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

MAKING COMPLEX EASY

DRAFT POLICY STATEMENT FOR GEOTHERMAL ENERGY EXPLORATION IN IRELAND

SEA Screening Report

IE000095
F03
18 October 2021

rpsgroup.com

Document status

Version	Purpose of document	Authored by	Reviewed by	Approved by	Review date
A01	Draft for Client Review	NO'N	AG	AG	31.08.2021
F01	Final for Consultation Issue		NO'N	AG	06.09.2021
F02	Pre-Final		NO'N	AG	13.10.2021
F03	Final for Publication		NO'N	AG	18.10.2021

Approval for issue

AG	18 October 2021

Prepared by:

RPS

Prepared for:

Department of the Environment, Climate and Communications (DECC)

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1 INTRODUCTION

This is the Strategic Environmental Assessment (SEA) Screening Report for the Draft Policy Statement for Geothermal Exploration in Ireland being prepared by the Department of the Environment, Climate and Communications (DECC).

SEA is a process to integrate environmental assessment into plans and programmes at the earliest stages, ensuring a robust basis for sustainable development. It includes the formal systematic evaluation of the likely significant effects on the environment as a result of implementing plans or programmes (P/P), prior to their adoption. The SEA Directive (2001/42/EC) applies to a wide range of plans and programmes that are prepared or adopted by an **authority** (at national, regional or local level) and are **required** by legislative, regulatory or administrative provisions[1].

SEA screening is the procedure for deciding whether or not:

i. The P/P requires mandatory SEA; or if not mandatory,

ii. The P/P would be likely to have significant environmental effects, and would thus warrant further assessment.

The sections that follow set out the rationale and the draft screening determination.

2 PRE-SCREENING

Status of the P/P Maker	
Is the P/P prepared and / or adopted by an authority at national, regional or local authority or prepared by an authority for adoption through a legislative procedure by Parliament or Government?	The Geothermal Exploration Policy Statement will be prepared by DECC. The vision of the DECC as set out in its Statement of Strategy (SoS) is "a climate neutral, sustainable and digitally connected Ireland". One of the key strategic actions in the SoS is 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*.
Is the P/P required by legislative, regulatory, or administrative provisions?	The *Geothermal Exploration Policy Statement* is not directly required by 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. One of the Interim Climate Actions 2021 (Action 196) 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".

[1] https://ec.europa.eu/environment/eia/sea-legalcontext.htm

Nature of the P/P	
Is the P/P prepared for agriculture, forestry, fisheries, energy, industry, transport, waste management, water management, telecommunications, tourism, town and country planning or land use?	The *Geothermal Exploration Policy Statement* is prepared for energy.
Does the P/P provide a framework for the development consent for projects listed in the EIA Directive?	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.
Is the P/P likely to have a significant effect on a Natura 2000 site which leads to a requirement for Article 6 or 7 assessments?	Screening for Appropriate Assessment has not been completed at this stage as there is insufficient detail available on the policy statement. As the statement will apply to Ireland as a whole, it is considered a possibility that AA will be required.
Exemptions	
Is the sole purpose of the P/P to serve national defence or civil emergency or is it a financial/budget P/P or is it co-financed by the current SF/RDF programme.	No
Conclusion	
Summarise the relevant information informing the assessment and the main reasons the P/P **does or does not** fall within the scope of the SEA Directive.	*There is uncertainty about the nature of the P/P and whether it may give rise to significant effects on the environment. The plan cannot be screened out for SEA or AA and requires a more detailed screening assessment. The policy statement will therefore be taken forward for more detailed screening prior to decision making.*

3 SCREENING

3.1 Details of the Plan or Programme

- **Name of P/P Maker:** Department of the Environment, Climate and Communications (DECC)
- **Title of P/P:** Draft Policy Statement for Geothermal Energy Exploration in Ireland
- **Type of P/P:** National policy statement
- **Date of Screening:** 06.09.2021
- **Applicable Legislation:** European Communities (Environmental Assessment of Certain Plans and Programmes) Regulations 2004 (S.I. No. 435/2004), as amended by the European Communities (Environmental Assessment of Certain Plans and Programmes) (Amendment) Regulations 2011 (S.I.

No. 200 of 2011)

3.2 Key Information about the Plan or Programme

- **Background and Context of the P/P**

Geothermal energy resources have the potential to provide for 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 as well as 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 process for licencing the exploration for, or development and production of, geothermal energy exploration 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 it was not brought before the Oireachtas at the time.

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, in November 2020 DECC published *Geothermal Energy in Ireland – A Roadmap for a Policy and Regulatory Framework*. The Energy White Paper, Ireland's Transition to a Low Carbon Energy Future 2015-2030 also makes provision for the establishment of a regulatory framework to facilitate the exploration and development of geothermal energy resources. Therefore DECC is currently undertaking the preparation of a draft Policy Statement in respect of Geothermal Energy Exploration in Ireland.

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.

- **Purpose of the P/P**

The purpose of the Policy Statement will be to set out the regulatory framework for geothermal energy exploration and securing the discovered geothermal energy resources, including access. It is expected that the Policy Statement will also include a roadmap or required follow on actions for geothermal resource development.

- **Geographical Area Covered by the P/P**

The policy statement will be a strategic policy document; as such its geographic scope will be at the national level, cover both the terrestrial and marine area, and will cover the Republic of Ireland.

- **Content of the P/P**

As a high level policy document, it is not anticipated to contain any location-specific information. An outline of the proposed topic areas that are being considered for inclusion in the 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
  - Geothermal Energy Projects
  - 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
  - Mailing List
  - Community Gain
- 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
  - Context and issues to be subsequently considered in the later development of a regulatory framework for geothermal resources development, including construction of the energy processing plant, commissioning and operation.
- Resources and Other Information
  - Bodies and Agencies
  - Environmental Advisory Unit

3.3 Potential for Significant Environment Effects

The characteristic of the P/P having regard, in particular, to:	
• The degree to which the plan sets a framework for projects and other activities, either with regard to the location, nature, size, operating conditions or by allocating resources. • Will it set out locations, rules, standards or criteria that will guide developments later in the planning hierarchy. This could include guidelines, legislation, plans, masterplans etc.	• As a policy statement, it is not anticipated to contain location-specific actions or objectives. However, it will outline a regulatory framework for this type of energy exploration which would then influence and guide the development of this sector/resource.
• The degree to which the plan or programme influences other plans and programmes including those in a hierarchy, • This should set out the P/P is in a hierarchy –	• The Policy Statement will be taken into account by statutory plans, including those relating to energy, climate and land use planning among others. The Policy Statement

vertical or horizontal. A graphic may assist in explaining how it relates to other P/P	will also inform future P/P or projects prepared for geothermal exploration and development.
• The relevance of the plan, for the integration of environmental considerations in particular with a view to promoting sustainable development, • The degree to which the P/P addresses environmental and sustainability issues. Does it provide for conservation or protection of any environmental receptor?	• Geothermal energy can contribute to the sustainable energy/heat transition as it represents a renewable resource, can offer a steady supply of energy/heat, can offer baseload power, is generally considered to have lower environmental impacts compared to others forms of renewable energy development, and can contribute to the transition to climate neutrality in terms of national/EU targets. This energy resource can contribute to the energy mix and is sustainable over the long term. • The Policy Statement will integrate wider environmental concerns including an examination of environmental risks and opportunities.
• Environmental problems relevant to the plan • What is the current state of the receiving environment, is water quality / air quality at good status, are populations and areas of protected habitats and species increasing or declining etc. What are the likely impact pathways and receptors? A good starting point is to use Annex I (f) from the Directive as a guide i.e. biodiversity, population, human health, fauna, flora, soil, water, air, climatic factors, material assets, cultural heritage including architectural and archaeological heritage, landscape and the interrelationship between these factors	• A key environmental problem relevant to the Policy Statement is that Ireland faces challenges in terms of meeting its national and European targets for greenhouse gas emissions reductions, as well as reaching renewable energy/heat targets. A range of renewable sources must be available to ensure that adequate capacity is present to meet the targets in the short-medium- and long term. • As noted elsewhere, the Policy Statement will not have any location specific information beyond potentially an opportunities map. As such it is not possible to consider impact pathways with any geographic specificity. • Depending on the range of geothermal technologies that are feasible and will be described as part of the Policy Statement, the key pathways are likely to be the interactions with land/soil and hydrogeology/hydrology pathways through soil disturbance and potential emissions to surface and groundwaters, as well as potential emissions to air. • Ireland has relatively low levels of land/soil contamination. Water quality in Ireland is mixed in terms of surface waters, however the vast majority of groundwaters are achieving their environmental quality objectives. Ground disturbance to install geothermal technologies has the potential to interact with surface/subsurface heritage features. Biodiversity may also be affected e.g. from disturbance. • Taking the above into account, arising from the degree to which the draft Policy Statement is relevant for the integration of environmental considerations with a view to promoting

	sustainable development, depending on factors including the nature of geothermal exploration activity and the location, scale, design and management of geothermal energy exploration/development works, the Statement would, in combination with the energy sector's wider frameworks for development consent and P/P from other sectors, be likely to result in significant environmental effects.
• The relevance of the plan, for the implementation of European Union legislation on the environment (e.g. plans and programmes linked to waste management or water protection). • Will the plan assist in roll out of other environment legislation e.g. RBMP or RWMP	• The Policy Statement will, in combination with the energy sector's wider frameworks for development consent, contribute towards the implementation of EU legislation on the environment, including that on waste management, water protection, climate action and habitat and species protection/ management. • Taking the above into account, arising from the degree to which the draft Policy Statement is relevant for the integration of environmental considerations with a view to promoting sustainable development, depending on factors including the nature of geothermal exploration activity and the location, scale, design and management of geothermal energy exploration/development works, the Statement would, in combination with the energy sector's wider frameworks for development consent and P/P from other sectors, be likely to result in significant environmental effects.
Characteristics of the effects and of the area likely to be affected, having regard, in particular, to:	
• The probability, duration, frequency and reversibility of the effects, – Describe whether the extent, duration, or frequency is similar to existing baseline conditions. – What are the sources and pathways for impact? – What is the likelihood and significance of impacts? – Describe nature of the effects – Describe possibilities for mitigation through avoidance or reduction.	• The probability that the Policy Statement will result in activities / works giving rise to significant environmental effects is high. • It is expected that the effects of exploration will be largely positive with respect to climate as it aims to support geothermal energy to contribute to the renewable energy mix, increase use of sustainable energy, and contribute to decarbonisation of the heat/energy generation sectors. The positive effects are anticipated to be of a long-term nature should the technology become more widely deployed. • There may also be negative effects associated with the geothermal energy exploration technologies used and subsequently the construction of new energy infrastructure if geothermal energy is to be harnessed. • The range of geothermal energy technologies will be explored as part of the development of the draft Policy Statement. However, the key issues related to geothermal energy development, and depending on the various

	factors involved in exploration and technology types, are likely to relate to: drilling as an intrusive activity; localised air/ noise/ dust emissions with potential for impact to e.g. local populations; potential for land use changes; disturbance to habitats/ species; disturbance to soils/subsoils; changes to hydrogeological/ hydrological regimes; emissions to surface waters/ groundwaters; and potential for emissions to air. Some of the effects are likely to be short-term and temporary in nature (e.g. construction and installation stage). Some changes may be permanent (e.g. to the subsurface geology). Many exploration techniques as might be used to identify and characterise geothermal resources, are likely to be non-intrusive e.g. remote sensing, modelling etc. • Taking the above into account, arising from the degree to which the draft Policy Statement is relevant for the integration of environmental considerations with a view to promoting sustainable development, depending on factors including the nature of geothermal exploration activity and the location, scale, design and management of geothermal energy exploration/development works, the Statement would, in combination with the energy sector's wider frameworks for development consent and P/P from other sectors, be likely to result in significant environmental effects.
• The cumulative nature of the effects – Consider the addition of many minor or significant effects within or between P/P.	• Given the relative lack of deployment of geothermal energy in Ireland, the effects described above could occur in combination with effects arising from other P/P, including those from climate action in particular, the land use planning, waste management, water management and habitat and species protection/ management sectors.
• The transboundary nature of the effects • This is particularly relevant in the context of P/P which can impact on water, air, climatic factors etc. as these environmental factors easily cross boundaries. Some plans will also need to consider highly mobile species e.g. marine mammals. – Indicate the spatial extent of the transboundary effects – minor or more significant effects on some or all of the transboundary jurisdiction	• Environmental effects, depending on factors including the nature of geothermal exploration and development activity and the location, scale, design and management of energy sector work as described above, would need to be explored further when the Policy Statement is further developed in order to establish whether or not transboundary effects would be likely.
• The risks to human health or the environment (e.g. due to accidents), – Could the P/P result in accidental spillages or emissions to air or water that could lead to	• The draft Policy Statement will not specify particular locations or activities; as a national Policy Statement, it will lack geographic specificity and therefore it is not possible to predict the effects or the area likely to be

risk to human health. – Are there potential effects of floods on sites with sensitive plants e.g. Seveso sites that would require further assessment e.g. Seveso Assessment or Flood Risk Assessment.	affected. • The range of geothermal energy technologies will be explored as part of the development of the draft Policy Statement. However, the key issues related to geothermal energy development, and depending on the various factors involved in exploration and technology types, are likely to relate to: drilling as an intrusive activity; localised air/ noise/ dust emissions with potential for impact to e.g. local populations; potential for land use changes; disturbance to habitats/ species; disturbance to soils/ subsoils; changes to hydrogeological/ hydrological regimes; and emissions to surface waters/ groundwaters. Some of the effects are likely to be short-term and temporary in nature (e.g. construction and installation stage). Some changes may be permanent (e.g. to the subsurface geology). Many of the exploration techniques as might be used to identify and characterise geothermal resources, are likely to be non-intrusive e.g. remote sensing, modelling etc. • Geothermal energy exploration has the potential to give rise to significant environmental effects on the environment if works and activities are unregulated and undertaken without any due consideration for the environment. This could include on areas of special natural characteristics or cultural heritage or areas where environmental quality standards or limit values have been exceeded. • Positive effects on sustainable development and climate action would be identifiable at a national level, with contribution towards associated legislative and policy targets.
• The magnitude and spatial extent of the effects (geographical area and size of the population likely to be affected), – Clarify the size and scale of the effects. – Is a large population effected by the effects e.g. a large urban area or a smaller a defined LAP area? – What are the receptors which will be affected, what is their sensitivity and significance – This criterion may not be relevant to all P/P as many strategic P/P lack geographic specificity.	• The draft Policy Statement will not specify particular locations or activities; as a national Policy Statement, it will lack geographic specificity and therefore it is not possible to predict the effects or the area likely to be affected. • The range of geothermal energy technologies will be explored as part of the development of the draft Policy Statement. However, the key issues related to geothermal energy development, and depending on the various factors involved in exploration and technology types, are likely to relate to: drilling as an intrusive activity; localised air/ noise/ dust emissions with potential for impact to e.g. local populations; potential for land use changes; disturbance to habitats/ species; disturbance to soils/ subsoils; changes to hydrogeological/ hydrological regimes; and emissions to surface waters/ groundwaters. Some of the effects are likely to be short-term and temporary in nature

	(e.g. construction and installation stage). Some changes may be permanent (e.g. to the subsurface geology). Many of the exploration techniques as might be used to identify and characterise geothermal resources, are likely to be non-intrusive e.g. remote sensing, modelling etc. • Geothermal energy exploration has the potential to give rise to significant environmental effects on the environment if works and activities are unregulated and undertaken without any due consideration for the environment. This could include on areas of special natural characteristics or cultural heritage or areas where environmental quality standards or limit values have been exceeded. • Positive effects on sustainable development and climate action would be identifiable at a national level, with contribution towards associated legislative and policy targets.
• The value and vulnerability of the area likely to be affected due to: (a) special natural characteristics or cultural heritage, (b) exceeded environmental quality standards or limit values, • intensive land-use, – This criterion may not be relevant to all P/P as many strategic P/P lack geographic specificity. • Where information is available on location specific measures details should be provided including where environmental quality is already under pressure e.g. breaches of air emission limits or water quality standards.	• As a national Policy Statement, it will lack geographic specificity and therefore it is not possible to predict the effects or the area likely to be affected. • Geothermal energy exploration has the potential to give rise to significant environmental effects on the environment if works and activities are unregulated and undertaken without any due consideration for the environment. This could include on areas of special natural characteristics or cultural heritage or areas where environmental quality standards or limit values have been exceeded. • Positive effects on sustainable development and climate action would be identifiable at a national level, with contribution towards associated legislative and policy targets.
• The effects on areas or landscapes which have a recognised national, European Union or international protection status. • This would include areas recognised for: – nature conservation, – built heritage, – archaeology and – landscape • Note it does not limit consideration to designated areas but rather those recognised and could therefore include both specific locations e.g. a designated SAC or more general landscapes e.g. the Burren.	• As a national Policy Statement, it will lack geographic specificity and therefore it is not possible to predict the effects or the area likely to be affected. • Significant negative environmental effects could occur where geothermal energy exploration activities and/or works occur if such works and activities were unregulated and/or undertaken without any due consideration for the environment, including on areas or landscapes which have a recognised national, European Union or international protection status.

3.4 Summary and Conclusion

Potential issues have been identified in previous sections that indicate that implementation of the draft Policy Statement on Geothermal Energy Exploration could give rise to both positive and negative effects on the environment. Where negative effects have been identified, it can be concluded that unless appropriate protections are in place geothermal exploration is likely to result in significant environmental effects.

The screening determination is therefore that, pursuant to Article 9 of the European Communities (Environmental Assessment of Certain Plans and Programmes) Regulations 2004, as amended, an SEA is required for the draft Policy Statement. The SEA Screening Determination is included in **Appendix A**.

3.5 Statutory Consultation

Statutory consultation was undertaken with the environmental authorities for SEA in Ireland. Currently, the SEA Environmental Authorities for the purposes of S.I. No 435/2004, as amended, are:

- Environmental Protection Agency (EPA);
- Minister for Agriculture, Food and the Marine (DAFM);
- Minister for Housing, Local Government and Heritage (DHLGH) (including the Development Applications Unit); and
- Minister for the Environment, Climate and Communications (DECC).

Feedback was received from the EPA (SEA Unit), DECC (Geological Survey of Ireland [GSI] and Inland Fisheries Ireland [IFI]), and DAFM (Fisheries Division). The feedback included reference to:

- EPA recommend the use of Environmental Sensitivity Mapping Tool, AA GeoTool, WFD Application and reference to the State of the Environment (EPA, 2020) report in the preparation of the SEA and draft Policy Statement, and links to guidance and resources for SEA. Noted that any future changes/amendments to the draft Policy Statement should be screened for potential for likely significant environmental effects, and that where AA is required, the findings and recommendations should be incorporated into the SEA and the Policy Statement.
- IFI advocates for consideration of a number of topic areas during the development of the draft Policy Statement such as: biodiversity, water quality/sediment transport, climate issues, fisheries aspects (commercial and recreational) and invasive alien species.
- The GSI noted it has datasets which could be relevant to the SEA process of the draft Policy Statement and provided an attached list across a number of topic areas.
- DAFM Fisheries Division noted engagement should be sought with the fishing industry and other relevant stakeholders.

The correspondence received is included in **Appendix B**.

Appendix A
SEA Screening Determination

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

Screening for Strategic Environmental Assessment Determination
under the
European Communities (Environmental Assessment of Certain Plans and Programmes) Regulations 2004 (as amended)
for the
emerging Draft Policy Statement on Geothermal Energy Exploration

In order to comply with the requirements of Article 9 of the European Communities (Environmental Assessment of Certain Plans and Programmes) Regulations S.I. No. 435/2004, as amended, this determination has been made by the Department of the Environment, Climate and Communications relating to whether the emerging Draft Policy Statement on Geothermal Energy Exploration would be likely to have significant effects on the environment.

This determination takes into account relevant criteria set out in Schedule 1 'Criteria for determining whether a plan or programme (or modification thereto) is likely to have significant effects on the environment' of the aforementioned Regulations. These criteria are considered in a Strategic Environmental Assessment (SEA) Screening Report for the emerging Draft Policy Statement that has been prepared to inform this determination.

The SEA Screening Report concludes that: *Potential issues have been identified that indicate that implementation of the draft Policy Statement on Geothermal Energy in Ireland could give rise to both positive and negative effects on the environment. Where negative effects have been identified, it can be concluded that unless appropriate protections are in place geothermal exploration is likely to result in significant environmental effects.*

The undersigned, having carefully considered the information referred to above agrees with and adopts the reasoning and conclusion presented above and in the "SEA Screening Report". The undersigned, having carefully considered the information referred to above agrees with and adopts the reasoning and conclusion presented above. The undersigned hereby determines pursuant to Article 9 of the European Communities (Environmental Assessment of Certain Plans and Programmes) Regulations 2004, as amended, that SEA is required for the emerging Draft Policy Statement on Geothermal Energy Exploration.

Signatory: 

Eóin Deegan
Principal Officer
Geoscience Policy Division

Date: 15 October, 2021

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29-31 Adelaide Road, Dublin, D02 X285
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Appendix B
Statutory Submissions Received on Screening Consultation

Environmental Protection Agency
An Ghníomhaireacht um Chaomhnú Comhshaoil

Regional Inspectorate,
Inniscarra,
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Cigireacht Réigiúnach, Inis Cara
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W: www.epa.ie
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Geoscience Policy Division,
Department of the Environment,
Climate and Communications,
Adelaide Road,
Dublin,
D02 X285

30th September 2021 Our Ref: 210901.1

Re. SEA Screening for the Draft Policy Statement for Geothermal Energy Exploration in Ireland

Dear Sir/Madam,

We acknowledge your notice, dated 6th September 2021, in relation to the Draft Policy Statement for Geothermal Energy Exploration in Ireland (the 'Policy Statement') and associated Strategic Environmental Assessment (SEA) screening.

The EPA is one of the statutory environmental authorities under the SEA Regulations. In our role as a SEA environmental authority, we focus on promoting the full and transparent integration of the findings of the Environmental Assessment into the Policy Statement and advocating that the key environmental challenges for Ireland are addressed as relevant and appropriate to the Policy Statement. Our functions as an SEA environmental authority do not include approving or enforcing SEAs or plans.

Where we provide specific comments on plans and programmes, our comments will focus on the EPA's remit and areas of expertise (in particular water, air, climate change, waste, resource efficiency, noise, radon and the inter-relationships between these and other relevant topics e.g. biodiversity), as appropriate and relevant to the particular Policy Statement.

Proposed SEA Determination
We note your proposed determination that SEA is required for the Policy Statement.

Infrastructure Planning
In proposing the Policy Statement, and any related amendments of the Policy Statement and in implementing the Policy Statement, adequate and appropriate infrastructure

should be in place, or required to be put in place, to service any relevant development proposed and authorised during the lifetime of the Policy Statement.

Environmental Sensitivity Mapping (ESM) WebTool

This new tool was launched recently by the EPA. It is a new decision support tool to assist SEA and planning processes in Ireland. It is available at www.enviromap.ie. The tool brings together over 100 datasets and allows users to create plan-specific environmental sensitivity maps. These maps can help planners examine environmental considerations, anticipate potential land-use conflicts, and help identify suitable development locations while also protecting the environment.

State of the Environment Report – Ireland's Environment 2020

In preparing the Policy Statement and associated SEA screening, the recommendations, key issues and challenges described in our State of the Environment Report *Ireland's Environment – An Integrated Assessment 2020* *(EPA, 2020)* should be considered, as relevant and appropriate to the Policy Statement. This should also be taken into account, in preparing the Policy Statement.

Available Guidance & Resources

Our website contains various SEA resources and guidance, including:

- SEA process guidance and checklists
- Inventory of spatial datasets relevant to SEA
- topic specific SEA guidance (including *Good practice note on Cumulative Effects Assessment* (EPA, 2020), Guidance on SEA Statements and Monitoring (EPA, 2020), *Integrating climatic factors into SEA* (EPA, 2019), *Developing and Assessing Alternatives in SEA* (EPA, 2015), and *Integrated Biodiversity Impact Assessment* (EPA, 2012))

You can access these guidance notes and other resources at: https://www.epa.ie/our-services/monitoring--assessment/assessment/strategic-environmental-assessment/sea-topic-and-sector-specific-guidance-/

EPA SEA WebGIS Tool

Our SEA WebGIS Tool has been updated recently and is now publicly available at https://gis.epa.ie/EPAMaps/SEA. It allows public authorities to produce an indicative report on key aspects of the environment in a specific geographic area It is intended to assist public authorities in SEA screening and scoping exercises.

EPA WFD Application

Our WFD Application provides access to water quality and catchment data from the national WFD monitoring programme and is available through EPA Maps. It is also publicly available data can be accessed via the www.catchments.ie website.

EPA AA GeoTool

Our AA GeoTool application has been developed in partnership with the NPWS. It allows users to a select a location, specify a search area and gather available information for each European Site within the area. It is available at: https://gis.epa.ie/EPAMaps/AAGeoTool

Future amendments to the Policy Statement
Where changes to the Policy Statement are made prior to finalisation, or where modifications to the Policy Statement are proposed following its adoption, these should be screened for potential for likely significant effects in accordance with the criteria set out in Schedule 1 of the SEA Regulations (S.I. No. 435 of 2004).

Appropriate Assessment
You should ensure that the Policy Statement complies with the requirements of the Habitats Directive where relevant. Where Appropriate Assessment is required, the key findings and recommendations should be incorporated into the SEA and the Policy Statement.

Environmental Authorities
Under the SEA Regulations (S.I. No. 435 of 2004, as amended), prior to making your SEA determination you should consult with:

- Environmental Protection Agency
- Minister for Housing, Local Government and Heritage
- Minister for Environment, Climate and Communications; and
- Minister for Agriculture, Food and the Marine.

SEA Determination
As soon as practicable after making your determination as to whether SEA is required or not, you should make a copy of your decision, including, as appropriate, the reasons for not requiring an environmental assessment, available for public inspection in your offices and on your website. You should also send a copy of your determination to the relevant environmental authorities consulted.

If you have any queries or need further information in relation to this submission, please contact me directly. I would be grateful if you could send an email confirming receipt of this submission to: sea@epa.ie.

Yours sincerely,

_____
Cian O'Mahony
SEA Section
Office of Evidence and Assessment

Niamh O'Neill

From: Environmental Co-ordination (Inbox) <Environmental_Co-ordination@agriculture.gov.ie>
Sent: Thursday 30 September 2021 11:43
To: Niamh O'Neill
Subject: FW: SEA Screening of the draft Policy Statement for Geothermal Energy Exploration in Ireland

Good morning,

Please see comments attached from our Fisheries Division:

We note the marine area is included in this SEA of the draft policy statement for geothermal energy exploration in Ireland. Commercial sea fishing is a long standing, pre-existing and traditional activity in the marine environment. The evaluation and consideration of potential impacts on any commercial sea fishing activities needs to be given consideration as part of any planning/proposal process and during the development process itself. It is imperative that engagement should be sought with the fishing industry and other relevant stakeholders at as early a stage as possible to discuss any changes that may affect them to afford a chance for their input. Fishers' interests and livelihoods must be fully recognised, supported, and taken into account. We look forward to providing further input at a later stage of this process as more information is presented.

Regards,

Breeda

Breeda Hennebry | *Clerical Officer,* ***An tAonad um Chomhordú Timpeallachta, An Rannóg um Athrú Aeráide agus Beartas Bithfhuinnimh,***
Environmental Co-ordination Unit |Climate Change & Bioenergy Policy Division | environmentalco-ordination@agriculture.gov.ie
An Roinn Talmhaíochta, Bia agus Mara
Department of Agriculture, Food and the Marine
Lárionad Gnó Grattan, Bóthar Bhaile Átha Cliath, Port Laoise, Co Laoise, R32 K857
Grattan Business Centre, Dublin Road, Portlaoise, Co. Laoise, R32 K857
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From: Niamh O'Neill <niamh.oneill@rpsgroup.com>
Sent: Monday 6 September 2021 16:20
To: Environmental Co-ordination (Inbox) <Environmental_Co-ordination@agriculture.gov.ie>
Cc: Laurena Leacy <Laurena.Leacy@decc.gov.ie>
Subject: SEA Screening of the draft Policy Statement for Geothermal Energy Exploration in Ireland

To whom it may concern,

The Department of the Environment, Climate and Communications (DECC) is preparing a draft Policy Statement for Geothermal Energy Exploration in Ireland.

DECC, as the competent authority, must decide whether the draft Policy Statement would or would not be likely to have significant effects on the environment. In doing so, it has taken account of the relevant criteria set out in Schedule 1 of S.I. No. 435 of 2004 European Communities (Environmental Assessment of Certain Plans and Programmes) Regulations 2004 (as amended), and an SEA Screening Report has been prepared and is attached for your information.

A submission or observation in relation to whether the proposed draft Policy Statement would or would not be likely to have significant effects on the environment may be made to DECC by **Wednesday 6 October 2021** as per the details in the attached letter.

These submissions/observations will be taken into consideration in reaching a final determination on the need for SEA of the draft Policy Statement.

Yours sincerely,

Niamh O'Neill
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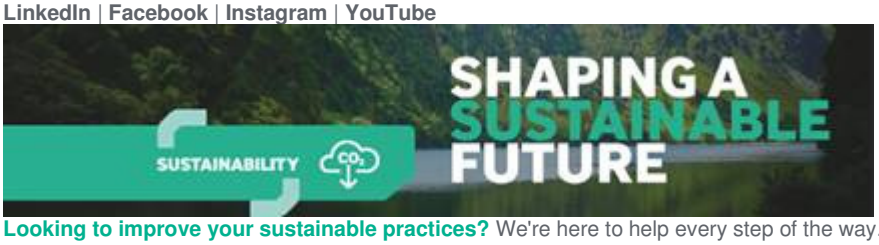

Tá an t-eolais san ríomhphost seo, agus in aon ceangláin leis, faoi phribhléid agus faoi rún agus le h-aghaigh an seolaí amháin. D'fhéadfadh ábhar an seoladh seo bheith faoi phribhléid profisiúnta nó dlíthiúil. Mura tusa an seolaí a bhí beartaithe leis an ríomhphost seo a fháil, tá cosc air, nó aon chuid de, a úsáid, a chóipeál, nó a scaoileadh. Má tháinig sé chugat de bharr dearmad, téigh i dteagmháil leis an seoltóir agus scrios an t-ábhar ó do ríomhaire le do thoil.

Iascach Intíre Éireann
Inland Fisheries Ireland

Enda Brady
Corporate Support Unit
Department of Communications, Climate Change and Environment,
Elm House,
Earlsvale Road,
Cavan.
H12 A8H7

Email: CorporateSupport.Unit@DECC.gov.ie

RE: Department of the Environment, Climate and Communications Draft Policy Statement for Geothermal Energy Exploration in Ireland - Notice of the Strategic Environmental Assessment Screening Report

5th October, 2021

Dear Enda,

Thank you for the opportunity to contribute to the draft Policy Statement for Geothermal Energy Exploration in Ireland consultation. These comments reflect the views of IFI in respect of the above-mentioned programme.

Background:
This consultation by The Department of the Environment, Climate and Communications is part of the wider ongoing engagement with stakeholders and advisory groups on the production of the SEA Screening for Policy Statement for Geothermal Energy Exploration in Ireland consultation.

About Inland Fisheries Ireland's Role
Inland Fisheries Ireland is the statutory authority tasked under section 7(1) of the Inland Fisheries Act 2010 (No. 10 of 2010) with responsibility for the protection, management, and conservation, of the inland fisheries resource and recreational sea angling. IFI is mandated to ensure that the fisheries of the State are protected. To protect means to keep safe, defend, to shield from danger, injury or change. "Fisheries" includes all inland fisheries recreational and commercial, sea angling and mollusc fisheries stipulated under the Fisheries Acts, the physical habitat upon which the fishery relies, the facilities and access, the quantity and quality of the water and the plant and animal life on which fish depend for shelter and food and the spawning areas where in fish deposit their eggs. The protective role of IFI relates to all aspects of the aquatic environment and all factors that influence the biotic communities within waters, which in any

way relate to the propagation of fish populations. Ireland has in excess of 70,000 km of rivers and streams and 144,000 ha of lakes, all of which fall under IFI's fisheries management jurisdiction. Many of these watercourses discharge directly to the sea and support species which utilise the marine environment for parts of their life cycle (e.g. salmon, sea trout, eel, lamprey species).

Aquatic Biological Diversity
Under section 7(3) of the IFI Act it is stated that IFI shall in the performance of its functions have regard to (g) the requirements of the European Communities (Natural Habitats) Regulations 1997 (S.I. No. 94 of 1997) and the need for the sustainable development of the inland fisheries resource (including the conservation of fish and other species of fauna and flora habitats and the biodiversity of inland water ecosystems),

(h) as far as possible, ensure that its activities are carried out so as to protect the national heritage (within the meaning of the Heritage Act 1995).

The National Fisheries Resource – sustainable exploitation and the economy
IFI is the responsible agency in respect of the licensing and management of commercial and recreational fishing for salmon, with protection responsibilities at sea out to 12 miles from baselines. IFI is also mandated to market and promote Irish recreational angling in both the domestic and foreign tourism markets. This brief acknowledges the importance of angling as a contributor to the Irish economy both in terms of revenue generated and the jobs it sustains.

It is important to highlight that (freshwater and marine recreational angling) directly supports over 11,000 existing Irish jobs, many of which are located in the most peripheral and rural parts of the Irish countryside and along our coastline (IFI, 2015). Within the sector participation rates totalled 446,000 people who were involved in recreational angling in Ireland in 2015, with over 170,000 of these travelling from Northern Ireland and overseas. Over a quarter of a million Irish adults (273,000) held a fishing rod in that period, with sea angling along with salmon and brown trout angling, observed as the most popular categories where domestic anglers are concerned. The quality of the Irish angling product, the friendliness and hospitality of the Irish people and the country's outstanding scenery were cited amongst the principal attractions of Ireland as an international destination for recreational angling.

The EU Water Framework Directive
The EU Water Framework Directive (2000/60/EC) is recognised as a critical regulatory legislative provision. The WFD entered into force in December 2000 and requires the protection of the ecological status of surface and ground waters – this encompasses (among other elements) water quality and requires the conservation of habitats for ecological communities.

One of the primary objectives of the Directive is to establish a framework which prevents further deterioration and protects and enhances the status of aquatic ecosystems. Protection of aquatic ecosystems requires that surface water systems be protected on a catchment basis - a shared objective between all relevant public authorities. Article 5 of the 2009 Surface Water Regulations requires that a public authority, in performance of its functions, shall not undertake

those functions in a manner that knowingly causes or allows deterioration in the chemical or ecological status of a body of surface water. Article 28(2) of the said regulations states that a surface water body whose status is determined to be less than good shall be restored to at least good status not later than the end of 2015.

WFD monitoring has identified agricultural diffuse and point source pollution as the most significant risk to surface waters and a significant pressure in 780 (53%) of the 1,460 water bodies identified as At Risk of not meeting their environmental objective. Water quality indicators include the presence of high phosphate, nitrate or ammonium concentrations related to agricultural practices; key risks include the presence of surface-flow pathways for nutrients, chemicals (fertilizers, pesticides, herbicides etc.) and sediment to surface waters, land drainage with associated siltation, instream habitat impacted by riparian zone management and agricultural abstraction pressures.

Draft Policy Statement for Geothermal Energy Exploration in Ireland

IFI notes that there the following:

- As a policy statement, it is not anticipated to contain location-specific actions or objectives. However, it will outline a regulatory framework for this type of energy exploration which would then influence and guide the development of this sector/resource.
- The Policy Statement will be taken into account by statutory plans, including those relating to energy, climate and land use planning among others. The Policy Statement will also inform future P/P or projects prepared for geothermal exploration and development.
- The Policy Statement will integrate wider environmental concerns including an examination of environmental risks and opportunities.
- The Policy Statement will not have any location specific information beyond potentially an opportunities map. As such it is not possible to consider impact pathways with any geographic specificity.
- Depending on the range of geothermal technologies that are feasible and will be described as part of the Policy Statement, the key pathways are likely to be the interactions with land/soil and hydrogeology/hydrology pathways through soil disturbance and potential emissions to surface and groundwaters, as well as potential emissions to air.
- Taking a number of factors into account, arising from the degree to which the draft Policy Statement is relevant for the integration of environmental considerations with a view to promoting sustainable development, depending on factors including the nature of geothermal exploration activity and the location, scale, design and management of geothermal energy exploration/development works, the Statement would, in combination with the energy sector's wider frameworks for development consent and P/P from other sectors, be likely to result in significant environmental effects.
- There may also be negative effects associated with the geothermal energy exploration technologies used and subsequently the construction of new energy infrastructure if geothermal energy is to be harnessed.

- The range of geothermal energy technologies will be explored as part of the development of the draft Policy Statement. However, the key issues related to geothermal energy development, and depending on the various factors involved in exploration and technology types, are likely to relate to: drilling as an intrusive activity; localised air/ noise/ dust emissions with potential for impact to e.g. local populations; potential for land use changes; disturbance to habitats/ species; disturbance to soils/subsoils; changes to hydrogeological/ hydrological regimes; emissions to surface waters/ groundwaters; and potential for emissions to air. Some of the effects are likely to be short-term and temporary in nature (e.g. construction and installation stage). Some changes may be permanent (e.g. to the subsurface geology). Many exploration techniques as might be used to identify and characterise geothermal resources, are likely to be non-intrusive e.g. remote sensing, modelling et
- Significant negative environmental effects could occur where geothermal energy exploration activities and/or works occur if such works and activities were unregulated and/or undertaken without any due consideration for the environment, including on areas or landscapes which have a recognised national, European Union or international protection status.
- Potential issues have been identified in previous sections that indicate that implementation of the draft Policy Statement on Geothermal Energy in Ireland could give rise to both positive and negative effects on the environment. Where negative effects have been identified, it can be concluded that unless appropriate protections are in place geothermal exploration (and subsequent) development is likely to result in significant environmental effects. The draft screening determination is therefore that, pursuant to Regulation 9 of the European Communities (Environmental Assessment of Certain Plans and Programmes) Regulations 2004, as amended, an SEA is required for the draft Policy Statement

Biodiversity and Climate Disruption

The recent IPCC AR6 report outlined the pace of climate disruption is accelerating and that unless there are "immediate, rapid and large-scale reductions in greenhouse gases (CO2 and methane), then limiting warming to close to 1.5°C or even to 2°C will be beyond reach. It is not clear how the current Ag-Climatise target for reductions in GHG emissions from agriculture (10-15%) can be reconciled with required national GHG emission reductions of 51% by 2030, as this would mean all other sectors of society and the economy must achieve approx. 70% reductions by 2030. This raises questions of feasibility and equity. In this context, it should be apparent that reductions in overall livestock numbers and stocking rates (thus reducing methane emissions) would have strong co-benefits for water quality and biodiversity, for example through alleviating pressure for slurry and fertiliser applications on critical source areas and potentially creating some room for improved riparian and biodiversity buffers and corridors on farmland. Although the national carbon budgeting process is a separate process to NAP review, clearly there are very close linkages which need to be addressed to ensure policy coherence.

Iascach Intíre Éireann
Inland Fisheries Ireland

Draft Policy Statement for Geothermal Energy Exploration in Ireland consultation
IFI advocates further consideration of the following in development of the draft Policy Statement for Geothermal Energy Exploration in Ireland consultation:

- Biological diversity
- Climate Disruption
- Water quality
- Surface water hydrology
- Fish spawning and nursery areas
- Passage of migratory fish / biological connectivity
- Areas of natural heritage importance including geological heritage sites
- Ecosystem structure and functioning
- Sport and commercial fishing and angling
- Amenity and recreational areas
- Sediment transport
- Alien invasive species

Concluding Remarks

IFI also notes in terms of environmental baseline, the latest EPA reporting (Ireland's Environment – An Assessment 2020) records *'that the key pressure on water bodies continues to be agriculture (including nutrient run-off). There also continues to be a decline in the number of water bodies that are reaching or maintaining High ecological status, with only 20 sites reaching Q5 status in 2020 compared to 500 water bodies 30 years ago and an increase in the number of polluted water bodies.'*

The current trend in deteriorating water quality must, at the very least, be halted. Good water quality is not only vital to supporting fish populations and their habitat but also for all users.

The long-term environmental sustainability of any activity that may impact on the status of fish species, their habitats, fisheries and/or the recreational angling or related commercial activities that may utilise these resources is of primary concern to IFI. IFI is among the public bodies that have a role in making policies, plans or programmes relevant to surface waters in Ireland. Critical and sensitive habitats and species (both designated and otherwise) must be protected. A number of fish species and associated habitats are protected under European

Iascach Intíre Éireann
Inland Fisheries Ireland

Directives in Ireland. From an IFI perspective, all fish species and associated habitats within its remit require protection and management for conservation and development. IFI advocates application of the precautionary principle when considering water quality and the fisheries resource in the current process. In addition, all available consideration and support should be afforded to the national 'Blue Dots Catchment Programme' which focuses on the protection or restoration of high ecological status water bodies – a vital component in fisheries ecology, freshwater ecosystems and in Ireland's aquatic biological diversity more generally. Additional supports are required in other protected areas such as shellfish waters and Natura 2000 sites.

IFI are grateful for the opportunity to have these views considered and incorporated as a component of the draft Policy Statement for Geothermal Energy Exploration in Ireland consultation.

We welcome the draft screening determination is therefore that, pursuant to Regulation 9 of the European Communities (Environmental Assessment of Certain Plans and Programmes) Regulations 2004, as amended, an SEA is required for the draft Policy Statement

Should you require clarification on any of the above or require a consultation meeting please contact Inland Fisheries Ireland.

Inland Fisheries Ireland
3044 Lake Drive
Citywest Business Campus,
D24 Y265.

Geological Survey Ireland's Publicly Available Datasets Relevant to Planning, EIA and SEA processes

following European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018
(S.I. No. 296 of 2018)

Geological Survey Ireland Programme	Dataset	Relevant EIA Topic	Coverage	Description / Notes	Link to Geological Survey Ireland map viewer
Geohazards	Landslide: National landslide database and landslide susceptibility map	Land & Soil/Climate/Landscape	National	Associated guidance documentation relating to the National Landslide Susceptibility Map is also available.	https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=b68cf1e4a9044a5981f950e9b9c5625c
Geohazards	Groundwater Flooding (Historic)	Water	Regional	Provide information of historic flooding, both surface water and groundwater. [A lack of flooding presented in any specific location of the map only indicates that a flood has not been detected. It does not indicate that a flood cannot occur in that location at present or in the future]	https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=848f83c85799436b808652f9c735b1cc
Geohazards	Groundwater Flooding (Predictive)	Water	Regional	Provides information on the probability of future karst groundwater flooding (where available). [The maps do not, and are not intended to, constitute advice. Professional or specialist advice should be sought before taking, or refraining from, any action on the basis of the flood maps]	https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=848f83c85799436b808652f9c735b1cc
Geohazards	Radon Map	Land & Soils/Air	National		http://www.epa.ie/radiation/radonmap/
Geoheritage	County Geological Sites as adopted by National Heritage Plan and listed in County Development Pla	Land & Soils/Landscape	Regional	All geological heritage sites identified by Geological Survey Ireland are categorised as CGS pending any further NHA designation by NPWS.	https://dcenr.maps.arcgis.com/apps/MapSeries/index.html?appid=a30af518e87a4c0ab2fbde2aaac3c228
Geological Mapping	Bedrock geology:	Land & Soils	National	1:100,000 scale and associated memoirs.	https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=de7012a99d2748ea9106e7ee1b6ab8d5&scale=0
Geological Mapping	Bedrock geology:	Land & Soils	Regional	1:50,000 scale	https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=de7012a99d2748ea9106e7ee1b6ab8d5&scale=0
Geological Mapping	Quaternary geology: Sediments	Land & Soils	National	1:50,000 scale	https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=de7012a99d2748ea9106e7ee1b6ab8d5&scale=0
Geological Mapping	Quaternary geology: Geomorphology	Land & Soils	National	1:50,000 scale	https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=de7012a99d2748ea9106e7ee1b6ab8d5&scale=0
Geological Mapping	Physiographic units:	Land & Soils	National	Broad-scale physical landscape units mapped at 1:100,000 scale in order to be represented as a cartographic digital map at 1:250,000 scale	https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=afa76a420fc54877843aca1bc075c62b
Geological Mapping	GeoUrban: Spatial geological data for the greater Dublin and Cork areas	Land & Soils	Regional	includes 3D models	https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=9768f4818b79416093b6b2212a850ce6&scale=0
Geological Mapping	Geotechnical database	Land & Soils	National	Digitised geotechnical and Site Investigation Reports and boreholes which can be accessed through online downloads	https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=a2718be1873d47a585a3f0415b4a724c
Goldmine	Historical data sets including geological memoirs and 6" to 1 mile geological mapping records	land & Soils/Water	National	available online	https://secure.dccae.gov.ie/goldmine/index.html
Groundwater & Geothermal	Groundwater resources (aquifers)	Water	National	Data limited to 1:100,000 scale; sites should be investigated at local scale	https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=7e8a202301594687ab14629a10b748ef
Groundwater & Geothermal	Groundwater recharge.	Water	National	Data limited to 1:40,000 scale; sites should be investigated at local scale; long term annual average recharge	https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=7e8a202301594687ab14629a10b748ef
Groundwater & Geothermal	Groundwater vulnerability.	Water	National	Data limited to 1:40,000 scale; sites should be investigated at local scale	https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=7e8a202301594687ab14629a10b748ef
Groundwater & Geothermal	Group scheme and public supply source protection areas.	Water	National	Not all PWS / GWS have SPZ / ZOC. Check with IW / coco / NFGWS for private supplies.	https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=7e8a202301594687ab14629a10b748ef
Groundwater & Geothermal	Groundwater Protection Schemes	Water	National	Data is limited to scale of 1:40,000. Data does not include all of the source protections areas	https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=7e8a202301594687ab14629a10b748ef
Groundwater & Geothermal	Catchment and WFD management units.	Water	National		https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=7e8a202301594687ab14629a10b748ef
Groundwater & Geothermal	karst specific data layers	water	National	For areas underlain by limestone, includes karst features, tracer test database; turlough water levels (gwlevel.ie).	https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=7e8a202301594687ab14629a10b748ef
Groundwater & Geothermal	Wells and Springs	Water	National	Not comprehensive, there may be unrecorded wells and springs	https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=7e8a202301594687ab14629a10b748ef
Groundwater & Geothermal	Groundwater body Descriptions	Water	National	Not exhaustive; only those in designated SACs; could be other GWDTEs; for more information contact NPWS / EPA / site investigations	https://www.gsi.ie/en-ie/programmes-and-projects/groundwater-and-geothermal-unit/activities/understanding-ireland-groundwater/Pages/Groundwater-bodies.aspx
Groundwater & Geothermal	Geothermal Suitability maps	land & Soils/Water	National	Also, Roadmap for a Policy and Regulatory Framework for Geothermal Energy, November 2020	https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=9ee46bee08de41278b90a991d60c0b9e
Marine & Coastal Unit	INFOMAR - Ireland's national marine mapping programme; providing key baseline data for Ireland's	Water	National		https://secure.dccae.gov.ie/GSI/INFOMAR_VIEWER/
Marine & Coastal Unit	CHERISH - Coastal change project (Climate, Heritage and Environments of Reefs, Islands, and Headla	Water	Regional		http://www.cherishproject.eu/en/
Marine & Coastal Unit	Coastal Vulnerability Index (CVI).	water /Land & Soils	Regional	Currently the project is being carried out on the east coast and will be rolled out nationally	https://www.gsi.ie/en-ie/programmes-and-projects/marine-and-coastal-unit/projects/Pages/Coastal-Vulnerability-Index.aspx
Minerals	Aggregate potential	Land & Soils/Material Assets	National	Consideration of mineral resources and potential resources as a material asset which should be explicitly recognised within the environmental assessment process	https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=ee8c4c285a49413aa6f1344416dc9956
Minerals	Active quarries	Land & Soils	National		https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=ee8c4c285a49413aa6f1344416dc9956
Minerals	Historic mines	Land & Soils/Cultural Heritage	National	Inventory and Risk Classification 2009. Environmental Protection Agency, Economic Minerals Division and Geological Survey Ireland (DECC).	https://gis.epa.ie/EPAMaps/default?easting=?&northing=?&lid=EPA:LEMA_Facilties_Extractive_Facilities https://www.epa.ie/enforcement/mines/
Tellus	Geochemical data: multi-element data for shallow soil, stream sediment and stream water	Land & Soils	Regional	A national mapping programme	https://dcenr.maps.arcgis.com/apps/MapSeries/index.html?appid=6304e122b733498b99642707ff72f754
Tellus	Airborne geophysical data including radiometrics, electromagnetics and magnetics	Land & Soils	Regional	A national mapping programme	https://dcenr.maps.arcgis.com/apps/MapSeries/index.html?appid=6304e122b733498b99642707ff72f754
Tellus	urban geochemistry mapping (Dublin SURGE project),	Land & Soils	Regional		https://dcenr.maps.arcgis.com/apps/MapSeries/index.html?appid=6304e122b733498b99642707ff72f754

Notes:

1. The maps and data listed above are available on the Geological Survey Ireland map viewer https://www.gsi.ie/en-ie/data-and-maps/Pages/default.aspx

2. Please read all disclaimers carefully when using Geological Survey Ireland data

3. Geological Survey Ireland and Irish Concrete Federation published guidelines for the treatment of geological heritage in the extractive industry in 2008.

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

Geological Survey
Suirbhéireacht Gheolaíochta
Ireland | Éireann

Geoscience Policy Division,
Department of the Environment,
Climate and Communications,
Adelaide Road,
Dublin,
D02 X285

05 October 2021

Re: Draft Policy Statement for Geothermal Energy Exploration in Ireland

Your Ref: IE000095Lt0004
Our Ref: 21/326

Dear Niamh O'Neill,

Geological Survey Ireland is the national earth science organisation and is a division of the Department of the Environment, Climate and Communications. We provide independent geological information and advice and gather various data for that purpose. Please see our website for data availability. We recommend using these various data sets, when conducting the EIAR, SEA, planning and scoping processes. Use of our data or maps should be attributed correctly to 'Geological Survey Ireland'.

With reference to your letter and associated SEA screening report, received on the 6th September 2021, concerning the draft policy statement for geothermal energy exploration in Ireland, Geological Survey Ireland would like to make the following comments.

We note your conclusions that an SEA is required for the draft Policy Statement, and your comments in Section 3.3 'Potential for Significant Environmental Effects' that:
As noted elsewhere, the Policy Statement will not have any location specific information beyond potentially an opportunities map. As such it is not possible to consider impact pathways with any geographic specificity.

- *Depending on the range of geothermal technologies that are feasible and will be described as part of the Policy Statement, the key pathways are likely to be the interactions with land/soil and hydrogeology/hydrology pathways through soil disturbance and potential emissions to surface and groundwaters, as well as potential emissions to air.*
- *Ireland has relatively low levels of land/soil contamination. Water quality in Ireland is mixed in terms of surface waters, however the vast majority of groundwaters are achieving their environmental quality objectives. Ground disturbance to install geothermal technologies has the potential to interact with surface/subsurface heritage features. Biodiversity may also be affected e.g. from disturbance.*

Geological Survey Ireland has several key datasets that may be useful in carrying out the SEA process and we encourage use of and reference to our datasets. This data can add to the content and robustness of the SEA process. Please find attached a list of our publicly available datasets that may be useful to the environmental assessment and planning process. We recommend that you review this list and refer to any datasets you consider relevant to your assessment. The remainder of this letter provides more detail on some of these datasets, with reference to their application during geothermal energy exploration.

Geothermal Energy

Geological Survey Ireland's Geothermal Suitability maps for both domestic and commercial use can be explored online to assess Irelands widespread shallow geothermal resources suitable for small and medium-scale heating applications,. We recommend use of our Geothermal Suitability maps to determine the most suitable type of ground source heat collector for use with heat pump technologies. Ireland also has recognised potential for deep geothermal resources.

As you are aware The Assessment of Geothermal Resources for District heating in Ireland and the Roadmap for a Policy and Regulatory framework for Geothermal Energy in Ireland documents have been developed by Geological Survey Ireland to support the Government's commitments under the Climate Action Plan 2019 and the Programme for Government.

For further information please see our Geoenergy pages on our website or contact the Groundwater and Geothermal Unit of the Geological Survey Ireland directly. These datasets will be of benefit to any renewable energy strategy objectives undertaken.

Groundwater

Groundwater is important as a source of drinking water, and it supports river flows, lake levels and ecosystems. It contains natural substances dissolved from the soils and rocks that it flows through, and can also be contaminated by human actions on the land surface. As a clean, but vulnerable, resource, groundwater needs to be understood, managed and protected.

Geological Survey Ireland's Groundwater and Geothermal Unit, provides advice, data and maps relating to groundwater distribution, quality and use, which is especially relevant for safe and secure drinking water supplies and healthy ecosystems.

Geothermal Energy Exploration will need to consider any potential impact on specific groundwater abstractions and on groundwater resources in general. We recommend using the groundwater maps on our Map viewer, which should include: wells; drinking water source protection areas; the national map suite - aquifer, groundwater vulnerability, groundwater recharge and subsoil permeability maps. For areas underlain by limestone, please refer to the karst specific data layers (karst features, tracer test database; turlough water levels (gwlevel.ie). Background information is also provided in the Groundwater Body Descriptions. Please read all disclaimers carefully when using Geological Survey Ireland data.

The Groundwater Protection Response overview and link to the main report is here: https://www.gsi.ie/en-ie/programmes-and-projects/groundwater-and-geothermal-unit/projects/protecting-drinking-water/what-is-drinking-water-protection/county-groundwater-protection-schemes/Pages/default.aspx

Geoheritage

Geological Survey Ireland is in partnership with the National Parks and Wildlife Service (NPWS, Department of Housing, Local Government and Heritage), to identify and select important geological and geomorphological sites throughout the country for designation as geological NHAs (Natural Heritage Areas). This is addressed by the Geoheritage Programme of Geological Survey Ireland, under 16 different geological themes, in which the minimum number of scientifically significant sites that best represent the theme are rigorously selected by a panel of theme experts.

County Geological Sites (CGSs), as adopted under the National Heritage Plan, include additional sites that may also be of national importance, but which were not selected as the very best examples for NHA designation. All geological heritage sites identified by Geological Survey Ireland are categorised as CGS pending any further NHA designation by NPWS. CGSs are now routinely included in County Development Plans and in the GIS of planning departments, to ensure the recognition and appropriate protection of geological heritage within the planning system. CGSs can be viewed online under the Geological Heritage tab on the online Map Viewer.

There may be potential impacts on the integrity of current CGSs envisaged by geothermal energy exploration, 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, in which case appropriate mitigation measures should be put in place to minimize or mitigate potential impacts.

Geological Mapping

Geological Survey Ireland maintains online datasets of bedrock and subsoils geological mapping that are reliable and accessible. We would encourage you to use these data, which can be found here, in your future assessments.

Our 3D models can help stakeholders visualize, understand and characterise geology, for deposit and resource mapping, for flooding and for urban geology applications including basement impact assessment, Sustainable Drainage Systems (SuDS), and subsurface management. Our 3D models offer a key element of geotechnical risk management by identifying areas requiring further site investigation.

Further information on the bedrock and Quaternary 3D models of Dublin is available here. Further information and download instructions for the Quaternary 3D model of Cork are available on the Geological Mapping programme dedicated here.

Geophysical data

Geological Survey Ireland produces high-resolution geophysical data (Magnetic field, electrical conductivity, natural gamma-ray radiation) of soils & rocks as part of the Tellus programme. These data currently cover approximately 75% of the country and provide supporting geological information on a regional scale useful for assessing environmental impact and risk. The Tellus programme provides expertise to the Environmental Protection Agency (EPA) for the determination of radon risk. The data is used in mineral exploration or is useful in aiding site investigation works for large scale projects.

I hope that these comments are of assistance, and if we can be of any further help, please do not hesitate to contact me Clare Glanville, or my colleague Trish Smullen at GSIPlanning@gsi.ie.

Yours sincerely,

Clare Glanville
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Enc: Table - Geological Survey Ireland's Publicly Available Datasets Relevant to Planning, EIA and SEA processes.