

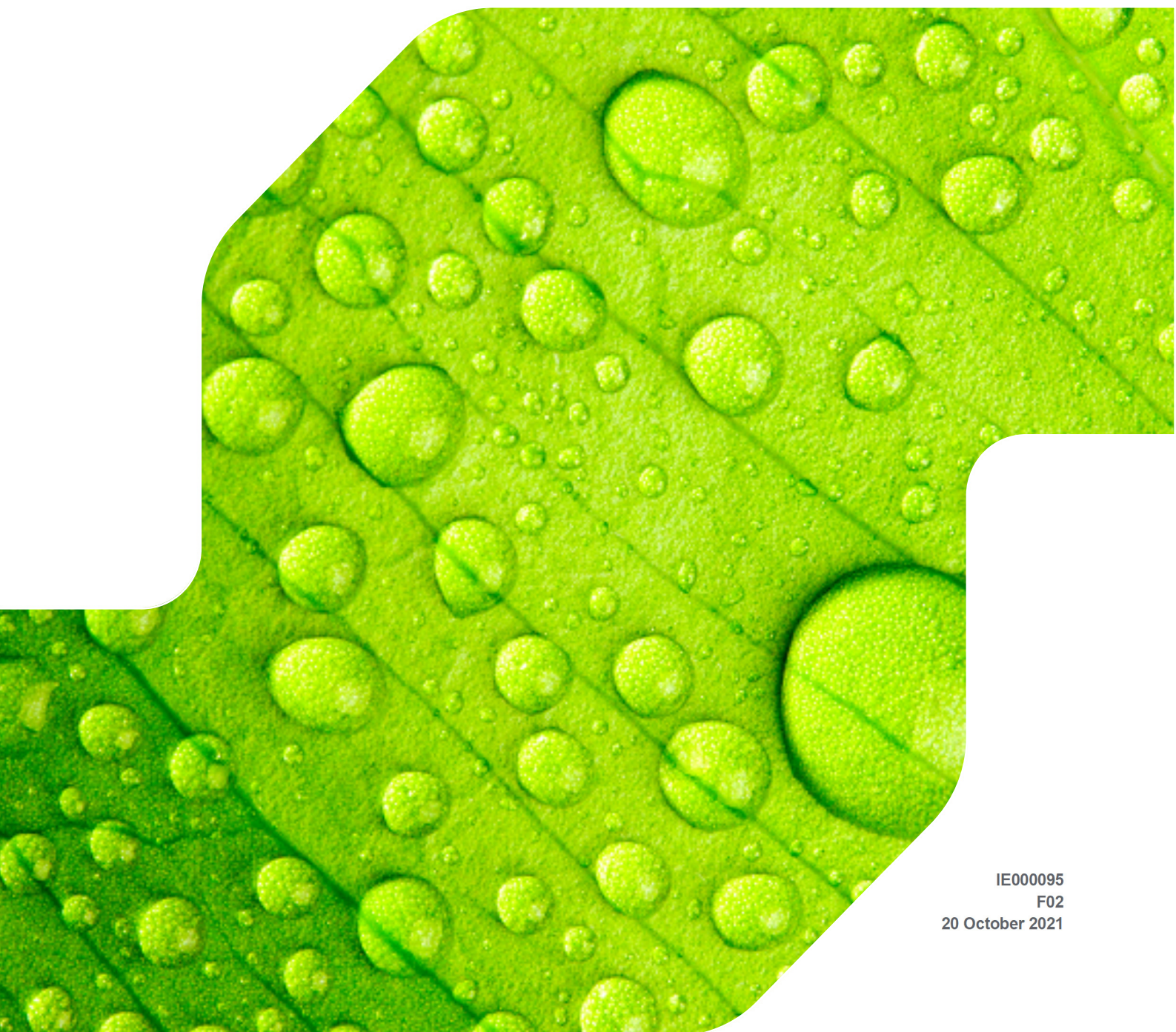


An Roinn Comhshaoil,  
Aeráide agus Cumarsáide  
Department of the Environment,  
Climate and Communications



# Draft Policy Statement for Geothermal Energy

## SEA Scoping Report



IE000095  
F02  
20 October 2021

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# 1 INTRODUCTION

The Department of the Environment, Climate and Communications (DECC) has identified as its vision “a climate neutral, sustainable and digitally connected Ireland”. To deliver on this vision, the Department has committed to strategic actions, including to “*develop and implement a policy and legislative framework to support the greater use of geothermal energy as part of the transformation of our energy system for a net zero emissions future.*” The Department is now preparing Ireland’s first Policy Statement for Geothermal Energy.

The Department undertook SEA Screening under S.I. No. 435/2004, as amended by S.I. No. 200/2011 in September 2021 and determined that SEA of the draft Policy Statement would be required (see **Section 3.1.1** for more information on the screening process). The next step in the SEA process requires definition of the scope and level of detail of the information to be included in the SEA Environmental Report. This scoping step is the focus of this report.

The Scoping Report provides preliminary information on the draft Policy Statement with a view to establishing the scope, level of detail and approach required for the SEA that will follow. It is intended that the information contained within the report will enable meaningful consultation with the statutory consultees in relation to the draft Policy Statement.

This Scoping Report has been prepared by RPS on behalf of DECC.

## 2 DESCRIPTION OF THE DRAFT POLICY STATEMENT FOR GEOTHERMAL ENERGY

### 2.1 Background and Context

Geothermal energy resources have the potential to provide a stable, sustainable, and low carbon renewable energy source. This energy source can therefore contribute to increased renewables deployment and the range of options available to support the move to low carbon alternatives, help meet renewable heat/electricity targets, decarbonise Ireland's heat energy sector and assist in the transition to a climate-neutral economy.

Ireland has no specific legislation or regulatory framework covering geothermal energy beyond the definition of "geothermal energy" as set out in the Renewable Energy Regulations (S.I. No. 147/2011). There is no licensing process provided for in legislation for the exploration for, or development and production of, geothermal energy resources. There is no mandatory national or local reporting on geothermal projects beyond requirements under existing environmental and planning regulations. Draft heads of a Geothermal Development Bill were submitted to Government in July 2010 but this was not brought before the Oireachtas at the time.

The Energy White Paper, 'Ireland's Transition to a Low Carbon Energy Future 2015-2030', made provision for the establishment of a regulatory framework to facilitate the exploration for, and development of, geothermal energy resources.

The Programme for Government, 'Our Shared Future', commits to supporting the development of district heating. Geothermal energy has the potential to be an energy source for district heating, evidenced by the report 'An Assessment of Geothermal Energy for District Heating in Ireland' published by the Geological Survey Ireland in November 2020.

Geothermal energy resources have been proven to be secure, consistent, environmentally sustainable, effectively carbon-neutral and cost-effective. Geothermal energy can play an important role in decarbonising Ireland's heat and energy sectors.

Action 196 of the Irish Government's Interim Climate Actions 2021 is to "*Develop a policy and regulatory framework for geothermal energy to support its use as a secure, environmentally sustainable and cost-effective source of renewable energy*". DECC is responsible for completing this action.

### 2.2 Purpose and Proposed Contents of the Draft Policy Statement

It should be noted that at the SEA Screening stage, the plan/programme was being referred to as "**Draft Policy Statement for Geothermal Energy Exploration in Ireland**" and the question of "*Does the P/P provide a framework for the development consent for projects listed in the EIA Directive?*" was answered as "*Uncertain. While the purpose of the Geothermal Exploration Policy Statement is to set out the regulatory framework for geothermal energy exploration, it will not determine where or what projects follow and will not set a framework for development consent. It is expected that it will include a roadmap or required actions for developing and implementing a regulatory framework for geothermal resource development.*"

The scope of the regulatory framework has since been confirmed to include both exploration and development consent, therefore it has been decided that in order to better reflect the contents of the plan/programme to stakeholders and the public that the plan/programme should be renamed to "**Draft Policy Statement for Geothermal Energy**".

As a high level policy document, it is not anticipated that the policy statement will contain any location-specific information. An outline of the proposed topic areas that are being considered for inclusion in the draft Policy Statement are:

- An Executive Summary
- Geothermal Energy Explained
- Geothermal Energy and Climate Action, national, European, and international policy, programmes and plans, such as the Programme for Government, the Climate Action Plan, The European Green Deal, United Nations Sustainable Development Goals



- Extracting Geothermal Energy
  - Different types of Geothermal Energy Project
  - Stages of Development
  - Data
  - Geological Risks and Safety
- Economics of Geothermal Energy Projects
  - Project Lifecycle Costs
  - Project Returns
  - Project Risks
  - Aligning Regulation with Project Risks
  - Access to Finance
- Geothermal Energy Regulation in Other Countries
- Environmental Protection and Geothermal Energy
- Roadmap for Geothermal Energy in Ireland
- Engagement to Develop Policy and Regulations
  - Geothermal Energy Advisory Group
- Data, Knowledge Gaps and Research Areas
  - Data on Geothermal Resources
  - Data and Regulation
- Outline Regulatory Framework for Geothermal Energy
  - Energy Threshold
  - Regulator
  - Heat Resource Property Rights: Heat Volume Guarantee
  - Assessing Competence of Developers
  - Requirement on developers to provide geological data
  - Access to Land
  - Compensation
  - Safety
  - Licencing Process
  - Environmental Screening
- Resources and Other Information

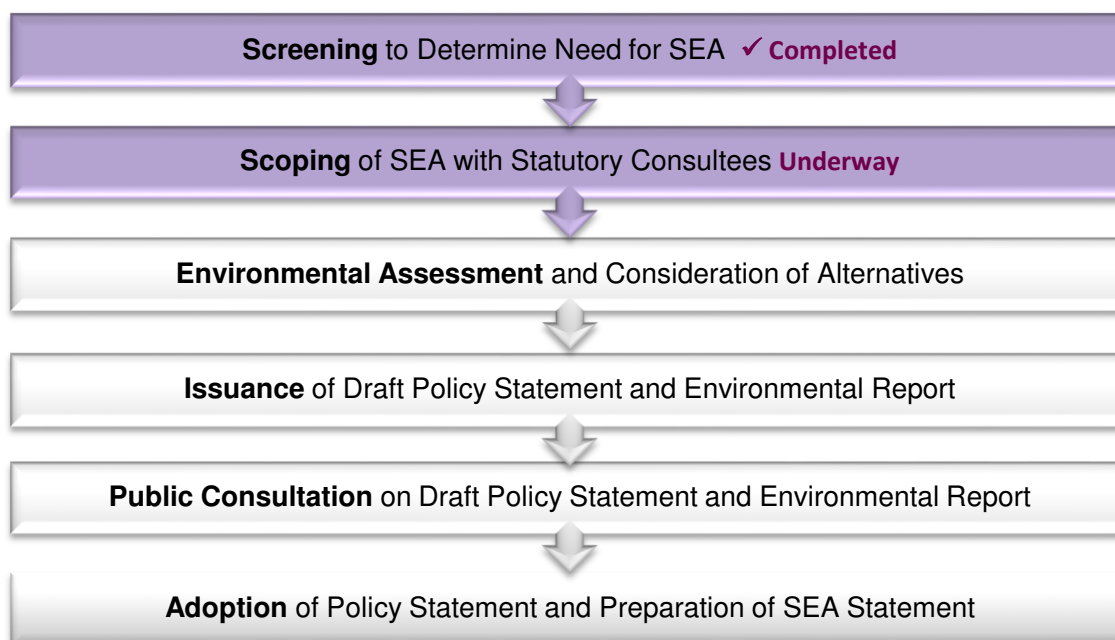
### 3 ENVIRONMENTAL ASSESSMENT PROCESS

#### 3.1 Strategic Environmental Assessment

Strategic Environmental Assessment (SEA) is a process for evaluating, at the earliest appropriate stage, the environmental consequences of implementing plan / programme initiatives. The purpose is to ensure that the environmental consequences of plans and programmes are assessed both during their preparation and prior to adoption. The SEA process also gives interested parties an opportunity to comment on the environmental impacts of the proposed plan or programme and to be kept informed during the decision making process.

The European Directive (2001/42/EC) on the Assessment of the Effects of Certain Plans and Programmes on the Environment (the SEA Directive), was transposed into national legislation in Ireland by the European Communities (Environmental Assessment of Certain Plans and Programmes) Regulations 2004 (S.I. No. 435/2004) and the Planning and Development (Strategic Environmental Assessment) Regulations 2004 (S.I. No. 436/2004). Both pieces of legislation were amended in 2011 under S.I. No. 200/2011 and S.I. No. 201/2011.

**Figure 3.1** shows the key steps required to complete the statutory SEA process in accordance with the relevant national legislation.



**Figure 3.1: Overview of the SEA Process**

##### 3.1.1 SEA Screening Stage

The SEA Directive requires that certain plans and programmes, prepared by national, regional or local authorities, which are likely to have a significant impact on the environment, be subject to the SEA process. A screening of the draft Policy Statement for SEA was undertaken by the DECC. In accordance with the provisions of S.I. No. 435/2004 as amended, and specifically Article 9(1), the following can be confirmed:

- The Policy Statement will be a public document;
- It will be prepared by the DECC;
- It is a national scale Policy Statement which will be considered by Government;
- It is not specifically required by EU or national legislation however, in October 2020, as part of the *Programme for Government: Our Shared Future*, the Irish Government committed to developing a regulatory environment to support the development of district heating and to publish a feasibility study

on establishing a district heating authority and setting targets for district heating, and geothermal energy has the potential to be a source for district heating. Further, one of the Interim Climate Actions 2021 under DECC's remit is to *"Develop a policy and regulatory framework for geothermal energy to support its use as a secure, environmentally sustainable and cost-effective source of renewable energy"*;

- The Policy Statement will address energy;
- The Policy Statement will contribute to the framework for future development consent of projects listed in the EIA Directive, as it is expected that it will include a roadmap or required actions for developing and implementing a regulatory framework for geothermal resource development; and
- It is anticipated that it will require assessment under the Habitats Directive.

With reference to the above, it has therefore been concluded that SEA is required for the Draft Policy Statement for Geothermal Energy Exploration in Ireland under S.I. No. 435/2004, as amended.

### 3.1.2 SEA Scoping Stage

Under Article 11 of S.I. 435/2004 as amended, the competent authority preparing the plan or programme is required to consult specific "environmental authorities" on the scope and level of detail of the information to be included in the Environmental Report. The competent authority in relation to the draft Policy Statement is the DECC. The statutory consultees for SEA are established within the national legislation. It is noted however that in recent years, a number of government departments have changed name and certain responsibilities have migrated between departments. The SEA legislation has not yet been updated to reflect these changes however, for clarity the relevant authorities consulted as part of this SEA scoping are listed below:

- Environmental Protection Agency (EPA);
- Department of the Environment, Climate and Communications (DECC);
- Department of Agriculture, Food and the Marine (DAFM); and
- Department of the Housing, Local Government and Heritage (DHLGH).

The need for transboundary consultation has been identified within the SEA process and this scoping documentation will therefore be sent to the relevant authority for SEA in Northern Ireland which is the Department of Agriculture, Environment and Rural Affairs (DAERA).

The main objective of scoping is to identify key issues of concern that should be addressed in the assessment of the Policy Statement and the appropriate level of detail to which they should be considered. The scoping exercise will aim to answer the following questions:

- What are the relevant significant issues to be addressed by the SEA?
- Against what environmental objectives should the potential options be evaluated?

While the issuance of a Scoping Report is not a formal requirement of the SEA Regulations, it is recommended as good practice. A Scoping Report can inform stakeholders about the key environmental issues and the key elements of the plan/ programme. In addition, the Scoping Report can be used as a tool to generate comments from stakeholders on the scope and approach of the SEA.

### 3.1.3 Environmental Assessment

An assessment of the likely significant impacts on the environment as a result of the Policy Statement will be undertaken in due course, and reasonable alternatives taking into account the objectives and the geographical scope of the Policy Statement. This will include, as relevant, a description of the baseline, an assessment of likely significant impacts, mitigation measures to offset negative impacts and provision of a monitoring programme in accordance with the requirements of Schedule 2 of S.I. No. 435/2004, as amended. The output from this stage is an Environmental Report. Further details on these issues are presented later in this document. In parallel to this assessment, the Appropriate Assessment (AA) process has been initiated.

### 3.1.4 SEA Statement

An SEA Statement identifying how environmental considerations and consultation have been integrated into the Policy Statement will be provided for information alongside the final Policy Statement.

### 3.1.5 SEA Guidance

The following principal sources of guidance will be used during the overall SEA process and during preparation of the Environmental Report:

- Guidance on SEA Statements and Monitoring, 2020, Environmental Protection Agency
- Good practice guidance on Cumulative Effects Assessment in SEA, 2020, Environmental Protection Agency
- Strategic Environmental Assessment (SEA) Pack, February 2020, Environmental Protection Agency.
- SEA Scoping Guidance Document, 2015, Environmental Protection Agency.
- SEA Spatial Information Sources Inventory, April 2021, Environmental Protection Agency.
- GISEA Manual – Improving the Evidence Base in SEA, 2017, Environmental Protection Agency.
- Integrating Climate Change into Strategic Environmental Assessment in Ireland – A Guidance Note, 2015, Environmental Protection Agency.
- Developing and Assessing Alternatives in Strategic Environmental Assessment – Good Practice Guidance, 2015, Environmental Protection Agency.
- Guidance on Strategic Environmental Assessment (SEA) Statements and Monitoring, April 2020, Environmental Protection Agency.
- Integrated Biodiversity Impact Assessment – Streamlining AA, SEA and EIA Processes: Practitioner's Manual. EPA Strive Programme 2007-2013. Strive Report Series No. 106.
- Strategic Environmental Assessment (SEA) Process Checklist - Consultation Draft, January 2008, Environmental Protection Agency (Updated September 2017).
- Development of Strategic Environmental Assessment (SEA) Methodologies for Plans and Programmes in Ireland. Synthesis Report. 2003. Environmental Protection Agency.
- Implementation of SEA Directive (2001/42/EC). Assessment of Certain Plans and Programmes on the Environment. Guidelines for Regional Planning Authorities. November 2004. Department of Environment, Heritage and Local Government.

The SEA will also have regard to the findings of the EPA's 2012 and 2019 reviews of SEA effectiveness in Ireland.

### 3.1.6 Department Circulars

In addition, a number of circulars have been issued in relation to SEA which will have relevance for the environmental assessment of the Policy Statement and will be taken into account during the course of the SEA. These circulars comprise:

- PSSP 6/2011: 'Further Transposition of the EU Directive 2001/42/EC on Strategic Environmental Assessment (SEA)'; and
- Circular PL 9 of 2013: 'Article 8 (Decision Making) of EU Directive 2001/42/EC on Strategic Environmental Assessment (SEA) as amended'.

## 3.2 Appropriate Assessment (AA)

The EU Habitats Directive places strict legal obligations on member states to ensure the protection, conservation and management of the habitats and species of conservation interest in all European Sites. The Habitats Directive has been transposed into Irish law by the Planning and Development Act 2000, as amended, and the European Communities (Birds and Natural Habitats) Regulations 2011, as amended.



Article 6 of the Directive obliges member states to undertake an 'appropriate assessment' (AA) for any plan or project which may have a likely significant effect on any European Site. The outcomes of such AA's fundamentally affect the decisions that may lawfully be made by competent national authorities in relation to the approval of plans or projects.

Article 6(3) states:

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

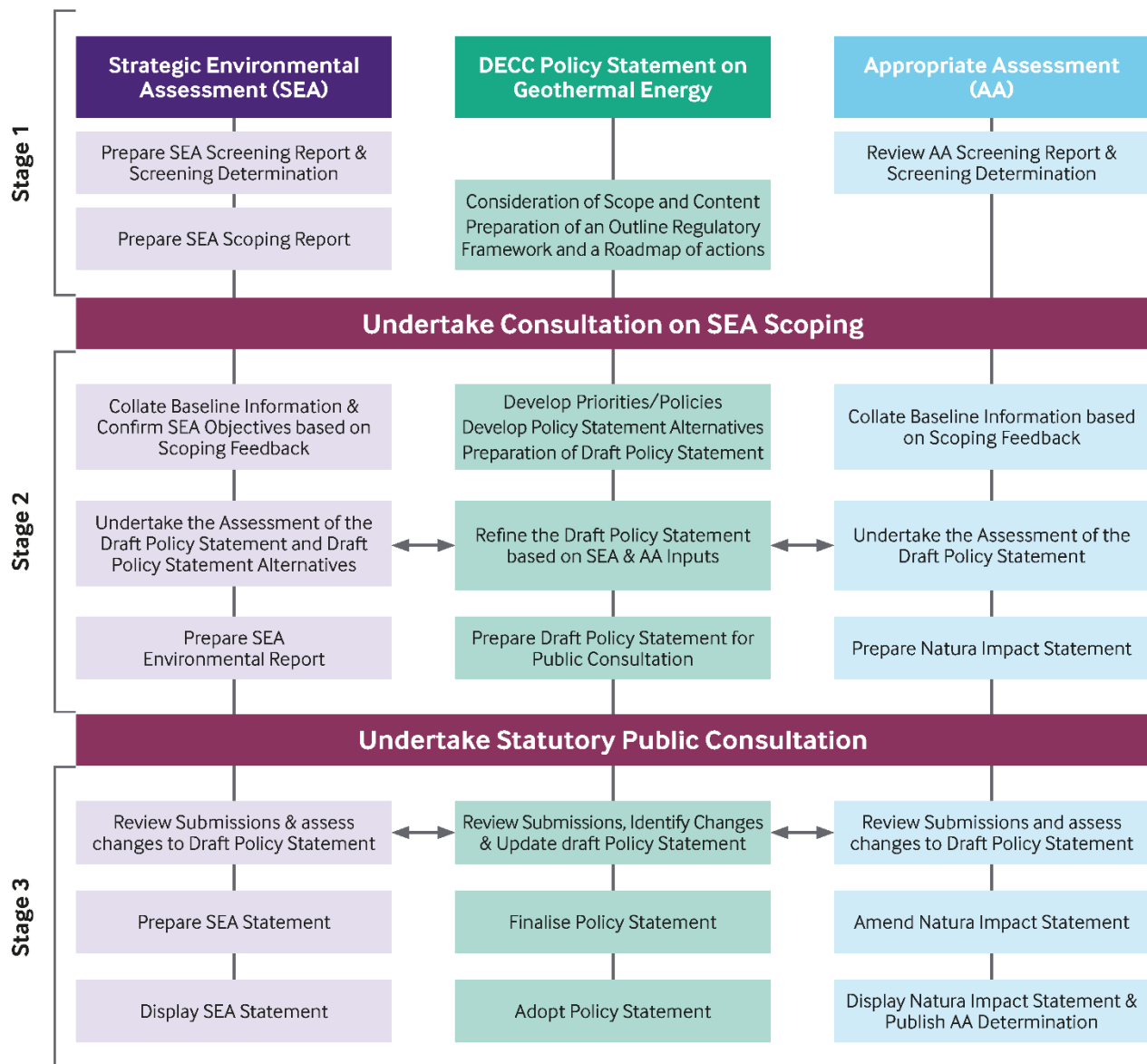
Article 6(4) states:

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

The Policy Statement is not directly connected to the conservation of any European Sites, however as a national policy statement, it has the potential to impact on habitats and species for which Special Areas of Conservation (SAC) and Special Protection Areas (SPA) have been designated under the Habitats Directive (92/43/EEC) and Birds Directive (2009/147/EC) respectively. In acknowledgement of this, early consideration has been given to the need for AA.

### 3.3 Integration of the Process

The Policy Statement development process is running in parallel with the SEA and AA processes as outlined in **Figure 3.2**. It is noted that post adoption of the Policy Statement, there will also be implementation and SEA monitoring which extends beyond that shown in the graphic below. This ex-post element will be developed further through the policy-making process.



**Figure 3.2: Integration of the Policy Statement, AA and SEA Processes**

## 4 OTHER RELEVANT PLANS AND PROGRAMMES

As part of the SEA process, it will be necessary to consider the environmental protection objectives established at international, European Union or national level, which are relevant to the policy statement and the way those objectives and any environmental considerations have been taken into account during its preparation. For the purposes of scoping, the key legislation and plans/ programmes are included in **Table 4-1** (international and European) and **Table 4-2** (national).

A more detailed list will be compiled as part of the Environmental Report and suggestions are welcomed as part of the scoping consultation as to environmental protection objectives that are relevant to the Policy Statement. However it is noted that this is not intended to be a detailed register of all legislation, plans, policies or programmes, but rather an examination of the key environmental protection objectives relevant to the Policy Statement.

**Table 4-1: International and EU Legislation, Plans/ Programmes**

International and EU Legislation	International and EU Plans/ Programmes
<ul style="list-style-type: none"> <li>Decision No. 1386/2013/EU on a General Union Environment Action Programme to 2020</li> <li>Proposal for a Decision on a General Union Environment Action Programme to 2030</li> <li>SEA Directive (2001/42/EC)</li> <li>EIA Directive (85/337/EC) as amended</li> <li>EU Habitats Directive (92/43/EEC)</li> <li>EU Birds Directive (2009/147/EC- codified version of 79/409/EEC)</li> <li>Directive (2000/60/EC) and associated directives which have been subsumed there under</li> <li>EU Bathing Water Directive(revised) 2006 (2006/7/EC)</li> <li>Groundwater Directive (2006/118/EC)</li> <li>EU Renewable Energy Directive (recast) (EU 2018/2001) <i>[revision proposed in 2021]</i></li> <li>EU Energy Efficiency Directive (EU 2018/2002)</li> <li>EU Urban Waste Water Treatment Directive (91/271/EEC)</li> <li>EU Integrated Pollution Prevention Control Directive (2008/1/EC)</li> <li>EU Directive on industrial emissions (2010/75/EU)</li> <li>EU Plant Protection (Products) Directive 2009/127/EC</li> <li>EU REACH Initiative EC 1907/2006</li> <li>EU Floods Directive (2007/60/EC)</li> <li>EU Marine Strategy Framework Directive (2008/56/EC)</li> <li>EU Seveso Directive (2012/18/EU)</li> <li>EU Dangerous Substances Directive (2006/11/EC – codified version of 76/464/EEC)</li> <li>EU Emissions Trading Scheme Directive (EU 2018/410)</li> <li>Revised National Emission Ceilings Directive (EU 2016/2284)</li> <li>EU Environmental Noise Directive (2002/49/EU)</li> <li>Regulation (EU) 1143/2014 on the prevention and management of the introduction and spread of invasive alien species</li> <li>Governance of the Energy Union and Climate Action Regulation (EU) 2018/1999</li> <li>EU Directive on the management of waste from the extractive industries (2006/21/EC)</li> </ul>	<ul style="list-style-type: none"> <li>United Nations Sustainable Development Goals 2030</li> <li>UN Convention on Biological Diversity [1992]</li> <li>UN Kyoto Protocol [1997]</li> <li>Energy Policies of IEA Countries: Ireland 2019 Review</li> <li>Green Deal for Europe 2050</li> <li>EC Zero Pollution Action Plan for Water, Air and Soil [2021]</li> <li>Circular Economy Action Plan 2020</li> <li>European Technology and Innovation Platform on Deep Geothermal (ETIP-DG) Vision for Deep Geothermal [2018]</li> <li>ETIP-DG Strategic Research and Innovation Agenda [2018]</li> <li>ETIP-DG Implementation Roadmap for Deep Geothermal [2019]</li> <li>IEA Geothermal Energy Technology Collaboration Programme</li> <li>7<sup>th</sup> Environmental Action Programme (EAP) to 2020 - Living Well within the Limits of our Planet</li> <li>8<sup>th</sup> EAP to 2030 <i>[adoption in 2021 TBC]</i></li> <li>The EU Biodiversity Strategy to 2030</li> <li>2030 EU Climate and Energy Framework [2014]</li> <li>Paris Agreement [adopted 2015]</li> <li>Ramsar Convention on Wetlands of International Importance [1971]</li> <li>Bonn Convention on the Conservation of Migratory Species of Wild Animals [1983]</li> <li>Bern Convention on European Wildlife and Natural Habitats [1982]</li> <li>Geneva Convention on Long-range Transboundary Air Pollution [1979]</li> <li>Gothenburg Protocol to Abate Acidification, Eutrophication and Ground-level Ozone [1999]</li> <li>Stockholm Convention on Persistent Organic Pollutants [2004]</li> <li>Minamata Convention on Mercury [2017]</li> <li>Florence (European Landscape) Convention [2000]</li> <li>Valletta European Convention on the Protection of the Archaeological Heritage of Europe [1992]</li> <li>Grenada Convention for the Protection of the Architectural Heritage of Europe [1985]</li> </ul>

**Table 4-2: National Legislation, Plans/ Policies/ Programmes**

National Legislation	National Plans/ Programmes
<ul style="list-style-type: none"> <li>• Planning and Development Act 2000 as amended</li> <li>• European Communities (Environmental Assessment of Certain Plans and Programmes Regulations 2004, (S.I. 435 of 2004) as amended by S.I. 200 of 2011</li> <li>• Environmental Protection Agency Act, 1992, as amended</li> <li>• Protection of the Environment Act 2003, as amended</li> <li>• Waste Management Act, 1996, as amended</li> <li>• Minerals Development Acts 1940 to 1999.</li> <li>• Waste Management (Management of Waste From the Extractive Industries) Regulations 2009.</li> <li>• The Wildlife Act 1976 and Wildlife (Amendment) Act 2000;</li> <li>• European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. 477 of 2011 as amended)</li> <li>• Quality of Bathing Waters Regulations 1988 (S.I. 84 of 1988) as amended</li> <li>• European Communities (Water Policy) Regulations 2003, (S.I. 722 of 2003)</li> <li>• European Communities Environmental Objectives (Surface Water) Regulations (S.I. 272 of 2009)</li> <li>• European Communities Environmental Objectives (FPM) Regulations 2009 (S.I. 296 of 2009)</li> <li>• European Communities Environmental Objectives (Groundwater) Regulations 2010 (S.I. 9 of 2010)</li> <li>• Climate Action and Low Carbon Development Act 2015 and Climate Action and Low Carbon Development (Amendment) Act 2021</li> <li>• Foreshore Acts 1933 – 2014 [comprise a collective series of Acts]</li> <li>• Maritime Jurisdiction Act 2021</li> </ul>	<ul style="list-style-type: none"> <li>• Sustainable Development Goals National Implementation Plan 2018 – 2020 [2018]</li> <li>• Project Ireland 2040 National Planning Framework [2018]</li> <li>• National Development Plan 2021-2030 [2021]</li> <li>• Regional Spatial and Economic Strategies [2020]</li> <li>• National Marine Planning Framework [2021]</li> <li>• Geothermal Energy in Ireland - A roadmap for a policy and regulatory framework [2020]</li> <li>• Climate Action Plan [2019] and Interim Climate Actions 2021</li> <li>• National Climate &amp; Energy Plan 2021-2030 [2019]</li> <li>• Sectoral Planning Guidelines for Climate Change Adaptation [2018]</li> <li>• The National Biodiversity Action Plan 2017-2021 [2017]</li> <li>• NPWS Conservation Plans and/or Conservation Objectives for SAC and SPAs</li> <li>• Catchment-based Flood Risk Assessment and Management Studies (CFRAMS) and Flood Risk Management Plans</li> <li>• National Adaptation Framework [2018]</li> <li>• Waste Action Plan for a Circular Economy [2020]</li> <li>• Water Services Strategic Plan [2015]</li> <li>• National Water Resources Plan [<i>in prep.</i>]</li> <li>• Heritage Ireland 2030 [2018]</li> <li>• Draft Seascape Character Assessment [2020]</li> <li>• National Landscape Strategy 2015-2025 [2015]</li> <li>• Rural Development Programme [2014-2022]</li> <li>• Our Rural Future: Rural Development Policy 2021-2025</li> </ul>

**Scoping Question # 1**

**Based on the plans, policies and programmes outlined, are there any other key relevant international, national or regional plans, policies or programmes that should be considered in the SEA Environmental Report on the Draft Policy Statement for Geothermal Energy?**

## 5 SCOPING

### 5.1 Geographic Scope

The Policy Statement will be a strategic policy document. As such its geographic scope will be pitched at the national level, will cover the Republic of Ireland, and will cover both the terrestrial and marine area. The Policy Statement will not have a spatial element and the policies provided will be at national level. The assessment will consider the potential for transboundary impacts with Northern Ireland.

### 5.2 Temporal Scope

As a policy document, the Policy Statement is open-ended with no fixed end date. In line with the SEA Directive, short, medium and long-term impacts (including reference to secondary, cumulative, synergistic, permanent and temporary, positive and negative effects) will be considered during the assessment. For the purpose of this SEA, the short-term will consider the period up to 2030, and the medium to long-term horizon will consider the period up to 2050 to coincide with Ireland's net zero emissions target. The Climate Action and Low Carbon (Amendment) Act 2021 was passed in July 2021. It commits Ireland to reducing greenhouse gas emissions by 51% by 2030.

### 5.3 Scoping of Strategic Environmental Assessment Topics

In accordance with S.I. No. 435/2004, as amended, consideration has been given to whether the environmental effects, both positive and negative, of the Policy Statement are likely to be significant. A summary of the conclusions is presented in **Table 5-1**, with reference to the likely significant effects on the environment, including on issues such as biodiversity, population, human health, fauna, flora, land and soil, geology, water, air, climatic factors, material assets, cultural heritage including architectural and archaeological heritage, landscape, and the interrelationship between these factors.

**Table 5-1: Potential issues for consideration in the SEA Environmental Report**

SEA Topic	Potential Environmental Issues for Consideration in the ER	Scope In/Out
<b>Population and Human Health (PHH)</b>	<ul style="list-style-type: none"> <li>• Introduction of new geothermal activities and proximity to human presence;</li> <li>• Continuation or intensification of existing activities and proximity to human presence;</li> <li>• Health impacts and disturbance through issues such as dust, noise, vibration and visual impact e.g. from drilling as the key intrusive activity, any land excavations;</li> <li>• Impacts on drinking water quality;</li> <li>• Impacts to recreational use of water (e.g. bathing, fishing);</li> <li>• Access to land for exploration and development activities at a local level;</li> <li>• Loss of amenity usage and access;</li> <li>• Impacts on tourism;</li> <li>• Public participation in decision making and transparency in geothermal activities;</li> <li>• Potential employment opportunities (in particular in rural areas); and</li> <li>• Relatively high costs compared to other forms of renewable energy.</li> </ul>	<b>In</b>
<b>Biodiversity, Flora and Fauna (BFF)</b>	<ul style="list-style-type: none"> <li>• Effects on protected areas: European (e.g. SACs, SPAs, Ramsar sites) and National (e.g. (p)NHAs);</li> <li>• Protecting and enhancing biodiversity as a whole on a national, regional and local level;</li> <li>• Effects on water (particularly groundwater) dependent habitats and species;</li> <li>• Effects on flora and fauna, (including migratory bird species, invertebrates etc.) and habitats;</li> <li>• Potential for habitat loss and fragmentation;</li> <li>• Effects on Freshwater Pearl Mussel, salmonids, other protected fish and shellfish species;</li> <li>• Effects on sensitive habitats, e.g. peatlands, limestone habitats;</li> <li>• Invasive species management;</li> <li>• Effects of hydromorphology; and</li> <li>• Impact on high status sites and protection of status sites.</li> </ul>	<b>In</b>



SEA Topic	Potential Environmental Issues for Consideration in the ER	Scope In/Out
<b>Land and Soil (LS)</b>	<ul style="list-style-type: none"> <li>• Future infrastructure land requirements and land use change;</li> <li>• Lands vulnerable to subsidence through groundworks/pressure decline;</li> <li>• Potential loss of the natural soil characteristics through extraction;</li> <li>• Potential for induced seismicity;</li> <li>• Influence on land use practices reliant on soil as a resource;</li> <li>• The potential for impacts on soil functions during exploration and development activities due to encountering contamination; and</li> <li>• Potential impacts on geo-heritage and associated tourism.</li> </ul>	In
<b>Water (W)</b>	<ul style="list-style-type: none"> <li>• Water pollution from point or diffuse sources e.g. fluid injection and discharges to watercourses/groundwaters;</li> <li>• Fluids used to transfer heat can be toxic and risk of leakages;</li> <li>• Impacts to marine waters and the foreshore from offshore development;</li> <li>• Impacts on groundwater quality and quantity, e.g. through dewatering, abstraction or groundwater rebound;</li> <li>• Pressures and impacts on ecological status of water bodies;</li> <li>• Impacts on water supply (including potable) and water conservation;</li> <li>• Potential impacts on commercial sea fishing activities; and</li> <li>• Protection of areas of fluvial, coastal or groundwater flood risk.</li> </ul>	In
<b>Air Quality (AQ)</b>	<ul style="list-style-type: none"> <li>• Hazardous dust emissions from drilling activities – impact to human health and/or the environment;</li> <li>• Noise emissions from drilling, excavation, installation, transport, etc.; and</li> <li>• Transboundary air pollutants/ atmospheric deposition, and impacts on water-dependant habitats and surface waters e.g. mercury, hydrogen sulphide.</li> </ul>	In
<b>Climatic Factors (CF)</b>	<ul style="list-style-type: none"> <li>• Impact of emissions from geothermal exploration activities;</li> <li>• Impact of climate change on water quality;</li> <li>• Climate change mitigation and adaptation, including to effects from severe weather events and coastal zone management; and</li> <li>• Supporting the transition to a carbon neutral economy and contribution to renewable energy/heat targets.</li> </ul>	In
<b>Material Assets (MA)</b>	<ul style="list-style-type: none"> <li>• Impacts to potable water supplies;</li> <li>• Impacts to commercial and agricultural activities in proximity to exploration and development activities;</li> <li>• Planning and development potential;</li> <li>• Potential for land severance or land access to support exploration and development activities;</li> <li>• Potential for competition with other offshore infrastructure under the National Marine Planning Framework; and</li> <li>• Change in land use based on risk to water quality, quantity and flooding thus reducing value of land either by limiting development potential or requiring a change in land use.</li> </ul>	In
<b>Cultural Heritage (CH)</b>	<ul style="list-style-type: none"> <li>• Potential for disturbance of known or previously undiscovered archaeological remains during exploration works and/or energy extraction;</li> <li>• Effects on industrial archaeology;</li> <li>• Potential impacts to underwater archaeology; and</li> <li>• Potential indirect effects on structure and features from exploration works and/or energy extraction.</li> </ul>	In
<b>Landscape (LandS)</b>	<ul style="list-style-type: none"> <li>• Landscape impact from new above-ground infrastructure or larger-scale facilities e.g. related to district heating; and</li> <li>• Effects on the general landscape as well as seascapes.</li> </ul>	In

### Scoping Question # 2

**Based on the likely significant impacts outlined above, are there any other effects or impacts that should be considered in the SEA Environmental Report on the Draft Policy Statement?**

## 6 PRELIMINARY ENVIRONMENTAL BASELINE

In line with the SEA Directive, an environmental baseline will be compiled for the Policy Statement. This will include: a description of the state of the environment at present; a discussion of the key problems/ issues currently being faced nationally; and a description of the expected evolution of the environment should the Policy Statement not be implemented.

The SEA Environmental Report will present a full description of the relevant aspects of the national environmental baseline data. The baseline will reflect the strategic nature of the Policy Statement. The environmental baseline will be presented in the Environmental Report under a number of SEA topic headings as follows:

- Biodiversity, Flora and Fauna (BFF);
- Population and Human Health (PHH);
- Land and Soils (LS);
- Water (W);
- Air Quality (AQ);
- Climatic Factors (CF);
- Material Assets (MA);
- Architectural Archaeological and Cultural Heritage (CH); and
- Landscape (LandS).

Under each of the SEA topic headings the current state of the environment will be identified along with the key problems/ issues and the expected evolution of the environment in the absence of the Policy Statement. The data sources that will be used to compile the current state of the environment are identified in **Section 6.1** below.

### 6.1 Baseline Data Sources

It will be key that the current state of the environment is described using the most up to date environmental data, information and reports. Where updates of significant environmental data and associated reports become available during the SEA process, consideration will be given to incorporating the new information into the description of the current state of the environment. Where data gaps are found for particular aspects of the current state of the environment, the significance of these data gaps will be clearly stated. In addition, it will be stated whether these gaps can be reasonably and realistically addressed during the SEA process.

A key document that will be referenced will be the EPA State of the Environment Report, *Ireland's Environment – An Assessment* (2020). The broad environmental messages identified by the EPA relate to:

- **Environment and Health and Wellbeing:** Recognising the benefits of a good quality environment to health and wellbeing.
- **Climate Change:** Accelerate mitigation actions to reduce greenhouse gas emissions and implement adaptation measures to increase our resilience in dealing with adverse climate impacts.
- **Implementation of Legislation:** Improve the tracking of plans and policies and the implementation and enforcement of environmental legislation to protect the environment.

The Policy Statement will be put in context in relation to these three components and furthermore will have regard to the key topic messages of: Restore & Protect Water Quality; Sustainable Economic Activities; Nature & Wild Places; and Community Engagement.

It is intended to utilise geographic information systems (GIS) where possible to display and analyse relevant information. **Table 6-1** provides a preliminary overview of each of the SEA Topics that will be outlined in the SEA baseline. The table also includes a non-exhaustive list of the potential data sources that will be used to compile the baseline and in addition it outlines the preliminary extent of the assessment based on these available data sources. Given the strategic nature and national scope of the Policy Statement, it is recognised that there are limitations on the extent of the scope of an environmental assessment and therefore it is beneficial to outline such limitations at this early stage.

Table 6-1: Proposed baseline data sources and extent of assessment

SEA Topic	Potential Data Sources	Potential Extent of Assessment based on Data Sources
<b>Population and Human Health</b>	<ul style="list-style-type: none"> <li>EPA State of the Environment Report (Ireland's Environment – An Assessment, 2020 [<i>note – relevant for all SEA topics</i>])</li> <li>EPA Environmental Sensitivity Mapping (ESM) Tool</li> <li>Central Statistics Office (CSO) database, including Census 2011 and 2016 data</li> <li>EPA Geoportal</li> <li>EPA radon map</li> <li>Noise Maps reported under the Environmental Noise Directive</li> <li>HSE Healthy Ireland</li> <li>Fáilte Ireland and Marine Irish Digital Atlas recreation datasets</li> <li><i>See also Soils, Water and Air Quality entries</i></li> </ul>	<p>National datasets are available for population density and distribution/ settlement envelopes and the potential impacts of the Policy Statement can be assessed relative to the available information.</p> <p>Reference will be made to the Institute of Public Health for appropriate information if available, and also the EPA, HSE, as well as CSO Statistics.</p>
<b>Biodiversity, Flora and Fauna</b>	<ul style="list-style-type: none"> <li>National Parks and Wildlife Service (NPWS) databases</li> <li>NIEA datasets</li> <li>National Biodiversity Data Centre</li> <li>Invasive Species Ireland website</li> <li>EPA Geoportal</li> <li>Ramsar</li> <li>Biosphere Reserves</li> <li>Fish spawning/nursery sites</li> </ul>	<p>National and regional datasets are available for aspects relating to biodiversity, flora and fauna.</p>
<b>Land and Soils</b>	<ul style="list-style-type: none"> <li>Geological Survey of Ireland (GSI) Mapping (geology, groundwater, minerals/ extraction etc.) including the Geothermal Suitability Mapping</li> <li>Geohazards - Landslide Events &amp; Susceptibility Mapping</li> <li>Geological Heritage Areas/ County Geological Sites</li> <li>DECC Interactive Maps on Licences, Leases and Prospecting Licences</li> <li>Geological Survey of Northern Ireland (GSNI) Mapping</li> <li>Teagasc Soil Information</li> <li>CORINE Land Cover Database</li> <li>Coillte Forestry Database</li> <li>Landuse – Myplan.ie</li> </ul>	<p>National high level datasets are available for soil and land use resources at a county/ national scale. This is in keeping with the geographic scope of the Policy Statement and is considered adequate at this scale.</p>
<b>Water</b>	<ul style="list-style-type: none"> <li>EPA Geoportal for WFD datasets and catchments.ie</li> <li>EPA database reports e.g. Water Quality in Ireland (latest available)</li> <li>National Catchment Flood Risk Management Programme (CFRAM), Office of Public Works (OPW)</li> <li>Groundwater Aquifers</li> <li>Groundwater Vulnerability</li> <li>Groundwater Recharge Mapping</li> <li>Groundwater Flooding</li> <li>Source Protection Zones</li> <li>Irish Water - Water Services Strategic Plan,</li> </ul>	<p>A suite of national datasets is available for surface waters and groundwaters, transitional and coastal water bodies.</p> <p>The outputs of the CFRAMS mapping are now available online.</p>

SEA Topic	Potential Data Sources	Potential Extent of Assessment based on Data Sources
	<ul style="list-style-type: none"> <li>Irish Water - the National Water Resources Plan</li> <li>Irish Water - Drinking Water Safety Plans</li> </ul>	
<b>Air Quality and Climatic Factors</b>	<ul style="list-style-type: none"> <li>EPA database (air quality)</li> <li>EPA Irelands Greenhouse Gas Emission Projections Reports</li> <li>Sustainable Energy Ireland (SEAI), Energy in Ireland Reports and online GIS</li> </ul>	<p>National and regional datasets are available for relevant air quality parameters at a national scale.</p> <p>National reports are available for carbon emissions and greenhouse gases. Regional/ national scale emissions data in GIS from the MapElre Project.</p>
<b>Material Assets</b>	<ul style="list-style-type: none"> <li>EPA Geoportal</li> <li>DAFM datasets</li> <li>DECC datasets (including GSI)</li> <li>SEAI GIS data</li> <li>ESB and GNI datasets</li> <li>Fisheries</li> <li>Recreation</li> </ul>	National datasets are available for certain resources that may be affected by the Policy Statement.
<b>Cultural Heritage (incl. Architectural, Archaeological)</b>	<ul style="list-style-type: none"> <li>National Monuments Service/ Record of Monuments and Places (RMP)</li> <li>National Inventory of Architectural Heritage (NIAH)</li> <li>UNESCO World Heritage Sites and tentative List</li> </ul>	National datasets are available for archaeology and architectural heritage, however the scale of the datasets is directed towards local project-specific sources. Digital data on Architectural Conservation Areas and Records of Protected Structures are not generally publicly available.
<b>Landscape</b>	<ul style="list-style-type: none"> <li>There are no national datasets available for landscape; a draft Regional Seascape Character Assessment is available and some information is available at a county level, however not consistent across all of the counties.</li> </ul>	Very limited spatial/ digital data from existing sources.



## 7 PROPOSED FRAMEWORK FOR ASSESSING ENVIRONMENTAL EFFECTS

A key purpose of scoping is to set out sufficient details about the proposed methodological framework for the assessment of environmental effects to allow the consultees to form a view on this matter. It is proposed to use an objectives-led assessment which will involve comparing the proposed alternatives against defined Strategic Environmental Objectives for each of the identified issue areas. The assessment will be supported by other tools such as GIS-based spatial analysis and other quantitative data as available.

The preceding sections have identified the environmental characteristics and key environmental issues relating to the Policy Statement and the key influences from external plans, policies and strategies. This section uses that information to set out a series of draft SEA objectives. These will be used in the environmental report to predict the likely environmental effects of the Policy Statement and, subsequently, will inform the development of the monitoring programme implementation of the Policy Statement. The use of these objectives ensures that following this scoping stage the SEA focuses only on those issues that are most relevant and significant to the Policy Statement.

### 7.1 Draft SEA Objectives

Set out in **Table 7-1** are the *draft* SEA objectives that are being considered to test the potential environmental impacts of the Policy Statement. These objectives are based on the current understanding of the key environmental issues identified. The detailed assessment criteria are examples of the issues that will be considered during the assessment of whether the plan, including the proposed alternatives, meets the proposed SEA objectives. It should be noted that these are draft objectives only and are provided for the purpose of discussion at this scoping stage. The SEA team welcomes feedback on the draft objectives with a view to updating them prior to any assessment. The development of baseline and further consideration of environmental pressures will also inform the final objectives used for assessment.

**Table 7-1: Draft SEA Environmental Objectives**

Related to SEA Topic(s) Draft Objective(s)	
Population and Human Health (PHH)	<b>Objective 1:</b> To protect human health from the geothermal exploration and development activities as a result of the Policy Statement.
Biodiversity, Flora and Fauna (BFF)	<b>Objective 2:</b> Preserve, protect, maintain and where appropriate restore the terrestrial, aquatic and soil biodiversity, particularly EU designated sites and protected species from geothermal exploration and development activities, and integrate biodiversity considerations wherever possible into the Policy Statement.
Land and Soil (LS)	<b>Objective 3:</b> Safeguard soil quality and quantity from geothermal exploration and development activities as a result of the Policy Statement.
Water (W)	<b>Objective 4:</b> Protect water quality (surface waters, groundwaters and marine waters) and ensure compliance with the objectives of the WFD in relation to geothermal exploration and development activities associated with the Policy Statement.
Air Quality (AQ)	<b>Objective 5:</b> Minimise emissions to air as a result of the geothermal exploration and development activities arising from the Policy Statement.
Climatic Factors (C)	<b>Objective 6:</b> Contribute to the mix of renewable energies available as part of the transformation of Ireland's energy system toward a net zero emissions.
Material Assets (MA)	<b>Objective 7:</b> Support sustainable geothermal exploration and development activities without conflicting with other environmental protection objectives.
Cultural Heritage (CH)	<b>Objective 8:</b> Protect places, features, buildings and landscapes of cultural, historical archaeological or architectural heritage from activities associated with geothermal exploration and development activities arising from the Policy Statement.
Landscape (LandS)	<b>Objective 9:</b> Protect landscape character and visual amenity from geothermal exploration and development activities arising from the Policy Statement.

## Scoping Question # 3

Do you have any comments regarding the draft SEA Objectives presented?

## 7.2 Impacts, Mitigation and Monitoring

In line with the requirements in the legislation, the likely significant effects on the environment will be assessed. This includes reference to secondary, cumulative, synergistic, short, medium and long term, permanent and temporary, positive and negative effects as well as the interrelationships between the environmental issue areas. Where possible and practical, assessment of these impacts will be quantitative and will use tools including environmental sensitivity mapping. Any problems encountered during the assessment of impacts, including technical difficulties and/ or lack of information, will be highlighted and described, as appropriate.

With regard to cumulative impacts, the use and application of GIS will be considered, where possible, at the various key stages in the SEA process. GIS, along with other methodologies and depending on the availability of relevant spatial data, will assist in determining the cumulative vulnerability of various environmental resources nationally/ regionally for the Policy Statement. Where significant adverse impacts are identified during the SEA process, relevant and appropriate mitigation measures will be provided in the Environmental Report. Consideration will be given to residual impacts where relevant.

## 7.3 Outline of Alternatives

The assessment of reasonable alternatives as part of the SEA process is required as part of an Environmental Report under Article 5(1) of the SEA Directive. Alternatives can be described as a range of options available to the policy makers for delivering on the objectives/priorities of the Policy Statement, as well as alternatives within the Policy Statement itself. The identification of alternatives enables more informed decision-making and the assessment allows more sustainable options to be identified. Given the high level nature of the Policy Statement, the alternatives to be considered are likely to be predominately at the strategic level and must be realistic, reasonable and relevant.

However, it is anticipated that the environmental report will explore alternatives at a number of levels where feasible: strategic; policy actions etc. EPA guidance on development of alternatives will provide a framework for development of alternatives development and **Table 7-2** provides an overview of the nature of alternatives that may be considered for the Policy Statement.

**Table 7-2: Potential approaches to the development of alternatives for the Policy Statement**

Alternative Type	Description	Example Considerations with respect to the Policy Statement
<b>Strategic</b>	<i>High-level options that achieve a given objective. These types are commonly realistic only at policy level.</i>	<ul style="list-style-type: none"> <li>• Consideration of a <i>do nothing</i> scenario relating to a business as usual approach</li> <li>• Consideration of including a renewable energy target or not for geothermal energy</li> <li>• Setting out the hierarchy and direction from the policy framework down to the next planning levels</li> </ul>
<b>Value and Effects Oriented</b>	<i>Alternatives that address policy priorities, cultural values or safety issues. Such alternatives are most appropriate for addressing public perceptions, concerns and values. Alternatives that address issues identified during scoping. Such alternatives are effective at mitigating potential significant effects.</i>	<ul style="list-style-type: none"> <li>• Public participation and engagement</li> <li>• Policy prioritisation</li> <li>• Sectoral controls</li> <li>• Defining responsibilities for safety and certification etc.</li> </ul>
<b>Spatial</b>	<i>Alternative locations for the implementation of planning objectives.</i>	The scope of the Policy Statement will not specify geographically where measures will be applied

Alternative Type	Description	Example Considerations with respect to the Policy Statement
<b>Modal</b>	<i>Different technical/ mode alternatives to achieve the same objective</i>	<ul style="list-style-type: none"> <li>• Different methods to achieve policies/priorities can include for example: <ul style="list-style-type: none"> <li>– Legal;</li> <li>– Administrative;</li> <li>– Financial;</li> <li>– Education / awareness / training; and</li> <li>– Related research and development.</li> </ul> </li> <li>• Particular alternatives that will be considered include a heat volume / energy threshold approach vs a landowner / territorial area limit.</li> <li>• Exploration associated with possible geothermal technology regimes</li> <li>• Consideration of policy support / exclusion for specific technologies.</li> </ul>
<b>Sectoral and/or Temporal Prioritisation</b>	<p><i>Alternatives that look at sectoral feasibility and needs at the strategic level, policies can be formulated to promote one sector versus another.</i></p> <p><i>Alternatives for the timing of implementation of plan/ programme measures.</i></p> <p><i>These are most suitable at the local level for addressing infrastructure development.</i></p>	Alternatives that look at sectoral and temporal feasibility could include for instance consideration of alternatives which are not currently feasible, but may become feasible/ economically viable in the future.

#### Scoping Question # 4

**Do you have any suggestions or comments in relation to the overall approach to alternatives?**

## 7.4 Monitoring

A monitoring programme will be developed to facilitate monitoring of environmental effects during implementation of the Policy Statement. This will be focused on key impact issues identified during the assessment phase. Where possible thresholds for action will be included to ensure that action is taken where unforeseen impacts are identified. It is noted that the EPA have recently compiled guidance on monitoring in SEA and will be taken into consideration prior to finalisation.

## 8 NEXT STEPS

As part of the statutory scoping of the SEA for the Policy Statement, there will be statutory consultation with the environmental authorities for SEA in Ireland. In addition, transboundary consultation will be undertaken with Northern Ireland (**Table 8-1**).

**Table 8-1: Consultees in the SEA Scoping Process**

SEA Consultee
Environmental Protection Agency (EPA)
Department of Agriculture, Food and the Marine (DAFM)
Department of Housing, Local Government and Heritage (DHLGH)
Department of the Environment Climate and Communications (DECC)
Northern Ireland Environment Agency, Department of Agriculture, Environmental and Rural Affairs (DAERA)

To further facilitate meaningful discussion, it is envisaged to convene a workshop with the above listed consultees. This will include presentations from the Policy Statement team and the SEA and AA team to inform discussions on the scope and level of detail for the assessment. All discussions during this workshop, as well as formal written submissions received will be considered in preparation of the SEA Environmental Report and the Natura Impact Statement.

**Submissions at this first stage of the Policy Statement for Geothermal Energy process can be made  
by 5pm on 22 November 2021.**

A submission may be made via one of the following media:

1. By e-mail [*Please title subject line with 'Geothermal SEA Scoping Submission'*]: [GSPD@decc.gov.ie](mailto:GSPD@decc.gov.ie)
2. By post: **Geothermal SEA Scoping Submission**, Geoscience Policy Division, Department of the Environment, Climate and Communications, Adelaide Road, Dublin, D02 X285.