SUSTAINABLE ENERGY AUTHORITY OF IRELAND

Rialtas na hÉireann
Government of Ireland

Geothermal Energy

Manual of Consenting Procedures

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Sustainable Energy Authority of Ireland

SEAI is Ireland's national energy authority investing in, and delivering, appropriate, effective and sustainable solutions to help Ireland's transition to a clean energy future. We work with the public, businesses, communities and the Government to achieve this, through expertise, funding, educational programmes, policy advice, research and the development of new technologies.

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Abbreviations

Abbreviation	Definitions
A	Amps
AA	Appropriate Assessment
ARCs	Activities Requiring Consent
BCA	Building Control Authority
BCMS	Building Control Management System
CCPA	Corporate Power Purchase Agreements
CEG	Clean Export Guarantee the Clean Export Guarantee
CEMP	Construction and Environmental Management Plan
CIÉ	Córas Iompair Éireann
COR	Certificate of Registration
CPA	Coastal Planning Authority
CPPA	Corporate Power Purchase Agreements
CRU	Commission for Regulation of Utilities
DAFM	Department of Agriculture, Food and the Marine
DaS	Dumping at Sea Permit A Dumping at Sea
DCCAE	Department of Communications, Climate Action and Environment
DECC	Department of the Environment, Climate, and Communications
EC	European Commission
EcIA	Ecological Impact Assessment
EDEN	Environmental Data Exchange Network
EEA	European Economic Area
EEC	European Economic Community
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
EIAR	Environmental Impact Assessment Report
EPA	Environmental Protection Agency
ESB	Electricity Supply Board
EU	European Union
FRA	Flood Risk Assessment
GECL	Geothermal Energy Capture Lease
GEEL	Geothermal Energy Exploration Licence
GEP	Good Ecological Potential
GES	Good Ecological Status
GRA	Geothermal Regulatory Authority
GSRO	Geoscience Regulation Office
GWh	Gigawatt hours
HSA	Health and Safety Authority
IPC	Integrated Pollution Control
IROPI	Imperative Reasons of Overriding Public Interest'
kW	Kilo Watt

Abbreviation	Definitions
LFL	Limited Felling Licence
LVIA	Landscape and Visual Impact Assessment
m	Meters
MAC	Marine Area Consent
MAPA	Maritime Area Planning Act 2021
MARA	Maritime Area Regulatory Authority
MW	Mega Watt
NC	New Connection (application form)
NHAs	Natural Heritage Areas
NIS	Natura Impact Statement
NMA	National Monuments Act
NMS	National Monuments Service
NPF	National Planning Framework
NPWS	National Parks and Wildlife Service
OPW	Office of Public Works
ORESS	Offshore Renewable Electricity Support Scheme
pSPA	proposed Special Protected Area
REFIT	Renewable Energy Feed-In Tariff
RESS	Renewable Energy Support Scheme
RSA	Road Safety Authority
SAC	Special Area of Conservation
SEAI	Sustainable Energy Authority Ireland
SI	Statutory Instrument
SME	Small and medium enterprises
SPA	Special Protected Area
SRESS	Small-Scale Renewable Electricity Support Scheme
TIA	Traffic Impact Assessment
TII	Transport Infrastructure Ireland
TPO	Tree Preservation Order
V	Volts
WFD	Water Framework Directive

1 Introduction

1.1 Purpose of this Guide

SEAI is the Single Point of Contact for guidance on the licensing and permitting requirements for renewable energy projects in Ireland. The aim of the initiative is to make it easier to find out what licences and permits may be required during the different stages of your geothermal energy project. As part of this initiative, SEAI has produced an online tool. The online Licence and Permit finder tool is located at Renewable Energy Consenting | Single Point of Contact | SEAI. It allows you to search for licences and permits that may be required for your project at relevant stages of development.

This guide has been produced to accompany the *SEAI Single Point of Contact Renewable Energy* online tool. It provides a more detailed overview of specific technological, legislative, and regulatory requirements in relation to the development of a geothermal energy project in Ireland. This guide provides guidance and assists users in identifying the applicable consents and licences that may be required for the design and construction phase, operations and maintenance phase, and end-of-life procedures for geothermal energy projects. It is important to note that SEAI has no decision-making role in the consenting process but is available to provide guidance and support in navigating and understanding it.

1.2 An Introduction to Geothermal Energy

Geothermal energy refers to energy stored in the form of heat beneath the Earth's surface. This sub-surface heat is extracted and used to heat buildings, electricity generation, and businesses such as Agriculture, food production and food and beverage processing.

As we drill deeper into the Earth's crust, the temperature increases. Heat energy is created inside the Earth due to radioactive elements in different rock types, some of which are from when the planet was formed 4.5 billion years ago. Geothermal energy can be harnessed by various technologies depending on the nature of the resource, the intended use and the amount of heat required. Some degree of drilling boreholes is usually required to access geothermal areas of suitable temperature.

Geothermal energy is typically categorised into two types: shallow and deep geothermal energy.

1.2.1 Deep Geothermal Energy

Deep geothermal energy involves drilling for thousands of metres to harness high temperatures deep underground. The naturally heated groundwater or steam harnessed from deep geothermal energy is pumped to the surface, where the heat is extracted. Temperatures reached from deep geothermal energy can be used to generate electricity. This is more advanced in countries located in volcanic areas where the resource is easily accessible.

In countries such as Iceland, where the crust cracks at tectonic plate boundaries, natural hydrothermal systems form where hot groundwater flows to the surface on its own accord. These are referred to as hot springs and are used for bathing, cooking, and even as tourist attractions.

1.2.2 Shallow Geothermal Energy

Shallow geothermal energy harnesses both solar energy (hitting the Earth's surface) and the heat from deep within the Earth. Shallow geothermal energy is extracted using a heat pump to harness the temperature difference between the surface and the ground below, providing both heating and cooling. This uses a closed-loop system where a fluid is circulated in a sealed pipe beneath the ground to collect the heat, and an open loop, where natural groundwater is pumped to the surface and reinjected back under the ground.

Ireland has excellent potential for shallow geothermal energy reserves, with 94% of the land suitable for shallow geothermal applications that can be used to provide heating at very high efficiencies. Recent advances in technology have made the use of geothermal energy possible across a wider range of geological settings.

It is worth noting that at present, 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)"*. Although the Department of the Environment, Climate, and Communications (DECC) has recently published a draft policy statement[1] for geothermal energy, focusing on the potential to develop geothermal energy in Ireland. It acknowledges that the provision of a regulatory framework will not be sufficient for the full development of the geothermal energy sector at present.

1.3 Geothermal Energy Project Stages

The life cycle of a geothermal energy project has several phases.

Initial assessments are carried out during the feasibility phase to determine the project's viability. This can also provide insight into which permits/licences will be required, as these can vary based on project type and specific location. The planning and permitting phases, as well as the pre-construction phase, are where licences/permits and any relevant advance requirements are determined for the project. These phases can overlap and occur simultaneously. The successful completion of the project is followed by commissioning, during which final tests are conducted.

Licences or permits may be required during the project's operation to ensure continuous maintenance is permitted. Finally, decommissioning a project will also require licensing/permitting, depending on whether the project will be removed, extended, or replaced. The following sections of this manual outline each phase of the life cycle, including relevant permits, licences, regulatory requirements, and schemes associated with each phase.

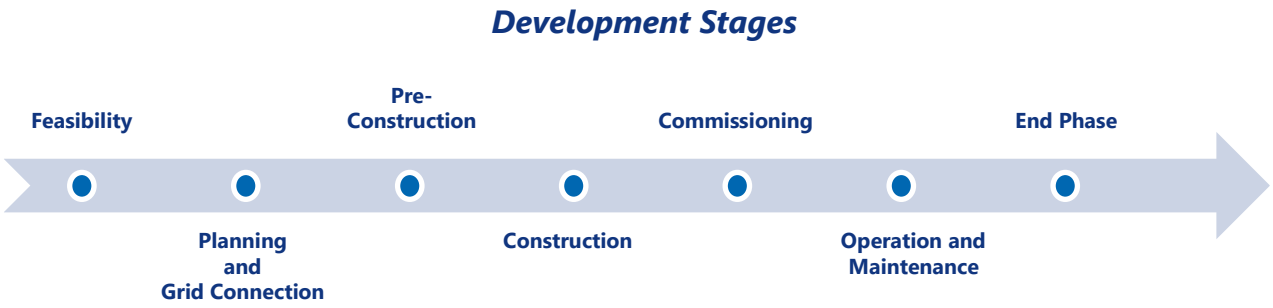

Figure 1-1: Geothermal Energy Project - General Development Stages

[1] Policy Statement on Geothermal Energy for a Circular Economy (DECC) Ref. https://www.gov.ie/en/publication/9def7-policy-statement-on-geothermal-energy-for-a-circular-economy/

2 Design and Construction Phase

2.1 Site Selection and Feasibility

Once a potentially suitable site has been identified, appropriate feasibility studies should be undertaken. You will need to identify the relevant professional advisory team to support you in conducting feasibility studies. Generally, a multi-disciplined team will be best placed to guide feasibility studies across fields such as planning, engineering, financial consultants, developers, etc.

Generally, the feasibility of a geothermal energy project is influenced by various factors, such as the future capacity of the geothermal energy facility, technical issues relating to the nature of the site, the capacity of the existing electrical distribution grid, and other considerations, such as the receiving environment.

At present, there are no official guidelines or legislation in place in Ireland for the development of a geothermal energy project; however, in the future, Local Authorities may also publish information on the construction of geothermal energy developments in the area, which may impact planning decisions or serve as helpful guidance.

The following points are, therefore, potential guidelines only when examining the feasibility of a selected site. Depending on the type of project you are seeking to construct, feasibility considerations may differ:

- Site area.
- Potential tidal stream(s) / waves / temperature difference.
- Existing and future grid infrastructure / onshore infrastructure.
- Community acceptance and buy-in.
- Available ports for equipment transport.
- Existing and planned geothermal energy projects in the area.
- Proximity to sites sensitive to development (SPAs, SAC, etc.).

The outcome of feasibility assessments will help determine the necessary licences/permits for your project; therefore, it is important to consider your project's specific assessment needs to ensure preparation for the planning and permitting phases.

Developing a project plan that maps out all the stages needed to realise your project, moving toward design, is important. A consent plan will be an essential tool in understanding the potential timelines, project milestones, and stages whereby permissions are required to proceed with various elements of your project, allowing you to plan accordingly.

2.2 Constraints Identification

A constraint identification and mapping exercise is a useful method for identifying and visually presenting constraints that may exist for a specific site. This can show existing infrastructure and features, such as sensitive areas and houses, etc. This will enable a geothermal energy developer to visually identify specific constraints, rank them, and facilitate better siting of project infrastructure.

2.3 Routes to Market for Sale of Electricity

There are a number of options to consider when exploring potential avenues for selling electricity generated from a commercial geothermal energy project.

2.3.1 Clean Export Guarantee

The Clean Export Guarantee (CEG) tariff provides an opportunity for micro- and small-scale generators in Ireland to receive payment from their electricity supplier for all excess renewable electricity they export to the grid. This remuneration is intended to reflect the wholesale market value of the electricity.

For further information, please visit the CRU website at the following link: https://www.cru.ie/consumer-information/microgeneration/

2.3.2 Small-Scale Renewable Electricity Support Scheme (SRESS)

The Small-Scale Renewable Electricity Scheme (SRESS) is a non-auction renewable electricity initiative run by the Department of Environment, Climate and Communications. Designed specifically for community, farm, and SME projects with a capacity between 50 kW and 6 MW, SRESS offers a simpler, non-competitive route to market. It aims to facilitate community participation by providing an easier pathway compared to the competitive RESS auction process, allowing farmers, businesses, and others to maximise their involvement in the energy transition.

For further information, please click on the following link: https://www.gov.ie/en/publication/96110-small-scale-generation/

Community projects are also supported through the SEAI Community Enabling Framework. For more information, please click the following link: https://www.seai.ie/plan-your-energy-journey/for-your-community/enabling-framework

2.3.3 Renewable Electricity Support Scheme

The Renewable Electricity Support Scheme (RESS) is a government initiative introduced by the Department of Communications, Climate Action and Environment (DCCAE). Its primary goal is to promote the generation of renewable energy, such as geothermal energy, to help Ireland meet its domestic and European Union carbon reduction targets by 2030.

The scheme aims to create a more favourable environment for renewable energy projects and incentivise their development. It operates through a competitive auction system where companies involved in various renewable industries, such as geothermal energy, can participate.

The RESS Scheme provides solid financial stability to a renewable project, allowing for more solid private investment by guaranteeing a financial return on investment while simultaneously working to achieve better value for Irish electricity consumers.

For further information on the RESS process, including the latest auctions and up-to-date details, please click on the following link: https://www.gov.ie/en/publication/36d8d2-renewable-electricity-support-scheme/

2.3.4 Corporate Power Purchase Agreements (CPPA)

Another potential market route is through a Corporate Power Purchase Agreement (CPPA). This is an arrangement where a corporate entity, such as a company, procures renewable electricity directly from a generator through a contractual agreement. It serves as an alternative for projects excluded from ORESS, unsuccessful in ORESS, or where the ORESS terms and conditions are not commercially viable.

For further information, please visit the following page: https://www.gov.ie/en/publication/a0d2e-renewable-electricity-corporate-power-purchase-agreements-roadmap/

2.3.5 Merchant Market

The 'merchant' market or open market pricing is another option for selling electricity generated. However, the relatively lower price, volatility, and associated risk are not desirable sources of income for early-stage

renewable projects seeking financing. Ultimately, after government supports or the CCPA expire, most projects will likely end up operating in the merchant market.

2.4 Enabling Tasks

After a potential project and site pass feasibility screening, enabling tasks must be undertaken to transition toward the planning and pre-construction phases. These tasks include:

- Land lease options/Purchasing;
- Options to access the site;
- Community engagement; and
- On-site sunlight monitoring.

Some of these may take place in conjunction with the planning phase.

It is important to consider the need for community engagement early in the process. New renewable energy developments, especially those located near residential areas, often raise concerns from residents for several reasons, including concerns about the impact on visual amenity, conservation, etc. There may be valid concerns from residents that can be addressed early in the process, which can help avoid negative community interaction later on and foster community buy-in, including involving the community in the process before any statutory requirements are met. This early engagement has been shown to improve the acceptance of renewable energy developments in the surrounding area. Identifying key public stakeholders and community leaders is an important task to undertake as early as practicable.

2.5 Design Stage

For larger-scale projects, following the kick-off and feasibility stages, you may move on to the design phase of the project.

To inform the design process, specific surveys may be necessary, such as geotechnical surveys, hydrogeological surveys, and ecological surveys. Information gathered at this stage is vital to the design process and can influence the siting of the facility and associated equipment within the geothermal energy facility, the types of foundations to be used, access road construction or improvement works. The project requirements will determine grid connection requirements, which, in consultation with the grid operator, may determine specific structural and design requirements, such as the need for additional substations. Grid connection requirements will need to be considered at an early stage to ensure your planning application covers all elements of your project.

Due to the relative scale of this project type, an Environmental Impact Assessment (EIA) may be required, which involves conducting a range of environmental studies to inform the design of the project in accordance with relevant environmental regulations.

Prior to undertaking these studies, you may need to apply for certain licences and permits based on the specifics of your chosen site and the project you are proposing, such as environmental derogation licences, ecological consents or archaeological excavation licences if near a national monument. The project is then designed by your technical team, following relevant planning regulations and other environmental regulations. You can then review the financial viability of the project based on that design.

2.6 Policy and Legislation

A crucial aspect of any renewable energy project is to understand the relevant EU, national, regional, and local planning policies and legislation that underpin a project's development. Some of the key policy and legislation documents that will need to be considered are set out below.

European Legislation and Policy:

- 2030 EU Climate and Energy Framework
- European Green Deal
- Renewable Energy Directive 2018/2001/EU
- EU Fit for 55 Package

National Legislation:

- Planning and Development Act 2000, as amended
- National Planning and Development Policy
- National Planning Framework (NPF)
- Climate Action Plans

Relevant Regional and Local Planning and Development Policies and Strategies:

- Regional Spatial and Economic Strategies
- County Development Plans

It is crucial to clearly demonstrate how a proposed project aligns with the relevant policies. Your planning and environmental advisors can provide guidance on all applicable legislation and policies relevant to your project.

2.7 Community Engagement

It is important to consider the need for quality community engagement early in the design and planning process.

New renewable energy source developments, particularly those situated near residential areas, often raise concerns among residents. Common concerns generally relate to noise, visual, and environmental impacts.

It is recommended that these concerns be addressed early in the process, as this can help to avoid negative community interaction at a later stage and foster community acceptance. Identifying key public stakeholders and community leaders is an important task to undertake as early as practicable. This early engagement has been shown to improve the acceptance of renewable energy projects.

2.8 Planning and Environmental Assessments

When applying for planning permission for your project, the Planning Authority, or your technical advisors should be able to provide guidance on the assessments that may be required to support your planning application. This will be dependent on the nature, extent, and location of your project.

Larger projects will likely require a full Environmental Impact Assessment Report (EIAR). This will be discussed further in the following sections. Smaller projects that do not meet the EIA threshold criteria may still require additional assessments and reports to be submitted in support of your planning application.

The typical environmental assessments required for geothermal energy projects are listed below. Please note this is not an exhaustive list, and further consultation with the Planning Authority and project-specific scoping with your technical advisors is highly recommended.

- Environmental Baseline Surveys
- Screening for EIA and/or Environmental Statement/Report and/or EIAR

- Appropriate Assessment (AA) Screening Report and/or a Natura Impact Statement (NIS) Report
- Water Framework Directive (WFD) Assessment
- Ecological Impact Assessment (EcIA)
- Archaeological & Built Heritage Impact Assessment
- Landscape and Visual Impact Assessment (LVIA)
- Flood Risk Assessment (FRA)
- Traffic Impact Assessment (TIA)
- Construction and Environmental Management Plan (CEMP)

Notwithstanding that smaller projects may be exempt from the requirement for planning permission (see Section 2.10.1) it is important to carefully consider the location and siting of geothermal energy works. Installations in proximity to priority habitats or European-designated sites, such as Special Protection Areas for birds or Special Areas of Conservation, may not be suitable. Old barns, mature broadleaf forests and hedgerows, for example, may contain protected or priority species. If in doubt, it is best to seek ecological advice when siting a geothermal energy project of its planning exemption status.

2.8.1 Environmental Baseline Surveys

Large-scale projects such as geothermal energy developments will require several assessments to be carried out to support their statutory permit applications. The requirements for these assessments can be discussed with your technical advisors.

Environmental baseline surveys will need to be undertaken as part of the assessment process. These surveys provide vital information for the development of a project. In some cases, two years of survey data may be required. Environmental assessments are generally carried out in tandem with the design process.

The following sections summarise the environmental assessments likely to be required.

2.8.2 Environmental Impact Assessment Report (EIAR)

2.8.2.1 Overview

In accordance with Directive 2011/92/EU, as amended by Directive 2014/52/EU, projects that are likely to have significant effects on the environment by virtue of their nature, size, or location must be subject to an EIA. EIA stands for the process of carrying out an EIA. The EIAR is the principal document on which the EIA process is based, which is prepared by the developer.

The EIAR must identify, describe, and assess likely significant effects, both direct and indirect, of the project on the environment. It is important to note that the EIA is an iterative process and should be integrated into the design process. Through considered design and site selection, it may be possible to avoid, prevent or reduce adverse impacts on the environment, and this is a key requirement of the EIA process.

For a planning application, it is the responsibility of the relevant Planning Authority to carry out an assessment of the information provided in the EIAR and come to a reasoned conclusion on the project's impacts on the environment.

For further information in relation to EIAR, please refer to the following documents:

Guidelines on the information to be contained in Environmental Impact Assessment Reports May 2022

Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment (August 2018)

2.10.2.2 EIA Screening - Mandatory EIA Thresholds

EIA Screening is the process of deciding whether a development requires an EIA to be carried out. The EIA Screening exercise first assesses the development to ascertain if it is subject to Mandatory EIA, using classifications defined in the EIA Directive (projects listed in Annex I of the EIA Directive are subject to an EIA).

If the project is not listed in Annex I, and no mandatory EIA is required, the EIA Screening process progresses to consider projects listed under Annex II of the EIA Directive. Projects listed in Annex II of the EIA Directive are subject to an EIA if (i) they exceed certain thresholds (set out in Annex II and by each Member State); or (ii) if they do not meet or exceed the threshold but where the project is deemed likely to have significant environmental effects, with regards to the project's scale, nature, location, and context.

2.8.2.2 EIA Screening - Sub-threshold EIA

Proposed energy developments below the mandatory thresholds but that may be likely to have significant environmental effects may also require an EIA and should, therefore, be screened for EIA to determine whether the project is likely to have a significant impact on the environment. These projects may be referred to as "sub-threshold" projects. In the case of sub-threshold development, it is advisable that developers consult with the Planning Authority regarding the possible need for an EIAR.

Helpful guidance can be found in the following document: Environmental Impact Assessment (EIA) Guidance for Consent Authorities regarding Sub-threshold Development Aug 2003.

2.8.2.3 Scoping

Scoping is an important stage that takes place early in the EIA process. It provides an opportunity for both developers and the Competent Authority to determine those key environmental impacts and issues of concern that are likely to be of the utmost importance to the Project proposal's decision-making and eliminates those that are less of a concern. In other words, Scoping defines the EIAR's content and ensures that the environmental assessment is focused on the Project's most significant effects on the factors listed in Article 3 of the Directive, and that time and money are not spent on unnecessary examinations. It also reduces the likelihood that competent authorities will need to request additional information from developers after the EIAR has been prepared and submitted.

The EIA scoping exercise should assist in identifying relevant data gaps which need to be filled by further field surveys. Surveys over a prolonged period (e.g. in some cases, for periods of up to 2-3 years) may be required to inform some of the relevant baseline elements. This has implications for the timeframe within which the application for consent can be submitted.

If EIA is required, the developer can request a written scoping opinion from the Planning Authority on the information to be contained in the EIAR. This is an opportunity for the Planning Authority, the developer and the developer's technical advisers to discuss the scope and level of detail of the environmental information to be submitted in the EIAR.

2.8.2.4 Public Consultation

Public consultation is a key consideration for development projects, and it is important that stakeholders are brought into the process at an early stage. Public concerns raised through the consultation process may be brought into the EIA scoping and be addressed in the EIAR, as applicable. Public Information events may be held, where the project may present the plans and invite feedback from the local community. It will be necessary to set up a system to record such feedback or a website where key project documents such as scoping reports, the EIAR, maps, and application documents may be viewed. As part of the EIA process, it is necessary to place public notices informing the public when an application and EIAR have been submitted to the competent authorities.

2.8.2.5 Consultation with Prescribed Bodies

Prior to the submission of a planning application for a planning application, there is a requirement for the

developer to notify a specified list of Prescribed Bodies about the proposal. Upon receipt of an application that is accompanied by an EIAR, there is a requirement for competent authorities to consult with authorities likely to be concerned by the project by reason of their specific environmental responsibilities or local and regional competences and to give them an opportunity to make submissions/observations on the information supplied by the developer and on the request for development consent.

2.8.2.6 EIA Assessment and Determination

Once the EIAR has been completed and the application documentation prepared, the application is submitted to the Competent Authority for assessment and determination. The applicant and the Competent Authority must comply with relevant statutory provisions that may apply in relation to documentation, public notices, consultation, and processing of the application. If, during the assessment, the Competent Authority determines that the information presented in an EIAR is not sufficient for it to decide, then the developer may be asked to provide further information.

2.10.3 Appropriate Assessment (AA) under the Habitats and Birds Directives

The Habitats Directive (92/43/EEC) and the Birds Directive (2009/147/EC) seek to maintain, and where necessary, restore the favourable conservation status of designated natural habitats and species throughout member states. Designated Special Areas of Conservation (SAC), Special Protection Areas (SPA), candidate Special Areas of Conservation (SAC) and proposed Special Protection Areas (pSPA) are collectively known as European Sites. The most important ecological sites are designated as European Sites under provisions of Irish legislation transposing these Directives. Together, these sites form part of the Natura 2000 network of comparable sites throughout Ireland and other European Member States.

Article 6(3) of the Habitats Directive requires an AA of plans and projects that are likely to have significant effects on any European Site. A Competent Authority cannot agree to the plan or project until it has ascertained that it will not adversely affect the integrity of the site concerned.

2.10.3.1 Screening for Appropriate Assessment (Stage 1)

Under the Habitats Directive, it is the Competent Authority's responsibility to complete the Screening for AA and issue its determination whether an AA is required. To support this, the applicant must submit a Screening for AA Report. The report should include all supporting information necessary for the Competent Authority to reach a 'Screening for AA Determination', including the applicant's own conclusion/determination in relation to screening.

The Report should be completed to meet the requirements of the Habitats Directive, EU and National guidance documents, transposing legislation, and relevant domestic and European case law.

The Competent Authority will publish a Screening for AA Determination, which will either inform the applicant that their application has been 'screened-in' for AA or that it has been 'screened-out' and does not require a (Stage 2) AA to be carried out.

2.10.3.2 Appropriate Assessment (Stage 2)

If likely significant effects cannot be ruled out at the (Stage 1) Screening stage, the Competent Authority is required to carry out a (Stage 2) AA. To inform this process, the Applicant will have to prepare a Natura Impact Statement (NIS) Report. If the Applicant has already determined to their satisfaction that, in all likelihood, a Stage 2 AA will be required and has prepared a NIS Report in anticipation of being requested to do so, they may submit it at the initial application stage.

2.10.3.3 Alternative Solutions (Stage 3)

Stage 3 of the AA process arises wherever consideration must be given to alternative locations and processes that would avoid any impact identified in Stage 2. It is only required wherever any impact arising at Stage 2 cannot be avoided.

2.10.3.4 Imperative Reasons for Overriding Public Interest (Stage 4)

In the event that the AA concludes that adverse impacts upon the integrity of a European Site cannot be ruled out or that the integrity of such a European site will be adversely affected and where it has been demonstrated that there are no alternative solutions, Article 6(4) of the Habitats Directive allows for derogation for 'Imperative Reasons of Overriding Public Interest' (IROPI). There are limitations on the reasons applicable where priority habitats, as defined in the Directive, are affected.

IROPI is complex process where it must be shown that public interest clearly outweighs the long-term conservation interests of the protected site. These have only been sought and granted in very rare instances in Ireland and are only considered as a very last resort. Where it is considered that IROPI applies to an infrastructural project, a statement of the case is prepared by the competent authority and referred to the Minister for his/her consideration. The Minister will consider whether the compensatory measures proposed as part of the development are sufficient to ensure that the overall coherence of the Natura 2000 network is protected, and this may involve consultation with the European Commission. Once the Minister issues a notice to the competent authority with respect to whether compensatory measures are sufficient or not, the competent authority will then determine the planning application.

2.8.3 Water Framework Directive (WFD) Assessment

Since 2000, the WFD [Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 Establishing a Framework for Community Action in the Field of Water Policy] has been the main law for water protection in Europe. It applies to inland, transitional, and coastal waters in addition to groundwaters.

An objective of the WFD is to achieve the protection of aquatic ecology and habitats, drinking resources and bathing waters through river basin management planning and monitoring. This objective is summarised as Good Ecological Status (GES) and Good Ecological Potential (GEP) for artificial or heavily modified water bodies.

An assessment of how the geothermal energy project may impact relevant water bodies will need to be carried out before the submission of a planning application, and a WFD Assessment report should also accompany the application.

2.8.4 Ecological Impact Assessment (EcIA)

EcIA is *"a process of identifying, quantifying and evaluating potential effects of development-related or other proposed actions on habitats, species and ecosystems"*[2].

An EcIA can help competent authorities understand ecological issues to determine a project for consent. EcIA is not a statutory requirement on its own; however, if conducted under EIA, then it must follow EIA Regulations. EcIA is an evaluation process undertaken to support a range of assessments. An EcIA report (or the ecological chapter of an EIAR) should describe the significant effects of a project so that all interested parties understand the implications of what is proposed.

For further information in relation to EcIA, please refer to the following document: EcIA-Guidelines-v1.3-Sept-2024.pdf

2.8.5 Archaeological & Built Heritage Impact Assessment

An archaeological and built heritage impact assessment ensures that a development respects the area's cultural heritage, as outlined in the Planning and Development Act 2000 (as amended) and the National Monuments Act.

Further details about the assessment process and the several key stages involved are described here:

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[2] EcIA-Guidelines-v1.3-Sept-2024.pdf

Archaeological and Built Heritage Assessment | SEAI

2.8.6 Landscape and Visual Impact Assessment (LVIA)

LVIA is a tool used to identify and assess the significance of and the effects of change resulting from development on both the landscape as an environmental resource in its own right and on people's views and visual amenity. LVIA may be carried out either formally, as part of an EIA, or informally, as a contribution to the 'appraisal' of development proposals and planning applications. LVIA applies to all projects that could require a formal EIA but also includes projects that may be assessed informally.

Further information can be found here: guidelines-for-landscape-and-visual-impact-assessment-third-edition-2013.pdf

2.8.7 Flood Risk Assessment (FRA)

An FRA is the process of identifying, analysing, and evaluating the potential risks of flooding in an area. It helps communities understand where floods may occur, how severe the floods could be, and what impact they can have on people, property, and the environment.

Planning authorities will introduce flood risk assessment as an integral and leading element of their development planning functions under the Planning Code, at the earliest practicable opportunity, in line with the requirements of the Guidelines, which can be found at the link below. Planning authorities will assess planning applications for development in accordance with the provisions of these Guidelines following the guidance of their own or Office of Public Works (OPW) Strategic Flood Risk Assessment and the application of the sequential approach and, if necessary, the Justification Test required by these Guidelines.

Further information can be found here: www.gov.ie/The Planning System and Flood Risk Management - Guidelines for Planning Authorities

2.8.8 Traffic Impact Assessment (TIA)

A TIA is a comprehensive review of all the potential transport impacts of a proposed development or re-development, with an agreed plan to mitigate any adverse consequences. All new developments will generate trips on the existing transport network, either by car, commercial vehicle, cycling, walking or public transport. In cases where a proposed development is of a size or type that would generate significant additional trips on adjoining transport infrastructure, this additional demand may necessitate changes to the road layout or public transport service.

It is essential that the developer or promoter should provide a full and detailed assessment of how the trips to and from the development might affect the transport network. The assessment should be an impartial description of the impacts of the proposed development and should outline both its positive and negative aspects.

Further information can be found here: TII - Traffic and Transport Assessment Guidelines

2.8.9 Construction and Environmental Management Plan (CEMP)

As part of the application, the developer may have submitted an outline CEMP. The CEMP should include all the mitigation and management measures identified during the environmental assessment or EIA process that are necessary to prevent or mitigate environmental impacts during the construction phase. The CEMP should be implemented, performance monitored throughout the construction process, and updated as necessary. As specialist constructors will likely be used, they may have very well-developed CEMPs. However, it is important that all mitigation and management measures identified in the Environmental Assessment Report or the EIAR, including relevant planning conditions, are included in the final CEMP for construction. The final CEMP for the construction phase may need to be submitted to the Local Authority in advance of construction.

2.9 Planning Permission

Using the *SEAI Single Point of Contact Renewable Energy* online tool can help inform you about whether planning permission will be required, based on some information about your proposed project. Your contractor will generally be aware of any design requirements; however, ultimately, the responsibility for compliance with planning legislation remains with the applicant, as the applicant is liable for planning violations.

Generally, planning permission is required for the installation of geothermal projects, as these development works are not classified as 'exempted development'. It is noted that under the current Planning and Development Regulations 2001, there are no specific classes or exemptions for geothermal projects. The Planning and Development Regulations are updated from time to time, so please ensure that you check the most up-to-date version of these Regulations.

It is important to note that the new Planning and Development Act 2024 was signed into law in October 2024. This brings reforms to existing planning arrangements and associated planning regulations. However, it is still being implemented. This is expected to take at least 18 months, and this will be supplemented and supported by updated planning regulations, which will take some time to be adopted. Until such a time, the current planning regulations remain relevant, but you are advised to consult with your planning advisor on this matter.

If your project is not exempted development, then you will need to apply for Planning Permission from the relevant Local Authority or An Bord Pleanála. If the project proposed will generate 300 MW or greater, it meets the criteria of a 'Strategic Infrastructure Development', which is applied for directly from An Bord Pleanála.

Details of the planning process are provided in the following sections.

2.9.1 The Planning Process

The process of applying for planning permission is outlined briefly below. Further information in relation to the planning process for geothermal energy projects can be found on the SEAI website. When applying for planning for your project, particular regard will need to be given to existing local and national policy, plans and guidelines concerning geothermal energy development in Ireland.

Further information on Planning considerations can be found in the SEAI document *Community Toolkit - Planning Process*.

2.9.1.1 Pre-Application Consultation meetings

In advance of making your planning application, you will need to have a pre-application consultation meeting with the Planning Authority. This will give you the opportunity to introduce your project and put forward key information and details about your project, and seek the Planning Authority's guidance or opinions on certain matters. Indeed, there may be a need for a series of meetings, depending on the complexity of your project.

These meetings will allow you to steer your project and ensure you include sufficient details in your planning application to assist the Planning Authority in assessing your application.

Meetings may include:

- Overall concept and design, consultation to date, etc.
- EIAR Screening, EIAR Methodology and Scoping, if applicable
- Any other issue where clarity or guidance is required
- The required content of the planning pack

- The appropriate scale for various drawings

2.9.1.2 Planning Application

In order to make a valid planning application, you will likely require the services of a professional team of experts to guide you, particularly with the more complex projects. The planning application pack that is submitted as part of the application must contain the following documents at a minimum:

- Completed Planning Application Form and all associated appendices
- The Planning Application Fee
- A copy of the Site Notice and the Newspaper Notice
- All required drawing, plans, particulars and information. This may include survey reports, technical reports, including any environmental reports and assessments as advised by your professional advisors, and the Planning Authority.

2.9.1.3 Public Consultation

As part of the assessment process, all applications and supporting documentation will be made available for public scrutiny both in soft copy and in hard copy. The public will have a specified period of time from the date of publication of the planning application notice to make a submission or observation in relation to the development and the documentation provided by the applicant to the Planning Authority.

2.9.1.4 Request for Additional Information

Where the Planning Authority considers the application or the EIAR to be inadequate in identifying or describing significant effects on the environment arising from the proposed development, it must require the applicant to submit further information within a specified period to ensure the completeness and quality of the EIAR and to facilitate the reaching of a reasoned conclusion of the significant effects on the environment of the proposed development. If deemed necessary by the Planning Authority, the applicant can also be required to provide a Clarification of Additional/Further Information.

2.9.1.5 Decision of the Planning Authority

The Planning Authority may grant or refuse a planning application, with or without conditions. Conditions may include agreeing on certain details post consent, such as Construction Environmental Management Plans (CEMPs), method statements for particular works, noise limits or restrictions on the timeframe permissible for construction works, for example.

2.9.1.6 Oral Hearing

Wherever the consideration of a planning application concerns An Bord Pleanála, the Board can decide to hold an oral hearing with or without someone requesting it. The Board normally decides to hold an oral hearing wherever it believes that doing so would be helpful to understand a particularly complex case. Oral hearings can also be held where the Board considers there to be significant national, regional or local issues involved.

An oral hearing is a public meeting to allow relevant issues in a case to be discussed and examined in an open forum. Anyone can attend, but only participants who are taking part in the case can be involved in the discussion. Oral hearings are sometimes held to help a Planning Inspector to gather more information on a planning case from relevant participants.

2.9.1.7 Judicial Review

A judicial review is a mechanism whereby a person can challenge decisions made by public bodies in the exercise of their duties. A judicial review is made through the High Court. A judicial review is not concerned with the merits of a particular decision but rather the lawfulness of how a decision was made. The aim of a judicial review is to ensure that public functions are carried out fairly.

In practical terms, what this can mean for a project promoter is that it may be used by the applicant to challenge a decision, such as the refusal of planning consent, if there were sufficient grounds to do so. A judicial review can also be taken against the grant of permission by a third party. Wherever a judicial review arises, it may lead to delays and project uncertainty until the judicial review process has concluded. Judicial review risks will need to be considered in any consent planning for a project.

Further information on the judicial review process can be found at:
https://www.citizensinformation.ie/en/government-in-ireland/how-government-works/standards-and-accountability/judicial-review-public-decisions/

2.10 Grid Connection

Geothermal energy systems can generate renewable energy to heat and cool buildings by harnessing heat from the Earth's interior, and they can also produce electricity. In these cases, geothermal energy plants that generate electricity and connect to the national grid for distribution to customers must adhere to specific grid connection requirements. Developers seeking to connect to the electrical grid must follow specific grid connection procedures established by EirGrid or ESB Networks.

Further information on grid connections can be found at:

- EirGrid Connection Process
- EirGrid Grid Connection Application
- ESB Networks Connection Process
- ESB Networks Generator Connections

2.11 Pre-Construction Phase

In preparation for construction, some permits may need to be obtained in advance of works, or there may be conditions of a permit, such as planning permission, that must be complied with in advance of construction works commencing. This section includes those permits potentially required in advance of construction commencing, depending on the specifics of your project. Some of the permits listed in this section may, in reality, only be obtained during the construction phase, in advance of a specific activity to be undertaken by the contractor, and some permits or licences will need to be obtained prior to the commencement of construction works. This will depend on how the works are scheduled for your project. A project *Permits, Licence Consents and Notifications Register* is a useful way of scheduling and tracking your permit requirements.

2.11.1 Appointment of Construction Contracts

Pre-construction, contractors will need to be appointed to carry out the delivery of the development. There are two broad categories of contracting options:

1. Turnkey contracting, which sees a single company handling all geothermal equipment and civil engineering works; or
2. Separate contracting, where individual aspects are contracted out to specific companies.

Maintenance contracts are also typically agreed upon at this point, as necessary.

2.11.2 Planning Permission Amendment and Conditions

As the planning phases may take place over an extended period of time, there is a possibility that an amendment may be required to the consented development agreed with the Local Authority, due to alterations or technological improvements.

Pre-construction, some conditions within the planning permission applied by the Local Authority or An Bord Pleanála must be sufficiently discharged, where required (formal applications process where requested details are required). This may include the likes of providing more specific details of design or similar details.

Failure to discharge planning conditions as specified by the conditions of a planning permission may result in an enforcement action.

2.11.3 Commencement Notice/7-Day Notice

In accordance with the Building Control Regulations, you are obliged to submit a *Commencement Notice* or a *7-Day Notice Application Form* with a *Seven Day Statutory Declaration* prior to commencement of the development to the Building Control Section of the Local Planning Authority, giving notice of the intention to start work.

The Building Control Authority must receive a Commencement Notice not less than 14 days and not more than 28 days before you wish to commence.

Additional documentation may be required to be submitted with the completed Commencement Notice, and this should be completed online on the National BCMS (Building Control Management System). An online system (BCMS) for lodging commencement notices and 7 Day Notices and complying with the various new requirements is available at www.localgov.ie.

The fees related to a 7-day notice are outlined in **Table 1**.

Table 1: Breakdown of the current rate of fees for a 7-day Notice Application

Submission of a 7 Day Notice in Respect of:	Current Rate of Fees
a) Work in connection with the construction or extension of a building	€250, or €5.80 for each square metre of floor area being provided, whichever is the greater
(b) Work in connection with -	
(i) the material alteration of the interior of a building	€250, or €5.80 for each square metre of relevant floor area, whichever is the greater
(ii) the material alteration of the external surfaces of a building	€250
(iii) a combination of (i) and (ii) above	€250, or €5.80 for each square metre of relevant floor area, whichever is the greater
(c) A building in which a material change of use takes place	€250, or €5.80 for each square metre of relevant floor area, whichever is the greater
(d) Works or a building, where the building concerned will be used as an agricultural building	€130, or €1.60 for each square metre in excess of 300 square metres of -
	(i) gross floor area being provided,
	Or
	(ii) relevant floor area
	As the case may be, whichever is the greater

2.11.4 Licences, Permits and Certificates

The following are suggested-only licences, permits, and/or certificates that may be generally required at the commencement of a geothermal energy installation's construction.

These may be subject to change by approved guidance and legislation when it comes into force during the

project's pre-construction commencement phase.

2.11.4.1 Abnormal Loads Permit (Permit for Specialised Vehicles)

A 'Special Permit' is required for any haulage vehicles which are considered to be either: Wide, Long or Heavy and travelling on the roads within the relevant County Council administrative area. These vehicles may be required when transporting larger components by road. Completed **application forms must be submitted 7 days prior to commencement of the journey**.

There are two types of permits, depending on the location and size, both of which can also be required.

An Abnormal Load Permit is required for any vehicle that exceeds the maximum height, length, width, and weight as permitted in S.I. No. 5/2003 Road Traffic (Construction and Use of Vehicles Regulations). For full specifications on exceeded maximums, see the RSA Guidelines on Maximum Weights and Dimensions of Mechanically Propelled Vehicles and Trailers, Including Manoeuvrability Criteria. Applications must be made directly to the relevant Local Authority of the development and where vehicles will be passing through. The permit can have a maximum validity of 12 months or can be time/occasion limited upon granting by the Local Authority.

If transport not exceeding 27.4m in length and 4.3m in width takes place on major 'inter-urban' routes or to Cork, Rosslare or Ringaskiddy Ports, an additional Permit for Specialised Vehicles is required. This is issued by An Garda Síochána. Further information can be found in the Garda Guidelines for Operators (Movement of Abnormal Loads).

It will be necessary to check with the relevant Local Authority what the current fees are for the different permit applications.

2.11.4.2 Fire Safety Certificate

A Fire Safety Certificate is required when the applicant proposes a new building, a new building extension, material alterations to an existing building or a change of use of an existing building. The application is made through the Building Control Authority (BCA) in the local City or County Council. If the building or works comply with the requirements of Part B of the Second Schedule of the Building Regulations 1997, the BCA will issue a Fire Safety Certificate.

A Fire Safety Certificate application should be made by a Fire Safety Consultant, Architect or Engineer who is familiar with the Building Regulations and the procedure for applying for a Fire Safety Certificate. The fees for the application vary based on the type of application required (normal, 7-day notice or regularisation application).

A valid Fire Safety Certificate application must include:

- A completed application form;
- Relevant fire safety drawings in duplicate;
- A fire safety report in duplicate;
- Site location maps in duplicate; and
- The appropriate fee.

Please refer to Part II of the Building Control Regulations for further information and exemptions.

2.11.4.3 Certificate of Registration

A Certificate of Registration (COR) is required for waste activities set out in Part II of the Third Schedule of the Waste Management (Facility Permit and Registration) Regulations 2007 (S.I. No. 821/2007), as amended. An application must be submitted to the relevant Local Authority. If an AA is required, submissions must also be

made with the EPA.

The EPA has literature and guidance on waste disposal and licensing requirements. It is also required to provide guidance on determining the need for permitting and information can be requested via the following email address: licensing@epa.ie.

Recommended Reading in relation to CORs is:

- EPA: Certificate of Registration (COR)

2.11.4.4 Waste Disposal Licence/Permit

Waste disposal and recovery activities in Ireland require authorisation in accordance with the Waste Management Act 1996, as amended. A Waste Licence is a single licence which deals with emissions from an activity and the environmental management of the facility. Waste licences are issued through the Environmental Protection Agency (EPA). It is also required to provide guidance on determining the need for permitting and information can be requested via email: licensing@epa.ie.

Recommended Reading in relation to Waste Disposal Licence / Permit is:

- EPA - Determining who needs a waste licence
- EPA – How to apply for a licence

2.11.4.5 Activities Requiring Consent (ARCs) & Ministerial Consent

Activities Requiring Consent (ARCs) are specific activities which have the potential to damage European Sites i.e. Natura 2000 Sites. While ARCs are not prohibited activities, consent must be granted by the Minister for Housing, Local Government and Heritage or by another relevant public authority prior to works commencing. A list of 39 ARC's has been published ranging from ploughing and harrowing, to clearing vegetation or landfilling. This prior consent requirement ensures that the Minister (or the relevant competent authority) carries out the necessary environmental assessment to determine if the activity can take place and if any conditions should be attached to any consent given.

Prior to designating a new site as an SAC or SPA, information on the ARC(s) (if any) attached to the site will be communicated to the landowner (and where known, the relevant occupier or user of the land)) in the form of a 'site pack' along with a public notification. SACs and SPAs are afforded protection from the time of public notification of the intention to designate the site.

For Natural Heritage Areas (NHAs), certain works will require consent. Permission to carry out works on an NHA is required (under Regulation 19 of the Wildlife Act 2000, as amended). The works which require the consent of the Minister are found at Schedule 2 of the statutory instrument (SI) designating the relevant NHA.

For further information, guidance, and application forms, please see: NPWS Activities Requiring Consent.

2.11.4.6 Derogation Licence

A derogation licence may be required when removing vegetation in preparation for tree felling. Derogation licences are licences to disturb or interfere with protected plant and animal species. A number of plant and animal species are legally protected in Ireland. Some of these species are included in a system of Strict Protection pursuant to the requirements of Articles 12, 13 and 16 of the Habitats Directive (92/43/EEC) and are sometimes referred to as Annex IV species. The list of Annex IV species which occur in Ireland and its waters is set out in **Table 2**. The European Commission Guidance document[3] on the strict protection of

[3] European Commission Guidance document. Available online at: https://environment.ec.europa.eu/topics/nature-and-biodiversity/habitats-directive_en [accessed August 2023].

animal species of Community interest under the Habitats Directive 92/43/EEC (October 2021) should also be consulted for further information.

The National Parks and Wildlife Service (NPWS) is the responsible body for administering Annex IV protection for Ireland. Applications must be submitted directly to the NPWS and require an accompanying Ecologist's Report. Application Forms for Derogation Licences can be found at NPWS: Application for Derogation Licence and should be submitted to: wildlifelicence@npws.gov.ie.

Recommended Reading in relation to Derogation Licences is:

- Guidance on the Strict Protection of Certain Animal and Plant Species under the Habitats Directive in Ireland
- Guidance on the Strict Protection of Animal Species
- Notifiable Actions for Listed Habitats and Species

Table 2: Annex IV Species

Annex IV Species	
Animals	**Plants**
All bat species	Killarney Fern
Otter	Slender Naiad
Natterjack Toad	Marsh Saxifrage
Kerry Slug	
Dolphins and Porpoises	
Whales	
Marine Turtles	

2.11.4.7 Tree Felling Licence

2.11.4.7.1 Felling Licence

As part of site works, the felling of trees for site clearance, cable installation, access, or maintenance, a Felling Licence may be required. This is administered by the Forest Service, which operates under the Department of Agriculture, Food and the Marine (DAFM).

Where a project involves a large area of forestry and or felling of several trees, this often triggers the requirement for replacement trees of suitable species or mix thereof to be planted on "*bare plantable lands*" elsewhere via an Afforestation Licence; please see **Section 2.11.4.7.2** for further information.

A valid licence must be obtained before any felling commences unless such works fall under exempted categories.

Exemptions from securing a Felling Licence apply to the following common scenarios:

- A tree in an urban area, provided it is not under a protection order;
- A tree within 30m of a building, but excluding any building built after the trees were planted;
- A tree less than 5 years of age that came about through natural regeneration and removed from a field as part of the normal maintenance of agricultural land - but not where the tree is standing in a hedgerow;
- A tree uprooted in a nursery for transplantation;
- A tree of the willow or poplar species planted and maintained solely for fuel under a short rotation coppice;

- A tree outside a forest within 10m of a public road and which, in the opinion of the owner is dangerous to persons using the public road because of its age or condition;
- A tree outside a forest of the hawthorn or blackthorn species;
- A tree outside a forest in a hedgerow and felled for the purposes of its trimming, provided that the tree does not exceed 20cms in diameter when measured 1.3m from the ground;
- A tree outside a forest, the removal of which is specified in a grant of planning permission;
- A tree outside a forest on an agricultural holding removed by the owner for use on that holding, provided:
    1. It does not form part of a decorative avenue or ring of trees;
    2. Its volume does not exceed $3m^3$;
    3. The removal of trees for use on the farm does not exceed $15m^3$ in any period of 12 months.

It should be noted that the three above exemptions do not apply in all circumstances, for example, when trees are more than 150 years old or are close to certain protected structures, monuments, archaeological sites, or specific environmentally sensitive areas. If you live in an urban area, you may need to contact the Local Authority to see if there is a Tree Preservation Order (TPO) on the tree. TPOs may apply to other significant or important trees, so it is important to check. For further details on these exemptions, please refer to: Tree Felling Guidance Ireland.

Certain bodies are exempted from the requirement for a felling licence, these include but are not limited to:

- Bord Gáis (Section 27, Gas Act, 1976);
- Aer Rianta (Section 46, Air Navigation and Transport (Amendment) Act, 1998);
- CIÉ or any other railway undertaking (Section 49, Transport (Railway Infrastructure) Act, 2001);
- CIÉ (Section 15, Transport (Dublin Light Rail) Act, 1996);
- Any telephone/mobile network operator (Section 58, Communications Regulation Act, 2002);
- The ESB (Section 45, Electricity Regulation Act, 1999);
- National Parks and Wildlife Service (NPWS) (Section 72, Wildlife (Amendment) Act, 2000);
- Minister for Defence (Section 7, Defence (Amendment) Act, 1987); and
- Inland Fisheries Act (Section 59, Inland Fisheries Act, 2010).

At present, each licence application costs €20. A tree felling licence, once granted, is valid for a period of 10 years and can be extended up to 5 further years. Applications should be sent alongside accompanying maps to by email to: felling.forestservice@agriculture.gov.ie.

Please see the sections below on the specific examples of licensing works and how to apply. Further guidance, application templates, and information can be found at DAFM Tree Felling Licences.

The required felling licences should be applied for as early as possible. This will minimise delays by giving the Forest Service timely notice of the full felling requirements. It also lessens the risk of commitments being made by the developer before felling licences are granted. However, it should be noted that under the Forestry Act, 1946, the validity of a LFL is currently limited to 2 years. As soon as planning permission is granted for the development by the Local Authority or An Bord Pleanála, a copy of the full planning permission should be submitted to support the felling licence application(s).

Licences must be secured before felling can take place. It should be noted that it can take up to 12 months to secure the necessary approvals from the Forest Service. The Forestry Division's Tree felling and management

website contains the most up-to-date information, including the felling licence application form and guidance notes.

Teagasc also has additional useful information on the legal requirements for felling as well as guidance and sample applications.

Recommended Reading in relation to Felling Licences and associated requirements is:

- Teagasc: Legal requirements for afforestation
- DAFM: Forestry Standards Manual

2.11.4.7.2 Afforestation Licence

An Afforestation Licence "*provides the permission to plant all or part of the areas specified, and the areas planted meet scheme requirements*". This is necessary for all afforestation projects where the area involved is greater than 0.1 hectares (or approximately 0.25 acres). Afforestation is defined in the Forestry Act 2014 as, "*the conversion of land to a forest with a minimum area of 0.1 hectares and tree crown cover of more than 20 per cent of the total area, or the potential to achieve this cover at maturity*". Forest land is defined as land under trees with a minimum area of 0.1 hectare and tree crown cover of more than 20% of the total area (or the potential to achieve this cover at maturity).

This licence is necessary when a developer seeks to replant trees which were felled during a site development. As part of a Felling Licence application, afforestation plans can also be set out and therefore requests for both licences can be made together. For the proposed afforestation of alternative lands, approval must be obtained before the associated felling licence can be granted. Proposed alternative land, which must be suitable land that has never been the subject of an afforestation in the past, should be submitted for afforestation approval as early as possible, ideally at the same time as the Felling Licence application is submitted.

All afforestation projects (whether availing of a grant or not) must obtain prior written approval from the Department of Agriculture, Food, and the Marine (DAFM) termed 'Technical Approval'. A Technical Approval confirms that the proposed forest detailed in the application complies with the silvicultural (control of the growth, quality and needs of the forest, of particular importance for timber production) and environmental requirements. This approval provides permission to plant all, or part of the areas specified in the application. Grant aided projects require a supplementary 'Financial approval' in conjunction with technical approval. This financial approval must be obtained before work can commence.

Afforestation Applications should be sent alongside accompanying maps to the Forestry Division of the DAFM by email to: felling.forestservice@agriculture.gov.ie.

Please refer to the sections below for specific examples of licensing works and instructions on how to apply. Further guidance, application templates, and information can be found at DAFM Tree Felling Licences.

Recommended Reading in relation to Afforestation Licences can be found at: Teagasc: Felling and Reforestation Policy

2.11.4.8 Excavation Licence (Archaeological)

An excavation licence consent is required before digging at a heritage site can commence. Section 26 of the National Monuments Act 1930 (as amended) requires that excavations for archaeological purposes must be carried out by archaeologists acting under an excavation licence. An Excavation Licence will likely be accompanied by an Excavation Risk Assessment process, as Construction Regulations require contractors to guard against the dangers from a fall or dislodgement of material in an excavation.

An excavation licence can only be held by an appropriately experienced and competent Archaeologist who is competent in archaeological excavation techniques and conversant with Irish archaeology.

The Safety, Health and Welfare at Work Act 2005 requires a risk assessment to be performed by contractors before undertaking excavation work.

2.11.4.9 Trade Effluent Discharge

If you release an effluent (any liquid discharge which is not domestic sewage (toilet, bath or hand washing waste, < 5 m3/day) or uncontaminated surface water and roof drainage (rainwater)) to waters or a sewer, you are required to have the appropriate discharge licence in place.

Applications must be made to Uisce Éireann (formerly Irish Water), which is now responsible for the issuing of effluent discharge licences for effluents discharged to sewers under the provisions of Section 7 of the Water Services (No.2) Act 2013. Environmental Protection Authority (EPA) licenced facilities will have details pertaining to the discharge of trade effluent presented in their Industrial Emissions or Integrated Pollution Control (IPC) Licence, and therefore, no separate Section 16 licence is required.

Discharge (trade effluent) licences ensure that discharge is treated and controlled in a manner that protects the receiving environment and is a legal requirement under the Water Pollution Acts 1977 and 1990.

TE monitoring and sampling are typically required for larger industrial customers to derive the inputs to calculate the charges applicable for treatment and for those companies who have a Section 16 available from Uisce Éireann or an IPC (Integrated Pollution Control) licence available from the EPA.

This licence will only be a requirement where there is a discharge of trade effluent to a municipal sewer, and likely only applies to renewable energy facilities such as those for biogas or biomethane.

2.11.4.10 Water Abstraction Registration

By law, if you abstract 25 m^3 (25,000 litres) of water or more per day, you must register this abstraction with the Environmental Protection Authority (EPA) (e.g., used for dust suppression). Although not a licence (which is under development), failure to register can incur a Class A fine (a fine not exceeding €5,000). Requirements are set out in the Water Environment (abstractions and Associated Impoundments) Bill 2022.

The development of a register of water abstractions is a requirement of EU law under the Water Framework Directive (2000/60/EC). New abstractions must be registered within one month of the start of the abstraction. If you reported your water abstraction to a public authority (such as your Local Authority) in the past, you must also register your water abstraction with the EPA.

Temporary abstraction of 25 m^3 (25,000 litres) of water or more per day must be registered, unless the abstraction is a one-off occurrence with a duration of no more than 24 hours that is not going to be repeated at any regular or irregular interval. For all other temporary abstractions, a point of abstraction must be identified, and the maximum abstraction should be used when registering. When a one-off temporary abstraction ceases, it should be de-registered. This will be required for water abstraction to feed an industrial process or to dewater a groundwater body to facilitate a deep excavation during construction.

If you have any queries regarding this licence, you can contact the EPA at edenabstractionsupport@epa.ie, and licensing is administered by the EPA via the EDEN portal (https://www.edenireland.ie/).

2.11.4.11 Surface Water Discharge Licence

Securing a discharge of effluent to waters, this licence allows for the discharge of trade effluent or sewage to a water body or groundwater after appropriate treatment.

These licences are administered by Local Authorities (detailed instructions on the process are published by Sligo County Council), and there are some exemptions which include the following:

- Discharges to tidal waters from vessels or marine structures;

- Discharges from a sewer owned by, vested in or controlled by a Water Services Authority;
- Discharges subject to Integrated Pollution Control (IPC) licensing by the EPA.

Legal requirements are based on the Water Pollution Acts, 1977 and 1990. This requirement will only apply to industrial facilities with water or fluid discharge into the environment outside of the sewage system; as such, this would only be applicable to geothermal systems, where waters are uncontaminated.

If the activity causing the discharge does not fall under the remit of the First Schedule of the Environmental Protection Agency Act, 1992 (as amended by the Protection of the Environment Act, 2003) an application for a licence must be made to the Local Authority in whose functional area, the discharge is to occur.

Effluent discharges for which a discharge licence must be obtained are as follows:

- All trade effluent discharges to surface water;
- All trade effluent discharges to groundwater;
- All domestic wastewater discharges to surface water;
- All discharges of domestic wastewater greater than 5m^3/day which is discharged to (groundwater) from a septic tank or other disposal unit by means of a percolation area, soakage pit or other method.

2.11.4.12 Ecological Consents, Notifiable Actions/ Consents/ Derogations Licences

If you are intending to develop on or in an area where wildlife could be impacted, consent may be required. Such consent may be in the form of notifiable actions or licences. Further permission may then be required in exceptional cases (e.g., the species is threatened or in poor condition), when handling or movement of the protected species is necessary.

For the full breakdown and detail on the various activities that constitute a notifiable action for listed habitats and species, please refer to the National Parks and Wildlife Service (NPWS) page here: https://www.npws.ie/farmers-and-landowners/notifiable-actions/listed-habitats-and-species.

2.11.4.13 Capture/Kill Protected Wild Animals for Education or Scientific Purposes Licence

A 'Capture/Kill Protected Wild Animals for Education or Scientific Purposes Licence' is required for all surveys and monitoring of protected species, even where animals will not be handled (under Sections 23 and 34 of the Wildlife Act 1976, as amended).

Although the application form/licence refers to 'capture or killing of protected wild animals', licences are required to investigate sites where protected species are found. Due to the various protected species' status as threatened and or in poor condition, it is only in exceptional cases that handling or movement of animals is licenced. Licences will only be granted if the licenced activity will result in no significant adverse impact on the conservation of the species. For example, if the freshwater pearl mussel is suspected to occur in an aquatic habitat impacted by a development, this licence would be required to potentially translocate this species to an appropriate location. The decision to grant the licence will be made by the wildlife licence unit through the National Parks and Wildlife Service (NPWS).

See https://www.npws.ie/licencesandconsents/education-and-science/capture-kill-for-scientific-purposes for the application forms and further information.

2.11.4.14 White-Clawed Crayfish Licence

For streams, rivers and lakes where white-clawed crayfish are known to be present, if there is potential for the area to be impacted by a proposed development or project, a 'White-Clawed Crayfish Licence' will be required to survey and or remove this species to an appropriate location.

A 'White-Clawed Crayfish Licence' is granted by the wildlife licence unit through the National Parks and

Wildlife Service (NPWS), under Section 23 and Section 24, Wildlife Act 1976 (as amended). The permit allows the survey, capture, temporary confinement and translocation of white-clawed crayfish.

See the survey licence conditions document for White-Clawed Crayfish for further information.

2.11.4.15 Licence to Take or Interfere with Protected Plant Species for Scientific, Educational, or Other Such Purposes (Flora (Protection) Order)

As per the Flora (Protection) Order (2022), if any protected plant species is known/found/noted to be present in an area that is proposed to be developed, a licence to interfere with these species is required under Section 21 of the Wildlife Act. Under Section 21, it is an offence for a person to cut, pick, uproot or otherwise take, purchase, sell or be in possession of any plant whether whole or part, of a species mentioned in the Order, or wilfully to alter, damage, destroy or interfere with the habitat of such a species, except under licence of the Minister, and then, strictly for scientific, educational or other such purposes.

A licence to take or interfere with protected plant species for scientific, educational, or other such purposes can be applied for through the granting authority, the National Parks and Wildlife Service (NPWS). In the absence of any viable alternative, licences are granted where no significant damage will be caused to the conservation status of the species and where the adverse impact on the local population of species is kept to a minimum. Applications will only be considered if a licence is required for scientific, educational or other such purposes.

For further information, see here.

2.11.4.16 Dumping at Sea Permit

A Dumping at Sea (DaS) permit is applied for through the EPA under section 5 of the Dumping at Sea Act 1996.

It is required for the disposal of dredged material and inert material of natural origin, in the absence of suitable alternative reuse and disposal methods. Dumping of vessels, aircraft, sewage sludge, animal carcasses, parts, products, and industrial fish waste is not permitted.

Further guidance can be on dumping at sea considerations can be found at: https://www.epa.ie/publications/research/small--scale-studies/Dumping-at-Sea-Site-Selection-Guidance-Note.pdf

2.11.4.17 Dive Survey Licence

During survey works, if it is determined that a dive survey licence is required (for example, for cable routes in or near underwater areas protected under the National Monuments Act 1987), a licence should be applied for under section 3(5) of the National Monuments Act 1987.

Among other stipulations, the licence holder must inform the National Monuments Service at least two working days in advance of commencing dive operations.

2.11.4.18 Ministerial Consent for works under the Continental Shelf Act

The Continental Shelf Act, 1968, applies to works within a designated area in the marine environment. Section 5 (1) states*, "A person shall not construct, alter or improve any structure or works in or remove any object or material from a* ***designated area*** *without the consent of the Minister for Transport and Power."* This is related to works within, on or under the seabed but not the waters above (which are part of the 'High Seas')

2.11.4.19 Ministerial Consent for works at/near a National Monument/Detection Device Consent (Archaeological) Marine

The detection device consent licence is granted by the National Monuments Service (NMS) under section 2 of the National Monuments Act (NMA) 1987 (as amended). Consent must be obtained for the use of a detection device to search for archaeological objects at a specified place or for the use and possession of a

detection device at a place protected under the National Monuments Acts.

A detection device is defined as *'a device designed or adapted for locating any metal or mineral on or in the ground, on, in or under the sea-bed or on or in land covered by water, but does not include a camera*'.

The underwater archaeological dataset is maintained by the Underwater Archaeology Unit of the National Monuments Service. Wrecks over 100 years old and archaeological objects underwater, irrespective of their age or location, are protected under Section 3 of the National Monuments (Amendment) Act 1987.

Section 26 of the 1930 National Monuments Act and section 2 of the NMA (1987) regulate the archaeological excavation and or use of detection devices in the search for archaeological objects. The permits and licences for the aforementioned activities are only issued in connection with a defined archaeological research project or survey or with an archaeological impact assessment for planning-related cases. For further information please see:

- Licence for Archaeological Excavation; and
- Detection Device Consent

2.11.4.20 Marine Usage Licence

Given the nature of geothermal energy projects, it is highly unlikely that a Marine Usage Licence may be required for this technology type, however, it is recommended that this potential need is ruled out categorically before embarking upon the pre-construction phase of a geothermal energy project.

2.11.4.21 Marine Area Consent (MAC)

A Marine Area Consent (MAC) is granted by the Department of the Environment, Climate and Communications, Maritime Area Regulatory Authority (MARA), under Section 81 of the Maritime Area Planning Act 2021 (MAPA). All existing foreshore licences applied for and processed prior to 2020 are now under the MAC process.

The MAPA further distinguishes between the 'nearshore area' of a coastal planning authority(s) (CPA), and the outer maritime area (entire maritime area beyond the nearshore area). The default nearshore area under MAPA is 3 nautical miles (nm) from the high-water mark of the ordinary or medium tide; this area may also be designated by the current Minister.

A MAC is consent for the occupation of a specific part of the maritime area for a defined use. This includes the following:

- Specific scheduled activities, including environmental surveys,
- Robust compliance and enforcement measures are in place and adhered to for the duration of the activities,
- MAC consent will be required before any phase of the project in the Marine environment.

A MAC is not a consent to develop a project in the maritime area, but instead serves as proof that a developer will be capable of responsibly developing an area and has the necessary finances, expertise, and knowledge to support a proposed project.

As part of the initial MAC application process, applicant projects will be required to carry out a technical capability self-assessment and demonstrate financial viability, while also providing evidence of at least 12 months of continuous experience at all stages of an offshore wind farm (i.e., development, construction, and operational stages). Evidence may include copies of newspaper articles, press releases, grants of planning permission, copies of commercial/joint venture/partnership agreements, generation/commissioning certification, and/or operational agreements. For the last two financial periods, statements would also be required to complete a financial viability assessment. In addition to concrete experience in delivering an

offshore wind farm, prospective MAC applicants must provide evidence of their commitment to their projects by demonstrating experience in the project delivery team.

2.11.4.22 Licence to Interfere with or Destroy the Breeding Places of Any Wild Animals

If you are intending to develop in an area to be known for breeding places of any wild animals, a licence 'To Interfere with or Destroy the Breeding Places of Any Wild Animals' may be required to proceed. A licence may be required from the granting authority, National Parks and Wildlife Service (NPWS) (Section 23 (5) (d) of the Wildlife Act 1976 as amended), the legislation states that any person who wilfully interferes with or destroys the breeding place or resting place of any protected wild animal, shall be guilty of an offence.

See https://www.npws.ie/licences-disturb-or-interfere-protected-plant-and-animal-species for further information.

2.11.4.23 Derogation Licence to Disturb Otters or their Breeding or Resting Places

Otters are listed on Annex IV of the EU Habitats Directive. Under the Irish law that implements this directive, both the otters themselves and their holts are protected, as such it is an offence to disturb or interfere with them without an appropriate licence. If an otter species is suspected to inhabit structure (e.g., banks or culverts, etc.) in any area proposed for development, a derogation licence to disturb otters, their breeding or resting places may be required by the granting authority[4].

Even when planning permission is granted, the wildlife legislation applies. **Works which would capture or kill them, damage or destroy their roosts or disturb them at important parts of their life cycle cannot take place without obtaining a *second derogation licence***. This licence is issued when planning permission is given under Regulation 54 of the Regulations, and strict criteria must be met before such a licence can be approved. 'Guidelines for the Treatment of Otters Prior to the Construction of National Road Schemes'[5] should also be referred to when carrying out works which may disturb them.

2.11.4.24 Removal of Invasive Alien Species

Under the EC Birds and Natural Habitats Regulations 2001 SI 477 of 2011, it is an offence to release or allow to disperse or escape, to breed, propagate, import, transport, sell or advertise species listed on Schedule 3 of the regulations without a Licence. The regulations that deal specifically with this scheduled list of species are:

- Regulation 49: Prohibition of introduction and dispersal of certain listed species;
- Regulation 50: Makes it an offence to or to intend to import, buy, sell, breed, transport and distribute listed animal or plant species or vector material; and
- Regulation 74: Which sets out transitional provisions related to the commencement of Regulations 49 and 50.

The following activities are expressly prohibited:

- Dumping invasive species cuttings in the countryside;
- Planting or otherwise causing to grow in the wild (hence the landowner should be careful not to cause further spread);
- Disposing of invasive species at a landfill site without first informing the landfill site that the waste contains invasive species material (this action requires an appropriate licence); and
- Moving soil which contains specific invasive species in the Republic of Ireland unless under a licence from the NPWS.

[4] National Parks and Wildlife Service (NPWS), under EC (Birds and Natural Habitats) Regulations 2011-2021.
[5] Guidelines for the Treatment of Otters Prior to the Construction of National Road Schemes. NRA, 2008.

At any stage of a project, where invasive alien plant species are encountered, a licence for the removal/movement of invasive species from the site is required. A request for licensing must be sent to: wildlifelicence@npws.gov.ie. If herbicides or pesticides have been used, the contaminated materials may be classed as hazardous waste or non-hazardous waste and will be required to be appropriately disposed of at an appropriately licenced facility. Check with the relevant Local Authority on available facilities.

When submitting your application for a licence, it should include:

- Detailed methods of removal, transportation and treatment of the species;
- Information on the bio-security measures;
- Management plan; and
- Timeframe for carrying out the work.

Recommended Reading regarding the Removal of Invasive Alien Species is:

- National Biodiversity Data Centre: Invasive Alien Species in Ireland
- NPWS: EU Regulation on Invasive Alien Species

2.11.4.25 Activities Requiring Consent (ARCs) & Ministerial Consent

Activities Requiring Consent (ARCs) are specific activities which have the potential to damage European Sites i.e. Natura 2000 Sites. While ARCs are not prohibited activities, consent must be granted by the Minister for Housing, Local Government and Heritage or by another relevant public authority prior to works commencing. A list of 39 ARCs has been published, ranging from ploughing and harrowing to clearing vegetation or landfilling. This prior consent requirement ensures that the Minister (or the relevant competent authority) carries out the necessary environmental assessment to determine if the activity can take place and if any conditions should be attached to any consent given.

Prior to designating a new site as an SAC or SPA, information on the ARC(s) (if any) attached to the site will be communicated to the landowner (and where known, the relevant occupier or user of the land) in the form of a 'site pack' along with a public notification. SACs and SPAs are afforded protection from the time of public notification of the intention to designate the site.

For Natural Heritage Areas (NHAs), certain works will require consent. Permission to carry out works on an NHA is required (under Regulation 19 of the Wildlife Act 2000, as amended). The works which require the consent of the Minister are found at Schedule 2 of the statutory instrument (SI) designating the relevant NHA.

For further information, guidance, and application forms, please see: NPWS Activities Requiring Consent.

2.11.4.26 Geothermal Energy Exploration Licence (GEEL)

Although licences and permits have yet to be implemented for Ireland, the policy statement indicates that the objective of a GEEL will be to determine whether or not the geothermal resource can provide enough energy to make the proposed geothermal energy project viable.

The current understanding is that viable projects will require a Geothermal Energy Capture Lease (GECL) to be licenced through the Geoscience Regulation Office (GSRO) of the Department of the Environment, Climate and Communications, and the Geothermal Regulatory Authority (GRA).

2.11.4.27 Other potential leases / licences / authorisations

Similar to a Marine Usage Licence, the potential need for the following leases / licences / authorisations should be checked and the need and potential securement of same be categorically ruled in or out and secured wherever necessary before embarking upon a geothermal energy project:

- Geothermal Energy Capture Lease (GECL)
- Registration with GSRO
- GSRO Authorisation

2.11.4.28 Seveso III Directive (2012/18/EU)

The Seveso III Directive aims to control major accidents and or hazards involving dangerous substances, especially chemicals. They are a set of preventive measures and notifications aimed at reducing the risk of hazardous activities and limiting the consequences for human health and the environment, with the goal of consistently and effectively ensuring a high level of protection throughout the EU.

This Directive shall not apply to any of the following:

a. Military establishments, installations or storage facilities;

b. Hazards created by ionising radiation originating from substances;

c. The transport of dangerous substances and directly related intermediate temporary storage by road, rail, internal waterways, sea or air, outside the establishments covered by this Directive, including loading and unloading and transport to and from another means of transport at docks, wharves or marshalling yards;

d. The transport of dangerous substances in pipelines, including pumping stations, outside establishments covered by this Directive;

e. The exploitation, namely the exploration, extraction and processing, of minerals in mines and quarries, including by means of boreholes;

f. The offshore exploration and exploitation of minerals, including hydrocarbons;

g. The storage of gas at underground offshore sites, including both dedicated storage sites and sites where exploration and exploitation of minerals, including hydrocarbons are also carried out; and

h. Waste land-fill sites, including underground waste storage.

Notwithstanding points (e) and (h) of the first subparagraph, onshore underground gas storage in natural strata, aquifers, salt cavities and disused mines and chemical and thermal processing operations and storage related to those operations which involve dangerous substances, as well as operational tailings disposal facilities, including tailing ponds or dams, containing dangerous substances shall be included within the scope of this Directive.

In the event of a major accident with the potential to pose a significant threat to human health the operator is required to notify the HSA immediately using the approved Notifiable Incident Form and email this to comah@hsa.ie.

Please refer to: Seveso III Directive – Seveso III On the control of major-accident hazards involving dangerous substances, amending and subsequently repealing Council Directive 96/82/EC (Text with EEA relevance), Annex I for a list of Dangerous Substances considered under the Seveso Directive.

2.12 Construction Phase

2.12.1 Outline of Construction

Construction works are likely to commence by setting up site compounds and establishing equipment and material set-down areas, waste management infrastructure, site offices and welfare facilities. Further geotechnical site investigations may also be necessary at this point.

Once safe access has been established to the site, the contractors will begin with site preparation works, clearing, levelling and preparing the ground for the installation of any required foundations for the equipment and structures associated with the geothermal energy facility.

Off-site grid connection works are typically carried out concurrently with on-site construction of the geothermal energy facility. These can typically include upgrades to existing ESB Networks or EirGrid substations, or even the construction of a new substation. All other works are scheduled to be completed simultaneously with the grid connection works, ready to be energised for pre-commissioning and final commissioning.

Throughout the construction stage, the project is monitored by various specialists to ensure it is constructed safely, correctly and in compliance with the planning conditions and grid requirements. This can include community liaison officers, ecologists, archaeologists, etc., alongside construction monitoring carried out by various engineers to ensure the project is constructed in accordance with the relevant specifications and standards, approved design and contracts.

Depending on the scale and complexity of the geothermal energy project, various permits may be required during the construction phase. Maintaining compliance with the permits granted to the project is crucial. The following sections outline the permits, licences, and compliance requirements which may be applicable to your project.

2.12.2 Planning Permission Conditions

Upon a grant of planning permission, there will almost certainly be planning conditions imposed by the Planning Authority, which may cover a range of matters.

There will likely be conditions that cover matters during construction, such as working hours, which specify the acceptable window of time when construction may take place, or other conditions in relation to noise from construction, dust generated, wheel washing, etc. These conditions must be strictly adhered to, as if a project is found to be in breach of conditions, a Local Authority may initiate enforcement proceedings.

The Planning Authority may deploy Site Inspectors to ensure compliance with planning conditions, and other site matters within its jurisdiction.

2.12.3 Commissioning

Following the construction of a geothermal energy facility, it must then be commissioned. This process applies to all installations, regardless of size; however, for large and commercial projects, it is generally a more formal procedure.

Commissioning involves a series of electrical testing, mechanical testing, performance evaluations and corrections reporting. The purpose is to ensure the equipment has been correctly installed and will operate safely and efficiently.

Provided a project passes the commissioning stage, it will then enter its operational stage and begin to create geothermal energy for consumption or sale.

3 Operating and Maintenance Phase

3.1 Recurring Licences

Some licences and consents may not have a duration that covers the entire lifespan of a geothermal energy project and may require further attention from the owner/operator. This may be because of the legislative basis for the consents, or as a change of legal circumstance, or an environmental change over time.

Depending on the placement of the project, the following licences and or additional licences may or may not be required for the safe operation and maintenance of the site. It is the responsibility of the owner/operator of the geothermal site to keep up to date/abreast of the relevant necessary licences.

3.1.1 Waste Disposal Licence/Permit

Waste disposal and recovery activities in Ireland require authorisation in accordance with the Waste Management Act 1996 as amended. To determine if the activity that is being carried out requires a waste licence, please refer to the EPA services. A waste licence is a single licence which deals with emissions from an activity and the environmental management of the facility. Waste licences are issued through the EPA.

Please refer to **Section** Error! Reference source not found. for further information about Waste Disposal Licences and Permits.

3.1.2 Derogation Licence

Over the course of the operation, there may be a need to interfere with a protected species if they happen to be interrupting the safe and efficient operation of the geothermal installation. As such, a Derogation Licence would be required.

Please refer to **Section** Error! Reference source not found.**4.6** for further information.

3.1.3 Water Abstraction Registration

In the cases where a one-off water abstraction licence was applied for and deregistered but is required to be used again, the licence must be re-applied for.

For further information on water abstraction licences, please refer to **Section 2.11.4.10.**

3.1.4 Surface Water Discharge Licence

Over the course of the operation, there may be a need for additional surface water discharge. As such, a Surface Water Discharge Licence would be required.

Please refer to **Section 2.11.4.11** for further information.

3.1.5 White-Clawed Crayfish Licence

During the operation and maintenance of a geothermal energy facility, it may be necessary to take or interfere with habitats, such as streams, rivers, and lakes, where white-clawed crayfish are known to be present, including relocating or conducting surveys. As such, a White-Clawed Crayfish Licence would be required.

For further information on the White-Clawed Crayfish Licence, please refer to **Section 2.11.4.14.**

3.1.6 Licence to Take or Interfere with Protected Plant Species for Scientific, Educational, or Other Such Purposes (Flora (Protection) Order)

Over the course of the operation and maintenance of a geothermal energy facility, it may be necessary to take or interfere with protected plant species (relocation/surveys, etc.). As per the Flora (Protection) Order (2022), if any protected plant species is known/found/noted to be present in an area that is proposed to be developed, a licence to interfere with these species is required under Section 21 of the Wildlife Act 2000, as

amended. Licences are granted where no significant damage will be caused to the conservation status of the species and where the adverse impact on the local population of the species is kept to a minimum.

Please refer to **Section 2.11.4.15** for further information.

3.2 Other Licences, Permits and Other Notifications

3.2.1 Seveso III Directive (2012/18/EU)

Please refer to **Section 2.11.4.28** for further information.

4 End Phase

4.1 Decommissioning

Decommissioning refers to the cessation of energy production and the dismantling and removal of associated equipment and infrastructure.

4.1.1 Planning Considerations

Typically, projects that have been constructed following the procurement of planning consent from either the Local Authority or An Bord Pleanála will deal with decommissioning by condition. This means that within the conditions attached to the planning permission, it will directly set out how to carry out the decommissioning and restoration of the site to its original condition. This is typically ordered after a set period of operation; therefore, the decommissioning of the installation does not require consent, as it has been provided for under the original application. If, however, you wish to conduct works not specified within the condition, planning consent will be required for those works.

4.1.2 Licences

The decommissioning phase of a project may require reapplication for licences applied for during the pre-construction phase, along with additional licences.

4.1.2.1 Other licences and permits

In addition to the above licence, other licences may apply, such as abnormal load or road closures, if the site is to be fully decommissioned. These licences will be subject to the conditions laid out under planning.

4.2 Lifespan Extension

Generally, manufacturers of shallow and deep geothermal equipment will specify the operational lifespan of the equipment. This means the period after which the manufacturer recommends it be decommissioned or replaced. Sometimes the lifespan of an installation may be set by another body, such as the consenting Local Authority, which may specify, through planning permission, the lifespan of an installation. Unless specified by a statutory body, it is up to the owner to determine the lifespan of the installation ultimately. However, it is recommended to have due regard to the manufacturer's instructions.

4.2.1 Planning

For larger-scale projects such as deep geothermal lifespan extension, it may be dealt with by condition, meaning that within the conditions attached to the original planning permission, it will directly set out how to carry out a lifespan extension. Typically, this will specify that further planning consent is required. If there is no specific condition, you may not require planning permission.

If you have any doubts whether planning permission is required, you may contact you're the relevant planning authority for clarification, in which it will be determined if your works are exempt from planning permission or not.

4.2.2 Licences

As project extension entails the use of the equipment for a slightly longer period of time the licences would fall under the operation and maintenance remit. For further information on operation and maintenance licences, please refer back to **Section 3** of this document.

4.3 Re-Powering

Re-powering means retrofitting and upgrading existing renewable energy installations with better equipment and technology to improve the efficiency of the installation while also allowing for an extended lifespan (given the newer infrastructure installed). This may also necessitate the upgrading of associated ancillary equipment.

4.3.1 Planning

From a planning perspective, it is best to approach re-powering a shallow and deep geothermal energy project, considering it like a new project, and so it would be useful to utilise *SEAI Single Point of Contact Renewable Energy* online tool for guidance, in addition to complying with the regulations.

For projects that previously required planning permission, including larger-scale installations, planning permission may be required.

The original planning permission may contain a condition specifying that any further works on the site requires further planning permission to be obtained. If there is no such condition, you may still require further planning permission, as the works required may be substantial. It is recommended that you consult with the planning authority regarding re-powering, and seeking advice regarding whether permission is required. It is likely that permission will be required, as re-powering may be classed as 'use intensification'.

4.3.2 Licences

It is recommended that you consult with the various licence-granting authorities regarding the re-powering of your project and seek advice as to whether renewal/reapplication is required.

5 Other Useful Resources

Geological Survey Ireland: https://www.gsi.ie/en-ie/geoscience-topics/energy/Pages/Geothermal-Energy.aspx#:~:text=Page%20Content,from%20inside%20the%20Earth%20itself.

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