and sustainable. As part of this review there will be an Environmental Appraisal undertaken, which will assess the Plan against the provisions of the adopted SEA. It is proposed that the SEA of the TDPNI will have a five year lifespan, with review and drafting processes for the next SEA beginning in the final year.

Appendix A

Public Consultation – Environmental Submissions

Source	Document	Page	Comment	Action
DAERA	TDPNI	48	Section 4.1.7 on Landscape. The policy should also have regard to important landscape designations including AONBs and the World Heritage Site, as well as the Northern Ireland Seascape Character Assessment	These landscape designations were included in the assessment within the SEA Environmental Report. Recommended that SONI review this Policy in TDPNI with potential to amend if appropriate.
	TDPNI	46	Section 4.1.4 on Biodiversity should also refer to National Nature Reserves. In addition, species protected under legislation should also be referred to, because not all species protected under legislation are priority species.	These biodiversity considerations were included in the assessment within the SEA Environmental Report. Recommended that SONI review this Policy in TDPNI with potential to amend if appropriate.
	HRA	N/A	Regarding in combination effects, it should be noted that new local development plans are being progressed by the councils.	Comment noted for future working and assessment by SONI.
	HRA	82	Disturbance to peat soils and reseeding with native species - where reference is made to possible re-seeding with native species to stabilize peat and accelerate recovery of vegetation, this should be clarified in terms of the use of species of native provenance.	Comment noted for future working and assessment by SONI.
	HRA	83	Regarding species which can move outside a European site, reference should be made to flight lines for species such as Whooper Swan.	RPS amended text in HRA to reflect this comment.
	SEA ER	N/A	Note that the number of ASSIs in Northern Ireland has increased to 394.	RPS amended text in SEA ER to reflect this comment.
	SEA ER	N/A	Note that DAERA is currently consulting on 2 additional Ramsar sites: Derryleckagh proposed Ramsar and Teal Lough proposed Ramsar	RPS amended text in SEA ER to reflect this comment.

	SEA ER	5	It should be noted that DAERA is the Consultation Body for SEA in N.Ireland	RPS amended text in SEA ER to reflect this comment.
	SEA ER	33	Section 5.2 - the baseline should include the Biodiversity Strategy for Northern Ireland to 2020 and the NI State of the Environment Report for 2013. It should also refer to the status of habitats and species in the relevant reports available on the JNCC website as follows: UK Article 17 report for the Habitats Directive and the UK Article 12 report for the Birds Directive.	RPS amended text in SEA ER to reflect this comment.
	SEA ER	26	Section 3.3 - recommends that additional priority habitat and species information available from the NIEA Natural Environment Web Viewer should be included within the model	All information available at a nationally consistent level used within the constraints modelling. This data will however be used in future detailed assessment of the TDPNI proposals.
	SEA ER	N/A	Comments with further recommendations / considerations for marine mammals - including relevant legislation, mitigation and recent screening advice relating to SACs which have seals as a site selection feature	RPS amended text in SEA ER / HRA to reflect this comment, where appropriate.
	SEA ER	N/A	Comments with further recommendations / considerations for Marine European Protected Species - including reference to regulation 34 of the Conservation Regulations (Northern Ireland) 1995 (as amended).	Comment noted for future working and assessment by SONI.
	SEA ER	N/A	Comments with further recommendations / considerations for Marine National Protected Species - including reference to Articles 10, 11 and 13 of the Wildlife (Northern Ireland) Order 1985 (as amended). Specifically highlights that a licence may be required for any operations which might impact on protected species under this order.	Comment noted for future working and assessment by SONI.

	SEA ER	26, 27	Table 3.5 - add :historic shipwrecks and other marine heritage assets	Comment noted for future working and assessment by SONI.
	SEA ER	46	Para 1 (heritage) add: In Northern Ireland territorial waters there are c. 340 known historic wrecks and some c. 2,700 recorded marine losses. Further to this there is the potential for previously unknown archaeological material of importance to be discovered during the course of construction activities on or below the seabed, particularly during excavation and/or dredging.	RPS amended text in SEA ER to reflect this comment.
	SEA ER	45	Para 3 (heritage) Amend: The potential impact of underground **and submarine** cables…	RPS amended text in SEA ER to reflect this comment.
	SEA ER	45	Para 4 (heritage) Add: marine historic environmental records	RPS amended text in SEA ER to reflect this comment.
	SEA ER	86	Heritage Para -Recommends more detail is added to mention of wrecks.	RPS amended text in SEA ER to reflect this comment.
	SEA ER	90	Heritage Para - recommends mentioning the potential underwater archaeological resource as reflected in the 'Marine Losses' data.	RPS amended text in SEA ER to reflect this comment.
	SEA ER	94	Heritage Para - recommends mentioning the potential underwater archaeological resource as reflected in the 'Marine Losses' data.	RPS amended text in SEA ER to reflect this comment.
	SEA ER	190	For 29 (potential for loss of or damage to known and Unknown heritage features in the development of transmission infrastructure) Under Proposed Mitigation add: Site-specific surveys may need to be undertaken to prevent any loss to the marine archaeological resource.	RPS amended text in SEA ER to reflect this comment.
	TDPNI	40	Recommends that the potential need for other consents, such as a Marine License (not just planning	Recommended that SONI review this in TDPNI with potential to amend if appropriate.

			consent) are referred to in Part 3 of Section 3.4 of the Plan.	
	TDPNI	Section 4	Recommends that objectives outlined in this section take account of the marine impacts recognised in the SEA and include the relevant environmental marine considerations outlined in Chapter 2 the UK Marine Policy Statement.	Recommended that SONI review this in TDPNI with potential to amend if appropriate.
	All	N/A	All references to DAERA Marine Environment Division should be amended to DAERA Marine and Fisheries Division across all documents	RPS amended text in SEA ER to reflect this comment.
	SEA ER	50	Table 6.1 - recommends that the Marine Act (Northern Ireland) 2013 is included as national level legislation and the draft Marine Plan for Northern Ireland is included as a regional level plan	RPS amended text in SEA ER to reflect this comment.
	SEA ER	43	Recommends that 2007 United Nations Intergovernmental Panel on Climate Change quote is replaced with a more updated quote (e.g. publication in 2018)	RPS amended text in SEA ER to reflect this comment.
	SEA ER	50	The Northern Ireland Climate Change Adaption Programme 2014 is quoted twice - one should be removed. Also, this programme is for the years 2014-2019 so text should be amended to reflect this.	RPS amended text in SEA ER to reflect this comment.
	SEA ER	50	Recommends the following amendment; insert "UK Climate Change Risk Assessment 2017" and remove the term "UK Climate Change Risk Assessment Programme 2017"	RPS amended text in SEA ER to reflect this comment.
	SEA ER	246	Northern Ireland Climate Change Adaption Programme 2014 should be amended to "Northern Ireland Climate Change Adaption, 2014-2019". Also it is not a	RPS amended text in SEA ER to reflect this comment.

			programme - references to programme should be removed.	
	SEA ER	252	Comment on the UK Climate Change Act 2008 should be amended to "requires 80% cut in UK GHG emissions".	RPS amended text in SEA ER to reflect this comment.
	All	N/A	Recommends that the developer should engage with Northern Ireland Water Ltd to ensure that it has identified all relevant drinking water protected areas.	Comment noted for future working and assessment by SONI.
	All	N/A	Recommends that the developer should ensure appropriate scoping and assessments are undertaken to ensure any development does not impact on either the sufficiency or quality of private water supplies that may be used as drinking water sources or in food production.	Comment noted for future working and assessment by SONI.
	All	N/A	Provides contact details to attain information on registered water supplies. It should be noted that private water supplies to single domestic dwellings are not required to be registered with the Inspectorate and a separate scoping exercise should be undertaken to establish if any such supplies are within the development area.	Comment noted for future working and assessment by SONI.
	SEA ER	45	Para 3 - recommends consideration of the impact of construction of transmission infrastructure on the setting of heritage assets.	RPS amended text in SEA ER to reflect this comment.
	SEA ER	48	Last para - disagree that with the lack of the Plan there will be neutral/no impacts (as per table 8.1, Do Nothing Scenario, pg. 71) on the historic environment. Suggest allowance for 'slight' to 'significant' impacts to heritage assets may occur especially if development proceeds in	RPS amended scoring in SEA ER to reflect this comment. No significant change anticipated.

			an ad hoc manner rather than to a fully considered strategic plan.	
	SEA ER	195	Table 9.3 (heritage) - recommends changes to 'possible data and responsible authority' information.	RPS amended text in SEA ER to reflect this comment.
EPA	TDPNI	N/A	Acknowledges that the recommendations in the SEA Environmental Report have been clearly integrated into the Plan.	Comment noted.
	TDPNI	N/A	Noted that the coordinated all-island approach to transmission planning between SONI and EirGrid will help ensure the continued security and stability of an all-island grid network, capable of supporting both jurisdictions over the Plan's lifetime, in conjunction with Eirgrid's Gris 25 Implementation Plan 2017-2022.	Comment noted.
	TDPNI	53	Acknowledges the general commitment in Policy PDP2 to promote the development of a sustainable grid by balancing technical, economic, environmental, social and delivery goals and priorities.	Comment noted.
	TDPNI	99-109	Welcomes the inclusion of Table 9.1 *Proposed SEA Mitigation Measures in the Plan*	Comment noted.
	TDPNI	N/A	Notes that the Plan acknowledges that SEA-related monitoring could be used to inform annual environmental reporting, and this will provide a mechanism to assess the implementation and effectiveness of the relevant SEA mitigation measures. Notes that this monitoring should also assist in assessing potential cumulative effects that may arise in implementing projects arising from the Plan over its lifetime.	Comment noted for future working and assessment by SONI.

	TDPNI	N/A	Recommends that in finalising the Plan, it may be useful for SONI to consider EMF related monitoring in a transboundary capacity, as appropriate.	Comment noted for future working and assessment by SONI.
	TDPNI	N/A	Recommends that SONI considers supporting a joint approach, with EirGrid, regarding protecting areas of high landscape amenity in the border region, as appropriate.	Comment noted for future working and assessment by SONI.
	TDPNI	47	Recommends amending ENVP4 to also include the protection for key ecological linkages corridors.	Recommended that SONI review this Policy in TDPNI with potential to amend if appropriate.
	SEA ER	Section 5	*Baseline and Relevant Environmental Issues* - recommends providing relevant maps in this section showing the location of both environmental sensitivities within and adjacent to the Plan area (including RoI), as this is relevant in the context of assessing potential for transboundary environmental effects	Comment noted that more mapping could be added. Mapping was provided within Section 5 and 8 to demonstrate environmental sensitivities, including transboundary.
	SEA ER	Table 6.1	*Other Key Plans / Programmes to consider* - recommends including the following plans as they may be useful to consider from a transboundary perspective: the National Planning Framework, Draft Regional Spatial and Economic Strategies (for the Northern and Western Region and the Midland and Eastern Region), National Adaption Framework, National Mitigation Plan, National River Basin Management Plan for Ireland 2018-2021. Additional key national plans currently being prepared which may also be useful to consider include the Draft National Energy and Climate Plan, the Renewable Electricity Policy Development Framework and Ireland's National Marine Spatial Plan.	Plans with sufficient information available have been added and text has been amended in SEA ER.

DP Energy	SEA ER	Pg1	Section 10.2 “Specific Mitigation”, namely in relation to Potential Impact no. 6, “Electromagnetic disturbances to mobile / migratory, marine and aquatic species, e.g. Atlantic salmon, from the development of underwater / subsea transmission lines” regarding the Fair Head Tidal Project. This is a 100 MW tidal energy park under development by Fair Head Tidal Energy Park (FHTEP) Limited in the waters offshore of Fair Head. The project was awarded an Agreement for Lease by the Crown Estate in 2012 and is significantly advanced through the environmental impact assessment process with offshore surveys complete. Chapter 7 of the “Fair Head Tidal Environmental Statement” examined the electromagnetic effects of the project and concluded that based on scientific evidence to date there are no significant impacts of EMFs from marine renewable energy devices on benthic invertebrates.	Comment noted, however mitigation is specific to migratory species such as Atlantic salmon, and not benthic invertebrates.