

Gas Networks Ireland  
**Network Implementation Plan**  
SEA Statement

Ref/1

Issue 1 | 29 January 2021

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Job number 272409

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# 1 Introduction

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## 1.1 The Purpose of the SEA Statement

This Statement forms part of the Strategic Environmental Assessment (SEA) of the adopted Network Implementation Plan (NIP) for the period 2020-2023. SEA is a systematic, on-going process for evaluating (at the earliest possible stage) the quantity and consequences of implementing certain plans and programmes on the environment. This SEA Statement is the final stage of the SEA process and it is required under the European Communities Regulations 2004<sup>1</sup> (EU SEA Regulations) and national legislation<sup>2</sup> (SEA Regulations).

The purpose of the SEA Statement is to provide information on the decision-making process, and to document environmental considerations, the views of stakeholders and outline how recommendations arising from the SEA have been taken into account in the Plan. The four key requirements of this SEA Statement are to highlight:

- The incorporation of environmental considerations;
- Stakeholder involvement;
- Alterations considered; and
- Monitoring

The SEA Statement is chronological in nature and includes the following:

- An outline of the methodology for undertaking a SEA;
- Scoping - an overview of the scoping process and summary of how the submissions received from stakeholders have been taken into account;
- Environmental Assessment- description of how environmental considerations have been integrated into the SEA;
- Alternatives - an outline of the reasons for choosing the plan to be adopted, in light of the other reasonable alternatives considered;
- Monitoring - an overview of the measures to monitor the plan going forward; and
- Final Appraisal - evaluation of the effectiveness of the SEA.

This SEA Statement will accompany the adopted NIP and be made available to the public.

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<sup>1</sup> European Communities (Environmental Assessment of Certain Plans and Programmes) Regulations, as amended by European Communities (Environmental Assessment of Certain Plans and Programmes) (Amendment) Regulations 2004

<sup>2</sup> Planning and Development (Strategic Environmental Assessment) Regulations, as amended by the Planning and Development (Strategic Environmental Assessment) (Amendment) Regulations

## 1.2 Network Implementation Plan 2020 - 2023

GNI prepares an annual rolling Network Development Plan (NDP) each year which provides a view of how the gas network may develop over a ten-year period. The NDP outlines a number of capital investment projects which will be delivered over the coming years (in the short, medium and long-term), including future proposed large capital projects and proposed new technologies. The NDP is a strategic plan which is high-level in nature.

The purpose of the NIP, which is the subject of this SEA, is to set out in more detail, the manner in which the short-term capital investment proposals identified in the NDP may be developed in the Plan area over the three-year plan period 2020-2023. This includes greater detail on the capital investment proposals included in the NDP, including their locations, nature, extent etc. The Plan provides for short term capital investment projects including the provision of AGI (Above Ground Installation) upgrade works, new AGIs, new pipelines, CGI (Centralised Gas Injection) and CNG (Compressed Natural Gas) facilities. Refer to **Figure 1.1** for the relationship between the NDP and NIP.

The NIP presents the planned capital investment projects that GNI has progressed to the point where they are the preferred projects to meet the changing system requirements in the context of the long-term development of the network.

In this context therefore, it is important to understand that any NIP is a “point-in-time” understanding of gas network development. The long-term development of the network is under continuous review by GNI. The NIP is clear in acknowledging the possibility that changes will occur in the need for, scope of, project phase, and timing of gas network development.

GNI has identified some 27 capital investment projects for inclusion in the NIP, to meet the changing system requirements in the short to medium term development of the network. **Figure 1.2** illustrates the NIP plan area.

Section 5 of the NIP outlines GNI’s aims and commitments with regards environmental protection; including general, biodiversity, climate change and waste aims and commitments.



### 1.3 Timing of the SEA

The preparation of the draft NIP and SEA process were carried out in parallel to ensure that environmental considerations were taken into account into the plan making process.

The timeline for these steps is set out in **Table 1.1**.

**Table 1.1: Timing of SEA and NIP Preparation**

<b>Network Implementation Plan 2020-2023</b>	<b>SEA</b>
Commencement of preparation of Draft NIP	Commencement of review and SEA Scoping Process Preparation of SEA Scoping Report and commencement of SEA Scoping Consultation: <b>7<sup>th</sup> July 2020</b>
Preparation of Draft NIP	Preparation of SEA Environmental Report and Natura Impact Statement
Commencement of consultation on draft NIP, SEA Environmental Report and Natura Impact Statement <b>4<sup>th</sup> December 2020</b>	
Consideration of submissions received on the draft NIP, SEA Environmental Report and Natura Impact Statement and update of documents. Preparation of the SEA Statement	
	Determination by GNI of Requirement for SEA/AA in accordance with S.12 of the Planning & Development Act
Publication of NIP and SEA Statement	

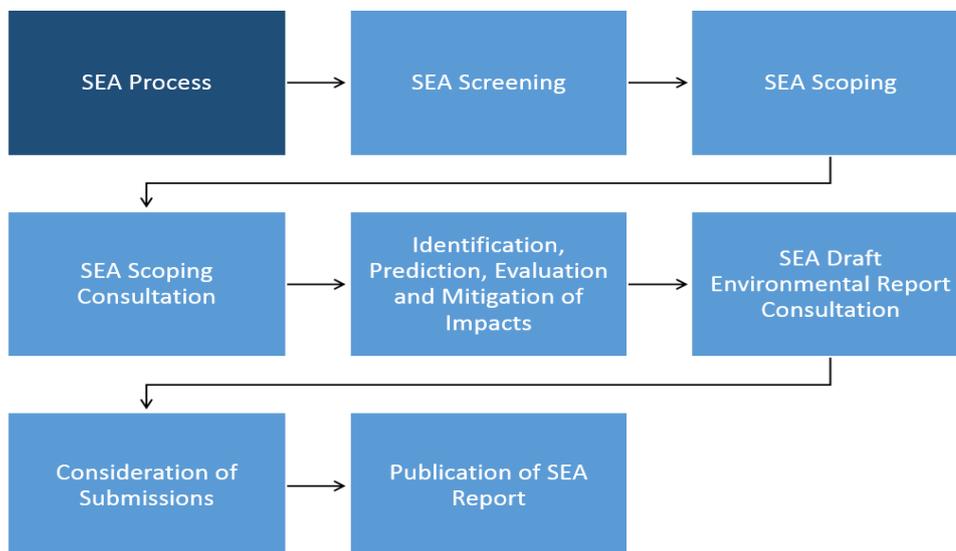
Section 4 of this SEA Statement provides a description as to how environmental considerations were incorporated into the plan making process.

## 2 SEA Methodology

### 2.1 Overview

This section highlights how the SEA was undertaken for the Draft NIP. The SEA methodology is based on legislative requirements and relevant Environmental Protection Agency (EPA) guidance and will ensure compliance with the SEA Directive and associated legislation. The EPA's SEA Pack (Version 18/02/2020) was also used as a source of information during the scoping process.

The NIP (GNI), the SEA Environmental Report and the Appropriate Assessment (Arup) were prepared in an iterative manner whereby multiple revisions of each document were prepared, each informing subsequent iterations of the others. To facilitate this iterative approach, numerous discussions were held between GNI and Arup. The key stages outlined in **Figure 2.1** were identified and are discussed in the following sections.



**Figure 2.1: Key Stages of the SEA Process**

### 2.2 Screening

Screening is the process for deciding whether a particular plan would warrant SEA. A screening assessment was undertaken as part of this SEA process to determine if the NIP required a SEA. Following this assessment, it was concluded that the NIP falls within the requirements of the SEA Directive in that:

- The NIP is subject to preparation and adoption by a National Authority;
- The NIP is required by legislative, regulatory or administrative provisions;
- The sole purpose of the NIP is not to serve national defence or civil emergency nor is it a financial/budget Plan or co-financed by the current Structural Funds/Regional Development Funds Programme;
- The NIP is prepared for the energy sector;

- The NIP is considered to provide a framework for development consent for projects listed in the EIA Directive; and
- The NIP is a national level plan which is not restricted to the use of small areas at a local scale only, nor is it a modification of a Plan/Policy.

## 2.3 Scoping

### 2.3.1 Scoping Process

Scoping is the process for establishing the range of environmental issues to be covered in the SEA and the level of detail that the assessment will investigate. Scoping also allows input from the environmental authorities and stakeholders to be incorporated. Essentially, responses submitted as part of the scoping process provide greater focus on the evolution of the adopted NIP.

The considerations addressed during the scoping process for the Draft NIP are as follows:

- The key elements of the draft plan to be assessed;
- The environmental aspects to be assessed as part of the SEA;
- Identification of relevant international, national and local plans, objectives and environmental standards that may influence or impact on the draft plan;
- Development of draft environmental objectives, indicators and targets to allow the evaluation of impacts as part of the SEA; and
- Identification of any reasonable alternative means or scenarios for achieving the strategic goals of the draft plan.

The SEA Scoping was a key part of the assessment process as it set out the extent of the SEA and provided information to allow consultation with defined statutory bodies and environmental authorities on the scope and level of detail to be considered and incorporated at an early stage in the assessment.

### 2.3.2 Scoping Consultation

The SEA Scoping Report was issued on 7th July 2020 for review and comment by defined statutory bodies and environmental authorities.

The report summarised the key environmental issues and outlined relevant plans and programmes that were likely to affect or be affected by the NIP.

This information was then used to set out a series of draft SEA objectives, indicators and associated targets. The objectives and targets established aims and thresholds which would be taken into consideration to effectively assess the impact of the NIP on the environment. Indicators are used to track the achievements of objectives and targets, describe the baseline situation, monitor the impact on the environment and predict impacts.

### 2.3.3 Scoping Responses

Two No. submissions were received in response to the SEA Scoping Report, from the Environmental Protection Agency (EPA) and the Geological Survey of Ireland (GSI). All comments, observations and submissions contained therein were considered and incorporated into the assessment process, as considered relevant. **Appendix A** of this report contains a summary of the submissions received on the SEA Scoping Report, and how they were responded to.

Once scoping was complete, the project team (including the SEA and AA teams and GNI) worked together to identify and resolve issues and mitigate potential impacts.

The matrix led assessment basis of the SEA provided a holistic, integrated and iterative approach to the development of the policies in the NIP. To this effect, the two processes were seamless and facilitated necessary amendments to accommodate the mitigation of environmental impacts.

## 2.4 Baseline Assessment

Gathering relevant information that describes the current environment within the plan area is an integral part of the SEA process. The SEA Directive requires that certain information on the existing environment is presented to help assess the implementation of the NIP, as well as helping establish how the environment would change if the NIP is not implemented.

Baseline information has been collected from readily available sources, and a Geographical Information System (GIS) was used to graphically present and analyse relevant information. The baseline of the plan area, i.e. the area to which the adopted NIP applies, is reported in Section 4 of the Environmental Report ('Current State of the Environment'). While the draft NIP and draft SEA Environmental Report were out for consultation, the EPA published the 2020 State of the Environment Report (EPA, 2020). The findings of that report were integrated into the SEA Environmental Report following the consultation phase.

## 2.5 Environmental Assessment

### 2.5.1 Overview

The environmental assessment ran in parallel to the development of the adopted NIP. The environmental assessment process was undertaken in accordance with best practice SEA principals and guidance.

The environmental assessment comprised a review of the baseline data, identification of likely impacts and development of appropriate mitigation measures for the NIP.

An appraisal matrix was developed to facilitate the assessment of the aims, commitments and proposed capital investment projects outlined in the adopted NIP and its material alterations.

The matrix led assessment provided a holistic, integrated and interactive approach to the formation of the policies and objectives in the adopted NIP. The assessment also considered the findings of the AA.

A number of iterations of this assessment matrix were undertaken, between the SEA Team and GNI- refer to Section 2.5.4-2.5.5.

## 2.5.2 Objectives, Indicators and Targets

The objectives, indicators and targets are the aspects for which the NIP is assessed against. The policies and recommendations in the NIP are assessed against a range of environmental objectives and targets established for the purpose of the SEA. Further, indicators that are recommended in the SEA are utilised over the lifetime of the NIP to quantify the level of impact that the proposed plan may have on the environment.

A range of draft SEA objectives, indicators and targets were recorded in the SEA ER which went out for public consultation on 6<sup>th</sup> November 2020. Following review of submissions, some updates were made to the same, and the final SEA ER has been updated to incorporate these changes.

A summary of the final objectives, in indicators and targets is included in **Table 2.1**.

**Table 2.1: Summary of Objectives, Indicators and Targets**

Objectives	Targets	Indicators
<b>SEO 1 Biodiversity</b>		
<p><b>SEO 1.1</b> Protect, conserve, enhance where possible and avoid loss of diversity and integrity of the broad range of habitats, species and wildlife corridors.</p> <p><b>SEO 1.2</b> To support achievement of the conservation objectives of European Sites (SACs and SPAs) and other sites of nature conservation.</p> <p><b>SEO 1.3</b> Conserve and protect other sites of nature conservation including NHAs, pNHAs, National Parks, Nature Reserves, Wildfowl Sanctuaries as well as protected species outside these areas as covered by the Wildlife Act.</p>	<p><b>SET 1.1</b> Siting of development of infrastructure installation on non-sensitive sites.</p> <p><b>SET 1.2</b> Maintenance of favourable conservation status for all habitats and species protected under the Habitat Directive.</p> <p><b>SET 1.3</b> No loss of protected habitats and species during the lifetime of the Plan.</p> <p><b>SET 1.4</b> No significant ecological networks or parts thereof which provide functional connectivity for SAC/SPAs to be lost without remediation resulting from development provided for by the NIP.</p>	<p><b>SEI 1.1</b> Number and extent of Designated Sites;</p> <p><b>SEI 1.2</b> Achievement of favourable conservation status of designated sites;</p> <p><b>SEI 1.3</b> Population and range of Designated Species; and</p> <p><b>SEI 1.4</b> Achievement of the Objectives of Biodiversity Plans and County Development Plans.</p>

Objectives	Targets	Indicators
<b>SEO 1.4</b> To minimise and, where possible, eliminate threats to biodiversity including invasive species.		
<b>SEO 2 Population and Human Health</b>		
<p><b>SEO 2.1</b> Protect, enhance and improve people’s quality of life through energy provision.</p> <p><b>SEO 2.2</b> Protect human health from hazards or nuisances arising from incompatible development.</p> <p><b>SEO 2.3</b> Provide all of the energy services required to sustainably meet future housing demands.</p> <p><b>SEO 2.4</b> To minimise the proximity of development to concentrations of population and to mitigate potential effect of development in order to reduce actual and perceived environmental effects.</p>	<p><b>SET 2.1</b> Minimise population exposure to high levels of noise, vibration and air pollution.</p> <p><b>SET 2.2</b> No significant deterioration in human health as a result of environmental factors.</p> <p><b>SET 2.3</b> No spatial concentrations of health problems arising from environmental factors.</p> <p><b>SET 2.4</b> Maintenance of gas supply to meet the energy needs of the population, while commencing a shift towards renewable energy use.</p>	<p><b>SEI 2.1</b> Census population data;</p> <p><b>SEI 2.2</b> % increase in housing (number and type); and</p> <p><b>SEI 2.3</b> Changes in trends in perceived health status.</p>
<b>SEO 3 Land &amp; Soil</b>		
<p><b>SEO 3.1</b> Conserve, protect and avoid loss of diversity and integrity of designated habitats, geological features, species or their sustaining resources in designated ecological sites.</p>	<p><b>SET 3.1</b> Prevent pollution of soil through adoption of appropriate environmental protection procedures during construction, installation and maintenance works on site.</p> <p><b>SET 3.2</b> No incidences of soil contamination.</p> <p><b>SET 3.3</b> Ensure appropriate management of existing contaminated soil in accordance with the requirements of current waste legislation.</p>	<p><b>SEI 3.1</b> Incidences of soil contamination;</p> <p><b>SEI 3.2</b> Rates of re-use/recycling of construction waste;</p> <p><b>SEI 3.3</b> Rates of brownfield site and contaminated land reuse and development; and</p> <p><b>SEI 3.4</b> Rates of greenfield development.</p>
<b>SEO 4 Water</b>		
<p><b>SEO 4.1</b> Maintain or improve the quality of surface water and groundwater (including estuarine) to status objectives as set out in the WaterFramework Directive (WFD).</p>	<p><b>SET 4.1</b> Support the achievement of “good” ecological and chemical status/potential of waterbodies by 2015 in accordance with the Water Framework Directive.</p>	<p><b>SEI 4.1</b> Compliance of surface and ground waters with national and international standards;</p> <p><b>SEI 4.2</b> Achievement of the Objectives of the River Basin Management Plan;</p>

Objectives	Targets	Indicators
<b>SEO 4.2</b> Support achievement of the requirements of the Water Framework Directive and implementation of the National River Basin Management Plan'	<b>SET 4.2</b> Not to cause deterioration in the status of any surface or ground water or affect the ability of any surface or ground water to maintain or achieve 'good' status.	
<b>SEO 5 Air &amp; Noise</b>		
<b>SEO 5.1</b> To support the protection of ambient environment through the implementation of European, national and regional policy and legislation relating to air quality, greenhouse gases, climate change, light pollution noise pollution and waste management.	<b>SET 5.1</b> Maintain ambient air quality.  <b>SET 5.2</b> Minimise air and noise emissions during construction and operation of new developments.	<b>SEI 5.1</b> Air quality indicators- National and region-specific emission data; and <b>SEI 5.2</b> Compliance with national standards.
<b>SEO 6 Climate and Resilience</b>		
<b>SEO 6.1</b> Comply with relevant national climate change targets e.g. Ireland's Climate Action and Low Carbon Development Act 2015, the and EU 2030 and 2050 Emissions and Renewable Energy Targets and the Paris Agreement Targets.  <b>SEO 6.2</b> To support implementation of the National Climate Action Plan 2019	<b>SET 6.1</b> Achieve a reduction in greenhouse gas emissions.  <b>SET 6.2</b> Increase the amount of gas from renewable sources that is introduced to the network.  <b>SET 6.3</b> Growth in the level of fuel switching from high-carbon fuels to gas, in both heating and transport.  <b>SET 6.4</b> Promote minimisation of greenhouse gas emissions to the atmosphere.  <b>SET 6.5</b> To achieve a 30% reduction on GHG emission levels (compared with 2005 levels) by 2030.	<b>SEI 6.1</b> Levels of greenhouse gas emissions; <b>SEI 6.2</b> Number of energy/renewable energy production facilities; and <b>SEI 6.3</b> Rates of energy/renewable energy consumption.  Groundwater Levels
<b>SEO 7 Archaeological, Architectural and Cultural Heritage</b>		
<b>SEO 7.1</b> Promote the protection and conservation of archaeological, architectural and cultural heritage, specifically those buildings identified on the Record of Protected Structures, and Recorded Monuments in Ireland.	<b>SET 7.1</b> Maintenance and enhancement of archaeological heritage- including entries to the Record of Monuments and Places and unknown archaeology- and the context of the above within the surrounding landscape where relevant.	<b>SEI 7.1</b> Achieving the objectives of development plans regarding heritage protection; and <b>SEI 7.2</b> full or partial loss to entries to the RPSs/NIAHs

Objectives	Targets	Indicators
	<p><b>SET 7.2</b> Maintenance and enhancement of entries to the Record of Protected Structures and/or their context within the surrounding landscape where relevant.</p>	
<b>SEO 8 Landscape and Visual</b>		
<p><b>SEO 8.1</b> Ensure no significant disruption of historic/cultural landscapes and features.</p> <p><b>SEO 8.2</b> Ensure no significant visual impact from developments/installations.</p> <p><b>SEO 8.3</b> Ensure no significant disruption of high landscape values.</p> <p><b>SEO 8.4</b> To support achievement of the objectives of the National Landscape Strategy</p>	<p><b>SET 8.1</b> No avoidable significant impacts on the landscape resulting from development provided for by the NIP.</p> <p><b>SET 8.2</b> Ensure development and infrastructure installations are sensitive to its surroundings.</p> <p><b>SET 8.3</b> Ensure no significant disruption of historic/cultural landscapes and features.</p>	<p><b>SEI 8.1</b> Range and extent of Amenity Landscapes;</p> <p><b>SEI 8.2</b> Rates of development within designated landscapes;</p> <p><b>SEI 8.3</b> Rates of urban expansion; and</p> <p><b>SEI 8.4</b> % change of land use from rural to urban.</p>
<b>SEO 9 Material Assets</b>		
<p><b>SEO 9.1</b> Make best use of existing infrastructure and phase the significant future growth of Ireland in line with the capacity and delivery of the sustainable development of new physical infrastructure.</p> <p><b>SEO 9.2</b> Promote use of renewable energy sources and support energy conservation initiatives including the development of low carbon business practices and buildings.</p> <p><b>SEO 9.3</b> Minimise effects upon the existing and planned infrastructure.</p>	<p><b>SET 9.1</b> High levels of energy demand growth are accommodated.</p> <p><b>SET 9.2</b> Secure and competitive supplied of gas and are maintained.</p> <p><b>SET 9.3</b> Increase in renewable energy developments.</p> <p><b>SET 9.4</b> To achieve a 30% reduction on GHG emission levels (compared with 2005 levels) by 2030.</p> <p><b>SET 9.5</b> Improve efficiencies of energy infrastructure.</p>	<p><b>SEI 9.1</b> Location/level of infrastructure;</p> <p><b>SEI 9.2</b> Achievement of development plan objectives; and</p> <p><b>SEI 9.3</b> No. of renewable energy developments granted planning permission.</p>

## 2.5.3 Consideration of Alternatives

### 2.5.3.1 Introduction

As described in the SEA ER, a number of alternative NIP scenarios were considered and assessed as part of the SEA. These generally related to alternative capital investment proposals which would satisfy the objectives of the NIP.

However, the EPA, in their submission on the draft NIP and supporting documents, recommended expanding on the discussion of alternative scenarios considered in the SEA ER. Thus, in response to the EPA submission, a number of higher-level plan scenarios which were considered by GNI in the outset of the plan making process have been retrospectively considered and assessed as part of this SEA Statement.

The alternative plan scenarios considered and assessed as part of the SEA ER are summarised in Section 2.5.3.3.

### 2.5.3.2 High Level Alternatives

As outlined in Section 3 of the NIP, GNI has developed three gas demand scenarios, namely Low, Best Estimate and High demand scenarios.

These scenarios represent a range of potential gas demands, to be used for network planning purposes to test the capability of the gas network and are outlined below.

#### **Scenario 1: Low Gas Demand Scenario**

The scenario is based off the NDP Low Gas demand scenario. There is a lower level of gas demand in this scenario than the High and Best Estimate scenarios primarily due to:

- Inclusion of Eirgrid/SONI All-Island Generation Capacity Statement (GCS) low electricity scenario;
- Certain older (non-gas) fossil fuel power plant remaining open;
- Connection of new generation plant successful in the T-4 capacity auctions;
- Implementation of the 70% RES-E targets for 2030 outlined in the National Energy and Climate Plan (NECP) and the Government Climate Action Plan;
- Lower GDP based on the ESRI's 2013 Medium Term Review (MTR) stagnation scenario which result in a lower demand in the industrial and commercial sector;
- GNI's low residential new connections growth strategy;
- GNI's low CNG growth strategy;
- Renewable Natural Gas (RNG) in line with NECP of 1.6TWh by 2030.

The above assumptions result in lesser development of the gas network compared to the other scenarios.

## Scenario 2: Best Estimate Gas Demand Scenario

This scenario is based off the NDP Best Estimate Gas Demand scenario. There is a higher level of gas demand in this scenario than the Low scenario and less than the High scenario primarily due to:

- Inclusion of Eirgrid/ SONI All-Island GCS median electricity scenario;
- Closure of less efficient fossil fuel plants;
- Connection of new generation plant successful in the T-4 capacity auctions.
- Implementation of the 70% RES-E targets for 2030 outlined in the NECP and the Government Climate Action Plan 2019;
- GDP growth based on ESRI's Economic Outlook;
- GNI's best estimate Residential new connections growth strategy;
- GNI's best estimate CNG growth strategy;
- RNG in line with NECP of 1.6TWh by 2030.

The above assumptions result in lesser development of the gas network compared to the High demand scenario.

## Scenario 3: High Gas Demand Scenario

This scenario is based off the NDP High Gas demand scenario. There is a higher level of gas demand in this scenario than the Low and Best Estimate scenarios primarily due to:

- Inclusion of Eirgrid/ SONI All-Island GCS high electricity scenario;
- Closure of less efficient fossil fuel plants;
- Connection of new generation plant successful in the T-4 capacity auctions;
- Additional power generation connect to the system than assumed in the best estimate scenario;
- 70% RES-E target is not implemented. A target of 55% RES-E by 2030 is assumed, in line with the NECP;
- GDP growth based on ESRI's Economic Outlook;
- GNI's best high Residential new connections growth strategy;
- GNI's high CNG growth strategy;
- GNI's high RNG growth strategy.

The above assumptions result in greater development of the gas network compared to the other scenarios.

## **Environmental Evaluation of Alternative Development Scenarios**

This section determines the relative merits of the high-level NIP alternative scenarios described above for the development of the gas network through a succinct and focused environmental evaluation.

### **Scenario 1: Low Gas Demand Scenario**

This scenario results in an increase in gas demand but with a reduced need to further significantly develop the gas network than in Scenarios 2 and 3. This results in the continued or increased use of existing less efficient non-gas fossil fuel plant. This may give rise to increases in greenhouse gas emissions but would involve fewer new projects with less potential environmental effects.

This scenario is compliant with the 70% RES-E targets for 2030 set out in the Government's Climate Action Plan and National Energy and Climate Plan.

### **Scenario 2: Best Estimate Gas Demand Scenario**

The Best Estimate Scenario results in an increased demand in gas across the network and indeed further development of the network than in Scenario 1. This scenario results in the closure of less efficient fossil fuel plants and includes the development of more efficient new generation plant that were successful in the T-4 capacity auctions. The development of the gas network in regions across the country may present potential conflicts with environmental sensitivities. Conflicts with sensitivities can be avoided, reduced or offset through investment in mitigation measures.

This scenario is compliant with the 70% RES-E targets for 2030 set out in the Government's Climate Action Plan and National Energy and Climate Plan.

### **Scenario 3: High Gas Demand Scenario**

The High Scenario results in an increased demand in gas across the network and results in greater development of the network compared to Scenarios 1 and 2. The increased development of the gas network in regions across the country may present potential conflicts with environmental sensitivities. Conflicts with sensitivities could be avoided, reduced or offset through investment in mitigation measures.

This scenario is not in compliance with the 70% RES-E targets for 2030 set out in the Government's Climate Action Plan 2019 and National Energy and Climate Plan and instead assumes only a 55% RES-E target by 2030 is met.

## **The Selected Alternative Development Scenario**

Scenario 2, the Best Estimate Gas Demand was selected as the preferred option as it:

- Includes the best estimates of industry assumptions from consultation;
- Is in accordance with national policy outlined in the governments Climate Action Plan and National Energy and Climate Plan.

### 2.5.3.3 Project Level Alternatives

An environmental assessment of the project level alternative scenarios considered for the NIP was completed. The alternatives considered are summarised below:

- The Do-Nothing Scenario;
- Alternative Capital Investment Proposal;
- Capital Investment Projects as outlined in the NIP.

#### **Do-Nothing Scenario**

The ‘Do-Nothing’ Scenario is representative of a scenario whereby the NIP, and the capital investment projects outlined therein, are not implemented.

While reduced development of gas infrastructure in Ireland has some environmental benefits, it is deemed unsustainable and unfeasible from an economic and socio-economic perspective.

Without AGI upgrades or new AGIs in Ireland, additional growth, both in terms of population and development, will be restricted throughout Ireland. This scenario is considered to be at variance with the policies and objectives of the National Planning Framework and Regional Spatial and Economic Strategies. Under the do-nothing scenario, existing customers would also likely suffer pressure/supply issues.

The do-nothing scenario is also representative of a scenario whereby there are no new CNG stations developed in Ireland. As outlined in GNI’s Vision 2050 document, converting Ireland’s Heavy Goods Vehicles (HGVs) from diesel to CNG can yield near-term emissions reductions in the transport sector. This ultimately will aid GNI in achieving the emission reduction targets relevant to the gas sector, as set both by Ireland and the EU.

Finally, the do-nothing scenario is representative of a scenario where no new CGI facility is developed in Ireland. CGI stations in Ireland offer a unique and important solution to greenhouse gas emissions.

#### **Alternative Capital Investment Proposals**

A number of alternative capital investment proposals were considered by GNI in the Plan making process, including the development of a number of new AGIs, instead of implementing capacity upgrades at existing AGIs.

The development of new gas infrastructure rather than the upgrade of existing infrastructure is likely to give rise to increased environmental effects. All of the existing AGIs listed above have already been subject to environmental assessment at project level; by means of EIA, AA or indeed GNI’s EnviroPlan and EnviroKit. As such, potential negative effects on the environment are assumed to have already been mitigated in these locations. Should GNI instead seek the development of new AGIs on undeveloped, greenfield or indeed differently developed lands, potential for significant environmental effects are identified, including on biodiversity, population and human health, water, land and soil, air, noise and climate, heritage, landscape and visual and material assets.

GNI also considered the alternative of upgrading the existing AGI 8003, rather than the development of a new 85-70 Bar AGI at that location. While environmental effects of the capacity upgrade would have given rise to reduced environmental effects generally, the upgrade was deemed to be unfeasible from a technical perspective, due to the level of deep reinforcement that would be required at the existing AGI.

A final alternative was considered with regards the new renewable gas injection facility at the existing site of AGI 0701, whereby a new development site in proximity (Cork) would be sought. As previously described, the site of the existing AGI 0701 has already been subject to environmental assessment at project level; by means of EIA, AA or indeed GNI's EnviroPlan and EnviroKit. As such, potential negative effects on the environment are assumed to have already been mitigated in this location.

Should GNI instead seek the development of the renewable gas injection facility on undeveloped, greenfield or indeed differently developed lands in Cork, potential for significant environmental effects are identified, including on biodiversity, population and human health, water, land and soil, air, noise and climate, heritage, landscape and visual and material assets.

### Capital Investment Proposals as outlined in the NIP

The capital investment proposals, as outlined in the NIP are considered to be the most environmentally sound and technically feasible solutions which allow GNI to achieve their overall aims for the gas transmission network over the plan period. The NIP as it is proposed will allow for the demand and future growth of Ireland to be catered for. This scenario therefore aligns with the provisions for the National Planning Framework and Regional Spatial and Economic Strategies.

The proposed upgrades, new infrastructure, including the new CNG stations and new CGI facility will contribute to GNI's emission reduction targets.

## 2.5.4 Assessment Stage 1 - Initial Draft Plan

The first stage of the SEA assessment process comprised the first draft of the appraisal matrix that was completed by the SEA team. This was based on the initial draft of the NIP and provided to GNI for their consideration.

This objectives-led assessment compared the likely impacts of each policy and objective in the initial Draft NIP against the strategic environmental objectives (as described in Section 2.5.2) with respect to the baseline information. Particular reference was made to the potential for cumulative effects in association with other relevant plan and programmes.

The assessment process categorised environmental impacts using the ratings outlined in **Table 2.2** which is based on the impact assessment criteria defined by the EPA for environmental impact assessment.

**Table 2.2: Impact Ratings**

Significance of Impact	
	Positive

	Neutral
	Negative
	Uncertain

The assessment also considered the potential for cumulative effects of policies on each other to determine if certain policies working in combination could have an environmental impact.

Upon completion of the first appraisal matrix, a number of recommendations were made which were then reviewed in detail by GNI and where appropriate, incorporated into the NIP, such as changes to wording of their aims and commitments.

### 2.5.5 Assessment Stage 2 - Final Draft Plan

The next stage of the assessment comprised the revision of the appraisal matrix to take on board comments received from GNI on the initial draft plan and the associated first draft appraisal matrix.

This appraisal matrix was incorporated into the SEA Draft Environmental Report that accompanied the Draft NIP that went out for public consultation on 6<sup>th</sup> November 2020. The principle environmental effects, as per the assessment matrix, identified are summarised below, relevant to the proposed capital investment projects. It was concluded that no likely significant effects from any of the aims or commitments of the NIP were likely.

#### Capacity Upgrades to Existing AGIs

The capital investment projects outlined in the NIP include 12 No. capacity upgrades to existing AGIs.

Capacity upgrades of this nature generally involve limited development at already established AGI sites. All of the existing AGIs listed in the NIP have already been subject to environmental assessment at project level; by means of EIA, AA or indeed GNI's EnviroPlan and EnviroKit. As such, potential negative effects on the environment are assumed to have already been mitigated in these locations.

Should development be required outside the boundary of the existing AGI sites however, there is potential for negative effects on biodiversity, land and soil, water, and landscape, heritage and visual. Refer to mitigation measures.

Continued or increased supply/ use of natural gas will have an overall negative effect on air quality and climate. Further, any development of, or works to, gas infrastructure has health and safety implications.

The security of energy supply in Ireland is likely to have an overall positive effect on the population, as well as material assets.

#### New AGI Stations

The capital investment projects outlined in the NIP include the development of 2 No. new AGIs; all in Dublin.

The development of new AGIs has the potential to generate adverse impacts on biodiversity, with key potential impacts relating to disturbance, disruption, fragmentation and loss of habitats.

A potential negative effect is identified with regards landscape and visual, due to the development of the proposed new facilities, in particular should the sites of the proposed new AGIs be a greenfield sites.

Further, any new development has the potential to give rise to negative effects on land, soil and groundwater, due to the excavations required to facilitate this development, and the risk of leaks from pipes and infrastructure. Measures will be required to be put in place to ensure no risk of soil contamination during construction or operation.

The site selection process should therefore have regard to the proximity of the site to existing water features and protected views/prospects, the underlying groundwater bodies and their subsequent vulnerability, soil conditions, existing land-use etc.

Designated sites should be afforded protection in the undertaking of this new development, in compliance with legislation.

All areas of heritage significance/designated sites should be afforded strict protection, in compliance with legislation, and should be avoided during site selection of the new AGI stations.

The focus on brownfield lands or pre-developed sites during site-selection of the new AGI station will offset many potential effects on biodiversity, land and soil, water, heritage and landscape and visual.

A positive effect on the population and material assets is identified, through increased access to fuelling stations and the subsequent security of supply. However, a potential negative effect on human health is also identified, in that the development of new gas infrastructure can carry risk of fire or explosion, if unmitigated. Increased use of natural gas is also likely to result in an overall negative effect on air quality and climate.

### **New CNG Stations**

The capital investment projects outlined in the NIP include the development of 11 No. new CNG stations.

The development of new CNG stations has the potential to generate adverse impacts on biodiversity, with key potential impacts relating to disturbance, disruption, fragmentation and loss of habitats.

A potential negative effect is identified on landscape and visual, due to the development of the proposed new facilities, in particular should the sites of the proposed new CNG stations be a greenfield sites.

Further, any new development has the potential to give rise to negative effects on land, soil and groundwater, due to the excavations required to facilitate this development, and the risk of leaks from storage tanks and dispense pumps.

Measures should be put in place to ensure no risk of soil contamination during construction or operation.

The site selection process should therefore have regard to the proximity of the site to existing water features and protected views/prospects, the underlying groundwater bodies and their subsequent vulnerability, soil conditions, existing land-use etc.

Designated sites should be afforded protection in the undertaking of this new development, in compliance with legislation. All areas of heritage significance/designated sites should be afforded strict protection, in compliance with legislation, and should be avoided during site selection of the new CNG stations.

The focus on brownfield lands or pre-developed sites during site-selection of the new CNG stations will offset many potential effects on biodiversity, land and soil, water, heritage and landscape and visual.

A positive effect on the population and material assets is identified, through increased access to fuelling stations and the subsequent security of supply. However, a potential negative effect on human health is also identified, in that the development of new gas infrastructure can carry risk of fire or explosion, if unmitigated. Increased use of natural gas is also likely to result in an overall negative effect on air quality and climate. However, as outlined in GNI's Vision 2050 document, converting Ireland's HGVs from diesel to CNG can yield near-term emissions reductions in the transport sector. This ultimately will aid GNI in achieving the emission reduction targets relevant to the gas sector, as set both by Ireland and the EU.

Five of the proposed new CNG stations offer particular vulnerability to significant negative environmental effects:

**New CNG Station at NIP19LSCNG1-** The River Trogue, which is a nutrient sensitive river runs through Portlaoise town, as does the Ridge of Portlaoise NHA and a number of geological heritage sites.

**New CNG Station at NIP19MHCNG1-** The entire area of Gormanstown is a Geological Heritage Site. Further, the area is generally limited in its extent of existing development, meaning greenfield development is likely.

**New CNG Station at NIP19TCNG1-** The indicative site of the proposed new CNG station in Birdhill is in immediate vicinity of the Ratheen and Mountshannon tributaries which flow directly to the River Shannon SAC.

**New CNG Station at NIP19MHCNG2-** The indicative site of the proposed new CNG station in Trim is located in immediate vicinity of the Whitehall tributary, which flows directly into the River Boyne and River Blackwater SAC and SPA.

**New CNG Station at NIP19CNCNG1-** The indicative site of the proposed new CNG station at Maghera is located approximately 500m from Lough Ramon which is hydrologically linked to the River Boyne And River Blackwater SAC and SPA.



## Renewable Gas Injection Facility

The capital investment projects outlined in the NIP include the development of 1 No. new renewable gas injection facility. Planning permission has been sought, and the project has been subject to project level environmental assessment.

## AGI Bypass

The capital investment projects outlined in the NIP include the development of 1 No. AGI bypass project. Planning permission has been sought, and the project has been subject to project level environmental assessment.

## 2.5.6 Interactions and Interrelationships

In accordance with the SEA Directive, the inter-relationship between environmental aspects must be taken into account. The interaction and inter-relationships of relevance for the environmental baseline aspects was an important consideration for the environmental assessment.

**Table 2.3** outlines the identifiable inter-relationships that were taken into account during the environmental assessment. It is noted that all environmental aspects interact with each other to some extent, however only significant relationships were considered.

**Table 2.3: Key inter-relationships between environmental aspects.**

	Biodiversity	Population and Human	Land and Soil	Water	Air, Noise,	Climate and Resilience	Heritage	Landscape & Visual	Material Assets
Biodiversity									
Population and Human Health	No								
Land and Soil	Yes	Yes							
Water	Yes	Yes	Yes						
Air, Noise, Climate	Yes	Yes	No	No					
Climate and Resilience	Yes	Yes	Yes	Yes	Yes				
Heritage	No	No	Yes	No	No	No			
Landscape & Visual	Yes	Yes	No	No	No	No	Yes		
Material Assets	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	

## 2.6 SEA Environmental Report- Consultation

A period of public and statutory consultation process took place from 6<sup>th</sup> November and 4<sup>th</sup> December 2020 to gather feedback on the Draft NIP and supporting Draft SEA Environmental Report, in accordance with legislative requirements. The documents were issued to statutory stakeholders and made available for public viewing on the GNI website.

4 No. submissions were received on the draft NIP and SEA ER during this time. The content of submissions and comments received during this consultation period were considered by both Arup and GNI. Amendments were made in response to those consultation inputs where considered appropriate. Both the draft SEA ER, and the NIP were updated on foot of the recommendations outlined in the submissions received. **Appendix B** contains a summary of the submissions received and how they were responded to.

## 2.7 Technical Difficulties Encountered

No technical difficulties were encountered during any stage of the SEA process.

## 2.8 SEA Mitigation Measures

Mitigation measures are measures envisaged and designed to prevent, reduce and as fully as possible offset any significant adverse impacts on the environment of implementing the Draft NIP. All mitigation measures have been developed and agreed with GNI as part of the SEA iterative process.

The primary mitigation measure is to ensure the sustainable and appropriate development of the plan area without compromising the integrity of the natural and built environment.

It is recommended that all legislation, policies and guidelines outlined in this Environmental Report and are adhered to.

In implementing the NIP, projects arising out of the NIP will comply with the relevant legislation, guidelines and align with the relevant national environmental policies and, in so far as possible, align with the commitments and obligations of higher-level plans and programmes.

In general terms, all proposals for development will be required to have due regard to environmental considerations outlined in this Environmental Report and associated AA Screening.

In this section the mitigation measures are discussed under each environmental parameter heading. **Table 2.4** summarises the proposed mitigation measures.

**Table 2.4: Proposed Mitigation Measures**

Aspect	Mitigation measures	Relevant Aim/Commitments of the Draft NIP	Recommendations of SEA ER	Incorporated into final NIP?
Biodiversity	To afford the highest level of protection to all designated European sites and species in accordance with the relevant legislation	4.1.14 GNI will endeavour to adhere to the mitigation measures outlined in SEA Environmental Report and Natura Impact Report that relates to the NIP where necessary.	Include as aim/commitment	As aim 4.1.14
	To require all planning applications for development that may have (or cannot rule out) likely significant effects on European Sites in view of the site's Conservation Objectives, either in isolation or in combination with other plans or projects, to submit a Natura Impact Statement in accordance with the requirements of the EU Habitats Directive and the Planning and Development Act, 2000 (as amended)	4.1.14 GNI will endeavour to adhere to the mitigation measures outlined in SEA Environmental Report and Natura Impact Report that relates to the NIP where necessary.	Include as aim/commitment	As aim 4.1.14
	To recognise and afford appropriate protection to any existing new or modified SPAs or SACs that are identified during the lifetime of the NIP	4.1.14 GNI will endeavour to adhere to the mitigation measures outlined in SEA Environmental Report and Natura Impact Report that relates to the NIP where necessary.	Include as aim/commitment	As aim 4.1.14
	To implement Article 6(3) and where necessary 6(4) of the Habitats Directive and to ensure that Appropriate Assessment is carried out in relation to works, plans and projects likely to impact on European sites (SACs and SPAs), whether directly or indirectly or in combination with any other plan(s) or project(s)	4.1.14 GNI will endeavour to adhere to the mitigation measures outlined in SEA Environmental Report and Natura Impact Report that relates to the NIP where necessary.	Include as aim/commitment	As aim 4.1.14
	To have regard to Appropriate Assessment of Plans and Projects in Ireland – Guidelines for Planning Authorities 2009 or any updated version.	4.1.14 GNI will endeavour to adhere to the mitigation measures outlined in SEA Environmental Report and Natura Impact Report that relates to the NIP where necessary.	Include as aim/commitment	As aim 4.1.14
	To actively promote the conservation and protection of areas designated as an NHA (including proposed sites) and to only consider proposals for development within or affecting an NHA where it can be clearly demonstrated that the proposed development will not have a significant adverse effect on the NHA or pNHA;	4.1.14 GNI will endeavour to adhere to the mitigation measures outlined in SEA Environmental Report and Natura Impact Report that relates to the NIP where necessary.	Include as aim/commitment	As aim 4.1.14

Aspect	Mitigation measures	Relevant Aim/Commitments of the Draft NIP	Recommendations of SEA ER	Incorporated into final NIP?
	To identify and afford appropriate protection to any new, proposed or modified NHAs identified during the lifetime of this plan.	4.1.14 GNI will endeavour to adhere to the mitigation measures outlined in SEA Environmental Report and Natura Impact Report that relates to the NIP where necessary.	Include as aim/commitment	As aim 4.1.14
	To ensure the protection and conservation of areas, sites, species and ecological networks/corridors of biodiversity value outside of designated sites throughout the country and to require an ecological assessment to accompany development proposals likely to impact on such areas or species;	4.1.14 GNI will endeavour to adhere to the mitigation measures outlined in SEA Environmental Report and Natura Impact Report that relates to the NIP where necessary.	Include as aim/commitment	As aim 4.1.14
	To implement the EIA Directive, ensuring that all elements/stages or components of the project are included in one overall assessment and all reasonable alternatives are taken into consideration in choosing the option with the least environmental impact.	4.1.14 GNI will endeavour to adhere to the mitigation measures outlined in SEA Environmental Report and Natura Impact Report that relates to the NIP where necessary.	Include as aim/commitment	As aim 4.1.14
	To have regard to “Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessments (2013)’ when considering proposals for which an EIA is required;	4.1.14 GNI will endeavour to adhere to the mitigation measures outlined in SEA Environmental Report and Natura Impact Report that relates to the NIP where necessary.	Include as aim/commitment	As aim 4.1.14
	To protect and promote the sustainable management of the natural heritage, flora and fauna of the county through the promotion of biodiversity, the conservation of natural habitats and the enhancement of new and existing habitats	4.1.14 GNI will endeavour to adhere to the mitigation measures outlined in SEA Environmental Report and Natura Impact Report that relates to the NIP where necessary.	Include as aim/commitment	As aim 4.1.14
	To promote the conservation of biodiversity through the protection of sites of biodiversity importance and wildlife corridors, both within and between the designated sites and the wider Plan area;	4.1.14 GNI will endeavour to adhere to the mitigation measures outlined in SEA Environmental Report and Natura Impact Report that relates to the NIP where necessary.	Include as aim/commitment	As aim 4.1.14
	To ensure there is no net loss of potential Lesser Horseshoe Bat feeding habitats, treelines and hedgerows within 3km of known roosts.	4.1.14 GNI will endeavour to adhere to the mitigation measures outlined in SEA Environmental Report and Natura Impact Report that relates to the NIP where necessary.	Include as aim/commitment	As aim 4.1.14

Aspect	Mitigation measures	Relevant Aim/Commitments of the Draft NIP	Recommendations of SEA ER	Incorporated into final NIP?
	To ensure that development proposals support and enhance the connectivity and integrity of habitats in the plan area by incorporating natural features into the design of development proposals.	4.1.14 GNI will endeavour to adhere to the mitigation measures outlined in SEA Environmental Report and Natura Impact Report that relates to the NIP where necessary.	Include as aim/commitment	As aim 4.1.14
	To raise awareness of the threat of alien invasive species and take all necessary steps to prevent the spread of non-native invasive species and noxious weeds in the plan area, including requiring landowners, developers and boat operators to adhere to best practice guidance in relation to their control;	4.1.14 GNI will endeavour to adhere to the mitigation measures outlined in SEA Environmental Report and Natura Impact Report that relates to the NIP where necessary.	Include as aim/commitment	As aim 4.1.14
	To require all development proposals to address the presence or absence of invasive alien species on the proposed development site and to require an Invasive Species Management Plan where such species are present;	4.1.14 GNI will endeavour to adhere to the mitigation measures outlined in SEA Environmental Report and Natura Impact Report that relates to the NIP where necessary.	Include as aim/commitment	As aim 4.1.14
	To implement the requirements of EU Regulations 1143/2014 on the Prevention and Management of the Introduction and Spread of Invasive Alien Species.	4.1.14 GNI will endeavour to adhere to the mitigation measures outlined in SEA Environmental Report and Natura Impact Report that relates to the NIP where necessary.	Include as aim/commitment	As aim 4.1.14
	The development of new pipelines should be subject to route option assessment and environmental assessment, where required.	4.1.14 GNI will endeavour to adhere to the mitigation measures outlined in SEA Environmental Report and Natura Impact Report that relates to the NIP where necessary.	Include as aim/commitment	As aim 4.1.14
	The development of new infrastructure should be subject to site options assessment and environmental assessment, where required.	4.1.14 GNI will endeavour to adhere to the mitigation measures outlined in SEA Environmental Report and Natura Impact Report that relates to the NIP where necessary.	Include as aim/commitment	As aim 4.1.14
Population and Human Health	To seek to ensure that site security and health and safety is given high priority through the imposition and enforcement of conditions with regard to site security and warning signs.	4.1.14 GNI will endeavour to adhere to the mitigation measures outlined in SEA Environmental Report and Natura Impact Report that relates to the NIP where necessary.	Include as aim/commitment	

Aspect	Mitigation measures	Relevant Aim/Commitments of the Draft NIP	Recommendations of SEA ER	Incorporated into final NIP?
	To ensure that all GNI staff and their sub-contractors have regard to <i>the Safety Advice for Working In The Vicinity Of Natural Gas Pipelines, the HSA: Code of Practice for Avoiding Danger from Underground Services</i> , and all other relevant guidance document in advance of any works	4.1.14 GNI will endeavour to adhere to the mitigation measures outlined in SEA Environmental Report and Natura Impact Report that relates to the NIP where necessary.	Include as aim/commitment	As aim 4.1.14
	To consult with and have regard to the technical advice of the Health and Safety Authority and assessing planning applications where the Major Accidents Directive and any associated regulations are relevant	4.1.14 GNI will endeavour to adhere to the mitigation measures outlined in SEA Environmental Report and Natura Impact Report that relates to the NIP where necessary.	Include as aim/commitment	As aim 4.1.14
Soils and Geology	To ensure that, prior to the redevelopment of a site previously known to include an operation with the potential for high environmental impact such as petrol stations, gasworks or coal yards, due diligence is carried out on the site	4.1.14 GNI will endeavour to adhere to the mitigation measures outlined in SEA Environmental Report and Natura Impact Report that relates to the NIP where necessary.	Include as aim/commitment	As aim 4.1.14
	To ensure that contaminated soil is disposed of in accordance with the Waste Management Regulations (S.I.821 of 2007)	4.1.14 GNI will endeavour to adhere to the mitigation measures outlined in SEA Environmental Report and Natura Impact Report that relates to the NIP where necessary.	Include as aim/commitment	As aim 4.1.14
	To protect and enhance the valuable peatland resource in the country whilst protecting the heritage and environmental value of these peatland areas.	4.1.14 GNI will endeavour to adhere to the mitigation measures outlined in SEA Environmental Report and Natura Impact Report that relates to the NIP where necessary.	Include as aim/commitment	As aim 4.1.14
	a) To recognise the importance of Geological Heritage Sites and to protect the character and integrity of these sites	4.1.14 GNI will endeavour to adhere to the mitigation measures outlined in SEA Environmental Report and Natura Impact Report that relates to the NIP where necessary.	Include as aim/commitment	As aim 4.1.14
	To work with the GSI and relevant stakeholders to undertake a review of Geological Heritage Sites in the county during the lifetime of this Plan.	4.1.14 GNI will endeavour to adhere to the mitigation measures outlined in SEA Environmental Report and Natura Impact Report that relates to the NIP where necessary.	Include as aim/commitment	As aim 4.1.14

Aspect	Mitigation measures	Relevant Aim/Commitments of the Draft NIP	Recommendations of SEA ER	Incorporated into final NIP?
Water Resources	To work with all relevant stakeholders to protect and manage inland waters, river corridors and their floodplains, turloughs, lakes, fens and other water bodies from degradation and damage, and to recognise and promote them as natural assets and key elements in the green infrastructure network in the county;	4.1.14 GNI will endeavour to adhere to the mitigation measures outlined in SEA Environmental Report and Natura Impact Report that relates to the NIP where necessary.	Include as aim/commitment	As aim 4.1.14
	To facilitate the implementation of the relevant River Basin Management Plan and the for ground, surface, estuarine, coastal and transitional waters in the plan area as part of the implementation of the EU Water Framework Directive;	4.1.14 GNI will endeavour to adhere to the mitigation measures outlined in SEA Environmental Report and Natura Impact Report that relates to the NIP where necessary.	Include as aim/commitment	As aim 4.1.14
	To protect groundwater resources in accordance with the statutory requirements and specific measures as set out in the relevant River Basin Management Plan	4.1.14 GNI will endeavour to adhere to the mitigation measures outlined in SEA Environmental Report and Natura Impact Report that relates to the NIP where necessary.	Include as aim/commitment	As aim 4.1.14
	To consider proposals for development where it can be clearly demonstrated that the development will meet the requirements of the relevant River Basin Management Plan.	4.1.14 GNI will endeavour to adhere to the mitigation measures outlined in SEA Environmental Report and Natura Impact Report that relates to the NIP where necessary.	Include as aim/commitment	As aim 4.1.14
	To ensure that developments that would have an unacceptable impact on water resources, including surface water and groundwater quality and quantity, designated sources protection areas, estuarine, coastal transitional waters, river corridors and associated wetlands will not be permitted;	4.1.14 GNI will endeavour to adhere to the mitigation measures outlined in SEA Environmental Report and Natura Impact Report that relates to the NIP where necessary.	Include as aim/commitment	As aim 4.1.14
	In areas of potable groundwater resources or over vulnerable aquifer areas, development proposals will only be considered if the applicant can clearly demonstrate that the proposed development will not pose a risk to the quality of the underlying groundwater;	4.1.14 GNI will endeavour to adhere to the mitigation measures outlined in SEA Environmental Report and Natura Impact Report that relates to the NIP where necessary.		As aim 4.1.14
	To protect groundwater resources, in accordance with statutory requirements and specific measures as set out in the River Basin Management Plan;	4.1.14 GNI will endeavour to adhere to the mitigation measures outlined in SEA Environmental Report and Natura Impact Report that relates to the NIP where necessary.	Include as aim/commitment	As aim 4.1.14

Aspect	Mitigation measures	Relevant Aim/Commitments of the Draft NIP	Recommendations of SEA ER	Incorporated into final NIP?
	Prevent the alteration of natural drainage systems and in the case of development works require the provision of acceptable mitigation measures in order to minimise the risk of flooding and negative impacts on water quality.	4.1.6. GNI aims not increase in flood risk as a result of transmission development, and to ensure any flood risk to the development is appropriately managed  4.1.14 GNI will endeavour to adhere to the mitigation measures outlined in SEA Environmental Report and Natura Impact Report that relates to the NIP where necessary	Include mitigation measure as additional aim/commitment	As aim 4.1.14
	Comply with the objectives and policies of the Eastern Catchment Flood Risk Assessment Management Study.	4.1.6. GNI aims not increase in flood risk as a result of transmission development, and to ensure any flood risk to the development is appropriately managed  4.1.14 GNI will endeavour to adhere to the mitigation measures outlined in SEA Environmental Report and Natura Impact Report that relates to the NIP where necessary.	Include mitigation measure as additional aim/commitment	As aim 4.1.14
	Promote SUDS principles for all drainage including the integration of storm water attenuation facilities for new developments and existing catchment areas.	4.1.6. GNI aims not increase in flood risk as a result of transmission development, and to ensure any flood risk to the development is appropriately managed  4.1.14 GNI will endeavour to adhere to the mitigation measures outlined in SEA Environmental Report and Natura Impact Report that relates to the NIP where necessary.	Include mitigation measure as additional aim/commitment	As aim 4.1.14
	Ensure that any new development does not present an inappropriate risk of flooding or does not cause or exacerbate such a risk at other locations.	4.1.6. GNI aims not increase in flood risk as a result of transmission development, and to ensure any flood risk to the development is appropriately managed  4.1.14 GNI will endeavour to adhere to the mitigation measures outlined in SEA Environmental Report and Natura Impact Report that relates to the NIP where necessary.	Include mitigation measure as additional aim/commitment	As aim 4.1.14

Aspect	Mitigation measures	Relevant Aim/Commitments of the Draft NIP	Recommendations of SEA ER	Incorporated into final NIP?
	Comply with the DoECLG/OPW guidance on development and flood risk through the control of development in any flood plain so that new and existing developments are not exposed to increased risk of flooding and that any loss of flood storage is compensated for elsewhere in the river catchment.	<p>4.1.6. GNI aims not increase in flood risk as a result of transmission development, and to ensure any flood risk to the development is appropriately managed</p> <p>4.1.14 GNI will endeavour to adhere to the mitigation measures outlined in SEA Environmental Report and Natura Impact Report that relates to the NIP where necessary.</p>	Include mitigation measure as additional aim/commitment	As aim 4.1.14
Air and Noise  Climate and Resilience	Promoting energy conservation, energy efficiency and use of renewable energy sources in the production of all goods and services in accordance with national, regional and county regulations and policy requirements;	<p>4.1.13 Ireland's gas network provides a major opportunity to achieve significant and enduring emissions savings, sooner rather than later, across every sector of the economy, in a least cost and least disruptive manner; while retaining energy sector security and flexibility. Gas Networks Ireland are committed to developing the gas network so that this opportunity can be realised.</p> <p>4.3.1 GNI is committed to delivering a safe, affordable and clean energy future for the people of Ireland through the decarbonisation of our network and the reduction of emissions across all sectors of Irish society.</p> <p>4.3.3 GNI is committed to halving our greenhouse gas emissions by 2030 as part of low carbon pledge; an initiative developed by the 34 Business Working Responsibly Mark companies to tackle climate change. This pledge aims to practically demonstrate Irish business commitment to reducing carbon emissions and to act as a catalyst for wider, complementary initiatives and actions.</p> <p>4.3.7 GNI will reduce the carbon footprint of the GNI fleet prioritising CNG vehicles where technically feasible. Where CNG vehicles are not feasible, examine opportunities to use alternative zero/ low carbon fuels – e.g. biodiesel:</p>	Include as aim/commitment	As aim 4.1.14

Aspect	Mitigation measures	Relevant Aim/Commitments of the Draft NIP	Recommendations of SEA ER	Incorporated into final NIP?
		<p>4.3.8 GNI will Review journeys undertaken by GNI (fleet and grey-fleet) and examine ways in which journeys can be reduced, e.g. through the use of technology etc;</p> <p>4.3.9 GNI will incentivise selection, procurement and use of zero/ low carbon/ fuel efficient vehicles by delivery partners (e.g. the next NSWC contract).</p> <p>4.3.10 GNI are committed to working with government and policy makers across all sectors, to ensure we maximise the contribution this asset owned by the people of Ireland can make to help reduce emissions at least cost.</p> <p>4.3.11 GNI is committed to a clean energy future for Ireland. A whole energy system approach will deliver Ireland’s climate ambitions in the most practical and least cost manner. To achieve this, we will partner with key energy stakeholders, industry bodies, research institutes and communities to ensure a least cost and fair transformation to a clean energy society</p> <p>4.3.12 GNI has an ambition to deliver a net zero carbon gas network which will help to ensure that Ireland plays its part in the global effort to tackle climate change, supporting a clean energy society now and for generations to come.</p> <p>4.1.14 GNI will endeavour to adhere to the mitigation measures outlined in SEA Environmental Report and Natura Impact Report that relates to the NIP where necessary.</p>		

Aspect	Mitigation measures	Relevant Aim/Commitments of the Draft NIP	Recommendations of SEA ER	Incorporated into final NIP?
	Consideration of likely noise impacts/effects associated with new developments	4.1.5. It is the aim of GNI to seek to preserve and maintain air and noise quality in accordance with good practice and relevant legislation in the construction of its transmission projects.	-	As aim 4.1.14
	To support the implementation of the Climate Change policy documents and legislation outlined in the ER.	4.1.14 GNI will endeavour to adhere to the mitigation measures outlined in SEA Environmental Report and Natura Impact Report that relates to the NIP where necessary.	Include as aim/commitment	As aim 4.1.14
	To facilitate measures which seek to reduce emissions of greenhouse gases;	<p>4.1.13. Ireland’s gas network provides a major opportunity to achieve significant and enduring emissions savings, sooner rather than later, across every sector of the economy, in a least cost and least disruptive manner; while retaining energy sector security and flexibility. GNI are committed to developing the gas network so that this opportunity can be realised.</p> <p>4.3.1. GNI is committed to delivering a safe, affordable and clean energy future for the people of Ireland through the decarbonisation of our network and the reduction of emissions across all sectors of Irish society.</p> <p>4.3.3. GNI is committed to halving our greenhouse gas emissions by 2030 as part of low carbon pledge; an initiative developed by the 34 Business Working Responsibly Mark companies to tackle climate change. This pledge aims to practically demonstrate Irish business commitment to reducing carbon emissions and to act as a catalyst for wider, complementary initiatives and actions.</p> <p>4.3.7. GNI will reduce the carbon footprint of the GNI fleet prioritising CNG vehicles where technically feasible. Where CNG vehicles are not feasible, examine opportunities to use alternative zero/ low carbon fuels – e.g. biodiesel:</p>	-	As aim 4.1.14

Aspect	Mitigation measures	Relevant Aim/Commitments of the Draft NIP	Recommendations of SEA ER	Incorporated into final NIP?
		<p>4.3.8. GNI will Review journeys undertaken by GNI (fleet and grey-fleet) and examine ways in which journeys can be reduced, e.g. through the use of technology etc;</p> <p>4.3.9. GNI will incentivise selection, procurement and use of zero/ low carbon/ fuel efficient vehicles by delivery partners (e.g. the next NSWC contract).</p> <p>4.3.10. GNI are committed to working with government and policy makers across all sectors, to ensure we maximise the contribution this asset owned by the people of Ireland can make to help reduce emissions at least cost.</p> <p>4.3.11. GNI is committed to a clean energy future for Ireland. A whole energy system approach will deliver Ireland’s climate ambitions in the most practical and least cost manner.</p> <p>To achieve this, we will partner with key energy stakeholders, industry bodies, research institutes and communities to ensure a least cost and fair transformation to a clean energy society</p> <p>4.3.12. GNI has an ambition to deliver a net zero carbon gas network which will help to ensure that Ireland plays its part in the global effort to tackle climate change, supporting a clean energy society now and for generations to come.</p> <p>4.1.14 GNI will endeavour to adhere to the mitigation measures outlined in SEA Environmental Report and Natura Impact Report that relates to the NIP where necessary.</p>		

Aspect	Mitigation measures	Relevant Aim/Commitments of the Draft NIP	Recommendations of SEA ER	Incorporated into final NIP?
	Ensure that the objectives and polices of EU Air Quality legislation are incorporated into plans and programmes	4.1.5. It is the aim of GNI to seek to preserve and maintain air and noise quality in accordance with good practice and relevant legislation in the construction of its transmission projects.  4.1.14 GNI will endeavour to adhere to the mitigation measures outlined in SEA Environmental Report and Natura Impact Report that relates to the NIP where necessary.	-	As aim 4.1.14
	To ensure that developments do not give rise to negative effects on air quality, during both construction and operation	4.1.5. It is the aim of GNI to seek to preserve and maintain air and noise quality in accordance with good practice and relevant legislation in the construction of its transmission projects.  4.1.14 GNI will endeavour to adhere to the mitigation measures outlined in SEA Environmental Report and Natura Impact Report that relates to the NIP where necessary.	-	As aim 4.1.14
Heritage	To ensure the protection of the architectural heritage through the identification of Protected Structures, the designation of Architectural Conservation Areas, the safeguarding historic gardens, and the recognition of structures and elements that contribute positively to vernacular and industrial heritage	4.1.3. GNI aim to ensure that the special interest of protected structures, including their curtilages and settings, are protected to the greatest extent possible when considering site or route options for transmission infrastructure development.  4.1.14 GNI will endeavour to adhere to the mitigation measures outlined in SEA Environmental Report and Natura Impact Report that relates to the NIP where necessary.	Replace Aim/commitment 4.1.3 with this mitigation measure, and those identified in this section	As aim 4.1.14
	To ensure that the architectural heritage is not damaged either through direct destruction or by unsympathetic developments	4.1.14 GNI will endeavour to adhere to the mitigation measures outlined in SEA Environmental Report and Natura Impact Report that relates to the NIP where necessary.	Include as aim/commitment	As aim 4.1.14
	To protect, as set out in the Record of Protected Structures, all structures, which are of special architectural, historical, archaeological,	4.1.3. GNI aim to ensure that the special interest of protected structures, including their curtilages and settings, are protected to the greatest extent possible	Replace Aim/commitment 4.1.3 with this mitigation	As aim 4.1.14

Aspect	Mitigation measures	Relevant Aim/Commitments of the Draft NIP	Recommendations of SEA ER	Incorporated into final NIP?
	artistic, cultural, scientific, social, or technical interest	when considering site or route options for transmission infrastructure development.  4.1.14 GNI will endeavour to adhere to the mitigation measures outlined in SEA Environmental Report and Natura Impact Report that relates to the NIP where necessary.	measure, and those identified in this section	
	To review the Record of Protected Structures periodically and add structures of special interest as appropriate, including significant elements of industrial, maritime or vernacular heritage and any twentieth century structures of merit.	4.1.3. GNI aim to ensure that the special interest of protected structures, including their curtilages and settings, are protected to the greatest extent possible when considering site or route options for transmission infrastructure development.  4.1.14 GNI will endeavour to adhere to the mitigation measures outlined in SEA Environmental Report and Natura Impact Report that relates to the NIP where necessary.	Replace Aim/commitment 4.1.3 with this mitigation measure, and those identified in this section	As aim 4.1.14
	To ensure that new developments within or adjacent to an ACA respect the established character context of the area and contribute positively to the ACA in terms of design, scale, setting and material finishes;	4.1.14 GNI will endeavour to adhere to the mitigation measures outlined in SEA Environmental Report and Natura Impact Report that relates to the NIP where necessary.	Include as aim/commitment	As aim 4.1.14
	To protect existing buildings, structures, groups of structures, sites, landscapes and features such as street furniture and paving, which are considered to be intrinsic elements of the special character of the ACA, from demolition or removal and non-sympathetic alterations;	4.1.3. GNI aim to ensure that the special interest of protected structures, including their curtilages and settings, are protected to the greatest extent possible when considering site or route options for transmission infrastructure development.	Replace Aim/commitment 4.1.3 with this mitigation measure, and those identified in this section	As aim 4.1.14
	To ensure that all new signage, lighting, advertising and utilities to buildings within an ACA are designed, constructed and located in a manner that does not detract from is complementary to the character of the ACA;	4.1.14 GNI will endeavour to adhere to the mitigation measures outlined in SEA Environmental Report and Natura Impact Report that relates to the NIP where necessary.	Include as aim/commitment	As aim 4.1.14
	To safeguard sites, features and objects of archaeological interest generally;	4.1.3. GNI aim to ensure that the special interest of protected structures, including their curtilages and settings, are protected to the greatest extent possible	Replace Aim/commitment 4.1.3 with this mitigation measure, and those identified in this section	As aim 4.1.14

Aspect	Mitigation measures	Relevant Aim/Commitments of the Draft NIP	Recommendations of SEA ER	Incorporated into final NIP?
		when considering site or route options for transmission infrastructure development.  4.1.14 GNI will endeavour to adhere to the mitigation measures outlined in SEA Environmental Report and Natura Impact Report that relates to the NIP where necessary.		
	To secure the preservation (i.e. preservation in situ or in exceptional cases preservation by record) of all archaeological monuments included in the Record of Monuments and Places as established under Section 12 of the National Monuments (Amendment) Act, 1994, and of sites, features and objects of archaeological and historical interest generally;	4.1.14 GNI will endeavour to adhere to the mitigation measures outlined in SEA Environmental Report and Natura Impact Report that relates to the NIP where necessary.	Include as aim/commitment	As aim 4.1.14
	To have regard to the government publication Framework and Principles for the Protection of the Archaeological Heritage 1999 in relation to protecting sites, features and objects of archaeological interest	4.1.14 GNI will endeavour to adhere to the mitigation measures outlined in SEA Environmental Report and Natura Impact Report that relates to the NIP where necessary.	Include as aim/commitment	As aim 4.1.14
	To protect and preserve archaeological sites discovered since the publication of the Record of Monuments and Places.	4.1.14 GNI will endeavour to adhere to the mitigation measures outlined in SEA Environmental Report and Natura Impact Report that relates to the NIP where necessary.	Include as aim/commitment	As aim 4.1.14
	To protect the Zones of Archaeological Potential located within both urban and rural areas as identified in the Record of Monuments and Places.	4.1.14 GNI will endeavour to adhere to the mitigation measures outlined in SEA Environmental Report and Natura Impact Report that relates to the NIP where necessary.	Include as aim/commitment	As aim 4.1.14
	To have regard to archaeological concerns when considering proposed service schemes located in close proximity to Recorded Monuments and Places and the Zones of Archaeological Potential.	4.1.14 GNI will endeavour to adhere to the mitigation measures outlined in SEA Environmental Report and Natura Impact Report that relates to the NIP where necessary.	Include as aim/commitment	As aim 4.1.14
Landscape and Visual	Ensure that all new plans and programmes incorporate the findings of the County Landscape Character Assessments.	4.1.4. GNI aim to continue to protect and enhance landscapes through the sustainable planning and design of transmission infrastructure development.	Replace Aim/commitment 4.1.4 with this mitigation	As aim 4.1.14

Aspect	Mitigation measures	Relevant Aim/Commitments of the Draft NIP	Recommendations of SEA ER	Incorporated into final NIP?
		4.1.14 GNI will endeavour to adhere to the mitigation measures outlined in SEA Environmental Report and Natura Impact Report that relates to the NIP where necessary.	measure, and those identified in this section	
	To require that all proposed developments in Heritage Landscapes demonstrate that every effort has been made to reduce visual impact.  This must be demonstrated for all aspects of the proposal- from site selection through to details of siting and design. All other relevant provisions of the development plan must be complied with.	4.1.4. GNI aim to continue to protect and enhance landscapes through the sustainable planning and design of transmission infrastructure development.  4.1.14 GNI will endeavour to adhere to the mitigation measures outlined in SEA Environmental Report and Natura Impact Report that relates to the NIP where necessary.	Replace Aim/commitment 4.1.3 with this mitigation measure, and those identified in this section	As aim 4.1.14
	To protect sensitive areas from inappropriate development while providing for development and change that will benefit the rural community	4.1.4 GNI aim to continue to protect and enhance landscapes through the sustainable planning and design of transmission infrastructure development.  4.1.14 GNI will endeavour to adhere to the mitigation measures outlined in SEA Environmental Report and Natura Impact Report that relates to the NIP where necessary.	Replace Aim/commitment 4.1.3 with this mitigation measure, and those identified in this section	As aim 4.1.14
	To ensure that proposed developments take into consideration their effects on views from the public road towards scenic features or areas and are designed and located to minimise their impact	4.1.4. GNI aim to continue to protect and enhance landscapes through the sustainable planning and design of transmission infrastructure development.  4.1.14 GNI will endeavour to adhere to the mitigation measures outlined in SEA Environmental Report and Natura Impact Report that relates to the NIP where necessary.	Replace Aim/commitment 4.1.3 with this mitigation measure, and those identified in this section	As aim 4.1.14
	To ensure that appropriate standards of location, siting, design, finishing and landscaping are achieved.	4.1.4. GNI aim to continue to protect and enhance landscapes through the sustainable planning and design of transmission infrastructure development.  4.1.14 GNI will endeavour to adhere to the mitigation measures outlined in SEA Environmental Report and	Replace Aim/commitment 4.1.3 with this mitigation measure, and those identified in this section	As aim 4.1.14

Aspect	Mitigation measures	Relevant Aim/Commitments of the Draft NIP	Recommendations of SEA ER	Incorporated into final NIP?
		Natura Impact Report that relates to the NIP where necessary.		
Material Assets	Promote the implementation of the Waste Management Plan together with any future National or Regional Waste Management Plans. Additionally, ensure national policies and regulations regarding waste are adhered to.	4.1.14 GNI will endeavour to adhere to the mitigation measures outlined in SEA Environmental Report and Natura Impact Report that relates to the NIP where necessary.	Replace Aim/commitment 4.4.1 with this mitigation measure, and those identified in this section	As aim 4.1.14
	Encourage waste prevention, minimisation, reuse, recycling and recovery as methods of managing waste.	4.1.14 GNI will endeavour to adhere to the mitigation measures outlined in SEA Environmental Report and Natura Impact Report that relates to the NIP where necessary.	Replace Aim/commitment 4.4.1 with this mitigation measure, and those identified in this section	As aim 4.1.14
	Promote the development of sufficient energy resources to meet the needs of the plan area and promote the use of renewable energies to meet those needs.	4.1.14 GNI will endeavour to adhere to the mitigation measures outlined in SEA Environmental Report and Natura Impact Report that relates to the NIP where necessary.	Replace Aim/commitment 4.4.1 with this mitigation measure, and those identified in this section	As aim 4.1.14

## 2.9 SEA Monitoring Measures

Article 10 of the SEA Directive requires that monitoring should be carried out in order to identify at an early stage any unforeseen adverse impacts associated with the implementation of the plan or programme.

A monitoring programme is developed based on the indicators selected to track progress towards achieving strategic environmental objectives and reaching targets, enabling positive and negative impacts on the environment to be measured.

As outlined in the EPA guidance document ‘*Guidance on SEA Statements and Monitoring*’ (EPA, 2020), SEA monitoring should reflect the nature and level of detail of the plan/programme. Many national-level plans/programmes lack geographic specificity, contain only high-level strategic objectives and do not lend themselves to cause–effect models in terms of direct measuring of environmental effects. As such, SEA monitoring for these plans should focus on national indicators to examine environmental trends.

The monitoring programme outlined in **Table 2.5** therefore is based on national indicators and informed by the content of the NIP.

The SEA carried out has ensured that any potential significant environmental impacts have been identified and given due consideration.

GNI is responsible for 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.

**Table 2.5: Proposed Monitoring Measures**

Objectives	Targets	Indicators	Monitoring Source	Monitoring Frequency and Responsibility
<b>SEO 1 Biodiversity</b>				
<p><b>SEO 1.1</b> Protect, conserve, enhance where possible and avoid loss of diversity and integrity of the broad range of habitats, species and wildlife corridors.</p> <p><b>SEO 1.2</b> To support achievement of the conservation objectives of European Sites (SACs and SPAs) and other sites of nature conservation.</p> <p><b>SEO 1.3</b> Conserve and protect other sites of nature conservation including NHAs, pNHAs, National Parks, Nature Reserves, Wildfowl Sanctuaries as well as protected species outside these areas as covered by the Wildlife Act.</p> <p><b>SEO 1.4</b> To minimise and, where possible, eliminate threats to biodiversity including invasive species.</p>	<p><b>SET 1.1</b> Siting of development of infrastructure installation on non-sensitive sites.</p> <p><b>SET 1.2</b> Maintenance of favourable conservation status for all habitats and species protected under the Habitat Directive.</p> <p><b>SET 1.3</b> No loss of protected habitats and species during the lifetime of the Plan.</p> <p><b>SET 1.4</b> No significant ecological networks or parts thereof which provide functional connectivity for SAC/SPAs to be lost without remediation resulting from development provided for by the NIP.</p>	<p><b>SEI 1.1</b> Number and extent of Designated Sites;</p> <p><b>SEI 1.2</b> Achievement of favourable conservation status of designated sites;</p> <p><b>SEI 1.3</b> Population and range of Designated Species; and</p> <p><b>SEI 1.4</b> Achievement of the Objectives of Biodiversity Plans and County Development Plans.</p>	<ol style="list-style-type: none"> <li>1. Monitoring of the effects of capital investment project development required under separate processes (EIA, AA)</li> <li>2. Department of Arts, Heritage and the Gaeltacht report of the implementation of the measures contained in the Habitats Directive - as required by Article 17 of the Directive</li> <li>3. The Status of EU Protected Habitats and Species in Ireland Report (Department of Culture, Heritage and the Gaeltacht)</li> <li>4. Monitoring related to relevant Local Area Plans and County/City Development Plans</li> <li>5. EPA State of the Environment Report</li> </ol>	<ol style="list-style-type: none"> <li>1. In accordance with the monitoring provisions of EIA/ AA</li> <li>2. Department of Arts, Heritage and the Gaeltacht- every 6 years</li> <li>3. Department of Culture, Heritage and the Gaeltacht. Every 6 years.</li> <li>4. In accordance with the monitoring provisions of the lower level plans</li> <li>5. EPA. Every 4 years.</li> </ol>
<b>SEO 2 Population and Human Health</b>				
<p><b>SEO 2.1</b> Protect, enhance and improve people's quality of life through energy provision.</p>	<p><b>SET 2.1</b> Minimise population exposure to high levels of noise, vibration and air pollution.</p>	<p><b>SEI 2.1</b> Census population data;</p> <p><b>SEI 2.2</b> % increase in housing (number and type); and</p> <p><b>SEI 2.3</b> Changes in trends in perceived health status.</p>	<ol style="list-style-type: none"> <li>1. Monitoring of the effects of capital investment project development required under separate processes (EIA, AA)</li> </ol>	<ol style="list-style-type: none"> <li>1. In accordance with the monitoring provisions of EIA/ AA</li> <li>2. CSO, results published every new Census year (6 years)</li> </ol>

Objectives	Targets	Indicators	Monitoring Source	Monitoring Frequency and Responsibility
<p><b>SEO 2.2</b> Protect human health from hazards or nuisances arising from incompatible development.</p> <p><b>SEO 2.3</b> Provide all of the energy services required to sustainably meet future housing demands.</p> <p><b>SEO 2.4</b> To minimise the proximity of development to concentrations of population and to mitigate potential effect of development in order to reduce actual and perceived environmental effects.</p>	<p><b>SET 2.2</b> No significant deterioration in human health as a result of environmental factors.</p> <p><b>SET 2.3</b> No spatial concentrations of health problems arising from environmental factors.</p> <p><b>SET 2.4</b> Maintenance of gas supply to meet the energy needs of the population, while commencing a shift towards renewable energy use.</p>		<p>2. CSO Population and Gas Consumption Data</p> <p>3. Monitoring related to relevant Local Area Plans and County/City Development Plans or RSEs</p>	<p>3. In accordance with the monitoring provisions of the lower level plans</p>
<b>SEO 3 Land &amp; Soil</b>				
<p><b>SEO 3.1</b> Conserve, protect and avoid loss of diversity and integrity of designated habitats, geological features, species or their sustaining resources in designated ecological sites.</p>	<p><b>SET 3.1</b> Prevent pollution of soil through adoption of appropriate environmental protection procedures during construction, installation and maintenance works on site.</p> <p><b>SET 3.2</b> No incidences of soil contamination.</p> <p><b>SET 3.3</b> Ensure appropriate management of existing contaminated soil in accordance with the requirements of current waste legislation.</p>	<p><b>SEI 3.1</b> Incidences of soil contamination;</p> <p><b>SEI 3.2</b> Rates of re-use/recycling of construction waste;</p> <p><b>SEI 3.3</b> Rates of brownfield site and contaminated land reuse and development; and</p> <p><b>SEI 3.4</b> Rates of greenfield development.</p>	<p>1. Monitoring of the effects of capital investment project development required under separate processes (EIA, AA)</p> <p>2. CORINE mapping resurvey</p> <p>3. EPA State of the Environment Report.</p> <p>4. EPA National Waste Statistics</p> <p>5. Monitoring related to relevant Local Area Plans and County/City Development Plans or RSEs</p>	<p>1. In accordance with the monitoring provisions of EIA/ AA</p> <p>2. European Community (EC). Varies.</p> <p>3. EPA, every 4 years.</p> <p>4. EPA, varies</p> <p>5. In accordance with the monitoring provisions of the lower level plans</p>

Objectives	Targets	Indicators	Monitoring Source	Monitoring Frequency and Responsibility
<b>SEO 4 Water</b>				
<p><b>SEO 4.1</b> Maintain or improve the quality of surface water and groundwater (including estuarine) to status objectives as set out in the WaterFramework Directive (WFD).</p> <p><b>SEO 4.2</b> Support achievement of the requirements of the Water Framework Directive and implementation of the National River Basin Management Plan'</p>	<p><b>SET 4.1</b> Support the achievement of "good" ecological and chemical status/potential of waterbodies by 2015 in accordance with the Water Framework Directive.</p> <p>.</p> <p><b>SET 4.5</b> Not to cause deterioration in the status of any surface or ground water or affect the ability of any surface or ground water to maintain or achieve 'good' status.</p>	<p><b>SEI 4.1</b> Compliance of surface and ground waters with national and international standards;</p> <p><b>SEI 4.2</b> Achievement of the Objectives of the River Basin Management Plan;</p>	<ol style="list-style-type: none"> <li>1. Monitoring of the effects of capital investment project development required under separate processes (EIA, AA)</li> <li>2. EPA Water Quality Status for surface and ground water</li> <li>3. EPA Risk Status for surface and ground water</li> <li>4. EPA water quality monitoring</li> </ol>	<ol style="list-style-type: none"> <li>1. In accordance with the monitoring provisions of EIA/ AA</li> <li>2. EPA, varies</li> <li>3. EPA, varies</li> <li>4. EPA, continuous</li> </ol>
<b>SEO 5 Air &amp; Noise</b>				
<p><b>SEO 5.1</b> To support the protection of ambient environment through the implementation of European, national and regional policy and legislation relating to air quality, greenhouse gases, climate change, light pollution noise pollution and waste management.</p>	<p><b>SET 5.1</b> Maintain ambient air quality.</p> <p><b>SET 5.2</b> Minimise air and noise emissions during construction and operation of new developments.</p>	<p><b>SEI 5.1</b> Air quality indicators- National and region-specific emission data; and</p> <p><b>SEI 5.2</b> Compliance with national standards.</p>	<ol style="list-style-type: none"> <li>1. Monitoring of the effects of capital investment project development required under separate processes (EIA, AA)</li> <li>2. EPA Air Quality Monitoring</li> <li>3. EPA State of the Environment Report</li> <li>4. EPA Air Quality in Ireland Report</li> <li>5. Monitoring related to relevant Local Area Plans and County/City Development Plans or</li> </ol>	<ol style="list-style-type: none"> <li>1. In accordance with the monitoring provisions of EIA/ AA</li> <li>2. EPA, continuous</li> <li>3. EPA, every 4 years</li> <li>4. EPA, annually</li> <li>5. In accordance with the monitoring provisions of the lower level plans</li> </ol>

Objectives	Targets	Indicators	Monitoring Source	Monitoring Frequency and Responsibility
			RSES's – such as noise action plans	
<b>SEO 6 Climate and Resilience</b>				
<p><b>SEO 6.1</b> Comply with relevant national climate change targets e.g. Ireland's Climate Action and Low Carbon Development Act 2015, the and EU 2030 and 2050 Emissions and Renewable Energy Targets and the Paris Agreement Targets.</p> <p><b>SEO 6.2</b> To support implementation of the National Climate Action Plan 2019</p>	<p><b>SET 6.1</b> Achieve a reduction in greenhouse gas emissions.</p> <p><b>SET 6.2</b> Increase the amount of gas from renewable sources that is introduced to the network.</p> <p><b>SET 6.3</b> Growth in the level of fuel switching from high-carbon fuels to gas, in both heating and transport.</p> <p><b>SET 6.4</b> Promote minimisation of greenhouse gas emissions to the atmosphere.</p> <p><b>SET 6.5</b> To achieve a 30% reduction on GHG emission levels (compared with 2005 levels) by 2050.</p>	<p><b>SEI 6.1</b> Levels of greenhouse gas emissions;</p> <p><b>SEI 6.2</b> Number of energy/renewable energy production facilities; and</p> <p><b>SEI 6.3</b> Rates of energy/renewable energy consumption.</p> <p><b>SEI 6.4</b> Groundwater levels</p>	<ol style="list-style-type: none"> <li>1. Monitoring of the effects of capital investment project development required under separate processes (EIA, AA)</li> <li>2. EPA State of the Environment Report</li> <li>3. Monitoring related to relevant Local Area Plans and County/City Development Plans or RSEs</li> <li>4. EPA climate change projections</li> <li>5. EPA Greenhouse Gas emissions data</li> <li>6. Monitoring related to Climate Adaptation or Mitigation plans</li> <li>7. Monitoring of groundwater levels by GSI under the GW Cimate project</li> </ol>	<ol style="list-style-type: none"> <li>1. In accordance with the monitoring provisions of EIA/ AA</li> <li>2. EPA, every 4 years</li> <li>3. In accordance with the monitoring provisions of the lower level plans</li> <li>4. EPA, varies</li> <li>5. EPA, varies</li> <li>6. In accordance with the monitoring provisions of these plans</li> <li>7. GSI, continuous</li> </ol>

Objectives	Targets	Indicators	Monitoring Source	Monitoring Frequency and Responsibility
<b>SEO 7 Archaeological, Architectural and Cultural Heritage</b>				
<b>SEO 7.1</b> Promote the protection and conservation of archaeological, architectural and cultural heritage, specifically those buildings identified on the Record of Protected Structures, and Recorded Monuments in Ireland.	<p><b>SET 7.1</b> Maintenance and enhancement of archaeological heritage- including entries to the Record of Monuments and Places and unknown archaeology- and the context of the above within the surrounding landscape where relevant.</p> <p><b>SET 7.2</b> Maintenance and enhancement of entries to the Record of Protected Structures and/or their context within the surrounding landscape where relevant.</p>	<p><b>SEI 7.1</b> Achieving the objectives of development plans regarding heritage protection; and</p> <p><b>SEI 7.2</b> full or partial loss to entries to the RPSs/NIAHs</p>	<ol style="list-style-type: none"> <li>1. Monitoring of the effects of capital investment project development required under separate processes (EIA, AA)</li> <li>2. Monitoring related to relevant Local Area Plans and County/City Development Plans or RSEs</li> </ol>	<ol style="list-style-type: none"> <li>1. In accordance with the monitoring provisions of EIA/ AA</li> <li>2. In accordance with the monitoring provisions of the lower level plans</li> </ol>
<b>SEO 8 Landscape and Visual</b>				
<p><b>SEO 8.1</b> Ensure no significant disruption of historic/cultural landscapes and features.</p> <p><b>SEO 8.2</b> Ensure no significant visual impact from developments/installations.</p> <p><b>SEO 8.3</b> Ensure no significant disruption of high landscape values.</p> <p><b>SEO 8.4</b> To support achievement of the objectives of the National Landscape Strategy</p>	<p><b>SET 8.1</b> No avoidable significant impacts on the landscape resulting from development provided for by the NIP.</p> <p><b>SET 8.2</b> Ensure development and infrastructure installations are sensitive to its surroundings.</p> <p><b>SET 8.3</b> Ensure no significant disruption of historic/cultural landscapes and features.</p>	<p><b>SEI 8.1</b> Range and extent of Amenity Landscapes;</p> <p><b>SEI 8.2</b> Rates of development within designated landscapes;</p> <p><b>SEI 8.3</b> Rates of urban expansion; and</p> <p><b>SEI 8.4</b> % change of land use from rural to urban.</p>	<ol style="list-style-type: none"> <li>1. Monitoring of the effects of capital investment project development required under separate processes (EIA, AA)</li> <li>2. Monitoring related to relevant Local Area Plans and County/City Development Plans or RSEs</li> <li>3. CORINE mapping resurvey</li> </ol>	<ol style="list-style-type: none"> <li>3. In accordance with the monitoring provisions of EIA/ AA</li> <li>4. In accordance with the monitoring provisions of the lower level plans</li> <li>5. European Communities (EC), varies</li> </ol>

Objectives	Targets	Indicators	Monitoring Source	Monitoring Frequency and Responsibility
<b>SEO 9 Material Assets</b>				
<p><b>SEO 9.1</b> Make best use of existing infrastructure and phase the significant future growth of Ireland in line with the capacity and delivery of the sustainable development of new physical infrastructure.</p> <p><b>SEO 9.2</b> Promote use of renewable energy sources and support energy conservation initiatives including the development of low carbon business practices and buildings.</p> <p><b>SEO 9.3</b> Minimise effects upon the existing and planned infrastructure.</p>	<p><b>SET 9.1</b> High levels of energy demand growth are accommodated.</p> <p><b>SET 9.2</b> Secure and competitive supplied of gas and are maintained.</p> <p><b>SET 9.3</b> Increase in renewable energy developments.</p> <p><b>SET 9.4</b> To achieve a 30% reduction on GHG emission levels (compared with 2005 levels) by 2050.</p> <p><b>SET 9.5</b> Improve efficiencies of energy infrastructure.</p>	<p><b>SEI 9.1</b> Location/level of infrastructure;</p> <p><b>SEI 9.2</b> Achievement of development plan objectives; and</p> <p><b>SEI 9.3</b> No. of renewable energy developments granted planning permission.</p>	<ol style="list-style-type: none"> <li>1. Monitoring of the effects of capital investment project development required under separate processes (EIA, AA)</li> <li>2. Monitoring related to relevant Local Area Plans and County/City Development Plans or RSEs</li> <li>3. CSO Population and Gas Consumption Data</li> </ol>	<ol style="list-style-type: none"> <li>1. In accordance with the monitoring provisions of EIA/ AA</li> <li>2. In accordance with the monitoring provisions of the lower level plans</li> <li>3. CSO, every 6 years</li> </ol>

### 3 Appropriate Assessment

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Stage 1 AA (Screening) was undertaken by GNI to identify if the potential for effects of implementing the NIP on the conservation status of designated Natura 2000 sites within the sphere of influence of the plan (or project). It was determined as part of this screening that there was potential for significant effects and/or in-combination effects on European sites as a result of implementing the NIP. A Natura Impact Report was subsequently prepared.

## 4 Final Appraisal: How Environmental Considerations were integrated into the NIP

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This Section summarises how environmental considerations were integrated into the adopted NIP, throughout the SEA process.

The SEA process for the NIP ensured the integration of environmental considerations as follows:

- Undertaking the SEA in parallel with the NIP;
- Undertaking the SEA with close regular contact between the NIP team and the SEA team;
- Issuing the Scoping Report to the Environmental Authorities for comments on key environmental issues and the proposed scope of the SEA at the earliest possible stage of the NIP preparation;
- Carrying out a full assessment of the environmental effects of the NIP, and recommending and making changes to the NIP as a result

### Identification of environmental constraints

As described in Section 4.1, the SEA team undertook an assessment of baseline environmental conditions of the NIP area, with reference to biodiversity, population and human health, land and soil, water, air and climate, heritage, landscape and material assets. This information was used to focus the SEA objectives, develop alternatives and assess positive and negative impacts associated with the implementation of the proposed NIP. An Environmental Sensitivity Map was prepared to enable this assessment and to influence alternatives discussions and assessment of policies.

During the consultation period for the draft NIP and SEA ER, the EPA published the 2020 State of the Environment Report. As such, following consultation, the SEA ER and NTS were updated to take into account this more recent data.

### SEA Scoping

As described in Section 3, the SEA Scoping was a key part of the assessment process as it provided information to allow consultation with defined statutory bodies and environmental authorities on the scope and level of detail to be considered and incorporated at an early stage in the assessment.

Refer to **Appendix A** for the submissions received during the scoping consultation and how they were responded to and incorporated into the SEA ER and NIP.

### Assessment of alternatives

As this was the first NIP prepared by GNI, the development of alternatives process was a new concept. The SEA team worked with GNI from the outset to assist GNI in becoming familiar with the process. The SEA team issued GNI the EPA Guidance on Developing and Assessing Alternatives in SEA, as well as some examples from similar plans in the public domain.

The SEA team advised that the ‘Do Nothing’ scenario would be assessed and that GNI needed to develop a number of other scenarios as to how the objectives of the NIP could be reached.

Following receipt of submissions as part of the public consultation on the NIP and SEA ER, further discussions were had with GNI as to how the alternatives considered could be better described in the NIP and how this would facilitate more robust SEA of those alternatives.

Thus, in response to submissions, a number of higher-level plan scenarios which were considered by GNI in the outset of the plan making process have been retrospectively considered and assessed as part of this SEA Statement- refer to Section 2.5.3.

The environmental baseline and objectives were used to identify key sensitivities and inform development of the alternatives and ultimately the assessment of the preferred alternative.

### **Aims and Commitments**

As this was the first NIP prepared by GNI, the SEA team worked closely with GNI to develop the ‘aims and commitments’ of the NIP. The SEA team advised GNI to look to their 2050 Vision document, as well as their Sustainability in Action Reports in the first instance to try to determine the environmental aims and commitments which GNI have already committed to, and advised that these aims and commitments should be reflected in the NIP, as appropriate. The SEA team also worked with GNI to develop wording for new aims and commitments.

### **Proposed mitigation measures**

Mitigation measures were proposed to address negative environmental impacts identified during the assessment process. These included amendments to the wording of policies and objectives in the NIP.

The SEA team worked closely with GNI in the development of the mitigation measures outlined in the SEA ER. The SEA team advised GNI on the importance of ensuring that the mitigation measures proposed in the SEA ER were incorporated into the NIP, in so far as possible. The SEA team had numerous discussions with GNI regarding mitigation measures. Following review of submissions received during consultation, GNI reviewed and updated the NIP to ensure that its commitments to the implementation of mitigation were as definitive as possible.

### **Required environmental monitoring programme**

A monitoring programme has been developed based on the indicators (noted in Section 6) in order to track progress towards achieving strategic environmental objectives and reaching targets, enabling positive and negative impacts on the environment to be measured.

The indicators have been developed to illustrate changes that would be attributable to the implementation of the NIP.

Following review of submissions received during consultation, the monitoring programme was reviewed and updated to provide greater information on monitoring sources, responsibilities and timeframes.

### **Consultation**

Further to the SEA Scoping consultation, the SEA Environmental Report, the Natura Impact Statement (from the Appropriate Assessment Process) and the Draft NIP were put on wider display on the GNI website.

All submission received during consultation are outlined in **Appendix B**, including commentary on how these were responded to.

## **Appendix A**

### **SEA Scoping Responses**

Consultee/Stakeholder	Scoping Response	Considered in SEA ER?
<p>Geological Survey of Ireland</p>	<p>We are pleased to see our previous comments have been taken into account with the consideration of Geological Heritage Sites and the use of our online mapping resources within the SEA scoping report. Following on from our previous response dated 11 December, (Our Ref 19/265), and we would welcome the opportunity to make some additional comments.</p> <p>Groundwater</p> <p>We would like to draw your attention to the newly released groundwater flooding maps and live turlough data service which will provide important information to benefit Gas Networks Ireland Network Implementation Plan.</p> <p>With regard to Flood Risk Management, there is a need to identify areas for integrated mitigation and management. Our GWflood project is a groundwater flood monitoring and mapping programme aimed at addressing the knowledge gaps surrounding groundwater flooding in Ireland. The project is providing the data and analysis tools required by local and national authorities to make scientifically-informed decisions regarding groundwater flooding. This is primarily focused on karst areas, which will provide vital information to benefit the Network Implementation Plan. We recommend using the GSI’s GWflood tools found under our programme activities to this end.</p> <p>With regards to Climate Change, there is a need to improve the monitoring capacity of groundwater levels in Ireland so that the potential impacts of climate change can be monitored and assessed. In this context Geological Survey Ireland has established the GWClimate project in January 2020. GWClimate will 1) establish a long-term strategic groundwater level monitoring network and 2) develop modelling and analytical approaches for evaluating the impacts of Climate Change to Irish groundwater systems. Further information can be found on the Groundwater flooding page of the Groundwater Programme. This data may be of benefit in dealing with concerns raised in Section 4.4.3 Key Issues, with regard to the karstification of limestone, Section 4.5 Groundwater, and Section 4.5.2 Key Issues, with regard to extreme flooding events.</p> <p>Geological Mapping</p>	<p>Noted</p> <p>Noted</p> <p>Noted</p> <p>Noted. The GW monitoring which will be carried out by GSI as part of the GWClimate project has been incorporated into the monitoring programme in the SEA ER.</p> <p>Noted</p>



Consultee/Stakeholder	Scoping Response	Considered in SEA ER?
	<p>The relevant objectives and policy commitments of the National Planning Framework and the Regional Spatial and Economic Strategies should be aligned with and considered, as appropriate.</p> <p>Consider the relevant aspects of the Offshore Renewable Energy Development Plan, in terms of offshore and onshore infrastructure (or proposed infrastructure) and the National Marine Planning Framework. The equivalent plans in adjoining jurisdictions should also be considered.</p> <p>Section 4.1 refers to S.I. No. 436 of 2004, while in the context of the Plan, this should instead be changed to refer to S.I. No 435 of 2004, as amended by S.I. 200 of 2011.</p> <p>There is merit in considering the Draft National Marine Planning Framework and associated SEA ER, in the context of obtaining updated marine related environmental baseline.</p> <p>Regarding the key issues described in subsection 4.2.3, we acknowledge the potential impacts from construction work of new developments or installations. Additionally, other aspects include potential for disturbance to designated habitats and protected species, ecological connectivity, hydrological connectivity, air quality impacts, landscape impacts, contaminated soil etc.</p> <p>In Subsection 4.3 Biodiversity including Flora &amp; Fauna, the last paragraph on page 21 refers to the NPWS, 2013 report on the status and trends in Habitats protected under the EU Habitats Directive between 2007 and 2013. This should be updated to refer to the latest report produced in 2019.</p> <p>In Subsection 4.5 Water Resources, we recommend referring to and incorporating the relevant aspects of the National River Basin Management Plan.</p>	<p>implementation of the same would significantly effect the environment in any transboundary regions.</p> <p>Noted and incorporated into SEA ER.</p> <p>Noted and incorporated into SEA ER.</p> <p>S.I No 435 referred to in this SEA ER.</p> <p>Noted and incorporated. The seascape character is now described in the baseline section of the SEA ER, and the Marine Planning Framework referred to</p> <p>Noted key issues have been expanded on in the SEA ER.</p> <p>Noted. The SEA ER has had regard to the most recent available data.</p> <p>Noted and incorporated into SEA ER.</p>

Consultee/Stakeholder	Scoping Response	Considered in SEA ER?
	<p>We also recommend taking account of the most recent water quality reports available on the EPA’s website. These can be consulted at: <a href="http://www.epa.ie/pubs/reports/water/">http://www.epa.ie/pubs/reports/water/</a>. Additionally, as referred to previously, the SEA Environmental Report for the Draft National Marine Planning Framework would be worth reviewing in the context of aligning relevant marine environmental baseline, as relevant and appropriate.</p> <p>Subsection - 4.6 Air and Noise should consider including the most recently published air quality information:</p> <p>In Subsection - 4.7 Climate Change and Resilience, there is merit in referring to and aligning with the relevant actions of the National Climate Action Plan 2019.</p> <p>Additionally, the inclusion of a description of the adaptability / vulnerability to climate change impacts of existing infrastructure, to inform future new development, upgrading/replacing existing infrastructure should be considered. These aspects could be examined further in the SEA ER.</p> <p>Any proposed upgrading, new development should be informed by potential risks to key environmental sensitivities.</p> <p>Section 4.9 – Landscape and Visual aspects should include a reference to the National Landscape Strategy. Additionally, CORINE 2018 data is now available and should be taken into account.</p> <p>In Section 4.10 Water Supply, the latest EPA drinking water reports are available</p> <p>We note in Section 4.11 Sensitivity Mapping, the reference to having taken account of the EPA GISEA Manual Improving the Evidence base in SEA. We also bring your attention to the Environmental Sensitivity Mapping Webtool. This tool should assist in identifying areas of greater environmental sensitivity in order to focus the scope of the assessment, establish appropriate mitigation measures and objectives/commitments to protect more sensitive areas and in implementing the Plan. There is merit in reviewing the output of the existing environmental sensitivity mapping and the output of the ESM webtool to compare the findings. This may help in identifying more sensitive areas.</p>	<p>Noted and incorporated into SEA ER. The Marine Planning Framework is referred to in the SEA ER.</p> <p>Noted. The SEA ER has been prepared having regard to the most up to date environmental information.</p> <p>Noted and incorporated into SEA ER.</p> <p>Noted and incorporated into SEA ER.</p> <p>Noted</p> <p>Noted and incorporated into SEA ER.</p> <p>Noted and incorporated into SEA ER.</p> <p>Noted- the ESM sensitivity map was referred to in the preparation of the SEA ER.</p>

Consultee/Stakeholder	Scoping Response	Considered in SEA ER?
	<p>Where Key Issues are described for the specific environmental topics they should be set in the context of the Plan’s remit.</p> <p>We suggest that in Section 6.2 - Statutory Consultation that you consider amending the text in the first paragraph to refer to the relevant SEA Regulations, (S.I. No. 435 of 2004) rather than S.I. No 436 of 2004.</p> <p>The EPA’s “Ireland’s Environment - An Assessment 2016”<sup>1</sup> has been published. The description of the current state of Ireland’s environment in this report will be a useful source of information for the development of the Plan and the parallel Strategic Environmental Assessment (SEA) process in the context of key environmental policies and considerations.</p> <p>Key Environmental Actions for Ireland are identified in Chapter 13 - “Environmental Challenges and Emerging Issues for Ireland”. Each of the above Key Actions has relevant sub actions which will contribute to the delivery of the overall action. The integration and implementation of these actions, many of which are linked, across these 7 key areas will be an important factor in the delivery of environmental protection and sustainable development in Ireland. They are also linked to a number of the UN’s Sustainable Development Goals.</p> <p>The Plan and SEA should consider and take into account the relevant aspects of the 7 Key Actions and the related sub actions. The key issues identified in the Executive Summary and the Chapter on “Environmental Challenges and Emerging Issues for Ireland” will also be relevant in this context.</p> <p>The relevant aspects of these Key Actions and the SDGs should be taken into account in preparing the Plan and the SEA and should be reflected in the principles/objectives/measures in the Plan. This will ensure that the Plan aligns with and contributes to achieving Ireland’s sustainable development and environmental protection ambitions. The EPA is currently preparing the next iteration of Ireland’s Environment for 2020 which, once published, should be taken into account in implementing the Plan and in future reviews of the Plan.</p>	<p>Noted</p> <p>Noted and incorporated into SEA ER.</p> <p>The SEA ER has been updated so that the description of the baseline environment now aligns with the data outlined in the recently published 2020 State of the Environment Report.</p> <p>Noted. The SEA ER has been updated to aligns with the provisions of the recently published 2020 State of the Environment Report.</p>

Consultee/Stakeholder	Scoping Response	Considered in SEA ER?
	<p>Contaminated soil, while highlighted in Table 5.1 Objectives and Targets, merits further consideration in the context of the Plan. This is relevant to unearthing of contaminated material in new build, remedial works and the disposal / treatment of any contaminated material unearthed.</p> <p>By setting the environmental objectives and baseline at the appropriate level, it may be easier to consider whether specific environmental criteria may be scoped in or out, as appropriate.</p> <p>In Section 5, Table 5.1 Draft Objectives and Targets, some of these would benefit from being made more specific to the Plan being prepared.</p> <p>The Objectives and targets should be reviewed with respect to the following aspects:</p> <ul style="list-style-type: none"> <li>● Consistency between the key issues identified for the individual environmental topics under Baseline Description and the proposed topic specific environmental objectives and targets,</li> <li>● Relevance to the Plan. The Objectives and Targets should be set in the context of what the Plan can achieve and/or contribute to. For example, consider under Biodiversity, Flora and Fauna:</li> <li>● Contribute to the protection, conservation, enhancement...</li> <li>● Contribute to the conservation and protection of other sites of nature conservation value ...</li> <li>● Under ‘biodiversity, flora and fauna’, the second objective, as currently written, would seem outside the remit of the Plan to achieve. It could however be re—written “support achievement of the conservation objectives of sites of nature conservation”.</li> <li>● In finalising the environmental objectives, these should be practical and achievable within the scope of the Plan. For example, under Water: Implement appropriate sustainable drainage systems in the county is unlikely to be achievable through</li> </ul>	<p>Noted. The SEA ER has been updated to aligns with the provisions of the recently published 2020 State of the Environment Report.</p> <p>Noted. Contaminated soil is referenced in the SEA ER.</p> <p>Noted. The SEA objectives, indicators and targets have all been reviewed and updated to ensure they are appropriate and relevant to the NIP.</p>

Consultee/Stakeholder	Scoping Response	Considered in SEA ER?
	<p>implementation of the Plan. In addition, this objective refers to ‘County’ whereas the Plan is being prepared at a national level</p> <ul style="list-style-type: none"> <li>Each Environmental Objective should be aligned with the relevant Environmental Target(s) and Indicator(s).</li> </ul> <p>Consideration should be given to the use of indicators that can monitor progress in Plan implementation and progress towards achieving the relevant environmental objectives and targets. For ease of reference and to assist in monitoring and reporting, the final Environmental Objectives, Targets and Indicators should be assigned specific codes. For example, under Biodiversity: BO 01. BT 01, BI 01.</p> <p>Under Water, we suggest including an overall objective to ‘support achievement of the requirements of the Water Framework Directive and implementation of the National River Basin Management Plan’.</p> <p>Under Air and Noise, the objective could be re-written “support protection of air quality in accordance with national and European legislation.”</p> <p>Under Climate and Resilience, a specific reference to “support implementation of the National Climate Action Plan 2019” should be included.</p> <p>Landscape and Visual Objectives could include “support achievement of the objectives of the National Landscape Strategy”.</p>	<p>Noted and incorporated into the SEA ER.</p> <p>Noted and removed.</p> <p>Noted. The SEA objectives, indicators and targets have all been reviewed and updated to ensure they are appropriate and relevant to the NIP.</p> <p>Noted</p> <p>Noted. The SEA objectives, indicators and targets have been codified and reviewed for appropriateness and relevance to the NIP.</p> <p>Noted and incorporated into the SEA ER.</p>

## **Appendix B**

### **Submissions on SEA ER**

Stakeholder/party	Submission	Response- Incorporated into NIP or SEA ER?
EPA	<p><i>Non-Technical Summary</i> You should review the content of the Non-Technical Summary to ensure that it includes the relevant information required under Schedule 2(j) of the SEA regulations (SI 435 of 2004, as amended). Consider updating the Non-Technical Summary to reference the recently published <i>EPA State of the Environment Report</i> and we recommend that the Non-Technical Summary includes a comment that it should be used to help inform the implementation of the Plan and any updates to the Plan over its lifetime. The Non-Technical Summary may benefit from using less acronyms to ensure that the information contained therein is easily understood. Additionally, it could also be improved by providing some relevant summary maps and tables.</p> <p><i>Consultation</i> You should describe the nature and outcome of any transboundary consultations carried out. Additionally, there is merit in including a section summarising how submissions received from the SEA statutory authorities, at SEA Scoping stage have been considered.</p> <p><i>Chapter 3 – Relationship with other plans and programmes</i> We note the list of plans and programmes listed in Table 3.1. With regards national level plans, we recommend that you review the list of Plans in this table and update as appropriate. For example, the National Spatial Strategy should be replaced with the National Planning Framework, and ‘programme for partnership government 2016’ should be replaced with the ‘Programme for Government 2020’. Reference should also be made to the Climate Action Plan 2019 and the National Marine Planning Framework. Additionally, as referred to previously, we also refer you to <i>Chapter 15 - Environmental Performance, Policy and Implementation</i> of the EPA’s State of the Environment Report to consider, as appropriate and relevant to the Plan. Additional international-level plans, programmes, strategies, conventions to consider include the ESPOO convention and the EU Green Deal. It is also worth noting that the Shellfish</p>	<p>The NTS has been reviewed and updated to ensure the relevant information is included, and to take into account the findings of the 2020 EPA State of the Environment Report.</p> <p>A statement outlining that ‘the Non-Technical Summary includes a comment that it should be used to help inform the implementation of the Plan and any updates to the Plan over its lifetime’ has been incorporated into the SEA ER.</p> <p>Increased figures have been incorporated into the NTS, and use of acronyms reduced, as much as possible.</p> <p>In accordance with the SEA Contacts page on the EPA website, transboundary authorities are to be consulted with “<i>Where the Plan or Programme (or modification) may significantly affect the environment</i>” in that location. Having regard to the nature of the NIP; its aims, commitments and capital investment proposals it was not considered that the implementation of the same would significantly effect the environment in any transboundary regions.</p> <p>A table outlining the submissions received during scoping and how these were incorporated into the plan making and SEA process is contained in Section 2.3.</p> <p>All of the plans and programmes previously references have been reviewed and updated. Regard was had to Chapter 15 of the EPA State of the Environment Report in doing so.</p>

Stakeholder/party	Submission	Response- Incorporated into NIP or SEA ER?
	<p>Directive was repealed, and shellfish are now afforded protection under the Water Framework Directive.</p> <p>Under ‘Regional’ plans and programmes you should replace the ‘Regional Planning Guidelines’ with the ‘Regional Spatial and Economic Strategies’. Reference in Table 3 to ‘Retail Strategy’ and ‘Transport Strategy’ is ambiguous and should be updated to reflect the relevant strategies that are being referred to, for example the Metropolitan Area Transport Strategies (NTA).</p> <p>There is also merit in including any relevant transboundary key plans or programmes, that need to be considered in finalising and implementing the Plan.</p> <p>Chapter 4 – SEA Methodology In <i>Section 4.3 of the SEA Environmental Report</i> (p23), we note that reference is made that no responses were received during this time from the statutory authorities. This section and statement should be updated to show that the EPA made a submission at the SEA scoping stage, which issued on the 29th July 2020, within the specified time period. We attach this previous submission for reference purposes.</p> <p>With regards <i>Section 4.5 – Alternatives</i>, we refer you to our guidance on developing and assessing alternatives in SEA (EPA, 2015), that should also be referred to and considered.</p> <p>In relation to <i>Section 4.8 SEA Statement</i>, we also bring to your attention our guidance on SEA Statements and Monitoring (EPA, 2020) that would be useful to consider in finalising the SEA process.</p> <p><i>Chapter 5 – Current State of the Environment</i></p> <p>We recommend that where EPA reports are referred to, the most up to date versions are used to update the baseline information, to ensure that the most current available information is taken into account.</p> <p>In <i>Section 5.3 Status and Trends</i>, you should review and update the information provided here, taking into account the report ‘<i>The Status of EU Protected Habitats and Species In Ireland</i>’ (DCHG, 2019).</p>	<p>Reference to the RPGs have been replaced with reference to the RSES, and all other plans and programmes have been reviewed and updated accordingly.</p> <p>The reference to no submissions being received during the consultation period is erroneous and the ER has been updated to reflect the submissions received during the scoping consultation period.</p>

Stakeholder/party	Submission	Response- Incorporated into NIP or SEA ER?
	<p>In <i>Section 5.8 Landscape and Visual</i>, there would be merit in referring to research by the Marine Institute in relation to regional seascape character assessments  <a href="https://emff.marine.ie/blue-growth/project-13-definition-and-classification-ireland%E2%80%99s-seascapes">https://emff.marine.ie/blue-growth/project-13-definition-and-classification-ireland%E2%80%99s-seascapes</a>.</p> <p>Additionally, reference to the CORINE data set should be updated from 2012 to refer to the CORINE 2018 dataset and the relevant references to land cover information updated accordingly. We note that the SEA indicates that wetlands accounting for 16% total land cover. The EPA’s recent State of the Environment Report for 2020 reports that wetlands account for 14.9% of total land cover area, based on CORINE 2018 data.</p> <p><i>Chapter 6 – Objectives, Targets and Indicators</i></p> <p>There is merit in codifying the objectives presented in Table 6.1, with a view to assisting with the assessment process and allowing these environmental objectives to be compared with the plan commitments.</p> <p>With regards the Human Health Indicator, in Table 6.2, consider changing the indicator text as follows “<b>Changes improved in trends in perceived health status</b>”, to provide for positive and negative trends to be monitored. 7 Additionally, with regards ‘Water Resources’, consider amending the first indicator bullet point, to also reflect the potential implications for groundwater, given that much of the network infrastructure will be underground.</p> <p><b>Consideration and Assessment of Alternatives</b></p> <p>There is also merit in further clarifying how the selection of alternatives (Section 7.3 and Section 7.4) have been assessed to determine which of these became the preferred alternative. We refer to you guidance note on <i>Developing and Assessing Alternatives in Strategic Environmental Assessment</i> (EPA, 2015), which may be useful to consider at this time.</p> <p><b>Assessment of Significant Effects</b></p> <p>In <i>Section 8.1 Summary of Potential Environmental Effects</i>, there is also merit in referring to the importance in/of considering the potential for cumulative effects arising from the potential development of multiple proposed new infrastructure and upgrades to gas related infrastructure in implementing the Plan. Where uncertain effects are identified, the proposed mitigation measures should be sufficient to cater for this uncertainty in a consistent manner.</p>	<p>The alternatives considered by GNI have now been expanded on, and the SEA assessment of these alternatives has been updated accordingly.</p> <p>The EPA Guidance on SEA Statements and Monitoring has been reviewed and referred to in the preparation of the SEA Statement.</p> <p>The SEA ER has been updated so that the description of the baseline environment now aligns with the data outlined in the recently published 2020 State of the Environment Report.</p> <p>The Seascape character of the plan area has now been described within the baseline environment section of the SEA ER.</p> <p>Data referenced throughout the SEA ER has been reviewed and updated, as appropriate.</p>

Stakeholder/party	Submission	Response- Incorporated into NIP or SEA ER?
	<p>With regards Section 8.2.2 Cumulative Effects, we recommend taking into account our <i>Good Practice Guidance Note on Cumulative Effects</i> (EPA, 2020). In <i>Table 8.5: Assessment of Cumulative Effects</i>, we suggest including a reference to the National Marine Planning Framework and the National River Basin Management Plan, to consider potential effects on water bodies in the marine, coastal/estuarine and terrestrial environment. Additionally, the Government’s National Energy and Climate Plan 2021-2030 should also be incorporated as appropriate.</p> <p><b>Mitigation Measures</b> In <i>Section 9.1 – Mitigation</i>, we suggest that paragraph 3 is updated to make more of a definitive commitment that in implementing the Plan, projects arising out of the Plan will not conflict with the commitments and obligations of higher-level plans and programmes, comply with the relevant legislation, guidelines and align with the relevant national environmental policies.</p> <p>As suggested previously, we suggest in <i>Table 9.1 – Mitigation Measures for the Draft NIP</i>, you should ensure that the Plan includes clear commitments, and where relevant, timescales, to implement the mitigation measures.</p> <p><b>Monitoring</b> The Monitoring Programme should be flexible to take account of specific environmental issues and unforeseen adverse impacts should they arise. It should consider and address the possibility of cumulative effects. Monitoring of both positive and negative effects should be considered. The monitoring programme should set out the various data sources, monitoring frequencies and responsibilities to further copper fasten its implementation. Where the monitoring identifies adverse impacts during the implementation of the Plan, Gas Networks Ireland should ensure that suitable and effective remedial action is taken. A statement to this effect should be built into the monitoring programme. Guidance on SEA-related monitoring is available on the EPA website at <a href="https://www.epa.ie/pubs/advice/ea/guidanceonseastatementsandmonitoring.html">https://www.epa.ie/pubs/advice/ea/guidanceonseastatementsandmonitoring.html</a></p> <p>We also acknowledge that the Plan refers to the publication of Gas Networks Ireland’s first ‘<i>Sustainability in Action Report 2018</i>’.</p>	<p>All of the SEA objectives, targets and indicators have been codified and reviewed to ensure they are as specific to the NIP as possible.</p> <p>The recommended wording provided has been incorporated.</p> <p>The alternatives considered by GNI have now been expanded on, and the SEA assessment of these alternatives has been updated accordingly.</p> <p>The SEA ER has been updated to take into account the potential for cumulative effects from the potential development of multiple proposed new infrastructure and upgrades to gas infrastructure in implementing the NIP.</p> <p>This EPA Guidance has been reviewed in the carrying out of the cumulative effects assessment.</p>

Stakeholder/party	Submission	Response- Incorporated into NIP or SEA ER?
	<p>If this represents the first in a series of ongoing annual reports, we would suggest that where possible, incorporating relevant monitoring aspects from the Plan and SEA would help report on how effectively the Plan is being implemented, taking environmental considerations into account.</p>	<p>The Marine Planning Framework and National River Baseline Management Plan have been incorporated into Table 8.5.</p> <p>The National Energy and Climate Plan 2021-2030 is already referenced and assessed under Table 8.5.</p> <p>Paragraph 3 has been updated in order to make a more definitive commitment to compliance with higher-level plans and programmes.</p> <p>The NIP has incorporated the mitigation measures outlined in the SEA ER.</p> <p>The monitoring programme outlined in the SEA ER has been updated to provide greater detail on monitoring sources, timeframes and responsibilities.</p> <p>The EPA guidance on SEA-related Monitoring was referred to in preparing this monitoring programme.</p> <p>Noted, for GNI consideration.</p>

Stakeholder/party	Submission	Response- Incorporated into NIP or SEA ER?
Department of Agriculture, Food and the Marine	I refer to your recent correspondence concerning the above and wish to inform you that the Department of Agriculture, Food & the Marine has no observations on this matter at this time.	This submission is noted.
Department of Culture, Heritage and the Gaeltacht	<p><b>Archaeology</b></p> <p>The National Monuments Service welcomes the publication of the draft National Implementation Plan. Section 4.3 Climate Change lists a series of commitments related to the ongoing development of Gas Networks in Ireland however there is no mention of a commitment for protection of the Archaeological Heritage. It is recommended that the draft plan is amended to take this into account.</p> <p>You will be aware that under the Climate Action and Low Carbon Development Act 2015, a climate change adaptation sectoral plan for the Built and Archaeological Heritage is being prepared.</p> <p>Through its adaptation plan the Department aims to:</p> <ul style="list-style-type: none"> <li>• Create awareness among civil society</li> <li>• Create structures and networks to facilitate engagement</li> <li>• Support the custodians of heritage sites in protecting their properties</li> <li>• Provide guidance on mitigating damage and on appropriate adaptation</li> <li>• Promote the development of required skills and expertise</li> </ul> <p>Five goals underpin the Climate Change Adaptation Plan for Built and Archaeological Heritage-</p> <ol style="list-style-type: none"> <li>1. Improve understanding of the heritage resource and its vulnerability to climate change impacts</li> </ol>	<p>Noted re. recommendation re. commitments relating to Archaeological Heritage. For GNI consideration.</p> <p>The Departments aims re. the draft Climate Change Adaptation Plan for the Built and Archaeological Heritage are noted and noted re importance of the plans aligning.</p>

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	<p>2. Develop and mainstream sustainable policies and plans for climate change adaptation of built and archaeological heritage</p> <p>3. Maintain Ireland’s heritage for future generations</p> <p>4. Communicate and transfer knowledge</p> <p>5. Exploit the opportunities for built and archaeological heritage to demonstrate value and secure resources</p> <p>These goals and many of the actions underpinning them will be shared by Gas Networks Ireland and it will be in our mutual interest to ensure that national adaptation plans align where possible, to ensure effective delivery of both and to prevent duplication. It will be important for us all to ensure that climate adaptation is built into all our respective policy and planning procedures, including the outputs of the Regional Assemblies.</p> <p><b>Nature Conservation</b></p> <p>The following observations are made by the Department in its role as the authority with overarching responsibility for nature conservation and the Nature Directives (i.e. the Birds and Habitats Directives). The observations are offered to assist Gas Network Ireland in meeting obligations and commitments in relation to nature conservation, European sites, biodiversity and environmental protection. The National Parks and Wildlife Service of the Department welcomes the opportunity to input to this process.</p> <p><b>General comments</b></p> <p>The Department notes the publication by Gas Networks Ireland its Draft Network Implementation Plan (NDP). This sets out in some detail, the manner in which the short-term capital investment proposals identified in its Network Development Plan may be developed over the three year plan period 2020 - 2023. The Department notes that the Draft Plan is accompanied by a SEA Environmental Report, by a Natura Impact Report and by a report to inform screening for appropriate assessment.</p> <p>The Department notes that the Draft Plan identifies a number of projects which may be taken forward during the plan period. It is also acknowledged that the precise details of these</p>	<p>Noted.</p> <p>Noted.</p>

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	<p>individual proposals, including their precise locations, are not available at this time. The precautionary approach adopted by Gas Networks Ireland in this regard is acknowledged as is the recognition that each of these proposals will require screening for appropriate assessment and, where required, appropriate assessment at project stage, together with additional environmental assessment as appropriate (e.g. EIA). The Department also notes and welcomes the environmental and planning assessment procedures in place within Gas Networks Ireland for future projects. This includes in-house mechanisms to ensure environmental, legal and regulatory requirements and best environmental practice are in place, including requirements pursuant to the EIA Directive and the Habitats Directive.</p> <p>In relation to appropriate assessment, it is important that the documentation acknowledges the statutory basis for the screening for appropriate assessment and appropriate assessment which in this cases arises from the provisions of Regulation 42 of the European Communities (Birds and Natural Habitats) Regulations, 2011 (as amended). In this regard, it is important to be aware of and to fulfil the requirements in relation to public notification of decisions in relation to both screening for appropriate assessment and appropriate assessment (see Regulation 42(18)). It is also worth noting that Regulation 42(10) of these Regulations states that a public authority shall not, without the agreement of the Minister, conclude an Appropriate Assessment of the plan or project to which that statement relates earlier than six weeks after the date on which it submitted the Natura Impact Statement to the Minister, and shall take account of any submissions made to it by the Minister. In this regard the Department considers the Natura Impact Report submitted by Gas Networks Ireland in relation to the Draft Plan to be a Natura Impacts Statement for the purposes of Regulation 42(10).</p> <p>The Department notes the assessment undertaken in the Natura Impact Report and advises the full integration of the mitigation measures set out in this report in the Plan and their subsequent implementation.</p> <p>In relation to the SEA Environmental Report the Department notes the assessment undertaken and the recommended mitigation measures proposed, and advises that these measures be fully integrated into the Plan and be implemented in full.</p>	<p>The provisions of Regulation 42 of the European Communities (Birds and Natural Habitats) Regulations, 2011 (as amended) have been reviewed and will be complied with in the publication of the AA Determination by GNI.</p>

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<p>Geological Survey Ireland</p>	<p><b>Geoheritage</b></p> <p>We are pleased to see use of our Geoheritage Viewer map identifying audited County Geological Sites (CGSs) in Figure A9 and mention of Geological Heritage in Section 4.4.2 ‘Geology Baseline,’ in the SEA Scoping report.</p> <p>In Table 9.1: Mitigation measures for the Draft NIP, we welcome the inclusion as an aim/commitment for Geological Heritage in the draft NIP: “To recognise the importance of Geological Heritage Sites and to protect the character and integrity of these sites.” and, “To work with the GSI and relevant stakeholders to undertake a review of Geological Heritage Sites in the county during the lifetime of this Plan.”</p> <p>We note for the proposed New CNG Station at NIP19LSCNG1, there a number of county geological sites that may be affected by the CNG development, including, Darkin Well, Rathleague Spring and Ridge of Portlaoise county geological sites. Additionally, the proposed New CNG Station at NIP19MHCNG1, where the area at Gormanstown is part of a county geological site, Laytown to Gormanston CGS.</p> <p>With these current plans, there may be potential impacts on the integrity of current CGSs envisaged by the proposed CNG station developments, should these sites not be assessed as constraints. Ideally, the sites should not be damaged or integrity impacted or reduced in any manner due to the proposed development. However, this is not always possible, and in this situation appropriate mitigation measures should be put in place to minimize or mitigate potential impacts. <b>Geological Survey Ireland is available for consultation in relation to potential mitigation measures.</b></p> <p>Where the integrity cannot be preserved we would ask that careful consideration be given in design to accommodating preservation of faces and access to the site during construction to record the exposures to strengthen our knowledge and datasets. We would also ask that the design of any future development considers the use of information panels as appropriate to</p>	<p>Noted</p> <p>Noted</p> <p>Correct. Refer to mitigation measures. It is the intention of GNI that, following the proper implementation of the mitigation measures outlined in the SEA ER, the NIP will not give rise to any significant environmental effects.</p> <p>Correct. Refer to mitigation measures. It is the intention of GNI that, following the proper implementation of the mitigation measures outlined in the SEA ER, the NIP will not give rise to any significant environmental effects.</p> <p>Noted. It is the intention of GNI that, following the proper implementation of the mitigation measures outlined in the SEA ER, the NIP will not give rise to any significant environmental effects.</p>

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	<p>highlight the significance of the impacted CGS. Please contact Clare Glanville (Clare.Glanville@gsi.ie) for further information and possible mitigation measures if applicable.</p> <p><b>Geological Mapping</b></p> <p>In Section 5.4.3 ‘Key Issues’, reference is made to potential soils and geological material disturbance during new development or infrastructure installation. We would recommend the use of Geological Survey Ireland’s bedrock geology, depth to bedrock data, geotechnical database and subsoil classifications which can be found here, in your future assessments.</p> <p>The report also identifies a key issue when development works occurring where the presence of karstified limestone underneath or close to a site may cause potential “problems both for the structures and for the receiving environment, particularly if storage or piping infrastructure is caused to leak by a geological collapse”. With these issues in mind, we recommend our Bedrock, Groundwater and GWFlood data sets to identify potential structural failures in Karst areas.</p> <p>Geological Mapping Programme’s new viewer that makes 3D geological models accessible without having to download software or zip files maybe of use for assessing new NIP developments. The viewer hosts models produced in-house or in collaboration with other institutions (for example, iCRAG), irrespective of the software originally used to create them. It offers many interactive functions, including tools to identify layers and create synthetic boreholes and virtual cross-sections. You can access projects, demo video, viewer and user manual <b>here</b>. Please note that this new viewer will be updated with more 3D models over the coming months.</p> <p><b>Groundwater</b></p> <p>With regard to Flood Risk Management, there is a need to identify areas for integrated mitigation and management and we note within the draft NIP SEA scoping report, the projected increase in extreme flooding events in Section 5.5.2 ‘Key Issues’.</p>	<p>Noted. GSI data will be incorporated into all future assessments.</p> <p>Noted. GSI data will be incorporated into all future assessments.</p> <p>Noted. GSI data will be incorporated into all future assessments.</p>

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	<p>We would like to draw your attention to two Geological Survey Ireland Groundwater projects which may provide useful resources to assist mitigation and management of this issue.</p> <p><b>The GWflood project was a groundwater flood monitoring and mapping programme aimed at addressing the knowledge gaps surrounding groundwater flooding in Ireland and ran from 2016 to 2019.</b> The project provides the data and analysis tools required by local and national authorities to make scientifically-informed decisions regarding groundwater flooding. <b>This is primarily focused on karst areas which may provide vital information to benefit the proposed developments.</b> Monitoring of karst groundwater flooding in areas of lowland karst in counties Galway, Clare, Mayo, Roscommon, Longford and Westmeath commenced in October 2016. The report produced describes the implementation of a turlough monitoring network and the methodology used to produce the historic and predictive groundwater flood maps. <b>The flood maps and their accompanying report and guidance notes are available here and here. For areas underlain by karst, we would advise the use of our Groundwater Flood map to take precedence over the other Groundwater maps. We recommend using our GWflood tools found under our programme activities (in conjunction with OPW data), to this end.</b></p> <p>With regards to Climate Change, there is a need to improve the monitoring capacity of groundwater levels in Ireland so that the potential impacts of climate change can be monitored and assessed. In this context the GSI has established the <b>GWClimate</b> project in January 2020. <b>GWClimate</b> will 1) establish a long-term strategic groundwater level monitoring network and 2) develop modelling and analytical approaches for evaluating the impacts of Climate Change to Irish groundwater systems. <b>Further information can be found on the Groundwater flooding page of the Groundwater Programme.</b></p>	<p>Noted. GSI data will be incorporated into all future assessments.</p> <p>Noted. GSI data will be incorporated into all future assessments.</p> <p>Noted. Future SEA groundwater monitoring by GSI has now been incorporated into the monitoring programme for the GNI NIP.</p>

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	<p><b>Marine and Coastal Unit</b></p> <p>We note reference to effects of the projected rise in sea levels and the associated increased risk of coastal erosion on Interconnector transmission pipelines in Section 5.5.2 ‘Key Issues’. We would like to draw your attention to our Marine and Coastal Unit datasets.</p> <p>INFOMAR produces a wide variety of seabed mapping products that enable public and stakeholders to visualize Ireland’s seafloor environment <a href="https://www.infomar.ie/maps/downloadable-maps/maps">https://www.infomar.ie/maps/downloadable-maps/maps</a>.</p> <p>Story maps have also been developed providing a different perspective of some of the bays and harbors of the Irish coastline <a href="https://www.infomar.ie/maps/story-maps/exploring-dingle-bay-different-perspective">https://www.infomar.ie/maps/story-maps/exploring-dingle-bay-different-perspective</a>. We would therefore recommend use of our Marine and Coastal Unit datasets available on our website and Map Viewer.</p> <p>The Marine and Coastal Unit also participate in coastal change projects such as CHERISH (Climate, Heritage and Environments of Reefs, Islands, and Headlands) and are undertaking mapping in areas such as coastal vulnerability and coastal erosion. Further information on these projects can be found at <a href="#">here</a>.</p> <p><b>Coastal Vulnerability Index</b></p> <p>Geological Survey Ireland is undertaking a new coastal vulnerability mapping initiative. Maps produced by this project will provide an insight into the relative susceptibility of the Irish coast to adverse impacts of sea-level rise through the use of a Coastal Vulnerability Index (CVI). Currently the project is being carried out on the east coast and will be rolled out nationally, detailed information and maps are available <a href="#">here</a>. These index-based maps will offer a simple, easy visual representation of sensitive areas based on robust methods and conceptualised metrics from latest research, adapted to the Irish context. This will enable coastal managers to prioritize or concentrate efforts on adaptation.</p>	<p>Noted</p> <p>Noted</p> <p>Noted</p> <p>Noted.</p> <p>Noted</p>

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	<p><b>Geotechnical Database Resources</b></p> <p>Geological Survey Ireland continues to populate and develop our national geotechnical database and viewer with site investigation data submitted voluntarily by industry. The current database holding is over 7500 reports with 134,000 boreholes; 31,000 of which are digitised which can be accessed through downloads from our Geotechnical Map Viewer. <b>We would strongly recommend that this database be consulted as part of any baseline geological assessment of the proposed development as it can provide invaluable baseline data for the region or vicinity of proposed development areas.</b> This information may be beneficial and cost saving for any site-specific investigations that may be designed as part of the project.</p>	Noted