



**Elements**

BY BBA // FJELDCO

# Regulation of Geothermal Energy and EU/EEA Law: Overview and Perspectives

Webinar

21 November 2023

Law of Energy Market Design Series  
Department for Energy and Resources Law  
University of Oslo



## / Our Team



**Antoine Lochet**

**Counsel**

[antoine@bbafjeldco.is](mailto:antoine@bbafjeldco.is)

Antoine is admitted to the Icelandic and French bars. He has a 15 years' experience in cross-border corporate and project finance, energy and infrastructure transactions.

Some additional projects of Antoine's include a prominent role in various legislative projects, including a review of laws and regulations for the competent authorities in Iceland, France, Turkey, Djibouti, Kenya, Ethiopia, Bulgaria, Kazakhstan, El Salvador, Indonesia and the Comoros Islands.



**Anna Björg  
Guðjónsdóttir**

**Senior Associate**

[anna@bbafjeldco.is](mailto:anna@bbafjeldco.is)

Anna is an Icelandic qualified lawyer with an LLM degree from UCL in International Banking and Finance law. She has been working for BBA//Fjeldco since 2013, most recently as a Senior Associate since January 2023.

She specialises in corporate law, M&A, banking and finance law and capital markets. Additionally, Anna focuses on energy law, including legislative review for various authorities and governments globally in relation to renewable energy.

- / BBA//Fjeldco advises clients on legal issues relating to harnessing Natural Resources in various countries with a focus on geothermal energy.
- / BBA//Fjeldco has advised some of the leading geothermal development companies in countries including the Philippines, Indonesia, China, Abu Dhabi, Nepal, Djibouti and Ethiopia.
- / We have advised governments, inter-governmental agencies, and development banks such as the World Bank, UNDP, the European Union, and the Turkish Development Bank on regulatory aspects of renewable energy.
- / We have reviewed and/or drafted laws and regulations in Iceland, France, Turkey, Djibouti, Kenya, Ethiopia, Bulgaria, Kazakhstan, and the Comoros Islands. We also participate in international research and development projects in renewable energy.
- / Our project advisory scope extends to securing the legal environment for geothermal research, advising on Power Purchase Agreements and Project Agreements, and dealing with governments and energy authorities concerning licenses, feasibility studies, exploration drilling, construction of facilities, and more.
- / In cooperation with several first-class law firms in the world, we created the Geothermal Transparency Guide, providing an overview of the geothermal regulatory framework in 17 countries – see <http://www.geothermal.bba.is/> The Guide is currently being extended to new jurisdictions.

Our Energy Team provides advice on legal issues relating to harnessing natural resources in various countries and provides a full-scale services to governments, institutions, agencies, project developers and other stakeholders.

## Gap Analysis

---

- Comparison of legal framework with international good and successful practices.
- Recommendations for improving the regulatory framework.
- Roadmap and action plan.

## Regulatory Framework

---

- Assist governments and institutions in designing enabling legal and regulatory framework.
- Assist project developers in obtaining the relevant authorisations.

## Risk Mitigation Schemes

---

- Assessment of geothermal sector country status
- Develop RMS funding model (with technical and financial experts)
- Evaluation of RMS financial sustainability

## Corporate, Financing

---

- Power Purchase Agreements and Project Agreements
- Shareholders' Agreements
- Emission Trading
- Green/Climate Bonds





# Legal and regulatory challenges of geothermal projects

- / Encourages sustainable development of geothermal resources while ensuring resource protection and management.
- / Considers technical specificities of geothermal resource within each country while facilitating development the way the resource is used, i.e., facilitating everything from power production to direct use or cascade us to maximise the use of resources of medium and low enthalpy.
- / Provides for mechanisms to facilitate social acceptance, variable between jurisdictions.
- / Attracts investments (domestic or foreign) and provides a favourable environment for geothermal research.

# / Legal issues to be address in Geothermal Regulatory Framework

**Scope  
Definitions**

**Ownership**

**Sustainable  
Use**

**Access to Resource**

**Licencing Authority**

**Permits  
and Licences**

**Licencing  
Procedure**

**Monitoring  
and Surveillance**

**Cascaded  
Use**

**Environmental  
Obligations**

**Access to Networks**

**De-Commissioning**



- / Most countries which are successfully developing their geothermal resources, have established and followed a clear and realistic policy relating to the harnessing of geothermal resources.
- / Policies need to consider both the **short-term** and **long-term goals** of the government in respect of exploration and exploitation of resources.
- / It is critical to **understand the potential resources**, as well as the success or failure of existing projects.
- / Collection of data and the **creation of a „geothermal atlas“** is an important aspect of establishing and maintaining a viable state policy on the use of geothermal reservoirs. Identify sites and set a firm goal to secure access to those sites.
- / Policies need to consider environmental issues and the potential impact on communities and municipalities

- / Legislation to ensure that geothermal energy resources are legally defined and ensure consistent cross-reference in other existing legislation and regulations.
- / The definition should be clear and consistent and preferably enacted in a foundational piece of legislation.
- / Definition to take into account geothermal resources that have been identified in each country and including other potential geothermal resources to be identified in the future.
  - / Direct use application, cascade use and power generation need to be accounted for in the definition.
- / Definition of geothermal energy resources to take into account at least the following characteristics:
  - / The various **forms** of geothermal energy resources (e.g. liquid, brine, vapor, hot rocks etc.);
  - / The **thresholds** to be considered (such as depth, temperature and thermal potential);
  - / The different **uses** of geothermal energy resources to be allowed.

- / Permitting procedures should be clearly defined and **involve a competitive process** at some stage in the application process.
- / The permitting procedure should be streamlined, and the granting of permits should be performed **without overlaps of responsibilities** between institutions and **without overlaps between permits**.
- / The right of private landowners to obtain permits for the exploitation of resources on their own land needs to be regulated.
- / Permits relating to the **possible use of by-products** should be covered in the permitting framework.

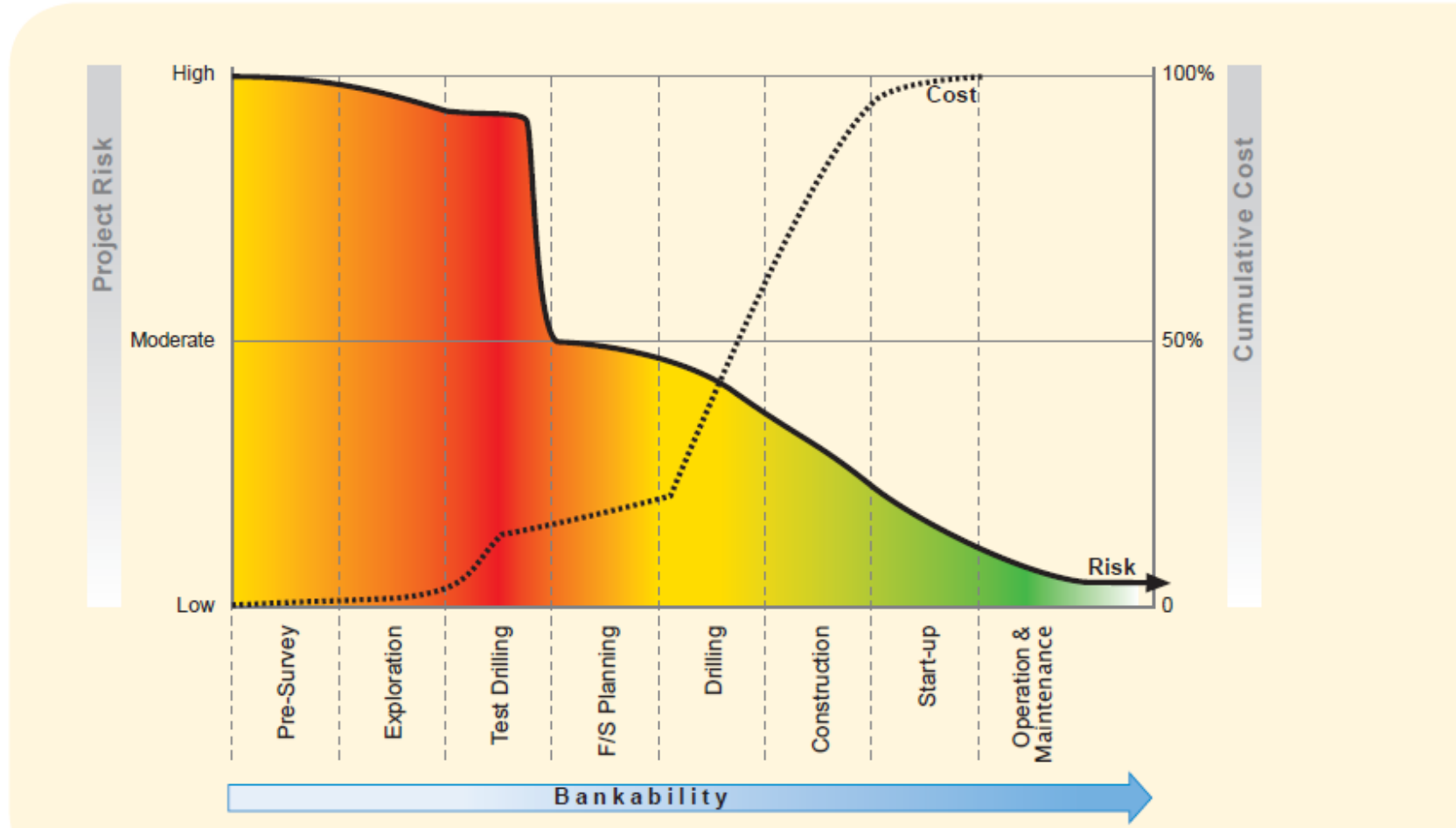
- / The duration of exploration and exploitation permits needs to be sufficient for a geothermal project to be feasible.
  - / Holders of exploration permits should have a **right to obtain an exploitation/utilization permit** following successful exploration of geothermal reservoirs if they otherwise fulfil general requirements to hold such a permit or license.
- / Provisions to set forth the main rights and obligations of permit holders, including main technical requirements for drilling. Details often provided in an implementing regulations.
- / Legislation to include provisions governing the possible transfer of permits, pledges of permits, revocation and decommissioning obligations.



- / Define the governmental authority/authorities responsible for:
  - / Permitting framework, applications and issuance of licenses;
  - / Monitoring and regulation during the duration of a license;
  - / Data collection and management.
- / Streamlining of the administrative and institutional structure where possible (“**one-stop shop**”)
  - / *A single institution responsible for, among others, receiving all applications and delivering the permits, for the coordination of the process with all other relevant institutions and is the developer’s only point of contact with the administration.*
- / Ensure that there is relevant geothermal expertise within the administrative framework.
- / Possible involvement of local authorities on a regional level.

- / Availability of information on the geothermal resource is key to development. Data to be made publicly available via a centralized database accessible to potential developers:
  - / Surface manifestation data (temperature, chemical composition)
  - / Seismic data (events, fractures)
  - / Other large scale geophysical data
  - / Shallow and deep drilling data
- / Maps of geothermal resources are to be found in various countries, including the Netherlands, Hungary and Iceland. These sources of information can be hugely important for the future development and management of resources, for the benefit of the country in question.
- / Licence holders/permit holders should be obligated to supply results of investigations into geological, geochemical, geophysical and hydrogeological studies, results of drilling and reservoir tests conducted.

# Risk profile and costs depending on project development phase



Source: ESMAP: Geothermal Handbook: Planning and Financing Geothermal Power

- / Assessment of resource risk and the impact of such risks on the feasibility of geothermal projects. To be reviewed on a case-by-case basis what types of risk mitigation tool is necessary to increase investment.
- / Primary and secondary legislation to provide for the following:
  - / Definition of the resources of the scheme: Public, private or hybrid financing
  - / Definition of the type of scheme: Guarantee, insurance, grants or loans
  - / Definition of the risks to be covered.
- / Examples of successful risk mitigation schemes can be found in various jurisdictions:
  - / Turkey
  - / Netherlands
  - / France



- / Much of geothermal projects' risk is present at the earlier stages of development and significant cost is required before it is known whether the geothermal resource has enough potential to recover the costs.
- / A part of state policy to assess the need for support mechanisms to attract investment.
  - / Feed-in tariffs, feed-in premiums, contracts for difference etc.
- / Support mechanism to be further defined and implemented through a secondary legislation.
- / Various types of incentives and support, depending on the jurisdiction and overall assessment of underlying factors:
  - / Tax incentives and/or VAT reduction
  - / R&D incentives
  - / Investment grants



# **Geothermal energy and EU/EEA law: Overview and perspectives**

- / Competence of the EU - Some of the main legal issues are addressed at national level
  - / Ownership of underground resources
  - / Mining legislation
- / Geothermal addressed in technical terms
  - / Environmental Impact Assessment Directive – geothermal drilling
  - / Water Framework Directive
    - Art. 11 para. 3:** Member States may authorise reinjection into the same aquifer of water used for geothermal purposes.
- / Geothermal energy is defined as renewable energy so it benefits from all EU law mechanisms and policies to support RES
  - / RED Directives, Energy Efficiency Directive
  - / RePower EU, Fit for 55, European Green Deal
  - / EMD Regulation and Proposal
- / Net Zero Industry Act (Strategic Net-Zero Technology)
- / Critical Raw Material Act (mineral extraction)

## / EU/EEA legal instruments

- / Does EU/EEA law create an enabling legal environment for geothermal projects?
- / Renewable Energy Directive
- / Electricity Market Design Proposal
- / State Aid

## / Utilisations of geothermal energy

- / Power production
- / Heating and cooling
- / Other direct uses

## / Risk Mitigation Schemes



- / RED I (no longer in force)
  - / Definition of 'geothermal energy': energy stored in the form of heat beneath the surface of solid earth.
    - / *Unchanged in RED II and RED III*
    - / *No limited to geothermal aquifers*
- / States encouraged to take steps with a view to developing a district heating infrastructure to accommodate the development of heating and cooling production from amongst others geothermal facilities (Art. 16 para. 11)
- / However, the main focus is shallow geothermal and Ground source heat pumps (and how they should be taken into account when measuring targets)

- / Directive (EU) 2018/2001 of the European Parliament and of the Council of 11 December 2018 on the promotion of the use of energy from renewable sources (RED II)
  - / Streamlined permitting process with a single administrative contact point
  - / Introduces renewable power purchase agreements as measure facilitating the uptake of RES in power production. Theoretically applicable to geothermal energy.
  - / More emphasis on cooling and heating (see Article 23)
  - / Mention of geothermal as one technology to be used for the purpose of cooling
  - / Geothermal taken into account when calculating renewable energy used for cooling (see definition of „heat sink“ in Annex VII Part B)

- / Directive (EU) 2023/2413 of the European Parliament and of the Council of 18 October 2023 amending Directive (EU) 2018/2001, Regulation (EU) 2018/1999 and Directive 98/70/EC as regards the promotion of energy from renewable sources, and repealing Council Directive (EU) 2015/652 (RED III)
  - / Entered into force on 20 November 2023
  - / Streamlined administrative procedures
    - / The permit-granting procedure shall comprise all administrative stages
    - / Acknowledgement of completeness within 30 to 45 days
    - / One or more contact points to be designated. The applicant shall not be required to contact more than one contact point during the entire procedure
    - / Appeals to be subject to the most expeditious administrative and judicial procedure available
    - / Adequate resources within the administration
    - / Accelerated permitting procedure in renewables acceleration areas

- / Institutional matters
  - / MS shall ensure that their competent authorities at national, regional and local level include provisions for the integration and deployment of renewable energy (Art. 15 para.3)
- / Strengthens provisions on renewable district heating and cooling
  - / Long-term national strategy
    - / Member States shall carry out an assessment of their potential of energy from renewable sources and of the use of waste heat and cold in the heating and cooling sector including, where appropriate, an **analysis of areas suitable for their deployment at low ecological risk** and of the potential for small-scale household projects
    - / That assessment shall **consider available and economically feasible technology for industrial and domestic uses** in order to set out milestones and measures to increase the use of renewable energy in heating and cooling
    - / Aim is to establish a long-term national strategy to reduce greenhouse gas emissions and air pollution originating from heating and cooling



- / New paragraph 4 in Article 23: MS shall endeavour to implement at least two measures out of 12 among which:
  - / physical incorporation of renewable energy or waste heat and cold in the energy sources and fuels supplied for heating and cooling
  - / the installation of highly efficient renewable heating and cooling systems in buildings, the connection of buildings to efficient district heating and cooling systems or the use of renewable energy or waste heat and cold in industrial heating and cooling processes
  - / **the creation of risk mitigation frameworks to reduce the cost of capital for renewable heat and cooling and waste heat and cold projects**, allowing for, inter alia, the bundling of smaller projects as well as linking such projects more holistically with other energy efficiency and building renovation measures
  - / **the promotion of renewable heating and cooling purchase agreements for corporate and collective small consumers**
  - / requirements at local and regional level concerning renewable heat planning, encompassing cooling
  - / the promotion of renewable based district heating and cooling networks, in particular by renewable energy communities, including through regulatory measures, financing arrangements and support

## / **Legal challenges**

- / Ownership and access to network
- / Cross-border district heating networks
- / Offtake guarantee
- / Planning issues
- / Commission to provide guidance on the removal of barriers

## / **Other support schemes for heating and cooling**

- / Feed-in premium
- / CfDs

- / Relevance for geothermal energy
  - / Article 19b relating to two-ways CfDs applies to geothermal energy
  - / Geothermal PPAs
- / Is it enough to promote geothermal power?
  - / Offtake and pricing risks are not the only risks to be taken into account
  - / CfDs and PPAs usually do not cover exploration and resource risks
  - / CfDs and PPAs
- / Examples outside the EU
  - / First CfDs awarded to geothermal project in the UK in September
  - / Examples of corporate geothermal PPAs

- / **RED III:** one measure to be adopted at MS level to promote the use of RES in the cooling and heating sector is „the creation of risk mitigation frameworks to reduce the cost of capital for renewable heat and cooling [...] (Art. 23 para. 4 (e))
- / To our knowledge, there is no EU wide framework for risk mitigation of geothermal projects
- / EU-funded initiatives (e.g. GEORISK)
- / Several risk mitigation schemes at national level (e.g. France, Germany, the Netherlands)
- / EU Commission may be involved from a State aid perspective
- / Several cases relating to, among others French, German, Dutch schemes
  - / Aid scheme for developers of deep geothermal energy projects, Decision adopted on 24.07.2023, case number SA.101109

- / Aid scheme for developers of deep geothermal energy projects, Decision adopted on 24.07.2023, case number SA.101109
  - / **Purpose of the Scheme:** develop deep geothermal heat production from low (between 30 and 90°C) and medium temperature (90 to 150°C) geothermal resources. Exploration and production from less explored aquifers.
  - / Lack of market-based scheme such as insurance scheme.
  - / Creation of guarantee fund by the French Agency for Ecological Transition (ADEME)
    - / Short term guarantee financed in majority by the State (notified to the Commission)
    - / Long term guarantee financed by the premium paid by project holders (not subject to notification)
  - / Short term guarantee covers resource risk during the exploration phase – 90% coverage
  - / Total budget: EUR 195 million
  - / 10-year scheme

### / Aid scheme for developers of deep geothermal energy projects, Decision adopted on 24.07.2023, case number SA.101109

/ **Decision:** No objection raised

#### / **Reasons**

- / The measure constitutes state aid but it is compatible with the internal market
- / The measure contributes to the development of an economic activity, **namely the production of heat from deep geothermal energy**
- / The measure has **positive effect** as it contributes directly to France's reduction of GHG emissions
- / The measure is necessary to support the economic activity in a way that reinforces environment protection
- / Multiple reference to the Guidelines on State aid for climate, environmental protection and energy 2022



## / Global strategy at EU level

- / New Article 15(b) in RED III as a first step?
  - / Mapping of areas necessary for national contributions towards the overall Union renewable energy target for 2030
  - / coordinated mapping for the deployment of renewable energy to identify domestic potential and the available land surface, **sub-surface**, sea or inland water areas necessary for the installation of renewable energy plants and their related infrastructure
- / Guidelines for Heat Purchase Agreements similar to COMMISSION RECOMMENDATION on speeding up permit-granting procedures for renewable energy projects and facilitating Power Purchase Agreements (C/2022/3219 final)
- / Guidelines on District Heating Networks
- / EU-wide risk mitigation scheme?
- / Data availability



## CONTACT US

### REYKJAVÍK

---

Katrínartún 2  
19 Floor  
105 Reykjavík  
Iceland  
Tel: +354 550 0500  
Fax: +354 550 0505  
Acc: [accounting@bbafjeldco.is](mailto:accounting@bbafjeldco.is)  
Legal services: [bbafjeldco@bbafjeldco.is](mailto:bbafjeldco@bbafjeldco.is)  
Applications: [umsokn@bbafjeldco.is](mailto:umsokn@bbafjeldco.is)

### LONDON

---

Berkeley Square House  
London  
W1J 6BD  
U.K.  
Tel + 44 (0) 7595 057 460  
E-mail: [bbafjeldco@bbafjeldco.is](mailto:bbafjeldco@bbafjeldco.is)  
Applications: [gunnar@bbafjeldco.is](mailto:gunnar@bbafjeldco.is)

