A wide-angle photograph of a geothermal landscape. The foreground and middle ground are dominated by a large, sloping hillside covered in mineral deposits, showing a variety of colors including red, orange, yellow, and green. A large plume of white steam or smoke rises from a vent in the center of the slope. In the lower-left corner, a small figure of a person in a red jacket stands on a rocky outcrop, providing a sense of scale. The background shows more of the colorful terrain under a blue sky with scattered white clouds.

GEOHERMAL TRANSPARENCY GUIDE

An overview of regulatory
frameworks for geothermal
exploration and exploitation

ICELAND CANADA CHILE ETHIOPIA FRANCE
GERMANY INDONESIA ITALY JAPAN KENYA MEXICO
NEW ZEALAND PHILIPPINES TURKEY USA VIETNAM

GEOHERMAL TRANSPARENCY GUIDE

**An overview of regulatory
frameworks for geothermal
exploration and exploitation**

With contributions from Allen & Overy, Anjarwalla & Khanna, Baker McKenzie, Bonelli Erede, Bezen and Partners, Carey, CMS Hasche Sigle, DLA Piper (Canada) LLP, Hiswara Bunjamin & Tandjun (in association with Herbert Smith Freehills), Hogan Lovells, Latham & Watkins, Russell McVeagh, SyCip Salazar Hernandez & Gatmaitan, Teshome Gabre-Mariam Bokan and Van Ness Feldman.

The Geothermal Transparency Guide is intended as a practical guide to the general principles and features of the basic legislation and procedures in countries included in this handbook and is for general information purposes only. It does not purport to provide comprehensive full legal or other advice.

BBA and the contributors accept no responsibility for losses that may arise from reliance upon information contained in this publication. This publication is intended to give an indication of legal issues upon which you may need advice.

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Foreword

The Geothermal Transparency Guide is a handbook which is intended to provide an insight into the legal frameworks governing exploration, exploitation and production of electricity from geothermal resources, in countries where geothermal capacity is being harnessed or is available for harnessing.

The regulatory framework in respect of the exploration and development of geothermal energy is in many countries either not existing or fragmented with provisions located in the various sectors of legislation. Many countries rely on laws relating to other energy sources, such as mining. Furthermore, in certain cases no particular administrative authority is entrusted with geothermal matters.

This has in some instances resulted in substantial complications for private parties when dealing with public authorities and municipalities, in the attempt to secure exploration licenses. A lack of clarity in respect of the legal framework governing licenses can also be detrimental to public authorities, municipalities and other owners of land containing geothermal resources, as it is critical for such parties to maintain adequate control over the utilization of the reservoirs and make sure that environmental and administrative requirements are being met.

When the terms of a prospective license are not transparent and clear, the risks for financing parties and investors is also increased, therefore making the financing of geothermal activities more time consuming and expensive than necessary.

It is therefore of great importance to explore the possibility of creating certain industry standards for licenses and agreements in the field of geothermal exploration, utilization and the production of electricity from geothermal resources. If such industry standards are successfully created on an international platform, they could facilitate and increase the development of geothermal energy in the world, which is of the utmost importance, from both an economical and environmental point of view.

Iceland Geothermal, the Geothermal Cluster of Iceland, has signed a cooperation agreement with GEODEEP, the French Geothermal Cluster, with the aim of facilitating the creation of such industry standards. One of the main prerequisites for such industry standards to be realized, is to understand the underlying laws and regulations of various countries.

We hope that this overview of the geothermal regulatory frameworks of Iceland, Canada, Chile, Ethiopia, France, Germany, Indonesia, Italy, Japan, Kenya, Mexico, New Zealand, Philippines, Turkey, United States and Vietnam is able to provide a useful insight into certain aspects of the applicable rules in these countries. Such insight can be of importance for the purposes of increasing transparency and awareness of some of the rights and obligations governing applications for licenses to explore, exploit and produce geothermal energy. We also hope that this handbook can serve as a first step in an eventual international cooperation for the purposes of creating industry standards in this field.

In order to provide an overview of the rules and regulations governing geothermal development, we opted to set forth a list of questions to the most prominent law firms in the field of energy in the countries involved. We acknowledge and stress that neither is this an exhaustive exercise nor does this handbook provide solutions for public or private parties involved in geothermal energy activities. It can however be useful in gaining a better understanding of the rules applying to such activities. We hope that the information contained herein will be a small contributor in driving us towards a sustainable future.

The contributing law firms are the following:

Iceland	BBA
Canada	DLA Piper (Canada) LLP
Chile	Carey
Ethiopia	Teshome Gabre-Mariam Bokan law office
France	Allen & Overy
Germany	CMS Hasche Sigle
Indonesia	Hiswara Bunjamin & Tandung (in association with Herbert Smith Freehills)
Italy	Bonnelli Erede
Japan	Latham & Watkins
Kenya	Anjarwalla & Khanna
Mexico	Hogan Lovells
New Zealand	Russell McVeagh
Philippines	SyCip Salazar Hernandez & Gatmaitan
Turkey	Bezen and Partners
United States	Van Ness Feldman
Vietnam	Baker & McKenzie (Vietnam)

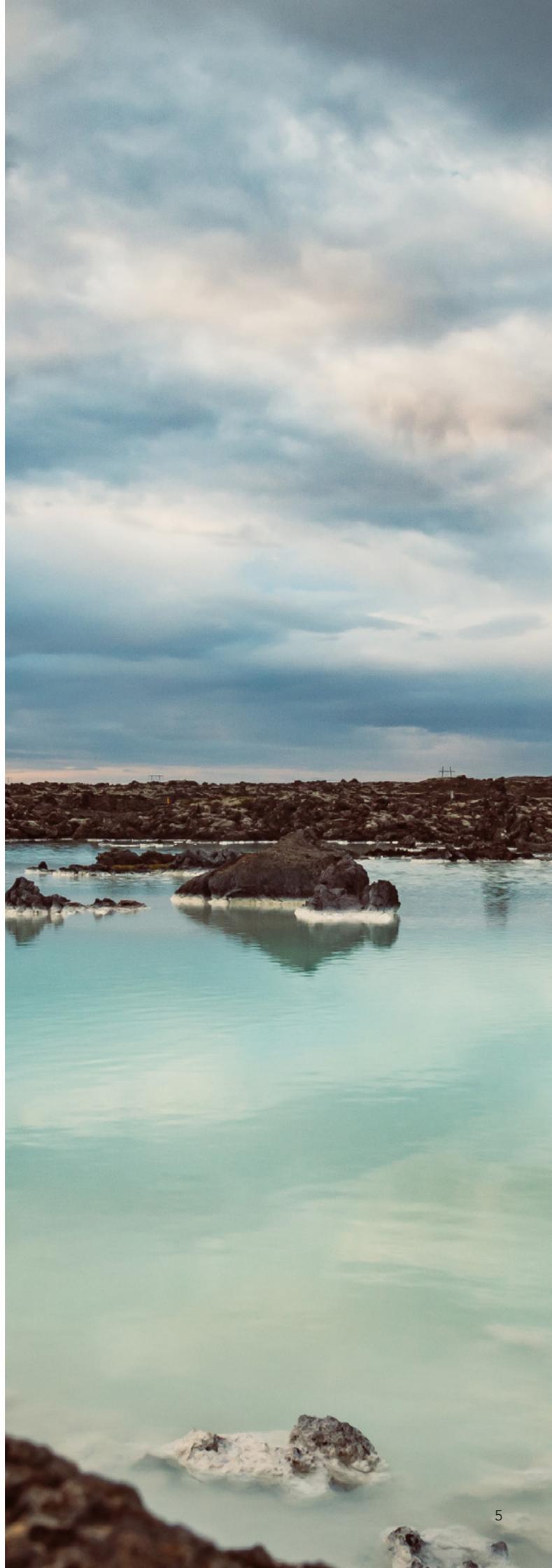
We emphasize the fact that all contributing law firms have provided their contributions free of charge and for this, we are deeply thankful.

It is finally of vital importance to underline that no information contained herein is supposed to form any legal opinion or statement of facts or circumstances on behalf of the contributing law firms, but merely an overview of the various rules applicable in each country.

On behalf of the BBA Team,



Baldvin Björn Haraldsson







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ANTOINE LOCHET**

Statistics:

1. Size of country: 103,000 km².
2. Population: 337,500 (2015).
3. Years of producing electricity from geothermal: 47 years, from 1969.
4. Installed capacity of geothermal (MWe): 665 MWe (2017).
5. Installed capacity of other sources (MWe): 2,106 MWe (2015).
6. Electricity production from geothermal (GWh): 5,003 GWh (2015).
7. Electricity production from other sources (GWh): 13,795 GWh (2015).
8. Proportional production by source:

- Hydro – 73.3%
- Geothermal – 26.6%
- Wind – 0.1%
- Petroleum – 0.0%



Sources: Statistics Iceland, Think GeoEnergy (2017), National Energy Authority.

1. Ownership and access to geothermal resources

1.1 What are the rules on ownership of geothermal resources? Can private parties hold ownership of geothermal resources?

Ownership of natural resources, including geothermal, is governed by the Act on the survey and utilization of ground resources no. 57/1998 (“Natural Resources Act”). Under said act, ownership of resources in the ground is attached to private land. Resources in public land are the property of the State of Iceland. Resources are defined in the Natural Resources Act as “any element, compound and energy that can be extracted from the earth, whether in solid, liquid or gaseous form, regardless of the temperature at which they may be found”.

As of June 7th 2008, geothermal resources and ground water resources owned by the State or municipalities can no longer be sold to private entities. Private entities or individuals are however generally not restricted from purchasing, selling or owning geothermal resources on privately owned land.

1.2 Who can grant access to geothermal resources, only state or also landowner?

The National Energy Authority (“NEA”) is permitted to take the initiative in and/or give instructions for the exploration of resources in the ground anywhere in Iceland, regardless of whether the owner of the land has initiated such exploration or permitted others to initiate such exploration. In the same way, the NEA may permit other private or public parties to explore, in which case an exploration license shall be issued to such other parties. If, however, the landowner holds a valid exploration license, the NEA cannot interfere and the landowner can either explore himself or allow third parties to explore, without interference from the NEA.

A landowner is required to grant exploration license holders unrestricted access to the private land involved.

1.3 Is exploration/exploitation open to foreign investment?

No, only Icelandic citizens and other Icelandic persons are permitted to own energy exploitation rights for other than domestic use of geo-

thermal. The same applies to enterprises which produce or distribute energy. Individuals domiciled in another member state of the European Economic Area and legal persons which are domiciled in another EEA member state shall have the same right.

2. Allowed exploitation

2.1 Is exploitation of resources subject to licensing? Do landowners have the right to exploit resources without a license? If yes, to what extent?

Yes, the exploitation of geothermal resources is subject to an "exploitation license" according to the Act on Natural Resources.

Landowners may however without any license utilize geothermal energy extracted from the ground on their private land for household and agricultural use, including for greenhouse cultivation, industry and cottage industry up to 3.5 MW. A landowner must notify the NEA of proposed drilling or other major undertakings for such purposes. The NEA may impose conditions on landowners as necessary for safety or technical reasons.

3. Role and voice of landowner in licensing procedure

3.1 Does the landowner have a role in the process of granting a license for: (i) exploration, (ii) exploitation and (iii) power plant?

Yes, the NEA calls for written observations from the landowner/s when reviewing applications for a license. The NEA is not bound by the written observations of the landowner but takes them into consideration when reviewing the application.

3.2 Will an opposition of a landowner have a bearing on the process of granting a license for exploration, exploitation or power plant?

As noted before, an opposition of a landowner will not have a direct bearing on whether a license is granted. However, the opinion of the landowner is taken into consideration by the NEA when the license is granted.

With regards to extraction, we note that before a holder of an exploitation license starts extraction on a private land the license holder must reach an agreement with the landowner on

compensation for the resources. If such agreement is not reached, the holder of the license can submit a request to the Ministry of Industries and Innovation for expropriation. The conditions for expropriation are set out in the Constitution of the Republic of Iceland, which states that expropriation can only be carried out if (a) the expropriation is required by public interest, (b) there is a clear legal basis for the expropriation, and (c) land owner is fully compensated for the expropriation.

4. Criteria for granting of a license

4.1 What documents need to be submitted and what is the criteria for obtaining a license for:

(i) exploration: the Natural Resources Act provides little guidance on which documents should be submitted with an application for an exploration license other than stating that the application should stipulate in a clear manner what the purpose of the application is and contain information on the proposed operation of the applicant as decided by the NEA.

The application shall, amongst others, include information on the following in accordance with the best practice guidelines established by the NEA:

- the purpose of the license;
- detailed geographical boundaries of the requested license;
- time schedule for the execution of exploration;
- report on the plausible effect the exploration will have on and around the geographical area of the license;
- listing of all prior exploration documents for the area in question;
- exploration schedule including dates of commencement;
- the different stages and conclusion; and
- plan for drilling and other development projects including the clean-up of work areas and altered land.

(ii) exploitation: Like in the case of an exploration license, an application for an exploitation license should state in a clear manner the purpose of the application and contain information on the proposed operation of the applicant as decided by the NEA.

Information on the following must be con-

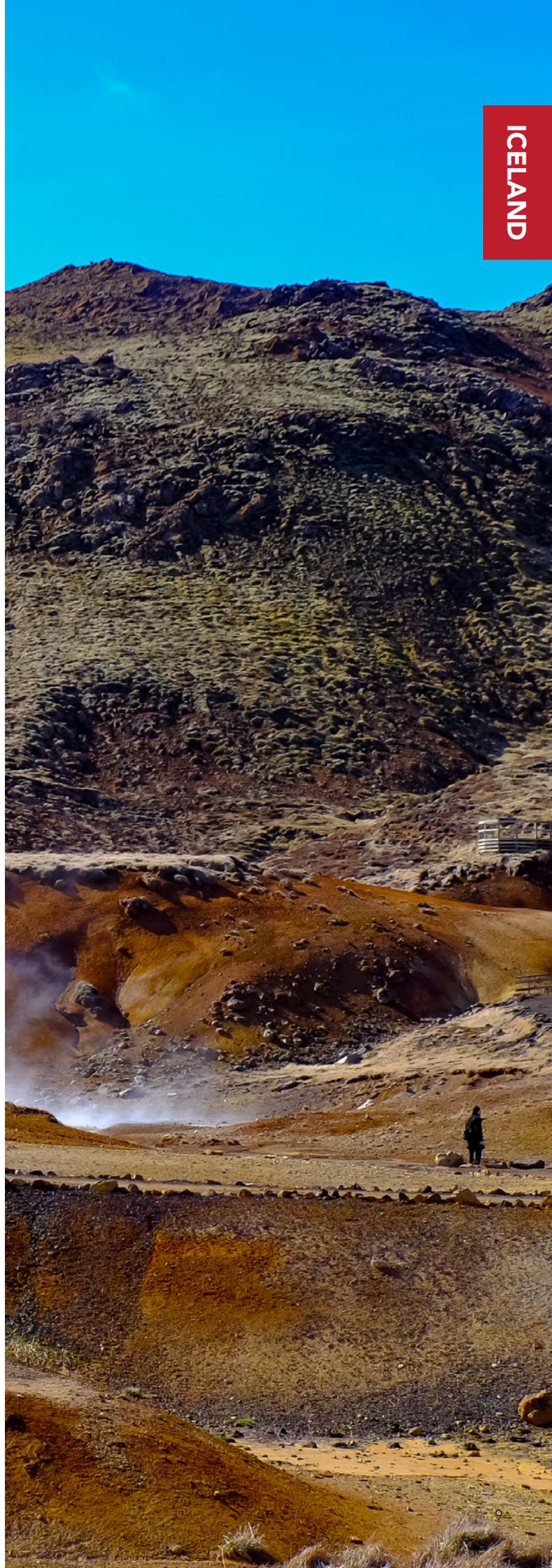
tained in the application of an exploitation license in accordance with the best practice guidelines established by the NEA:

- the purpose of the license;
- detailed geographical boundaries of the requested license;
- time schedule for the execution of exploration;
- report on the plausible effect the exploration will have on and around the geographical area of the license;
- listing of all prior exploration documents for the area in question;
- exploration schedule including dates of commencement;
- the different stages and conclusion;
- plan for drilling and other development projects including the clean-up of work areas and altered land;
- information on the provisions on the quantity and rate of utilization of the resource in question;
- the applicant's insurances in case of any liabilities caused by the licensee; and
- information on environmental aspects including the final decision on behalf of the administrative body of environmental matters.

According to the Natural Resources Act the NEA shall, when reviewing an application for exploitation, ensure that (i) the utilization of the resources is consistent with environmental considerations, (ii) the use of the resources is efficient from a macroeconomic perspective and (iii) account is taken of existing utilizations in surrounding areas.

(iii) power plant: An application for a power plant license shall be in writing and accompanied by the following documents:

- the name of the applicant, registration number, address and legal form (license to construct and operate an electric power plant can only be granted to independent legal and taxable entities); unless they have 100 kW or less installed capacity.
- conclusions of the research made for the respective power plant;
- a description of the power plant, including maps and plans showing the location and arrangement of facilities, key statistics on the power plant and the demarcation of the power plant area;



- a draft timeline for the construction of the power plant, when the construction should be complete and when the operation of the power plant is to start;
- the budget for the construction of the power plant;
- an agreement with the transmission and/or distribution system operator;
- information on whether an agreement has been reached with the landowner/owner of the resources with regards to compensation for the resources;
- information on the environmental factor of the power plant and the influence on the relevant energy resource, including whether an environmental impact assessment must be carried out according to Act on Environmental Assessment no. 106/2000 (“Environmental Impact Act”); and
- information on what other license the applicant considers relevant for this type of operation and whether the power plant is fully consistent with the existing town and country planning.

The NEA must take the following into consideration when granting a power plant license:

- power plant licenses can only be granted to independent legal and taxable entities; unless they have 100 kW or less installed capacity.
- a license can only be issued for the production of energy from renewable resources (certain exemptions apply for back-up power plants in isolated transmission systems);
- the power plant must be connected to the transmission system either directly or through a distribution system operator if the power plant is smaller than 7 MW;
- an environmental assessment must have been carried out; and
- the power plant must be fully consistent with existing town and country planning as defined by the relevant municipality and whether the applicant has sufficient funding to build the power plant and necessary facilities and equipment for the power plant.

5. Duration of licenses and renewal

5.1 What is the maximum duration of a license for:

(i) exploration: The maximum duration is not limited by law. Normally exploration licenses have a duration of 1-15 years.

(ii) exploitation: Exploitation licenses can have a duration of up to 65 years.

(iii) power plant: The maximum duration of a power plant license is not limited by law. We note however that a power plant license expires 10 years following its date of issue if the license holder has not begun development at that time and 15 years after the date of the issue if a power plant has been constructed but not commenced operating.

6. Terms of licenses

6.1 What are the general terms of the license for:

(i) exploration and exploitation: In a license for exploration and/or exploitation the following is specified:

- whether the articles of association of the license holder have been approved by the relevant Minister, in instances where the license holder is a legal entity;
- duration of the license, including information on when the operation shall commence and by what time it should be completed;
- definition of the relevant geographical area;
- what resources the license covers, including information on quantity and rate of utilization;
- that the NEA approves of the preliminary drawings of any proposed facilities;
- reporting obligations of the license holder;
- safety and environmental protection measures;
- purchase of insurance for damage caused by the license holder;
- surveillance and cost of surveillance;
- payment of license fee to meet the cost of the preparation and the issue of the license;
- how extraction of facilities and equipment should be carried out following expiration of the license; and
- clean-up of work areas and land that has been altered in the course of exploration and/or exploitation.

(ii) power plant: In a license for power plants the following information is specified:

- the size of the power plant and definition of the relevant geographical area;
- information on when the operation shall commence and by what time it should be completed;
- reporting obligations imposed on the license holder with regards to the NEA and the transmission system operator, to the extent necessary for those parties to perform the respective roles;
- safety and environmental protection measures;
- conditions relating to the technical and financial capacity of the license holder;
- disposal of facilities and equipment when their use is discontinued; and
- other matters pertaining to the conditions of the license and the obligations of the license holder.

6.2 Are exploration license holders granted pre-emptive rights with regards to exploitation or do exploration licenses automatically convert into exploitation licenses if the resource has been substantiated?

A landowner has pre-emptive rights to an exploitation license.

Generally, an exploration license does not grant the holder pre-emptive rights nor does it automatically convert into an exploitation license. We note however that holders of exploration license for a district heating utility hold pre-emptive rights with regards to exploitation license for up to 2 years after the exploration license terminates.

If so, are there any conditions?

A landowner shall previously have been granted an exploration license in order to hold pre-emptive rights to an exploitation license.

6.3 Is an exploitation license included in a power plant license or are these licenses separate?

Exploitation licenses are granted on the basis of the Natural Resources Act with the conditions related thereto such as regarding sustainable use of the resource. Power plant licenses are granted separately on the basis of the Electricity Act.

7. Termination and revision of licenses

7.1 What actions by the license holder would warrant revision of exploration-, exploitation- and power plant licenses?

(i) exploration license: If environmental objectives are not met and reasoned with documents, in accordance to the Act on control of Groundwater no. 15/2011 ("Groundwater Act"), an exploration license can be revised.

(ii) exploitation license: exploitation licenses can include provisions on revision after a given time is passed. If environmental objectives are not met and reasoned with documents, in accordance to the Groundwater Act, an exploration license can be revised.

(iii) power plant license: the NEA can include a provision in a license regarding the revision of a license in case more than one producers intend to produce electricity in the same geographical area, in order to secure the overall efficiency of the area in question. The NEA can also include a provision regarding the revision of a license on the grounds that terms of conditions have changed substantially. If environmental objectives are not met and reasoned with documents in accordance to the Groundwater Act, an exploration license can be revised.

7.2 Does the license granting authority have the power to revoke or terminate licenses? If yes, what actions of the license holder would warrant the termination of the license?

(i) exploration license: According to the Natural Resources Act, an exploration license can be revoked if any of the conditions in an exploration license are not fulfilled or the contracts relating to the license. A written warning shall be issued providing time limits for rectification. The license shall be revoked in case the license holder does not comply with the terms contained in such warning.

(ii) exploitation license: If a license holder does not reach an agreement with the owner of the land and/or the resource for compensation or requests expropriation to the relevant Ministry within 60 days from the date of issue of the license, it shall be revoked. Also, according to the Natural Resources Act, an exploration license can be revoked if any of the conditions in an ex-



ploration license are not fulfilled or the contracts relating to the license. A written warning shall be issued providing time limits for rectification. In case of the license holder does not comply with the terms of such warning, the license shall be revoked.

(iii) power plant license: if a license holder does not reach an agreement with the owner of the land and/or the resource for compensation or requests expropriation to the relevant Ministry within 90 days from the date of issue of the license, it shall be revoked. If construction has not started within 10 years from the date of issue of the license, it will be revoked. Also, if production of electricity has not started within 15 years from the date of issue of the license, it will be revoked. According to the Electricity Act, a power plant license can also be revoked if any of the conditions in a power plant license are not fulfilled or the contracts relating to the license. A written warning shall be issued providing time limits for rectification. In case of the license holder not complying with the terms of such warning, the license shall be revoked.

7.3 Can the license granting authority set forth conditions into licenses which provide for (i) stricter terms and conditions for licensees or (ii) more lenient terms and conditions for licensees, when such terms and conditions (whether stricter or more lenient) are not otherwise provided for by law?

The license granting authority, the NEA, can put forth stricter terms and conditions in order to guarantee that environmental and socio-economical aspects are respected as well as the exploitation already begun in the geographical area. The authority cannot put forth more lenient terms and conditions than the ones the law provides for.

7.4 Which remedies does the License granting authority have in order to enforce compliance to the terms and conditions of a license, other than by revoking the license?

The NEA can only put forth a written warning if conditions are not complied with prior to a revocation of a license in the case of exploration and exploitation licenses. In the case of power plant licenses, the NEA can put forth daily fines ranging from 10,000-500,000 ISK in relation to the severity of the fault. The NEA can put forth

a written warning and a moderate time limit for amendment. In the case of non-compliance to the written warning and request for amendment the NEA can revoke the license or alter it. If the fault is considered to be severe, the NEA can revoke the license without warning.

8. Regulatory and information obligations

8.1 Briefly outline the surveillance carried out by the regulatory authorities during the license period, e.g. with regards to reporting duties and/or on-site visits?

The monitoring of exploration and exploitation licenses is based on the Natural Resources Act. The purpose of monitoring of exploration and exploitation licenses is to secure the sustainable utilization of the natural resources. Also, to make sure that the conduct of the licensee is in such manner that the resources are not contaminated or limited in any way for future use.

The NEA is responsible for monitoring exploration and exploitation based on granted licenses. The NEA reports to the Ministry on the execution of search, exploration and exploitation of natural resources. The protection and monitoring of exploration and exploitation areas is also subject to the Nature Conservation Act. The monitoring is largely conducted by collecting the data to be delivered by the licensee. When there is doubt or if the licensee has been in breach of the conditions in the license, NEA employees visit the sites for inspections. There are no regular onsite inspections or visits.

Monitoring of power plant licenses is based on the Electricity Act no. 2003/65 ("Electricity Act"). The purpose of the monitoring is the same as mentioned above, to secure the sustainable utilization of the natural resources and to make sure that the conduct of the licensee is in such a manner that the resources are not contaminated or limited in any way for future use. The monitoring shall make sure that the licensees fulfil all the conditions according to the Electricity Act. The NEA shall also cooperate with the Competition Authorities regarding the production of electricity in vertically integrated companies. The NEA may appoint an accredited inspection agency to monitor licensees regarding the conditions under the Act on Measures, Weights and Accreditations no. 62/2005.

The NEA can request all information and data needed for the monitoring of issued power

plant licenses. The NEA can also stipulate that these parties shall regularly inform the NEA of matters which are important to the monitoring. Furthermore, it can request parties subject to regulatory monitoring to establish internal controls pursuant to requirements established by the NEA.

The NEA may request information or data from other public authorities for the purpose of its regulatory activities.

The NEA performs necessary inspections of the places of business of parties and can seize documents when there is a strong reason to believe that the provisions of the Electricity Act and other regulations or conditions of the license have been violated.

8.2 Which information is required to be submitted to regulatory authorities during the license period for the holder of a license for:

(i) exploration: The holder of an exploration license shall no later than May 1st every year and at the end of the license term submit a report with all the results of the exploration as well as information on the nature and size of the resource. The extent of information to be delivered in is based on the exploration schedule which sets the frame for information due to be handed in.

If a license holder or landowner drills holes, he shall keep a diary describing the location of the hole, sedimentary stratas, type and depth, when water enters the hole, temperature and other related information. License holders shall hand over a copy of the diary within a month from the drilling of the hole. The NEA can demand that specimens of rock and soil from the drilling be preserved.

(ii) exploitation: License holders shall submit to the NEA a report no later than May 1st every year containing information regarding the total quantity and estimated value of the extracted resource and other information indicating the situation of the resource. The license holders shall make sure that the know-how of the geothermal resource and experience gathered during its exploitation is accessible and transparent both to the public and for academic purposes.

If a license holder or landowner drills holes, he shall keep a diary describing the location of the hole, sedimentary stratas, type and depth, when water enters the hole, temperature and other related information. License holders shall hand

over a copy of the diary within a month from the drilling of the hole. The NEA can demand that specimens of rock and soil from the drilling be preserved.

Information on extraction of energy and mass, release of liquid and gases, pressure draw down, chemical changes and earthquake measurements shall be public within a year. Information and data to be handed in regarding the nature and size of the natural resource and the response of the geothermal system to production shall be made public within 5 years from the making of the data. If a licensee is of the opinion that it is important to prolong the secrecy of the data on account of business interests or competition interests, it can be requested to the NEA with reasoning, for 5 years at a time. Data to be handed in is the following:

- total monthly quantity of geothermal liquid extracted from the geothermal system (in kg) and the extraction per year (in Tg);
- total monthly quantity of geothermal liquid extracted from each borehole on the geothermal area (in kg);
- total monthly quantity of liquid drawn down into the geothermal system (in kg) and the draw down per year (in Tg);
- monthly reading of the temperature of water drawn down into the geothermal system (in °C);
- monthly measurements of the water level of the boreholes on the geothermal area and can be measured (in m);
- measurements of pressure or pressure draw down into the geothermal system (in MPa/bar);
- measurements made on the warmth of the borehole liquid from each borehole exploited on the geothermal area in question (in kJ/kg) and the relevant data supporting it;
- primary geothermal energy utilization from the geothermal well (in PJ/a). Primary geothermal energy is the energy that is released from the geothermal liquid on its way from the original state to the referred state at 15°C at 1 bara;
- primary geothermal utilization of geothermal minus the primary energy of geothermal liquid drawn down into the same geothermal well within the same period;
- heat and pressure measurements in boreholes on the geothermal area;
- chemical analysis on geothermal water (and steam where applicable);

- results of simulator calculations made for the geothermal system;
- measurements made to monitor the changes in the geothermal system;
- information on new boreholes on the exploitation area; and
- results from new boreholes regarding the nature of the geothermal system.

(iii) power plant: The NEA can request all information and data necessary for the monitoring of the licensee. Data to be handed in is the following:

- total monthly quantity of geothermal liquid extracted from the geothermal system (in kg) and the extraction per year (in Tg);
- total monthly quantity of geothermal liquid extracted from each borehole on the geothermal area (in kg);
- total monthly quantity of liquid drawn down into the geothermal system (in kg) and the draw down per year (in Tg);
- monthly reading of the temperature of water drawn down into the geothermal system (in °C);
- monthly measurements of the water level of the boreholes on the geothermal area and can be measured (in m);
- measurements of pressure or pressure draw down into the geothermal system (in MPa/bar);
- measurements made on the warmth of the borehole liquid from each borehole exploited on the geothermal area in question (in kJ/kg) and the relevant data supporting it;
- primary geothermal energy utilization from the geothermal well (in PJ/a). Primary geothermal energy is the energy that is released from the geothermal liquid on its way from the original state to the referred state at 15°C at 1 bara;
- primary geothermal utilization of geothermal minus the primary energy of geothermal liquid drawn down into the same geothermal well within the same period;
- heat and pressure measurements in boreholes on the geothermal area;
- chemical analysis on geothermal water (and steam where applicable);
- results of simulator calculations made for the geothermal system;
- measurements made to monitor the changes in the geothermal system;
- information on new boreholes on the ex-

- ploitation area; and
- results from new boreholes regarding the nature of the geothermal system.

9. Power purchase agreements

9.1 Are general terms and conditions, such as duration of Power Purchase Agreements regulated? If no, is there any soft law or general recommendations in place in your jurisdiction?

General terms and conditions of Power Purchase Agreements ("PPA") are not regulated by Icelandic law. We note however that if the power producer is owned by the Icelandic state and/or municipalities the agreement is subject to notification and approval by the EFTA Surveillance Authority ("ESA") in order to ensure that the agreement does not entail state aid cf. Article 61 of the EEA Agreement. In the absence of a market price for electricity to power intensive industries in Iceland, the basis of ESA's examination has been to assess whether the PPA made by a publicly owned company is made on terms acceptable to a private market investor and whether the sale of electricity would be expected to be sufficiently profitable for a private operator. In instances where the power comes from existing facilities ESA has examined whether the price set out in the agreement is acceptable with reference to the price set out in other existing power contracts. Where the power comes from a new facility the basis for ESA's examination is whether the power producer obtains acceptable return on the new investment (the power plant).

9.2 What is the permitted or general duration of PPA's?

Duration of PPA's is not regulated by law. Duration of existing PPA's approved by ESA ranges from 15-40 years.

Duration of wholesale agreements to retail companies is usually from 5-10 years.

9.3 Are public and/or national regulatory authorities involved in any way in forming the terms of PPA's, either directly or indirectly?

ESA is indirectly involved if the power producer is a publicly owned company as explained above. The NEA is however in no way involved in the forming the terms of PPA's.

10. Incentives

10.1 Are there any incentives offered by the government or local authorities for utilization of geothermal energy? If yes, in what form (e.g. tax and/or feed-in tariffs) and what are the maximum amounts permitted?

No. We note however that foreign investors can apply for an investment agreement with the Icelandic Government under Act on incentives for initial investment in Iceland no. 41/2015. It has been common practice in recent years that foreign investors making large investments in Iceland have entered into an investment agreement prior to the PPA. Approved investment qualifications will qualify for incentives in the form of derogations from taxes and charges, a fixed income tax rate for a period of 10 years as well as exemptions from customs and excise duties on importation. The incentives are thus provided for the investment and not through the PPA.

10.2 What requirements must the project fulfil in order to be eligible to receive such incentives?

To qualify for an investment agreement with the Icelandic Government a number of conditions must be met, such as that a minimum of 75% of the investment cost must be financed without state aid (thereof 20% of that proportion must be financed with own equity of the party applying for incentives) and the annual turnover of the prospective investment project must be a minimum of ISK 300 million or create a minimum of 20 new jobs within the first 2 years. The investment shall be in operation in a given area in Iceland for at least 10 years

10.3 Are the incentives subject to recovery in any instances?

N/A

11. Participation and authority of indigenous peoples

11.1 Are the rights of indigenous peoples in connection to geothermal resources regulated?

N/A

11.2 To what extent are indigenous municipalities involved in the process of granting licenses?

N/A

12. Alteration of law and regulation

12.1 What are the principles regarding retroactivity of laws and regulations, can changes in such rules affect license holders?

It is a general principle under Icelandic law that laws should not be retroactive and should accordingly not affect licenses already issued.

13. Taxation

13.1 How does taxation in the sector affect license holders?

License holders are taxed in the same manner as other legal entities in Iceland in accordance with the Act on Income Tax no. 90/2003. Companies with limited liability are subject to 20% income tax and partnerships and other company forms subject to 36% income tax.

13.2 Is the sale of energy subject to VAT?

Yes, the VAT on the sale of electricity is 24% and 11% for electricity used to heating houses.

13.3 Is VAT refundable and what is the procedure for VAT refunding?

VAT is not refundable as concerns the sale of energy.

14. Environmental impact assessment

14.1 What demands are there regarding environmental impact assessment prior to exploration, exploitation and or production of geothermal energy?

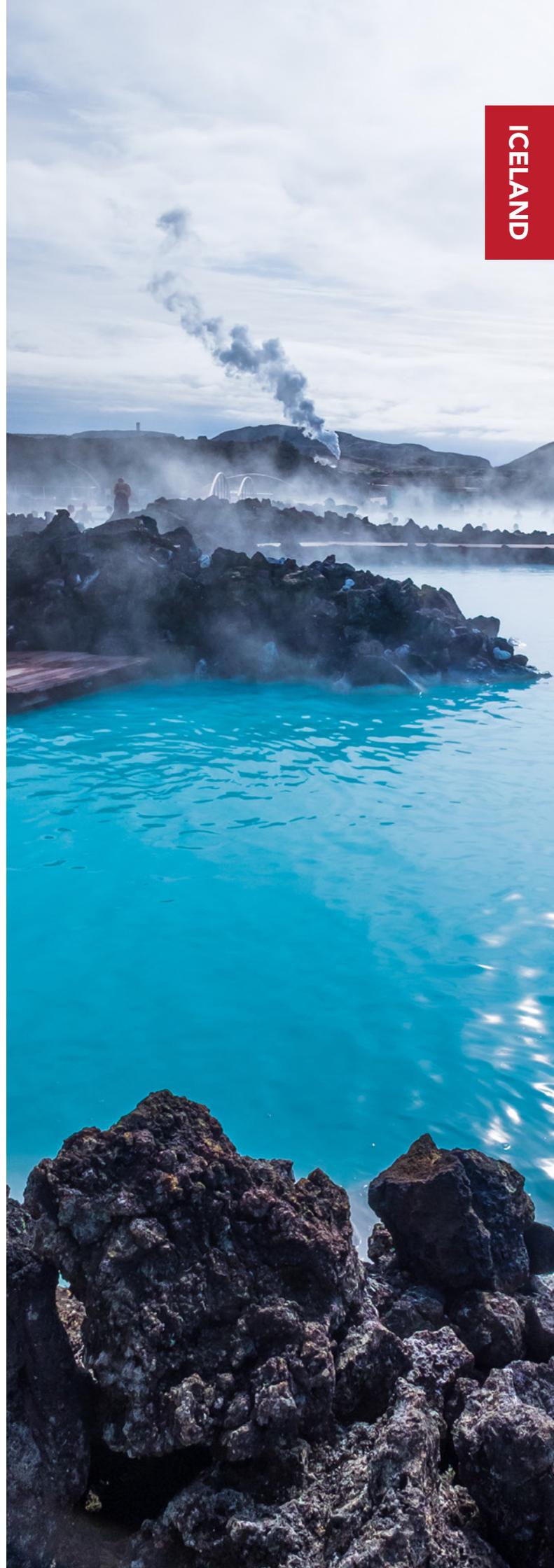
Utilization of geothermal energy is subject to environmental impact assessment when such utilization could have significant environmental effects due to its scope, nature or location. Environmental impact assessment is governed by the Environmental Impact Act, nr. 106/2000. A project developer shall notify the National Planning Agency ("NPA") prior to utilizing geothermal energy and submit the following documents:

- description of the project (scope and main steps);
- information on the geographical area of the proposed project and proposed facilities;
- information on how the proposed project falls within the plan, proposed facilities and general information on how the project fits within the existing town and country planning;
- description of local conditions, terrain, vegetation and land use and whether the proposed project is near or on protected areas; and
- description of which parts of the project may have an impact on the environment.

The NPA shall make a decision on whether a project is subject to environmental impact assessment within four weeks.

If the proposed project is subject to environmental impact assessment, the developer of the project shall submit a scoping document proposal to the NPA as early as possible on the planning stage. In the proposal, the project developer shall provide information on the following:

- the project;
- the project site and alternatives which could be considered and provide information on the planning of the project site;
- how the project will comply with development plans;
- what aspects of the project and of the environment should be emphasised;
- description of data already available; and
- a plan for making information available and for public consultation.



The scoping document proposal shall be made known to consultation bodies and the general public as well as the NPA. The NPA shall make a decision on the developer's proposal within four weeks of its receipt, having received the opinion of the licensors and other parties, as appropriate.

Once this procedure is done and a project developer decides to engage in the project, a report on the environmental impact assessment must be complied. The substance of the report shall be consistent with the scoping document. The report shall specify the effects, cumulative and synergic, direct and indirect, which the proposed project and concomitant activities may have on the environment and the interaction of individual environmental factors. It shall explain upon what premises the assessment is based. It shall describe the aspects of the proposed project which are regarded as most likely to have an impact upon the environment, including its scale, design and location, compliance with development plans, proposed mitigating measures and proposals for environmental monitoring where appropriate. The main alternatives considered, and their environmental effects, shall always be explained and compared. A non-technical summary shall be prepared describing the report's main findings. The report's findings shall include classification and criteria for the environmental impact of individual aspects of the project, based upon guidelines issued by the NPA.

Within four weeks of receiving the environmental impact statement, the NPA shall deliver a reasoned opinion on whether the report meets the criteria of the Environmental Impact Act and whether the environmental impact is satisfactorily described. The NPA's opinion shall explain the main premises of the assessment, including the quality of the data on which the assessment is based, and its conclusions.

15. Licenses

15.1 What other licenses are needed in order to commence exploration, exploitation and/or production with geothermal energy?

All major projects that have potential effect on the environment and may change its appearance are subject to a development license from the relevant municipality subject to the Act on Planning no. 123/2010. Further, all power plants must apply for a building permit from the NPA in accordance with the Act on Constructions no. 160/2002.

We note also that power plant options, larger than 10 MW, that fall in the energy utilization category of the Master Plan for Nature Protection and Energy Utilization ("Master Plan") can be used for generation of electricity. The Master Plan only handles power plant options larger than 10MW. The Master Plan is established with Act on the Plan for nature protection and energy utilization no. 48/2011 ("Master Plan Act"). The objective of the Master Plan is to bridge opposing views and interest regarding land use in areas rich in energy resources in Iceland. The Master Plan Act provides for a process whereby power plant options are categorized into a) energy utilization category, b) on hold category and c) protection category depending on a number of factors. The Master Plan shall be submitted in the form of a parliamentary resolution for an approval by the Icelandic Parliament at minimum every four years.



CANADA



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Statistics:

1. Size of country: 9,985,000 km².
2. Population: 36,200,200 (2016).
3. Years of producing electricity from geothermal: 0.
4. Installed capacity of geothermal (MWe): 0 MWe.
5. Installed capacity of other sources (MWe): 140,000 MWe (2014).
6. Electricity production from geothermal (GWh): 0 GWh.
7. Electricity production from other sources (GWh): 617,250 GWh.
8. Proportional production by source:

- Hydro – 62.5%
- Nuclear – 13.4%
- Gas/Oil/others – 10.8%
- Coal – 9.9%
- Non-hydro renewables – 3.4%



Sources: Statistics Canada.

Canada is a federal state, which is comprised of ten provinces and three territories. Both the federal government and provincial governments have authority over matters such as resource development and the environment.

The division of powers is outlined by the Canadian Constitution Act, 1867. Under the Constitution Act, the exploration, development and export of non-renewable natural resources falls within the purview of the provincial governments.

Outside of the province of British Columbia, no other province in Canada has created geothermal specific legislation. The province of Alberta is now considering specific legislation regarding geothermal development and in particular the province is considering how existing oil and gas wellbores might be repurposed for geothermal applications. Until legislation or regulations are finalized it would be impossible to speculate or comment on what the ownership, licensing and liability regime might include.

In other parts of the country geothermal energy is being utilized through heat transfer or geo-exchange processes, though the focus of this survey is geothermal power production. Thus, we have restricted our analysis to BC where the only geothermal specific legislation has been enacted.

1. Ownership and access to geothermal resources

1.1 What are the rules on ownership of geothermal resources? Can private parties hold ownership of geothermal resources?

The provincial government of British Columbia (BC) has created legislation specific to the development of geothermal resources, the Geothermal Resources Act (the "Act"), which provides that all such resources are property of the provincial government (not private landowners or owners of subsurface rights) and that the pro-

vincial government may dispose of geothermal resources pursuant to the Act.

In the province of Nova Scotia, the geothermal resource is contemplated by the Nova Scotia Mineral Resources Act. Similar to BC, this act provides that all geothermal resources are owned by the provincial government.

Other provinces in Canada have not yet taken steps to clarify ownership of geothermal resources and the ownership of such resources will vary in each province from parcel to parcel of land depending on whether subsurface resources have been granted to the owner of the land when the land was settled or whether the subsurface resources were reserved to the province.

1.2 Who can grant access to geothermal resources, only state or also landowner?

In BC, it is the Ministry of Energy and Mines of the BC Provincial Government which grants access to geothermal resources.

All entities, including landowners, must apply to the Ministry in order to explore and exploit geothermal resources. In BC the Act creates two types of geothermal tenure, permits and leases.

Both are issued by the Ministry of Energy and Mines.

A permit is a time-limited, exclusive right to explore for geothermal resources and apply for well authorizations to drill wells within the permit location subject to set terms and conditions. Permits are issued for one year and may be renewed up to seven times.

Leases are issued only after a permittee drills a geothermal well within a permit area and submits a satisfactory development plan for the location. Leases are issued for a 20-year term and may be renewed.

In other jurisdictions, access to subsurface resources would generally be granted by the owner of the subsurface resources, or where the resource is owned by the Crown, access would be granted by the Crown.

1.3 Is exploration/exploitation open to foreign investment?

Yes, the exploration and exploitation of geothermal resources in Canada are open to foreign investment. There are restrictions on major investments (those above \$1 billion CAD) by foreign controlled corporations and foreign state owned enterprises.

2. Allowed exploitation

2.1 Is exploitation of resources subject to licensing? Do landowners have a right to exploit resources without a license? If yes, to what extent?

The exploitation of geothermal resources is subject to a licensing regime, which includes permits, leases, and licenses.

In BC, the Ministry of Energy and Mines issues and administers geothermal resource rights on behalf of the Government of British Columbia and, with other provincial agencies, regulates exploration and drilling activities.

Permit and lease holders may apply to the Minister of Energy and Mines (the "Minister") to develop and produce a geothermal resource. Development and production can move forward only with the approval of the Minister.

In other provinces, the exploration of subsurface resources will generally be subject to licensing, however, as a specific regime for geothermal energy has not been created in those other provinces, the process is not yet defined.

3. Role and voice of landowner in licensing procedure

3.1 Does the landowner have a role in the process of granting a license for: (i) exploration, (ii) exploitation and (iii) power plant?

In Canada, subsurface resources may be owned separately from the surface of the land. Where the subsurface resource is to be explored and exploited, this may usually be done without the consent of the surface owner though the surface owner is usually consulted and may be compensated for any disturbance. Surface works such as a power plant generally require that the surface owner grant the right to occupy the surface lands.

3.2 Will an opposition of a landowner have bearing on the process of granting a license for exploration, exploitation or power plant?

The objections of a surface landowner will generally be considered but the surface owner generally does not have a "veto" right over subsurface development. This may be dealt with by way of compensation.



CANADA

4. Criteria for granting of a license

4.1 What documents need to be submitted and what is the criteria for obtaining a license for:

(i) exploration: In BC, geothermal exploration permits are issued through a sealed bid public competition. Prior to the sale, a public notice is published in the B.C. Gazette, outlining all the terms of the permit tenure disposition and the specifics of the tenure terms. Bids are opened on sale day and evaluated according to the criteria outlined in the public notice. The successful bidder's name is released shortly after the sale has concluded through a notice posted on the Government of British Columbia website. All bid materials must be submitted by email or post mail to the Energy Policy and Regulation Branch of the Electricity & Alternate Energy Division of the BC Provincial Government.

Permit holders may apply to the Minister for test hole program authorization. That application should include the areas in which the test hole program is to be carried out, the average depth of the test hole, and the method of abandoning the test hole.

The other provinces have not yet provided a blueprint for obtaining licenses for geothermal activity.

(ii) exploitation and power plant: In BC, applications to develop geothermal resources are made to the Minister, pursuant to the regulations under the Act. The application must include:

- an assessment of hydrological, geothermal and geological conditions in the reservoir;
- number and location of geothermal wells required for adequate development;
- any other information requested by the Minister.

Similarly, applications for production of a geothermal resource are made to the Minister, pursuant to the regulations under the Act. The application must include:

- an estimate of the volume of the geothermal resource to be produced with the hydrological, geothermal and geological conditions in the reservoir that have been determined;
- the location of each well to be produced and the proposed rate of production for each well;
- a description of the production facilities

that will be used and the proposed disposition of the resource;

- a plan for the protection of the environment;
- any other information requested by the Minister.

In addition, power plants may be subject to a range of provincial licensing and permitting requirements including air and water emissions permits, wildlife protection, public health and safety, environmental monitoring and protection, road construction and use, water use, and electrical and building permits.

5. Duration of exploration license and renewal

5.1 What is the maximum duration of a license for:

(i) exploration: Under the BC Act, exploration permits are issued for one year and may be renewed up to seven times.

(ii) exploitation and power plant: Exploitation leases are issued for a 20-year term and may be renewed. Leaseholders may apply to the Minister for approval of geothermal development plans and geothermal production plans. In the case where a production plan has been approved, a renewed lease will expire on the 20th anniversary of its renewal, and where no production plan has been approved, on the fifth anniversary of its renewal.

6. Terms of licenses

6.1 What are the general terms of the license for:

(i) exploration: In BC, exploration permits will not be issued except by public tender. They will include terms which define the geographical boundaries of the permit, and the prescribed rent. Permit holders have the exclusive right to apply for well authorizations for wells to be drilled within the geographical boundaries of the permit.

(ii) exploitation: Once a geothermal well has been drilled by a permit holder, that permit holder may submit a development plan to the Minister. If the Minister considers the development plan satisfactory, it will issue a lease in respect

of that location. Once the lease is issued, the permit expires with respect to the location of the lease, as it is no longer required. The lease holder must pay the prescribed rent for the lease.

(iii) power plant: Under the BC Act, there are no general terms provided for these licenses.

6.2 Are exploration license holders granted pre-emptive rights with regards to exploitation or do exploration licenses automatically convert into exploitation licenses if the resource has been substantiated?

Under the BC legislation, exploration permits do not automatically convert into exploitation leases. However, exploitation leases are issued only to exploration permit holders, and only after a permittee drills a geothermal well within a permit area and submits to the Minister a satisfactory development plan for the location.

6.3 Is an exploitation license included in a power plant license or are these licenses separate?

The license to construct a power plant is generally separate from the license to produce the resource. Power plants may be subject to a range of provincial licensing and permitting requirements including air and water emissions permits, wildlife protection, public health and safety, environmental monitoring and protection, road construction and use, water use, and electrical and building permits.

7. Termination and revision of licenses

7.1 What actions by the license holder would warrant revision of exploration-, exploitation- and power plant licenses?

(i) exploration license: The BC Act does not address which actions by a license holder would warrant revision of a license. However, under the Act, the Minister of Energy and Mines and the Lieutenant Governor in Council may make regulations or orders which may vary the terms of a license.

(ii) exploitation license: Same as above

(iii) power plant license: Same as above.

7.2 Does the license granting authority have the power to revoke or terminate licenses? If yes, what actions of the license holder would warrant the termination of the license?

(i) exploration license: Where a permittee or lessee fails to comply with a provision of the Act, or a regulation, notice, or order made pursuant to the Act, or a term, covenant or condition of that person's permit or lease, the permit or lease may be cancelled.

(ii) exploitation license: See above.

(iii) power plant license: Licenses are generally not revocable without material non-compliance on the part of the licensee.

7.3 Which remedies does the license granting authority have in order to enforce compliance to the terms and conditions of a license, other than by revoking the license?

A person who contravenes certain of the provisions of the BC Act may be liable to a fine of not less than \$500 and not more than \$5000. In addition, if a permittee or lease fails to comply with any provision, regulation, notice or order made under the Act the Minister may give the person notice to comply. If the person does not comply within 60 days after the notice is received, the Minister may declare the notice or lease to be cancelled.

7.4 Can the license granting authority set forth conditions into licenses which provide for (i) stricter terms and conditions for licensees or (ii) more lenient terms and conditions for licensees, when such terms and conditions (whether stricter or more lenient) are not otherwise provided for by law?

Yes, the Minister of Energy and Mines may make regulations of general application and may also make orders related to a specific location or well. These regulations and orders can relate to various aspects of well drilling, test holes, the production of geothermal resources, and the conservation of geothermal resources and may provide for terms, stricter or more lenient than those otherwise prescribed by law.

8. Regulatory and information obligation

8.1 Briefly outline the surveillance carried out by the regulatory authorities during the license period, e.g. with regards to reporting duties and/or on-site visits?

In BC, under the Act, the Minister retains the right to enter and inspect any well, or any other facility where geothermal resources are handled, processed or treated. In addition, the Minister retains the right to inspect all equipment, plant, and records relating to the resource, and to take samples or carry out tests or examinations.

After giving reasonable notice, the Minister is permitted to inspect records, and during business hours, in order to inspect those records has the right to enter the place where the records are kept.

8.2 Which information is required to be submitted to regulatory authorities during that same period for the holder of a license for:

(i) exploration license: In BC, a permit holder must carry out geothermal exploration of a prescribed value in every year. In the alternative, a permit holder may make payments instead of performing the work. A permit holder must record all work performed within a given permit year and provide this information to commissioner appointed under the Oil and Gas Activities Act.

(ii) exploitation license: In BC, a well operator must take a series of samples and prepare and deliver to the Ministry of Energy and Mines, within 30 days of the release of the drilling rig, descriptions of these samples and of any cores taken in the well.

In addition, a well operator must submit to the Ministry of Energy and Mines the results of a bottom hole sample analysis, a pressure, volume or temperature analysis, or a measurement made on a well for the purpose of investigating the well's producing characteristics.

Further, as drilling progresses, a well operator shall record abnormal changes in well temperatures and drilling rates on its daily report and submit a copy of each log to the Ministry of Energy and Mines not more than 30 days after the date the log was taken.

(iii) power plant license: This is generally provided in the license and would include such things as production levels.

9. Power purchase agreements

9.1 Are general terms and conditions, such as duration of Power Purchase Agreements regulated? If no, is there any soft law or general recommendations in place in your jurisdiction?

In most provinces, the terms of Power Purchase Agreements are subject to approval by utilities commissions or similar authorities. The terms of the Power Purchase Agreements are not prescribed by regulation.

It should be noted that in most provinces, the wholesale market for electricity is a monopoly which is operated by an agency of the government. In addition to regulatory requirements for constructing a generating facility, it is also necessary in those provinces to enter into arrangements (such as a power purchase agreement) with that agency, on the terms and conditions prescribed by that agency. Such arrangements are frequently entered into pursuant to a request for proposal (RFP) process.

9.2 What is the permitted or general duration of PPA?

There is no specific rule but terms of 20 years or more are typical.

9.3 Are public and/or national regulatory authorities involved in any way in forming the terms of Power Purchase Agreements, either directly or indirectly?

See above.

10. Incentives

10.1 Are there any incentives offered by the government or local authorities for utilization of geothermal energy? If yes, in what form (e.g. tax and/or feed-in tariffs) and what are the maximum amounts permitted? What requirements must the project fulfill in order to be eligible to receive such incentives?

Under Canada's Income Tax Act, certain types of renewable energy and conservation equipment are entitled to a 30% accelerated capital cost allowance rate. Geothermal equipment is



included among the equipment entitled to this tax break.

Some jurisdictions offer favorable rates for low-carbon or carbon-free electricity.

10.2 Are the incentives subject to recovery in any instances?

No.

11. Participation and authority of indigenous peoples

11.1 Are the rights of indigenous peoples in connection to geothermal resources regulated? To what extent are indigenous municipalities involved in the process of granting licenses?

The Canadian Crown has a constitutional duty to act honorably in its dealings with Canada's Aboriginal peoples. This obligation requires that the federal and provincial governments of Canada engage in consultation and accommodation with the Aboriginal peoples of Canada when the government contemplates actions that may affect Aboriginal or Treaty rights.

The duty of consultation and accommodation arises often in the context of natural resource development.

In many provinces in Canada it is often industry that consults with Aboriginal groups, though the ultimate substantive duty to ensure proper consultation and accommodation lies with the provincial and federal governments.

12. Alteration of law and regulation

12.1 What are the principles regarding retroactivity of laws and regulations, can changes in such rules affect license holders?

Laws are generally not retroactively applied unless the legislatures specifically state them to be retroactive. Governments are also sensitive to changing the rules for existing license holders so as not to create unnecessary uncertainty.

13. Taxation

13.1 How does taxation in the sector affect license holders?

Taxation of geothermal producers is governed by Canada's Income Tax Act.

13.2 Is the sale of energy subject to VAT?

All energy is subject to the 5% federal goods and services tax, and most provinces impose an additional sales tax of 5-8%.

13.3 Is VAT refundable and what is the procedure for VAT refunding?

A tax credit is provided for sales taxes paid by anyone who is not the end user (so that generators pay tax only on the value added and not on gross sales).

14. Environmental impact assessment

14.1 What demands are there regarding environmental impact assessment prior to exploration, exploitation and or production of geothermal energy?

In BC, the Act stipulates that before production of a geothermal resource can begin, the Minister must give approval. The application to the Minister for approval must include, among other things, a plan for the protection of the environment.

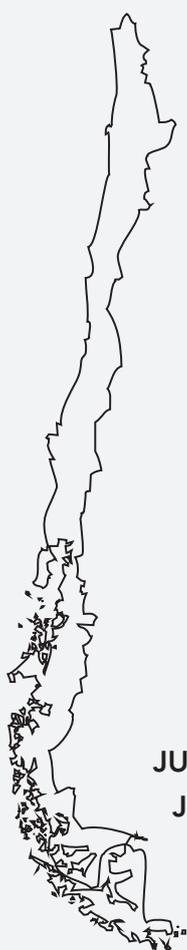
Similar rules are expected to apply in other jurisdictions based on existing rules in place for other similar developments.

15. Licenses

15.1 What other licenses are needed in order to commence exploration, exploitation and/or production with geothermal energy?

In BC, aside from the permit and lease tenure schemes, three other licenses/authorizations are available under the Act - test hole program authorization, well authorization, and the geothermal rig license.

Similar rules are expected to apply in other jurisdictions based on existing rules in place for other similar developments.



CHILE

/Carey

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AUTHORS:

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Statistics:

1. Size of country: 756,102 km² (not including the Chilean Antarctic Territory).
2. Population: 17,800,000.
3. Years of producing electricity from geothermal: 0.
4. Installed capacity of geothermal (MWe): 0 MWe.
5. Installed capacity of other sources (MWe): 20,076 MWe.
6. Electricity production from geothermal (GWh): 0 GWh.
7. Electricity production from other sources (GWh): 52,950 GWh.
8. Proportional production by source:

- Thermic – 62%
- Hydro – 33%
- Wind – 3%
- Solar – 2%



1. Ownership and access to geothermal resources

1.1 What are the rules on ownership of geothermal resources? Can private parties hold ownership of geothermal resources?

The Law No. 19,657 provides that geothermal energy belongs to the State, but may be explored and extracted by private parties holding a geothermal concession. Only under a geothermal exploitation concession, the geothermal concessionaire is entitled to use, produce and sell geothermal energy existing within the relevant geothermal concession area. Under a geothermal exploration concession, the geothermal concessionaire may only undertake studies and other research or exploration activities.

1.2 Who can grant access to geothermal resources, only state or also landowner?

The application for a geothermal concession has to be filed before the Ministry of Energy, either directly or through an offer filed in a public tender process.

The geothermal concessionaire does not need tenure on the land that covers the geothermal project because it has the right to impose the necessary easements for the development of its project. The constitution of easements and the compensation for any damage caused by the concessionaire to the owner of the surface land, or any other person, is determined by agreement among the parties and, in subsidy, by courts. In the latter case, during the judicial procedure the concessionaire may request to the judge a provisional authorization to use the surface land as a provisional easement, provided that it secures the payment of compensation that may rise.

However, in the case of houses and their appurtenances, or lands where vineyards and fruit trees are planted, only the owner may grant the permit to obtain easements and surface rights.

1.3 Is exploration/exploitation open to foreign investment?

Both exploration and exploitation is open to foreign investment through a legal entity duly incorporated in Chile.

As a general rule, investors wishing to bring foreign currency into the country shall do it through an entity member of the Formal Exchange Market (FEM), comprised of commercial banks operating in Chile and other entities expressly authorized by the Central Bank.

In general terms, there are no currency controls restricting the repatriation of capital, the repayment of debt, or the making of profit distributions or other payments to a non-Chilean shareholder, member or partner of a local joint venture.

2. Allowed exploitation

2.1 Is exploitation of resources subject to licensing? Do landowners have the right to exploit resources without a license? If yes, to what extent?

The only way to exploit geothermal resources is through an exploitation concession (in addition to environmental approval, construction permits, and other necessary permissions). These requirements are also obligatory for the landowner.

3. Role and voice of landowner in licensing procedure

3.1 Does the landowner have a role in the process for granting a license for (i) exploration, (ii) exploitation or (iii) a power plant?

Within the process for granting a geothermal concession, there is a specific term in which the landowner can file claims or comments to the Ministry of Energy about the damage caused by the geothermal project to him/her. This right is not applicable for the granting process of an exploitation concession that has been preceded by an exploration concession.

In relation to the power plant, the environmental impact assessment considers specific participation mechanisms in which the landowner may be included.

3.2 Can the opposition of the landowner change the granting of either an exploration, exploitation or power plant licenses?

The claims and observations submitted by the landowner in the granting process of a geothermal concession can be responded by the applicant within the term of 60 days. After that term, the Ministry of Energy decides if the geothermal concession is granted or not.

Most of the claims are rejected either because the law establishes the mechanism to resolve such disputes (i.e. compensations) or the legal requirements are not complied with. In addition, the Ministry of Energy may require relevant agencies (i.e. Water Bureau, National Forest Corporation and Indigenous Issues Agency, among others) to inform within their scope of power.

Regarding the environmental approval of the power plant, the landowner's and the community's observations in the environmental impact assessment process are not binding on the authority but persons whose observations have not been duly taken into consideration within the grounds of an environmental approval resolution are entitled to challenge such environmental approval resolution by filing an administrative claim. The administrative decision of such claim may be challenged before the Environmental Court.

4. Criteria for granting of a license

4.1 Which documents need to be submitted and what is the criteria for obtaining a license for (i) exploration, (ii) exploitation and/or (iii) power plant?

In order to obtain a geothermal concession, the application must contain: (1) the identification of the applicant; (2) financial and commercial information of the applicant; (3) the background of the applicant in similar projects; (4) the identification of the applying concession (exploration or exploitation, or exploitation preceded by an exploration concession); (5) the location, extension and dimension of the geothermal concession, and a map with the corresponding geographical information; and (6) the general, technical and economic information of the geothermal project, as well as the planned investment for its execution.

The Ministry of Energy may grant, partially reject or totally reject the geothermal concession according to the fulfilment of the geothermal



concession with the legal and regulatory requirements.

In order to participate in a public bidding process for obtaining a geothermal concession, the bidder must have a minimum capital of 5,000 UF if it is a person, or a minimum capital of 10,000 UF if it is a legal entity (UF is a unit of account adjusted to inflation. Currently, one UF is equal to USD 38 approx.). In addition, the bidder must include the requirement (6) aforementioned.

The power plant may require several permits (i.e. environmental, sanitary, municipal), depending on its features (capacity, location, construction, and so on).

5. Duration of licenses

5.1 What is the maximum duration of a license for (i) exploration, (ii) exploitation and/or (iii) power plant?

The maximum duration of an exploration concession is two years, extendible for another two years if the 25% of the investment for the project is materialized. Exploitation concessions are indefinite; and power plants' environmental authorizations are restricted to the term established in the specific permit.

6. Terms of licenses

6.1 Are exploration license holders granted pre-emptive rights with regards to exploitation or do exploration licenses automatically convert into exploitation licenses if the resource has been substantiated? If so, are there any conditions? Is an exploitation license included in a power plant license or are these licenses separate?

The concessionaire of an exploration concession has an exclusive right to obtain the exploitation concession in the respective exploration area. This right may be required to the State during the term of the exploration concession and up to two years after it expired through an app.

The exploitation concession and the environmental approval for a power plant are separate permits (both mandatory, if applicable).

7. Termination and revision of licenses

7.1 What actions by the license holder would warrant revision of exploration-, exploitation- and power plant licenses?

The Ministry of Energy carries out an annual revision of the geothermal concession based on the report provided by the geothermal concessionaire. In addition, if the geothermal project holds an environmental approval, it may be revised if, upon execution of the project, the variables assessed and foreseen in the follow-up plan which were the base of conditions or measures, have materially changed or have not been verified, so as to adopt the measures required to remedy such situations.

7.2 Does the license granting authority have the power to revoke or terminate licenses? If yes, what actions of the license holder would warrant the termination of the license?

The exploration concession expires after two years (extendible for another two years, if applicable), and may also terminate if the annual fee is not paid or if the concessionaire renounce totally or partially to it.

The exploitation concession is indefinite, but it expires if two consecutive annual fees are not paid or if the exploitation concessionaire does not undertake the exploitation works although he/she could have done them under reasonable conditions of profitability.

7.3 Can the license granting authority set forth conditions into licenses which provide for (i) stricter terms and conditions for licensees or (ii) more lenient terms and conditions for licensees, when such terms and conditions (whether stricter or more lenient) are not otherwise provided for by law?

The License Granting Authority grants or rejects a geothermal concession depending on its compliance to the legal and regulatory requirements. There is no space for administrative discretion in the terms under which the concession is granted.

Before the geothermal concession is granted, the License Granting Authority may modify some aspects of the geothermal project that was filed in the geothermal concession application in order to comply with legal requirements (e.g. the size of the land applied for). Once the geother-

mal concession is granted, only the holder of such concession is able to apply before the Ministry of Energy for a modification of the terms and conditions of the geothermal concession, which the Ministry of Energy can accept or reject based on the framework established by law and only under founded reasons.

Regarding the environmental permit of the geothermal project, it may be exceptionally reviewed after its approval where, upon execution of the project, the variables assessed and foreseen in the follow-up plan which were the base of the conditions of the environmental permit have materially changed, so as to adopt the measures required to remedy such situations.

7.4 Which remedies does the license granting authority have in order to enforce compliance to the terms and conditions of a license, other than by revoking the license?

There are no remedies to enforce compliance to the terms and conditions of a geothermal concession other than revoking the license, except for the non-payment of the annual fee, which is increased in a 10% when it is not paid every March plus a 5% additional charge for each month delayed.

In addition, the Superintendency of Environment may carry out on-site visits (by its own or through the relevant agencies) in order to supervise the execution of the geothermal project and/or the compliance with the corresponding environmental permits.

Finally, please note that once the power plant is generating electricity, the Superintendency of Electricity and Fuels supervises the compliance of the electrical regulation, and the Economic Load Dispatch Center coordinates and supervises the safety and quality of the service provided by power plants.

8. Regulatory and information obligation

8.1 Briefly outline the surveillance carried out by the regulatory authorities during the license period, e.g. with regards to reporting duties and/or on-site visits?

The Ministry of Energy supervises the execution of the project according with the activities and investments committed in the application of the geothermal concession.

8.2 Which information is required to be submitted to regulatory authorities during that same period for the holder of a license for (i) exploration, (ii) exploitation and/or (iii) power plant?

The geothermal concessionaire is required to report annually to the Ministry of Energy the completing of the geothermal project. This report must include the activities and investments executed in the project in each year. In addition, the start and finish of every drilling work for the geothermal project has to be reported to the Ministry of Energy.

In case the geothermal project has an environmental approval, specific information of the project has to be reported to the Superintendency of Environment.

Finally, please note that once the power plant is generating electricity, the Center of Economic Load Dispatch may require information from the project holder relating with the performance of the power plant.

9. Power purchase agreements

9.1 Are general terms and conditions, such as duration of Power Purchase Agreements regulated? If no, are there any soft law or general recommendations in place in your jurisdiction?

All of the terms and conditions of the Power Purchase Agreements are free to be decided by the parties who sign them, notwithstanding the compliance of the regulation that governs the electrical activity and the technical norms of safety and quality of the service.

However, an important number of Power Purchase Agreements is obtained after bidding processes for energy supply. In most of these cases, the terms and conditions of the Power Purchase Agreements are regulated in advance by the bidding rules.

9.2 What is the permitted or general duration of Power Purchase Agreements?

There is no rule relating with the duration of the Power Purchase Agreements. From our experience, the duration of this type of agreements varies from 8 to 20 years.



9.3 Are public and/or national regulatory authorities involved in any way in forming the terms of Power Purchase Agreements, either directly or indirectly?

The National Commission of Energy carries out the bidding processes for energy supply to distribution companies and establishes their rules. The terms and conditions of the Power Purchase Agreements are usually established in advance in the bidding rules.

10. Incentives

10.1 Are there any incentives offered by the government or local authorities for utilization of geothermal energy? If yes, in what form (e.g. tax and/or feed-in tariffs) and what are the maximum amounts permitted?

Since geothermal energy is a clean, renewable energy source, it qualifies as a Non-Conventional Renewable Energy ("NCRE"). Geothermal energy projects also comply with Chilean power generators' obligation to procure at least 20% of their annual energy sales from NCRE source, so geothermal energy provides NCRE credits.

On the other hand, geothermal energy projects are eligible for government financial support (Corporación de Fomento a la Producción's loans).

10.2 What requirements must the project fulfil in order to be eligible to receive such incentives?

Geothermal energy qualifies as a NCRE as it is expressly recognized in the number 3) of the Article 225 aa) of the General Law of Electric Services. In relation with the financial support, the requirements are determined in the relevant administrative act to grant such incentive.

10.3 Are the incentives subject to recovery in any instances?

The incentives are not subject to recovery under the current regulation.

11. Participation and authority of indigenous peoples

11.1 Are the rights of indigenous people in connection to geothermal resources regulated?

Indigenous people have a special statute in Chile that establishes, among others, that the indigenous land cannot be alienated and requires prior approval of the Indigenous Development National Corporation to impose a lien (i.e. an easement) on it. Therefore, the exploration and exploitation of geothermal concessions may be slowed down if such arrangements are not entered in due course.

Investment projects that are carried out within the boundaries of Indigenous Development Areas must be subject to participation procedures. In addition, if a project implies resettlement of indigenous communities, a significant alteration of their life styles and customs, or has proximity to indigenous populations, it must be submitted to the Environmental Assessment Agency by means of an Environmental Impact Study.

Finally, Chile ratified the ILO Convention 169 on Indigenous and Tribal Peoples in Independent Countries. As a result, the environmental approval resolution of investment projects must be consulted with indigenous people when it affects them directly. It has been understood that a project may directly affect indigenous people when the project has to be submitted to the Environmental Assessment Agency by means of an Environmental Impact Study. The corresponding consultation process is undertaken within the environmental assessment under a set of rules different from that applicable to regular citizen participation.

11.2 To what extent are indigenous municipalities involved in the process of granting licenses?

The geothermal concessions are granted by the Ministry of Energy, which also leads the granting process. Within this process, it may require the relevant agencies (e.g. Indigenous Issues Agency), but also the corresponding municipalities, to report relevant information within their scope of power in order to resolve the geothermal concession application.

12. Alteration of law and regulation

12.1 What are the principles regarding retroactivity of laws and regulations, can changes in such rules affect license holders?

Chilean law does not operate retroactively.

On the other hand, the geothermal concessionaire has a right of property over the concession. This right is protected by the Political Constitution. As a result, the only way to expropriate a geothermal concession to its owner is through a law enacted for that purpose and paying to the concessionaire the corresponding compensation, which includes the future flows.

13. Taxation

13.1 How does taxation in the sector affect license holders?

The energy sector is subject to the general rules of Chilean taxation. In addition, geothermal concessionaires must pay an annual fee for the concession, but there are no additional royalty payments during the exploitation of the resource.

13.2 Is the sale of energy subject to VAT?

Yes, VAT levies at a 19% rate the sales of energy in Chile.

13.3 Is VAT refundable and what is the procedure for VAT refunding?

Generally, the VAT works under a credit-debit mechanism, in which the VAT borne by the taxpayer constitutes a fiscal credit which is offset against the VAT fiscal debit arising from taxpayer's taxable activities.

Chilean VAT Law contemplates a mechanism to request an advance cash-refund of the VAT fiscal credit borne in relation to the taxpayer's fixed assets and accumulated for six or more consecutive monthly-periods. The procedure for the VAT cash-refund request initiates by a filing before the Chilean IRS, which has to be answered within 60 days and, in case of approval or non-response, the refund must be paid within five business days.

Exporters are allowed to recuperate the VAT borne in acquiring goods, using services or performing other taxable operations in their export activities. There are two mechanisms for the VAT refund. In order to qualify for the first mecha-

nism, within the month following the shipping of the goods, the exporter must submit to the Treasury a sworn statement together with the supporting documentation and background information.

Finally, please note that a VAT exemption regime is available regarding the import of capital goods that are necessary for the development of projects like energy plants. In order to apply for this exemption before the Ministry of Finance, a minimum investment amount of US\$ 5 million has to be evidenced jointly with other formal requirements. The authority has a 60-day period to review the presentation made.

14. Environmental impact

14.1 What demands are there regarding EIA prior to exploration, exploitation and or production with geothermal energy?

The exploration activities may require only “sectoral” permits, but not an environmental approval. However, prospecting activities do require environmental approval. Since these statements have a qualitative nature in the relevant regulation, the determination as to when an activity is considered “exploration” or “prospection” has been made on a case-by-case basis by the Environmental Authority.

In connection with the exploitation and or production, geothermal projects must obtain an environmental approval as long as its power plant has a capacity over 3 MW. In addition, geothermal projects will also require an environmental approval if it is located within protected areas regardless of its capacity. In order to get the environmental approval, the project holder must submit an Environmental Impact Study or an Environmental Impact Declaration, depending on the magnitude of the environmental impacts generated thereof.

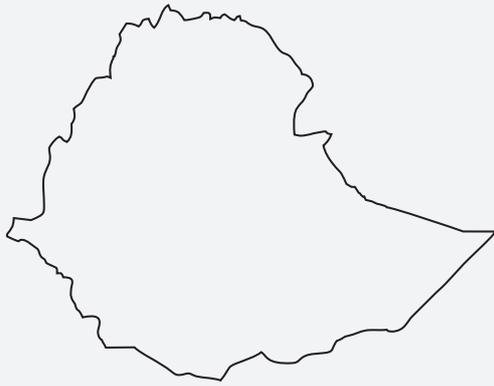
15. Licenses

15.1 What other licenses are needed in order to commence exploration, exploitation and/or production with geothermal energy?

Besides the corresponding geothermal concession, the environmental approval resolution operates as a global environmental permit, which certifies that a project complies with all applicable environmental laws and regulations, and

entitles the project owner to obtain from public agencies the “environmental sectorial permits” related to specific environmental components detailed in the environmental approval resolution.

In case a project or activity is not of those that must be submitted to the Environmental Impact Assessment Agency, environmental permits must be applied for before the corresponding agency. The timeline to obtain such permits will highly depend on the type of permit and the complexity involved.



ETHIOPIA

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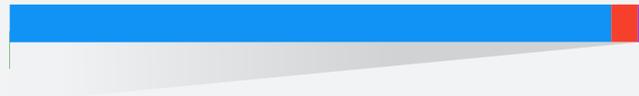
AUTHORS:

**TESHOME GABRE-MARIAM BOKAN
MAHLET KASSE**

Statistics:

1. Size of country: 1,104,000 km².
2. Population: 102,965,800.
3. Years of producing electricity from geothermal: Not available.
4. Installed capacity of geothermal (MWe): 8 MWe (2017).
5. Installed capacity of other sources (MWe): 2,000 MWe (2015).
6. Electricity production from geothermal (GWh): 19 GWh (2014).
7. Electricity production from other sources (GWh): 9,600 GWh (2014).
8. Proportional production by source:

- Oil – 0.1%
- Hydro – 95.5%
- Wind – 4.2%
- Geothermal – 0.2%



Sources: Think GeoEnergy (2017), World Bank, International Energy Agency (2014).

1. Ownership and access to geothermal resources

1.1 What are the rules on ownership of geothermal resources? Can private parties hold ownership of geothermal resources?

In general, no right of private ownership of land exists in Ethiopia. All land is state-owned and may be leased from the state for up to 99 (ninety-nine) years. The forms and practice of leasehold systems vary according to the various regions. As a result, private parties cannot hold ownership of geothermal resources.

The mineral resources existing in their natural condition on, in, and under the territory of Ethiopia are the property of the Government and all the peoples of Ethiopia, in accordance with the Constitution of the Federal Democratic Republic of Ethiopia.

1.2 Who can grant access to geothermal resource, only state or also landowner?

The Government which is the Licensing Authority acting through the Ministry of Mines, is the authority vested with the power to grant access to geothermal resources and exploration licenses. The Government, acting through the Licensing Authority, controls and administers mineral resources and grants, refuses and manages licenses.

N.B Under the new draft Proclamation "to Promote the Suitable Development of Geothermal Resources", (hereinafter the "Geothermal Proclamation") the Licensing Authority is the Ethiopian Energy Authority (the "EEA").

1.3 Is exploration/exploitation open to foreign investment?

Yes, it is in accordance with the relevant legislation

2. Allowed exploitation

2.1 Is exploitation of resource subject to licensing?

Yes, exploitation of resources is subject to licensing in Ethiopia. No person is permitted to undertake mining operations without having obtained the relevant license under the mining Proclamation.

2.2 Does the landowner have the right to exploit resources without a license? If yes to what extent?

There is no private land ownership in Ethiopia. A legitimate occupant of land may produce and use for non-commercial purposes, free of charge and without permission of the Licensing Authority, construction minerals from the area he occupies, provided that the area is not excluded or reserved pursuant to the Mining Operations Proclamation No. 978/2010, as amended (the "Mining Proclamation") mining proclamation and provided that he does not disturb or damage the adjacent occupant's land or property. In addition, any Ethiopian may conduct reconnaissance without having a license provided that he does not interfere with the rights of a licensee or any other person.

3. Role and voice of landowner in licensing procedure

As stated above, there is no private land ownership under the Ethiopian legal system. Ethiopian law grants possessory right over a land. Although, the community at large will not have the final say on license matters, the community along with the government and other stakeholders have all a role to play in terms of ensuring sustainable community. The Mining Proclamation has also provided that mining operations shall not be carried out within 500 meters from the boundary of a village, city or water reservoir or dam without the consent of the competent body.

Hence, the role and/or voice of the society are necessary in the licensing process. Accordingly, the community will be consulted during the regulatory process by which the public's input on matters affecting them is sought.

The role to be played by the community in some cases may further stretch to the point of changing the granting of either an exploration or exploitation or power plant license. Notwithstanding, the government may, where it is in the national interest of the country, open the area for mining operations. The same provisions are adopted into the current draft Geothermal Proclamation.

4. Criteria for granting of a license

The Licensing Authority grants an exclusive Exploration License where:

- the applicant has demonstrated that it has acquired or has access to the financial resources and the technical ability to conduct the proposed exploration operation in accordance with the work program;
- the estimated exploration expenditure is in accordance with the prescribed minimum exploration expenditure and the exploration work program;
- the environmental impact plan is approved; and
- the applicant is not in breach of any obligation of his reconnaissance license, if any.

The Licensing Authority shall grant a large or small scale license to an applicant where:

- the proposed work program is approved;
- the applicant has access to financial resources and technical ability to conduct the proposed mining operations optimally and in a safe manner;
- the environmental impact assessment has been approved; and
- the applicant is not in contravention of any obligations of the exploration license, if any.

There are no specific provisions dealing with power plant. The draft Geothermal Proclamation provides for three types of Licenses i.e., Reconnaissance License, Exploration License and Geothermal Wellfield Development and Use License.

5. Duration of exploration license and renewal

An exploration license is valid for an initial period specified in the License. However, such period shall not exceed three years. The exploration license may be renewed twice for a period not exceeding one year each. The Licensing Authority may allow further extensions of one year at a time where the licensee proves the necessity to undertake exploration activity beyond the initial work program. However, the total exploration period shall not exceed five years.

A small scale mining license is valid for the period specified in the license and such period shall not exceed 10 years. A small scale mining license may be renewed for a period not exceeding five years.

A large scale mining license shall be valid for the period specified in the license; provided however, that such period shall not exceed 20 years. A large scale mining license may be renewed for a period not exceeding 10 years.

6. Terms of licenses

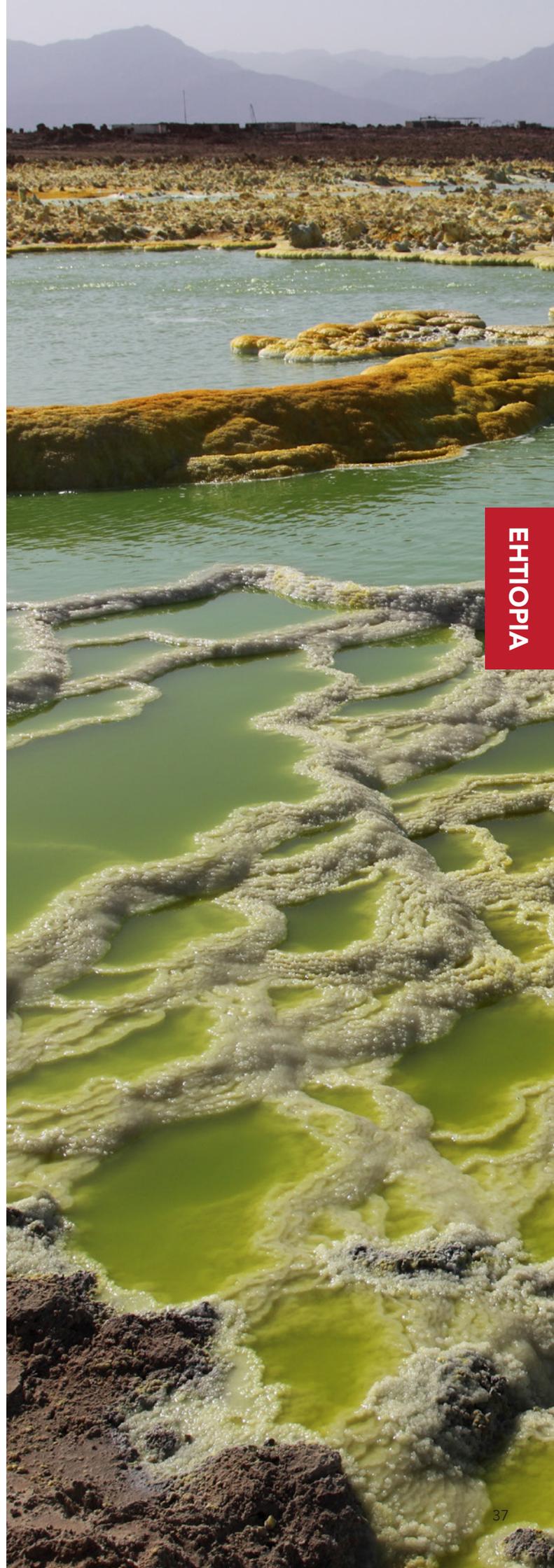
Pre-emptive right comes to exist if and where created by an agreement.

An exploration license does not automatically convert into an exploitation license. Rights granted under an exploration license are, to remove and transport minerals or bulk samples found during the course of exploration in such quantities as may be required to conduct tests or other analysis with the prior written permission of the Licensing Authority. However, such minerals will remain the property of the government and the licensee may not sell them without the prior written approval of the Licensing Authority.

For further exploitation of the resources, one has to apply for a mining license. Only the holder of a small scale or large scale mining license shall have the rights to market and sell minerals produced.

6.1 Is exploration license included in a power plant or are these licenses separate?

Exploitation license is separate from power plant license.



7. Termination of Mining Rights

7.1 What actions by the license holder would warrant revision of exploration-, exploitation or power plant licenses?

Mining rights shall terminate if:

- a licensee relinquishes the whole area or surrenders the license;
- a license is revoked by the Licensing Authority pursuant to the provisions of the Proclamation, regulations and directives;
- a license expires without being renewed; or
- without prejudice to the rights of heirs, a licensee dies, or where the licensee is a legal person, it is liquidated or declared bankrupt.

Upon termination of mining rights of the holder of a small scale or large scale mining license, the Government may, unless an agreement specifies otherwise, acquire all of the immovable and movable property used in the mining operations at a price equal to the then unamortized value of such assets, as shown in the financial book of accounts of the licensee.

If the Government does not exercise such right, the licensee shall be free to dispose such assets to another person in accordance with the applicable laws, or otherwise he shall be obliged to remove them as required by his environmental obligations.

The licensee shall be required on termination of a small scale or large scale mining license, to fence and safeguard, to the satisfaction of the Licensing Authority, any pits and other works in area covered by the license.

7.2 Suspension and Revocation of Mineral Rights

The Licensing Authority may suspend mineral rights partially or fully where it believes that the activity of the Licensee is likely to pose an imminent threat to the local community, the environment or its employees provided that such suspension is the only remedy under the prevailing rules.

The Licensing Authority shall inform the licensee of the date by which the suspension lapses and it may resume operations.

The Licensing Authority may revoke any license if the licensee:

- fails to comply with the financial obligations prescribed in the Proclamation, regulations or directives;
- conducts mining operations in a grossly negligent or wilfully improper manner
- breaches any material term or condition of his License;
- is not conducting his mining operations in accordance with the work program;
- is in breach of the approved environmental impact assessment, and safety and health standards;
- has submitted false or fraudulent information in connection with any matter required to be submitted under the Proclamation, regulations or directives;
- fails to maintain complete, accurate and current books and records or other documents or materials required or fails to file reports or other documents or fails to give notices where required; or
- fails to grant a duly authorized official of the Licensing Authority access into the license area, the area covered by a lease or to any other site or premises of the mining operations or to his books, records, other documents or materials, or fails to carry out a lawful order or instruction of such official.

Before any action, the Licensing Authority shall give notice in writing to the Licensee: setting out the grounds for considering the suspension or Revocation of the license; directing the licensee to take specified measures to remedy any contravention, breach or failure; and specifying a reasonable date of not less than 5 working days, before which the licensee may, in writing, submit any matter for the Licensing Authority to consider.

The Licensing Authority may lift the notice for suspension or revocation of a mineral right where:

- the licensee complies with the notice, by rectifying, removing, or as appropriate by mitigating the grounds for suspension or revocation, or by preventing the recurrence of such grounds within the time specified in the notice; or
- it accepts the reasons supplied by the licensee for the lifting of the notice.

7.3 Can the License Granting Authority set forth conditions into licenses which provide for (i) stricter terms and conditions for licensees or (ii) more lenient terms and conditions for licensees, when such terms and conditions (whether stricter or more lenient) are not otherwise provided for by law?

No, the licenses provided will be in accordance with the law and no special terms and conditions will be applicable.

7.4 Which remedies does the License Granting Authority have in order to enforce compliance to the terms and conditions of a license, other than by revoking the license?

If a licensee fails to pay royalty, income tax or any other payment on the due date, the Licensing Authority may by order prohibit the disposal of any mineral from the mining area concerned, or from any other mining area held by the licensee until all outstanding payments have been paid or until an arrangement has been accepted by the Licensing Authority for the payment thereof. Furthermore, it could be punishable with a fine up to Birr 200,000 or an imprisonment up to five years or both

8. Regulatory and information obligation

8.1 Briefly outline the surveillance carried out by the regulatory authorities during the license period, e.g. with regard to reporting duties and-or on site visits Inspections:

Any authorized inspector of the Licensing Authority may enter, during office hours, any license area and may:

- inspect any activity or process carried out in or upon the area in question;
- inspect any book, record, statement or other document and make copies or extracts thereof;
- examine any material or appliance found in the area;
- take samples of any material and test, examine, analyse and classify such samples;
- seize any material, appliance, book, record, statement or other document which might be relevant to a legal proceeding involving the violation of the Proclamation, regulations or directives and keep it in the custody of the Licensing Authority; and

- require support necessary for the accomplishment of his inspection.

8.2 Which information is required to be submitted to regulatory authorities during that same period for the holder of a license for: - Exploration, Exploitation and/or Power plant?

Records and Reports:

Any licensee shall maintain, in the country, proper records containing the following information and submit reports thereof to the Licensing Authority:

- information pertaining to his mining operations and the results connected therewith, including borehole core and core-log data;
- employment, financial, commercial and other relevant information.

The licensee may not dispose of or destroy any record, borehole core or core-log data specified herein above, without the prior written consent of the Licensing Authority.

9. Power purchase agreement

9.1 Are general terms and conditions, such as duration of power purchase agreements regulated? If no, are there any soft or general recommendations in place in your jurisdiction.

The details of a power purchase agreements are regulated by the Ethiopian Energy Authority. The Energy Proclamation No 810/2013 is the law that regulates energy, including geothermal energy. Apart from that, Ethiopia does not have a special law that lays out the principles of power purchase agreements. The current practice is for the producers and the government acting through the Ethiopian Energy Authority to negotiate the terms and conditions of Power Purchase Agreements.

10. Incentives

10.1 Are there any incentives offered by the government or local authorities for utilization of geothermal energy? If yes, in what form (e.g. tax and/or feed-in tariffs) and what are the maximum amounts permitted?

The Government may provide incentives and assistance to: (i) mining operations which are deemed to be vitally important in addressing



the immediate socio economic problems of the country; (ii) mining operations which promote the domestic utilizations of the resource produced through processing or beneficiation and (iii) artisanal mining carried out by cooperatives. The type and mode of incentives and assistance shall depend on the nature of the mining operations

10.2 Exemption from Customs Duties and Taxes

Any consumables, equipment, machinery and vehicles which any holder of an exploration license or his contractor may import into Ethiopia and required for its operations in accordance with the approved work program, shall be exempted from customs duties and taxes.

Any equipment, machinery and vehicles which any holder of a small scale or large scale mining license or his contractor may import into Ethiopia and required to start the mining operations in accordance with the approved work program shall be exempted from customs duties and taxes.

The holder of a small scale or large scale mining license may import free of customs duties consumables required to start and sustain commercial production for the first three months.

The holder of a small scale or large scale mining license who wishes to embark on a major mine production expansion shall have the right to import free of customs duties and taxes equipment and machinery needed for the expansion provided that the Licensing Authority has approved the expansion program.

The holder of an artisanal mining license, small scale mining license or large scale mining license shall be entitled to export free of customs duties and taxes minerals produced according to the license.

The holder of an artisanal mining license or the holder of any construction minerals mining license issued for the mining of sand or selected materials shall not be entitled to exemptions from customs duties and taxes

Any item imported free of customs duties and taxes into Ethiopia pursuant to the provisions of this Article may not be sold in Ethiopia without having obtained permission from the Licensing Authority and paid the required duties and taxes; provided however, that such item may be re-exported free of customs duties and taxes.

11. Participation and authority of indigenous peoples

11.1 Are the rights of indigenous peoples in connection to geothermal resources regulated? To what extent are indigenous municipalities involved in the process of granting licenses?

Even though Ethiopia is without a particular law designated to regulate such matters, the right of indigenous peoples under Ethiopian law is very much taken into consideration. Indigenous municipalities here again will not have the final say when deciding the granting of a license to an applicant. But as a stakeholder, their voice might impact the outcome of a license application.

12. Alteration of law and regulation

12.1 What are the principles regarding retroactivity of laws and regulations, can changes in such rules affect license holders?

The change or alteration of regulation might or might not affect license holders. Such a matter depends totally on the particular law to be issued. Licenses are at times dealt with in accordance with the laws in force prior to the coming into effect of the new law. And at times the opposite applies, licenses are subject to laws which are not in effect when the license is issued.

Currently Ethiopia is expecting a new law in the field of geothermal law. The final draft is expected to be published in the near future. If the publication is to take place, the new proclamation will have such an impact on prior license holder as stated herein below.

Article 51 of the draft geothermal law:

"Transitory Provisions

- Any license issued and agreement concluded that is related to geothermal operations under Mining Proclamation No. 678/2010 prior to the coming into force of this Proclamation shall continue in force for the remaining period of its validity. Thereafter, this Proclamation and Regulations and Directives issued hereunder shall apply.
- A holder of a license issued or agreement concluded that is related to geothermal operations under Mining Proclamation No.

678/2010 prior to the coming into force of this Proclamation may apply at any time for a License described in this Proclamation and Regulations and Directives issued hereunder.

- Any cause of action created or legal proceeding started before the coming into force of this Proclamation shall be dealt with in accordance with the laws in force prior to the effective date of this Proclamation.”

13. Taxation

13.1 How does taxation in the sector affect the license holders?

Any holder of a large scale or small scale mining license shall pay income tax in accordance with the Mining Income Tax Proclamation No. 53/1993 (as amended). According to this proclamation, a holder of large scale shall pay income tax of 25% of the taxable income. Income tax to be paid by holders of artisanal and small scale mining licenses shall be determined by the laws of the states.

The holder of a mining license shall pay royalty based on the sales price of the commercial transactions of the minerals produced in accordance with the following:

(i) The amount of royalty payable by holders of large scale mining licenses shall be at the following rate:

- precious minerals 8%
- semi-precious minerals 6%
- metallic minerals 5%
- industrial minerals 4%
- construction minerals 3%
- salt 4%
- geothermal 2%

(ii) The amount of royalty payable by the holders of artisanal and small scale mining licenses shall be at the rate fixed by the laws of the states.

13.2 Is the sale of energy subject to VAT?

This is not clear as yet.

13.3 Is VAT refundable and what is the procedure for VAT refunding

Yes, VAT is refundable provided that the purchase price of a given asset is greater than that of its sales price.

14. Environmental Impact Assessment

14.1 What demands are there regarding environmental impact assessments prior to exploration, exploitation and/or production of geothermal energy?

Except for reconnaissance licenses, retention licenses or artisanal mining licenses, any applicant for a license shall submit an environmental impact assessment and obtain all the necessary approvals from the competent authority required by the relevant environmental laws of the country.

Except as concerns holders of reconnaissance licenses, retention licenses or artisanal mining licenses, any licensee shall allocate funds to cover the costs of rehabilitation of environmental impact.

Based on the license area and by agreement, mineral licensees and, as appropriate, exploration licenses shall participate in community development plan of the peoples within the license area, and shall allocate money for such expenses.

15. Licenses

15.1 Which other licenses are needed in order to commence exploration, exploitation and/or production with geothermal energy?

Before applying for an exploration, applicants are required to be registered with the Ministry of Trade and obtain a Registration Certificate. The entity may be registered as a wholly owned subsidiary or branch of an overseas company.



FRANCE

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Statistics:

1. Size of country: 672,369 km².
2. Population: 67,425,000 (2016).
3. Years of producing electricity from geothermal: 30 years, from 1986 (in Guadeloupe).
4. Installed capacity of geothermal (MWe): 17,2 MWe (2016).
5. Installed capacity of other sources (MWe): 104,000 MWe (2017).
6. Electricity production from geothermal (GWh): 92 GWh (2015).
7. Electricity production from other sources (GWh): 546,000 GWh (2015).
8. Proportional production by source:

- Nuclear – 76.3%
- Hydroelectricity – 10.7%
- Natural gas – 4.0%
- Wind power – 3.9%
- Coal – 1.6%
- Solar – 1.4%
- Biomass – 1.5%
- Fuel – 0.6%



Sources: Observ'ER Report, RTE 2017.

1. Ownership and access to geothermal resources¹

1.1 What are the rules on ownership of geothermal resources? Can private parties hold ownership of geothermal resources?

Under French law, in principle, ownership of a plot of land includes the ownership of what is above and below such plot of land (Article 552 of the Civil Code).

As an exception, the exploration and exploitation of geothermal resources are subject to restrictive legislation (contained in the Mining Code) in compliance of which:

The landowner is deprived of the full use of his/her ownership right with respect to such resource;

The right of use of a geothermal resource is granted by the State (which is the only authority in charge of granting exploration/exploitation licenses; the competent authority within the State may be the prime minister, the minister for mines or the local representative of the State – see below);

In particular, with respect to concession permits (i.e. one type of exploitation licenses – see below):

- Concession permit holders are granted a right in rem (droit réel), separate from ownership right (Article L. 132-8 of the Mining Code); a similar rule is provided for in respect of exploitation permits for overseas departments (PEX – see below) (Article L. 611-17 of the Mining Code);

¹ As a general comment, please note that the regulatory framework applicable to geothermal energy in France has been in constant evolution, especially in these past few months. The following may not reflect the exact regulatory framework at the date of publication of the Guide.

- At the end of the concession permit, the resource (gisement) must be transferred to the State without indemnification of the holder (Article L. 132-13 of the Mining Code).

Please note that the landowner of the plot of land above which geothermal resource is explored or exploited is granted specific rights under mining law (see question 3 below); in particular, the landowner is entitled to:

- Compensation in case the geothermal activities caused a damage (Article L. 155-3 et seq. of the Mining Code); in particular, the landowner is entitled to compensation for the occupation of the plot of land by the license holder for carrying out its activity (Article L. 153-12 of the Mining Code); in addition, the landowner whose property is occupied as a result of a license granted by the competent authority may request from the license holder (i) the purchase or expropriation of the plot of land if the latter may no longer be used normally and/or (ii) compensation (see Article L. 153-1 et seq. and Article L. 155-6 of the Mining Code);
- A (symbolic) compensation (redevance tréfoncière) – generally EUR 15/hectare (Article L. 132-15 of the Mining Code).

1.2 Who can grant access to geothermal resources, only State or also landowner?

In France, only the State is entitled to grant access to exploitation of geothermal resources. Indeed, it confers rights of use in relation to geothermal resources, and also sets out exploitation conditions.

In addition, in principle, the landowner's consent is required for a license holder to carry out geothermal activities (see below).

1.3 Is exploration/exploitation open to foreign investment?

In principle, exploration and exploitation are open to foreign investment; however, investments by foreign-based (or foreign-controlled) entities in certain sensitive activities listed in the French Monetary and Financial Code (for example related to energy supply) are subject to prior authorisation from the minister in charge of the Economy.

2. Allowed exploitation

2.1 Is exploitation of resources subject to licensing? Do landowners have the right to exploit resources without a license? If yes, to what extent?

Exploitation of geothermal resources is subject to license in compliance with the Mining Code and Decree No. 78-498 dated 28 March 1978.

As a result, under French law, landowners do not have the right to exploit resources without a license.

For clarity, under French law:

- For low temperature resources (case where the temperature of the heat-carrying fluid is below 150°C), exploration and exploitation are, in principle, subject to specific geothermal licenses granted by the local representative of the State (préfet) (Decree No. 78-498 dated 28 March 1978) – inter alia:
 - Exploration permit (permis d'exploration); and
 - Exploitation permit (permis d'exploitation);
- For high temperature resources (case where the temperature of the heat-carrying fluid is above 150°C), exploration and exploitation are subject to general mining licenses granted in principle by the prime minister or the minister for mines (Decree No. 2006-648 dated 2 June 2006) – inter alia:

In respect of exploration:

- Exclusive exploration permit (permis exclusif de recherches – PER); or
- Concession permit (the concession permit holder benefits from an exclusive exploration right – Article L. 121-4 of the Mining Code);

In respect of exploitation:

- Concession permit;
- Exploitation authorisation for overseas departments (autorisation d'exploitation – AEX) (Article L. 611-3 et seq. of the Mining Code; Decree No. 2001-204 dated 6 March 2001); or
- Exploitation permit for overseas departments (permis d'exploitation – PEX) (Article L. 611-17 et seq. of the Mining Code).



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These two last permit types, which are specific to overseas departments, are governed by specific rules.

Please note that:

In any event, mining works (travaux miniers) are subject to specific legislation and requirements, such as prior authorisations by or declarations to the competent authority (“works licenses”) (Decree No. 2006-649 dated 2 June 2006);

In respect of the way the competitors which may be interested in the resource are selected by the competent authority, in principle:

- Low temperature resources licenses may be applied for (in addition to the first applicant) by other competitors within 15 days of the end date of the public inquiry (see question 14 below) (Article 12 of Decree No. 78-498 dated 28 March 1978);
- High temperature resources licenses are granted following a tender procedure starting with a tender notice published in the Official Journal of the French Republic (Journal officiel de la République Française).

Please note that under a recent law proposal aiming at adapting the Mining Code to environmental law requirements (proposition de loi portant adaptation du code minier au droit de l’environnement) (“the 2016 Law Proposal”), the granting of all exploration or exploitation licenses would be, in principle, subject to a tender procedure (some exceptions would be provided for);²

- Resources of small importance (gîtes de minime importance) are subject to a simplified regime (Article 18 of Decree No. 78-498 dated 28 March 1978); however please note that works concerning exploration and exploitation of such resources are subject to specific conditions: in particular, a prior declaration of works is required (Article L. 162-1 et seq. of the Mining Code; Decree No. 2006-649 dated 2 June 2006);
- On 30 November 2016, the European Commission issued a proposal for a recast directive on the promotion of the use of energy from renewable sources. This proposal would impose a number of obligations on the member states. Such obligations would include, inter alia, the limitation to three

years of the time for issuing a license and the introduction of a ‘one-stop-shop principle’ by 2021.

3. Role and voice of landowner in licensing procedure

3.1 Does the landowner have a role in the process of granting a license for: (i) exploration, (ii) exploitation and (iii) power plant?

Although the exact role of the landowner is not clearly addressed in the regulations governing license granting processes, our understanding is that his/her role in this process is limited. However, irrespective of license granting processes, the landowner’s consent will have to be obtained by the license applicant/holder to perform works or to occupy the land (Article L. 153-1 of the Mining Code). If the landowner refuses to lease or to transfer the land, then the plot will have to be expropriated by the State.

(a) Role of the landowner in the process of granting a license for exploration activities:

Exploration works may be carried out by the landowner himself/herself or the person authorised by him/her (Article L. 121-1 and L. 153-1 et seq. of the Mining Code). As far as high temperature resources are concerned, in case the landowner’s consent cannot be obtained, the exploring entity may obtain a special authorisation from the local representative of the State, after the landowner was invited to submit its observations and under conditions set by decree (see Decree dated 14 August 1923 and Article L. 153-5 of the Mining Code). Our understanding is that such a possibility does not exist for low temperature resources.

(b) Role of the landowner in the process of granting a license for exploitation activities:

The same principles apply: the landowner’s consent must be obtained; an exception is provided for in respect of high temperature resources (see articles L.153-3, L.153-4 and L.153-5 of the Mining Code).

(c) Role of the landowner in the process of granting a license for power plant operation:

We have not identified any particular role for the landowner in respect of approval of the power plant operation in the Energy Code (see Article L. and R. 311-1 et seq. of the Energy Code).

² Law proposal (proposition de loi) dated 23 November 2016, to be examined by the National Assembly in January 2017.

3.2 Will an opposition of a landowner have a bearing on the process of granting a license for exploration, exploitation or power plant?

The opposition of a landowner may have a bearing on the occupancy rights of a license holder and on the rights of the latter to perform works. But such opposition can be overcome through expropriation.

Concerning the granting of licenses, as indicated above, our understanding is that, in most cases, landowner's consent is not required for the granting of a license itself, although licenses and landowner's consent is generally sought simultaneously by license applicants.

In particular, it should be noted that:

Landowner's consent must be sought to perform drillings or place machines or facilities on his/her property (Article L. 153-1 of the Mining Code): as indicated above, if the landowner's consent cannot be obtained, an authorisation by the competent authority may be obtained for high temperature resources (but not for low temperature resources);

Neighbouring landowner's consent may be required for the exploration of some high temperature resources in some cases (Article L. 153-2 of the Mining Code); when their consent is not required (i.e. for low temperature resources), such neighbouring property owners directly receive notice of the public inquiry (Article L. 124-6 of the Mining Code – on the public inquiry, see below).

Finally, please note that the landowner may (as any interested third party) challenge any licenses (including concerning exploration, exploitation, power plants or works) before administrative courts; as the case may be, he/she can ask for and obtain a suspension and/or cancellation of a procedure or license.

4. Criteria for granting of a license

4.1 What documents need to be submitted and what are the criteria for obtaining an exploration or exploitation license?

As a general comment, in all cases, the applicant must prove its technical and financial capacities: this is a requisite for a company to be granted an exploration and/or an exploitation license.

For each license category, the application filings must include (but are not limited to) the documents listed below.

(a) Low temperature geothermal resources (<150°C) (Decree No. 78-498 dated 28 mars 1978):

French law provides details on the numerous pieces of information to pass on to the competent authority when applying for a license. Some elements are common to exploration and exploitation; some are specific to one type of license.

(i) Common provisions applicable to exploration and exploitation licenses

- Identification documents of the applicant; in particular, the identity of the shareholders with a share exceeding 10% of the applicant's capital;
- Documents justifying technical and financial capacities of the applicant company;
- Duration of the license applied for;
- Works' schedule;
- Information on potential impact of works, exploration and exploitation on the quality of groundwater;
- Official map;
- Exploitation rates (volumes d'exploitation) contemplated.

(ii) Exploration licenses:

If the exploration license concerns drilling operations (forage) the location of which can be determined:

- Characteristics (location, use, depth, etc.) of each drilling;
- Geological structure (horizon géologique) in which the capture/injections are to be carried out;
- Submission document (mémoire) justifying the two previous elements;
- Thermal power (puissance thermique) to be extracted and other technical characteristics.

If the exploration license concerns a perimeter:

- Limits and surface area of this perimeter, and departments/municipalities on which it is included;
- Exploration programme contemplated (indicating the maximum number of drillings and geological structure);
- Minimum financial contribution (effort financier minimal) to be affected to the exploration;

- Submission document (mémoire) justifying the contemplated perimeter.

(iii) Exploitation licenses:

- Thermal power (puissance thermique) for which the permit is applied for;
- Exploitation rates (volumes d'exploitation) contemplated;
- As the case may be, location of the drillings to be operated (as well as the use, depth and other features of such drillings).

(b) High temperature geothermal resources (>150°C) (Decree No. 2006-648 dated 2 June 2006):

(i) Exclusive exploration permit (permis exclusif de recherches – PER)

- Identification documents of the applicant;
- Technical submission document (mémoire);
- Works schedule, with an attached financial commitment indicating the minimum amount intended for exploration activities;
- Official map;
- Environmental impact statement (notice d'impact) indicating (i) potential impacts of the works on the environment and (ii) how the contemplated project includes environmental concerns;
- As the case may be, consent of the holder of the existing license.

(ii) Concession permit (concession) and exploitation license for overseas departments (permis d'exploitation – PEX)

The application file includes similar documents to the exclusive exploration license, it being specified that this file must also contain the applicant's commitment to respecting the concession permit's general conditions (Article 24 and 33 of Decree No. 2006-648 dated 2 June 2006).

(c) Carrying out works:

Irrespective of exploration and exploitation licenses, please note that separate licenses are necessary to carry out exploration or exploitation works; corresponding applications are described in Article 6 et seq. of Decree No. 2006-649 dated 2 June 2006.

5. Duration of licenses and renewal

The duration of the main licenses depends on whether the resource at issue qualifies as a low or high temperature resource.

5.1 Low temperature resources:

(a) Exploration permit: The duration of the exploration permit is of up to 3 years (Article L. 124-4 of the Mining Code).

(b) Exploitation permit: The initial duration of the exploitation permit is of up to 30 years; this initial duration may be renewed for periods of up to 15 years each (Article L. 134-8 and L. 142-11 of the Mining Code).

5.2 High temperature resources:

(a) Exclusive exploration permit (PER): The initial duration of the PER is of up to 5 years; this initial duration may be renewed twice for a maximum 5-year period per renewal (in certain circumstances, such renewal is a right for the holder (de droit)) (Article L. 142-1 of the Mining Code).

(b) Concession permit: The initial duration of the concession permit is of up to 50 years; this initial duration may be renewed one or several times for a maximum 25-year period (Article L. 132-11, L. 142-7 and L. 142-8 of the Mining Code). Perpetual concession permits granted under previous framework are to expire on 31 December 2018.

Please note that in case of absence of a response by the competent authority on the renewal application submitted by the holder of an exclusive exploration permit (PER) or of a concession permit, the holder is entitled to continue its exploration/exploitation activities until the authority has taken an explicit formal decision regarding the renewal (although the initial permit has lapsed).

6. Terms of licenses

6.1 What are the general terms of the license for exploration, exploitation and power plant licenses?

To our best knowledge, there are no publicly available, general terms to which all specific

licenses refer. Generally, each specific license provides for:

- The name of the holder;
- The duration of the license;
- The surface area and perimeter of the license;
- The setting up of a monitoring committee (comité de suivi);
- For exclusive exploration licenses: the financial commitment indicating the minimum amount intended for exploration activities;

For concession permits:³

- Several reporting obligations covering, in particular, (i) electricity production, (ii) business figures (such as turnover, gross operating profit (excédent brut d'exploitation) the operations, net income (résultat net), etc.), and (iii) geothermal fluids operated and electricity produced;
- Minimum production commitments by the holder (engagements minimum de production brute annuelle – in MWh); under certain conditions, if such minimum production commitments are not complied with by the holder, the State may revoke the concession permit without indemnification of the holder.

7. Termination and revision of licenses

7.1 What actions by the license holder would warrant revision of exploration-, exploitation- and power plant licenses?

We have not identified particular actions by the license holder which would entail the revision of the exploration, exploitation or power plant license.

7.2 Does the license granting authority have the power to revoke or terminate licenses? If yes, what actions of the license holder would warrant the termination of the license?

Yes, the State may withdraw a license granted in compliance with the Mining Code, if the license holder has not complied with or answered to a prior formal notice, in certain cases, which

include but are not limited to (Article L. 173-5 of the Mining Code):

- Failure to pay mining fees or taxes (redevances minières) to the State, departments and municipalities for more than two years;
- Unlawful assignment (mutation) or subcontracting (amodiation);
- Important breaches of police, safety or hygiene regulations, or failure to comply with measures imposed by the competent authority in compliance with Article L. 173-2 of the Mining Code;
- Persistent inactivity or a persistent activity unrelated to the financial effort, or a breach of the commitments made by the holder for obtaining the required authorisations;
- Absence of or insufficient exploitation conspicuously incompatible with the capacities of the resource (gisement) or with the customers' interests, and non-justified by the market situation or exploitation carried out under certain conditions undermining the economic interest, the conservation and the later use of the deposit;
- Breach of the terms of the license.

As far as the power plant license is concerned, the Energy Code provides that such a license may be suspended or revoked after the license holder (i) has received a prior formal notice requesting compliance within a fixed time period, (ii) has received a notification of grievances, and (iii) has been invited to review its administrative file and to submit its observations (Article R. 311-11 of the Energy Code).

The license holder can warrant the termination of the license complying with all licenses and applicable laws.

7.3 Can the license granting authority set forth conditions into licenses which provide for (i) stricter terms and conditions for licensees or (ii) more lenient terms and conditions for licensees, when such terms and conditions (whether stricter or more lenient) are not otherwise provided for by law?

We have not identified specific provisions laid out in geothermal legislation restricting the possibility for licenses to provide for stricter or more lenient terms and conditions for licensees. In any event, please note that the competent author-

³ We refer in particular to the concession permit for the Soultz plant (Decree dated 22 September 2015)

ity must comply with the principle of equality (principe d'égalité) when granting licenses.⁴

7.4 Which remedies does the license granting authority have in order to enforce compliance to the terms and conditions of a license, other than by revoking the license?

We have not identified other possible remedy for the License Granting Authority than revocation (or non-renewal) to enforce compliance of the terms and conditions of a license.

That being said, please note that some cases may lead to the application of penal fines – in particular:

- exploration, exploitation or carrying out works without required licenses;
- exploitation without setting up required financial guaranties; or
- non-compliance with regulations applicable to resources of small importance (gîtes de minime importance).

8. Regulatory and information obligation

8.1 Briefly outline the surveillance carried out by the regulatory authorities during the license period, e.g. with regards to reporting duties and/or on-site visits

Geothermal activities are subject to administrative surveillance under the mining legislation (police des mines):

The competent authority is the local representative of the State (préfet);

- As a general comment, this surveillance aims at preventing or ending damages or nuisances resulting from mining exploration and exploitation activities, and in particular protecting special interests such as safety and preservation of natural resources (Article L. 171-1 of the Mining Code);
- Administrative surveillance covers all exploration or exploitation works – irrespective of whether undertaken (i) under a works authorisation or prior declaration or (ii) by an

⁴ On the application of principle of equality to authorisations, see Council of State (Conseil d'Etat), 30 December 2010, Case No. 308067.

exploration/exploitation license holder or not (Article L.171-2 of the Mining Code).

Administrative surveillance includes the following measures:

- Reporting obligations (yearly report): the holder of a concession permit must establish and send a yearly report to the local representative of the State (préfet) on the impact of its activity on the ground occupation and on the essential characteristics of the surrounding area by the holder of the license (Article L. 172-1 of the Mining Code; Article 35 of the 2006-649 Decree);
- On-site visits: administrative agents may at any time (i) visit sites where works of prospection, exploitation or exploitation activities are undertaken and/or (ii) request any documents or samples or material necessary for carrying out their mission (Article L. 175-1 of the Mining Code). They can have access to all areas whether or not open to the public; in case the occupant refuses such visit and the site at issue is partly for residential use, further procedural requirements apply (Article L. 175-5 et seq. of the Mining Code);
- Preventive or corrective measures: the representative of the State may prescribe any appropriate measure to the exploring or exploiting entity to ensure the security and the protection of public interests (see Article L.173-2 and L. 175-2 of the Mining Code).

Please note that specific licenses may provide for additional surveillance or reporting requirements (see Section 6, above).

9. Power purchase agreements

9.1 Are general terms and conditions, such as duration of Power Purchase Agreements regulated? If no, are there any soft law or general recommendations in place in your jurisdiction?

The French legislation applying to the purchase of renewable energy power has been recast following the law dated 17 August 2015 on energy transition. In particular, a new premium system (complément de rémunération) is currently being rolled out:



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- Before the reform, French law provided for an 'ex ante' mechanism: a fixed, feed-in tariff (subject to indexation) was paid by EDF (French electric utility company) under a 15-year contract in the case of geothermal energy;
- The reform provides for an 'ex post' mechanism (broadly similar to the UK's 'contract for difference' and German system): electricity is sold on the market, with a variable "additional remuneration" (i.e. premium) paid by EDF, ensuring a reasonable return on the invested capital (see new Article L. 314-18 et seq. of the Energy Code).

As a result:

- In principle, producers will no longer enter into a single PPA with EDF but will conclude various PPAs with one or several aggregators (which are in charge of selling electricity produced by the producers on the markets, on the producers' behalf) or directly with purchasers on the wholesale markets;
- The terms of the premium contracts (contrats de complément de rémunération) to be entered into with EDF will be regulated.

An Order dated 13 December 2016 applicable to continental metropolitan geothermal installations describes the conditions for an installation to benefit from a premium contract: the geothermal energy must be extracted from "the same upstream unit";⁵ geothermal wells of this upstream unit must never have been subject to a feed-in tariff PPA or a premium contract; and the premium contract request must be filed before the commencement of the works related to the geothermal project;

This order also provides for the main provisions applicable to geothermal premium contracts (this list is not exhaustive):

- General provisions: The contract must provide for all the information required by the draft order (parties, delivery point, delivery tension, installed capacity, geothermal resource location, reference of the exploration license, reference of the mining work license, etc.);
- Effective date: The effective date is noti-

fied by the producer to EDF but is subject to the producer transmitting a conformity statement ("attestation de conformité") to EDF within four years of the date of deposit of the complete contract demand. If this deadline is not complied with, the duration of the contract will be reduced by the duration of such delay;

- Duration: The geothermal premium contracts will have a duration of 20 years as of its effective date (former feed-in tariffs PPAs had a duration of 15 years). In case the sworn statement is not sent within four years of the complete contract application (see previous paragraph), the duration of the contract will be reduced by the duration of such delay;
- Modification: In compliance with the Energy Code, the contract may only be amended in limited circumstances: (i) change of producer; (ii) increase of the installed power capacity (puissance électrique installée) not exceeding 15% of the capacity declared in the contract application; and, after the transmission of the conformity statement, (iii) adding or removing a geothermal well (puit) to or from the upstream unit. If a contemplated amendment is not provided for in this list, the producer must request a new contract;
- Termination: the termination of a geothermal premium contract can occur before its expiry date at producer's request, by payment of compensations defined in Article R. 314-9 of the Energy Code (compensation exemptions are provided for);

Our understanding is that geothermal premiums will not be granted following a competitive procedure. Indeed, the European Commission has observed that the potential number of geothermal projects is too limited to organise a competitive tender. In such cases, the Commission guidelines on state aid for environmental protection and energy allow for the aid to be granted without a prior tender procedure. The Commission has also concluded that "subjecting geothermal plants to competitive bidding with other technologies could jeopardise the long-term potential of this technology in France".⁶

⁵ "Upstream unit" (unité amont) is defined by the Order as "a set of one or several wells (puits) located on a geothermal resource (ressource géologique)."

⁶ http://europa.eu/rapid/press-release_IP-16-4355_en.htm

9.2 Are public and/or national regulatory authorities involved in any way in forming the terms of PPAs, either directly or indirectly?

Under the new legislation, it is unclear whether the terms of PPAs, to be entered into with aggregators or wholesale market purchasers will be regulated by public authorities.

Please note that the main terms of premium contracts will have to be provided for in a ministerial order.

10. Incentives

10.1 Are there any incentives offered by the government or local authorities for utilization of geothermal energy? If yes, in what form (e.g. tax and/or feed-in tariffs) and what are the maximum amounts permitted? What requirements must the project fulfil in order to be eligible to receive such incentives? Are the incentives subject to recovery in any instances?

The incentives offered by the government are the following:

- (a) Premium contracts (contrats de complément de rémunération):

As indicated above, premiums are currently being rolled out in France (please refer to question 9).

Under French law, any installation primarily using geothermal resources energy ("installations utilisant à titre principal l'énergie extraite de gîtes géothermiques") based on the continental metropolitan territory ("territoire métropolitain continental") may benefit from premiums (Article D. 314-23 of the Energy Code). The premiums are calculated in compliance with criteria set out by law, such as the investments and operating costs, costs relating to the integration of the installation into the electric system, the revenues generated by the installation, etc. (Article L. 314-20 of the Energy Code). Particular orders will set out the details of the calculation of the premiums.

- (b) Tax incentives:

Under French Tax law, a 5.5% VAT rate is applied on the supply of calorific energy to the extent that at least 50% of the calorific energy supplied is derived from geothermal energy

(Article 278-0 bis B of the French Tax Code). This reduced rate is only applicable on the fixed component of the calorific energy. The VAT standard rate is 20% and is applied to the variable component. However, this reduced rate of VAT as described above is limited only to heating networks ("réseau de chaleur") which provide several end customers with calorific energy. The 50%-threshold must be calculated in conjunction with all production sites supplying the same heating network.

Another tax mechanism was introduced for the exclusive benefit of natural persons. This tax credit, called Crédit d'impôt transition énergétique, allows natural persons to deduct from income tax a certain percentage of investments in renewable energy equipment, including certain geothermal equipment (e.g. heat pumps). Investments carried out since 1 September 2014 benefit from a tax credit equal to 30% of the investment. The maximum investment eligible for the tax credit is 8,000 euros per person.

11. Participation and authority of indigenous peoples

11.1 Are the rights of indigenous peoples in connection to geothermal resources regulated?

In certain French overseas territories (such as New Caledonia or Wallis and Futuna) a special regime of indigenous ownership has been set out by the French Constitution and special statutes. A number of plots of land are considered as "terres coutumières" and are inalienable, indefeasible, immune from seizure and non-transferable. They can only give rise to long-term leases granted by indigenous communities pursuant to very strict proceedings.

We are not aware of any geothermal projects currently contemplated in these geographical areas, but the rights of concerned indigenous peoples would have to be taken into consideration if geothermal resources were explored on indigenous lands.

11.2 To what extent are indigenous municipalities involved in the process of granting licenses?

To our knowledge, where indigenous rights exist under French law, no particular local regulations have been enacted for the exploration



and exploitation of geothermal resources. This point would have to be assessed on a community-by-community basis.

12. Alteration of law and regulation

12.1 What are the principles regarding retroactivity of laws and regulations, can changes in such rules affect license holders?

Under French law, laws and regulations are not, in principle, retroactive and should accordingly not affect the rights granted under the licenses already issued. Please note however that mining regulations being considered as “administrative police legislation” under French law, there is no right to law-stability; this implies that the conditions under which a holder operates its license may be modified by a change in law (e.g. level of mining fees or taxes, level of emissions, etc.).

As indicated above, members of Parliament have submitted a law proposal aiming at adapting the Mining Code to environmental law requirements (proposition de loi portant adaptation du code minier au droit de l’environnement): this procedure may lead to the amendment of the current regulatory framework applying to geothermal energy (some amendments are referred to herein). Although the reform of the Mining Code has been long awaited, it is unclear when or whether Parliament will pass such a new law, in view of June 2017 presidential and legislative elections in France.

Under this law proposal:

- Applications under consideration which were deemed complete by the competent authority before the law came into force would be handled in compliance with the previous regulatory framework;
- Licenses granted before the new law came into force would still apply in compliance with the new regulatory framework.

13. Taxation

13.1 How does taxation in the sector affect license holders?

N/A

13.2 Is the sale of energy subject to VAT?

As indicated above, a 5.5% VAT rate is applied on the supply of calorific energy to the extent

that this is derived for at least 50% from geothermal energy.

13.3 Is VAT refundable and what is the procedure for VAT refunding?

Yes, VAT is refundable and the procedure depends on the recoverable VAT amount and the status of the applicant.

Generally, a request for reimbursement of VAT may be submitted annually in parallel with the last online VAT Report of the fiscal year. Online form No. 3519 has to be used for asking for the reimbursement of VAT and the amount of VAT refundable must not be less than 150 euros.

This request may also be monthly or quarterly submitted under the same conditions if the amount of VAT refundable is not less than 760 euros.

14. Environmental impact assessment

14.1 What demands are there regarding environmental impact assessment prior to exploration, exploitation and or production of geothermal energy?

As a general comment, environmental impact assessments (mainly consisting of impact statements, public enquiries and environmental assessments of works) are required prior to exploration and exploitation of geothermal resources; however, requirements in this respect are not harmonised among all categories of licenses.

(a) Low temperature resources (exploration and exploitation):

Public inquiry: a public inquiry (enquête publique) is required before the granting of an exploration and/or exploitation permit and must be conducted by the local representative of the State (préfet) (Article L. 124-6 of the Mining Code; Article 11 et seq. of Decree No. 78-498 dated 28 mars 1978).

(b) High temperature geothermal resources:

(i) Exploration

Environmental impact statement: an impact statement (notice d’impact) indicating (i) potential impacts of the works at issue on the environment and (ii) how the contemplated project includes environmental concerns is requested among necessary documents for

the granting of an exclusive exploration permit (Article 17 of Decree No. 2006-648 dated 2 June 2006).

(ii) Exploitation (example of the concession permit):

Public inquiry: a public inquiry (in principle, of a duration of 30 days) is requested before the granting of a concession permit and must be conducted by the local representative of the State (préfet) (Article L. 132-3 of the Mining code).

Environmental impact statement: an impact statement (notice d'impact) indicating (i) potential impacts of the works at issue on the environment and (ii) how the contemplated project includes environmental concerns is requested among necessary documents for the granting of a concession permit (Article 24 of Decree No. 2006-648 dated 2 June 2006).

(c) Commencement of works:

Public inquiry: a public inquiry is required before the granting of a works permit and must be conducted by the local representative of the State (préfet) (Article 13 of Decree No. 2006-649 dated 2 June 2006). In this respect, please note that if both high temperature exploration/exploitation license and works license are simultaneously requested by the applicant, a single public inquiry may be carried out (Article 36 of Decree No. No. 2006-648 dated 2 June 2006).

Environmental assessment (évaluation environnementale) for some high and low temperature resources works: the commencement of some specific works related to the exploration or exploitation of geothermal resources requires a specific environmental assessment by the Environmental Authority (Autorité environnementale), which is a body of the minister in charge of Energy (Article L. 122-1 and R. 122-2 (including its Annex) of the Environmental Code).

Please note that the 2016 Law Proposal would increase environmental assessment requirements as it would provide for:

- Enhanced public information and coordination procedure (procédure renforcée d'information et de concertation): In certain circumstances (in particular when the project may have a significant impact on the envi-

ronment), the representative of the State in charge may decide that the granting of a license must be subject to enhanced public information and coordination procedure. This procedure would be carried out by an information and coordination participatory body (groupement participatif d'information et de concertation), whose members are appointed by the representative of the State in charge. The participatory body can use experts or special assessments. A 'simplified file' is set up by the applicant and made available to the public by the participatory body;

- Environmental assessment (évaluation environnementale) prior to exploration and exploitation licenses: According to the law proposal, this assessment (which is already required for some specific works – see above) would be required prior to all licenses; it would be carried out on the basis of a report identifying and assessing the important effects (effets notables) that may result from the applicant's project.

15. Licenses

15.1 What other licenses are needed in order to commence exploration, exploitation and/ or production with geothermal energy?

As indicated above, declarations and authorisations for commencement of works (ouverture de travaux) are separate from exploration, exploitation or power plant licenses and are subject to a particular legislation.

In addition, authorisations, registrations and/ or declarations must be filed or made under the Environmental Code – in particular, under the legislation on classified facilities for the protection of the environment (installations classées pour la protection de l'environnement – ICPE) and under the legislation on water (loi sur l'eau).

Further, in practice, the license holder needs authorisations to occupy private plots of land from local landowners (see Article L. 153-1 et seq. of the Mining Code).

Finally, please note that specific regulations apply in some overseas territories. For example, French Polynesia and New Caledonia have their own Mining Codes.



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Statistics:

1. Size of country: 357,375 km².
2. Population: 82,175,684 (2015).
3. Years of producing electricity from geothermal: 12 years, from 2004.
4. Installed capacity of geothermal (MWe): 40 MWe (2017).
5. Installed capacity of other sources (MWe): 194,600 MWe (2016).
6. Electricity production from geothermal (GWh): 98 GWh (2014).
7. Electricity production from other sources (GWh): 646,900 GWh (2015).
8. Proportional production by source:

- Fossil fuels – 52.7%
- Nuclear – 14.2%
- Wind – 12.3%
- Hydro – 2.9%
- Biomasse – 6.9%
- Photovoltaic – 6%
- Domestic Waste – 0.9%
- Other (including geothermal) – 4.1%



Sources: Statistisches Bundesamt, Bundesverband Geothermie, Think GeoEnergy (2017), Clean Energy Wire (2016), International Energy Agency (2014).

1. Ownership and access to geothermal resources

1.1 What are the rules on ownership of geothermal resources? Can private parties hold ownership of geothermal resources?

The ownership of geothermal resources is subject to the Federal Mining Act (Bundesberggesetz – BBergG) and supplementary mining ordinances. The Federal Mining Act sets forth a specific regime for public mineral resources (bergfreie Bodenschätze). These are mineral resources of a high relevance for the public, such as – inter alia – geothermal resources, coal and hydrocarbons. Public mineral resources are ownerless. They are legally separate from real property and are thus excluded from the scope of surface ownership (Oberflächeneigentum). They must be distinguished from private mineral resources (grundeigene Bodenschätze) which belong to and can be extracted by the landowner

without a mining right. Private mineral resources are those of lesser relevance, such as certain types of quartz and clay as well as kaolin and roof slate.

1.2 Who can grant access to geothermal resources, only state or also landowner?

The regional mining authorities grant access to geothermal resources by granting mining licenses and – before any mining activities may actually be carried out – approvals of operating plans (see below).

1.3 Is exploration/exploitation open to foreign investment?

Yes.

2. Allowed exploitation

2.1 Is exploitation of resources subject to licensing? Do landowners have the right to exploit resources without a license? If yes, to what extent?

Yes, the exploitation of geothermal resources is subject to a license requirement under the Federal Mining Act. Licenses are granted as exploration licenses (Aufsuchungserlaubnis), exploitation licenses (Gewinnungsbewilligung) or mining property (Bergwerkseigentum –a right that is comparable to real property. The mining property has lost its practicality with the establishment of exploration and mining licenses when the Federal Mining Act entered into force in 1982). The holder of a license has the exclusive right to explore and/or produce and to acquire the respective mineral resources in the allocated license area. However, the license does not allow for carrying out mining activities. Any exploration and exploitation activities may only be carried out on the grounds of approved operating plans (see below).

Landowners may however without any license utilize near-surface geothermal energy from the ground of their property for building use on the property, e.g. heating with heat pumps. The landowner must notify the mining authority of drillings with a depth of more than 100 m.

3. Role and voice of landowner in licensing procedure

3.1 Does the landowner have a role in the process for granting a license for (i) exploration, (ii) exploitation or (iii) a power plant?

The landowner is not involved in the licensing procedure for exploration and exploitation. Construction and operation of a power plant does not require a mining license.

However, any mining activities such as exploration, exploitation and construction and operation of a geothermal power plant require approval of an operating plan (see below). In the approval procedure, the mining authority conducts a hearing of specialised authorities, affected municipalities and affected surface landowners.

3.2 Can the opposition of the landowner change the granting of either an exploration, exploitation or power plant license?

No. The landowner is not involved in the licensing procedure for exploration and exploitation. Therefore, his opposition cannot change the granting of the license.

Exploration, exploitation and construction and operation of a power require approval of an operating plan. In the approval procedure the mining authority has to consider the interests of a surface landowner.

Exploration and exploitation licenses as well as operating plan approvals or other permits are issued without prejudice to the rights of third parties. With respect to above-ground installations, the holder of the license therefore needs to reach an agreement under private law with the landowner. If no agreement can be reached the license holder can request an expropriation/begin procedure. In the latter instance, the expropriation authority shall consider the interest of the landowner.

4. Criteria for granting of a license

4.1 Which documents need to be submitted and what is the criteria for obtaining a license for:

(i) exploration: The applicant needs to submit a written application. The mining authority shall grant the license if the application documents demonstrate:

- Specification of the mineral resources to be explored
- Specification of the proposed exploration field in a location plan
- Work programme (kind, scope and purpose of exploration, time schedule)
- Commitment of the project developer to notify the mining authority of the results of the exploration on demand and without delay on completion or at the latest with the expiry of the license
- Commitment of the project developer to grant in certain cases other holders of licenses for overlapping fields the right to participate in the exploration
- Reliability of the applicant
- Evidence of sufficient financial capacities (e.g. financial statements, bank statements)
- Efficient and well-planned exploration of



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public and mineral resources is not impeded

- Mineral resources that have to be protected in the public interest are not at risk
- No overriding public interest precludes exploration in the proposed field.

(ii) exploitation: The applicant needs to submit a written application. The mining authority has to grant the license if the application documents demonstrate:

- Specification of the mineral resources to be explored
- Specification of the places where the mineral resources were found (position, depth) in a location plan
- Specification of the proposed production field in a location plan
- Evidence that the discovered mineral resources can in fact be recovered, considering their position and quality
- Work programme (technical execution, underground and surface facilities, time schedule)
- Reliability of the applicant
- Evidence of sufficient financial capacities (e.g. financial statements, bank statements)
- Efficient and well-planned exploration of public and mineral resources is not impeded
- Mineral resources that have to be protected in the public interest are not at risk
- No overriding public interest precludes exploration in the proposed field.

(iii) power plant: N/A.

As regards the operating plan for mining operations (exploration, exploitation and power plant), the operator must describe the scope, the technical execution and the duration of the project. Based on this description, the mining authority will assess the project with respect to operational safety and protection of workers, surface protection, prevention of public damage and other issues.

5. Duration of licenses

5.1 What is the maximum duration of a license for:

(i) exploration: Five years (may be prolonged if the exploration field is not sufficiently explored).

(ii) exploitation: Fifty years (may be extended until the reservoir is depleted).

(iii) power plant: N/A.

6. Terms of licenses

6.1 Are exploration license holders granted pre-emptive rights with regards to exploitation or do exploration licenses automatically convert into exploitation licenses if the resource has been substantiated?

The exploration license does not automatically convert into an exploitation license. An exploitation license has to be applied for separately. Usually, the mining authority has to grant an exploitation license to the holder of an exploration license for the same field. Under the Federal Mining Act, the mining authority has to inform the holder of an exploration license for a certain field of third party applications for exploitation licenses for the same field. The holder of the exploration license may then file an application for an exploitation license. His application is given priority over the third party application.

If so, are there any conditions?

The holder of the exploration license has to file his application for an exploitation license within three months from receiving the above mentioned information.

6.2 Is an exploitation license included in a power plant license or are these licenses separate?

No. Exploitation licenses are granted separately from the operating plan approval for any actual geothermal mining activities (exploration, exploitation, construction and operation of power plant).

7. Termination and revision of licenses

7.1 What actions by the license holder would warrant revision of exploration-, exploitation- and power plant licenses?

Under the Federal Mining Act, the mining authority constantly exercises mining supervision, in particular compliance with the work programme. If the holder of a license/approval does not fulfil the conditions of the license/approval, the mining authority would issue orders and may revise the granting of the license/approval.

7.2 Does the license granting authority have the power to revoke or terminate licenses? If yes, what actions of the license holder would warrant the termination of the license?

(i) exploration: Yes. Under the Federal Mining Act, the mining authority shall revoke exploration licenses if subsequently facts occur, which, had they occurred earlier, would have made it imperative to deny the license. The exploration license shall also be revoked if for reasons for which the holder of the license is responsible, the exploration has not commenced within one year after the license was granted or if the systematic exploration has been interrupted for more than one year. The competent authority may, for an important reason, extend that term by another year. The exploration license may be revoked if the holder fails to apply for an exploitation license with regard to a mineral resource covered by that exploration license, although the prerequisites for granting the exploitation license exists and a reasonable time limit set by the mining authority for filing the application has expired.

(ii) exploitation: The mining authority shall revoke exploitation licenses if subsequent facts occur, which, had they occurred earlier, would have made it imperative to deny the license. The exploitation license shall also be revoked if the production has not commenced within a term of three years after the license was granted or if the systematic production has been interrupted for more than three years. This does not apply as long technical or economic reasons make it necessary for the license holder to delay the commencement or the resumption of the production in the field covered by the exploitation license until a later time or if the interruption was caused by other reasons outside the responsibility of the license holder.

(iii) power plant: N/A.

As regards approvals of operating plans for geothermal mining activities (exploration, exploitation and power plant), the approval may be revoked under extraordinary circumstances only. A substantial cause is required and the consequences for the permit holder have to be taken into consideration. A reason for revocation may be that the conditions to the approval are not fulfilled or if the authority would be entitled, as a result of a subsequent change in circumstances, not to issue the approval and if failure to revoke it would be contrary to the public interest.

7.3 Can the license granting authority set forth conditions into licenses which provide for (i) stricter terms and conditions for licensees or (ii) more lenient terms and conditions for licensees, when such terms and conditions (whether stricter or more lenient) are not otherwise provided for by law?

The Federal Mining Act sets out requirements for terms and conditions for licenses (and the respective operating plan approvals). Basically, terms and conditions (Nebenbestimmungen) are only admissible if and to the extent that they are necessary to ensure compliance with the law. Thus, the mining authority cannot provide for stricter terms and conditions. At the same time, the mining authority may circumvent the statutory requirements for licenses (and operating plan approvals) by providing for more lenient terms and conditions.

7.4 Which remedies does the license granting authority have in order to enforce compliance to the terms and conditions of a license, other than by revoking the license?

The mining authority monitors compliance with the terms and conditions of a license and the respective operating plan approval. The mining authority can order implementation of the measures needed to implement mining law and counter risks. If non-compliance with the terms and conditions of an operating plan approval results in immediate danger for employees or third parties, the mining authority may order a preliminary stoppage of operations.

8. Regulatory and information obligations

8.1 Briefly outline the surveillance carried out by the regulatory authorities during the license period, e.g. with regards to reporting duties and/or on-site visits?

Under the Federal Mining Act, all mining activities are subject to mining supervision. The mining authority monitors compliance with the provisions of mining law. The holder of a license is required to submit to the mining authority the documentation and to give the information required for enabling the authority to carry out the mining supervision.

The mining authority is – inter alia – authorised to enter the premises, office rooms and in-



stallations and to carry out certain tests, inspect mines and take samples at the expenses of the operator and inspect the business and operation records.

The mining authority can order implementation of the measures needed to implement mining law and counter risks.

8.2 Which information is required to be submitted to regulatory authorities during that same period for the holder of a license for:

(i) exploration, (ii) exploitation: The Federal Mining Act and supplementary (state) mining ordinances set forth comprehensive reporting obligations. The holder of an exploration or an exploitation license needs to submit annual reports to the mining authority. The mining authority must – inter alia – be informed of the status of the exploration/exploitations works. Any changes and continuations of the work program must be disclosed and justified.

(iii) power plant: N/A.

As regards operating plans for geothermal mining activities (exploration, exploitation, power plant), the Federal Mining Act does not provide for general reporting obligations. However, the operator needs to store comprehensive operational documentation and submit it upon request to the mining authority. The authority can also set up reporting requirements in the approval of the operating plan. Further, certain reporting obligations may result from special mining ordinances.

9. Power purchase agreements

9.1 Are general terms and conditions, such as duration of Power Purchase Agreements regulated? If no, are there any soft law or general recommendations in place in your jurisdiction?

No.

9.2 What is the permitted or general duration of Power Purchase Agreements?

Duration of PPA is not regulated by law. PPA usually provide for a fixed duration of one or two years with annual prolongation option. However, in individual cases longer duration is agreed.

9.3 Are public and/or national regulatory authorities involved in any way in forming the terms of Power Purchase Agreements, either directly or indirectly?

No.

10. Incentives

10.1 Are there any incentives offered by the government or local authorities for utilization of geothermal energy? If yes, in what form (e.g. tax and/or feed-in tariffs) and what are the maximum amounts permitted?

Yes, the Renewable Energy Act (Erneuerbare-Energien-Gesetz – EEG) promotes the production of electricity from, inter alia, geothermal energy. The EEG guarantees a fixed feed-in tariff for generally 20 years, starting at the end of the year in which the plant has been commissioned. The locally competent distribution system operator (Netzbetreiber) is obliged to connect the plant to its grid, to take off the electricity generated by the plant and to pay the applicable feed-in tariff to the plant operator.

The current feed-in tariff for geothermal energy plants amounts to 25,20 ct/kWh. The feed-in tariff will decrease by 5 % every year, starting on 1 January 2020. However, once a plant has been commissioned, the feed-in tariff which is payable during the year of commissioning of the plant will remain unchanged for 20 years.

The support scheme for renewable energy plants will be significantly amended as of 2017. The most significant change will be that the owners of renewable energy plants will have to successfully participate in public tendering procedures in order to be entitled to a feed-in tariff. However, unlike other renewable energy sources, such as wind, solar and biogas, geothermal energy plants do not have to participate in these public tendering procedures. The respective legislative decision, in favour of geothermal energy plants, was based on a market analysis. The findings were that the competitiveness of geothermal energy sector was too small. Hence, it would not be meaningful to impose public tendering procedures upon geothermal energy plants. According to the EEG 2017, geothermal energy plants will still receive a fixed feed-in tariff.

10.2 What requirements must the project fulfil in order to be eligible to receive such incentives?

Generally, the EEG does not distinguish between different types of geothermal energy plants. Therefore, every geothermal energy plant is generally eligible for the feed-in tariff under the EEG. However, certain technical requirements must be fulfilled in order to obtain the feed-in tariff. For example, the network operator must be put in the position to remotely control the electricity production of the geothermal energy plant. Also, the network operator must be able to check the actual feed-in of electricity at any time.

10.3 Are the incentives subject to recovery in any instances?

Generally, the feed-in tariff is not subject to recovery. However, the feed-in tariff can - all or in part - be claimed back in case the plant operator is in breach with formal and/or technical requirements under the EEG. For example, if the plant operator failed to register his plant with the Federal Network Agency (Bundesnetzagentur), the network operator may claim back any payments which have already been made. Also, a failure of the operator to comply with certain technical requirements (see above) may entitle the network operator to a repayment claim.

11. Participation and authority of indigenous peoples

11.1 Are the rights of indigenous people in connection to geothermal resources regulated?

N/A

11.2 To what extent are indigenous municipalities involved in the process of granting licenses?

N/A

12. Alteration of law and regulation

12.1 What are the principles regarding retroactivity of laws and regulations, can changes in such rules affect license holders?

It is a general principle in Germany that laws may not be retroactive. However, under German law, a distinction must be made between true retroactive effect and pseudo retroactive effect. The latter is permitted and applies e.g. when a legislator changes the law for ongoing mining operations for the future and thereby affects existing legal positions. Protection of legitimate expectations is preserved by transitional regulations. As regards feed-in-tariffs, they may not be reduced once the renewable power plant has been commissioned.

13. Taxation

13.1 How does taxation in the sector affect license holders?

License holders are taxed in the same manner as other legal entities in Germany. Resident and non-resident license holders are generally subject to German corporate income tax (Körperschaftsteuer) and trade tax (Gewerbesteuer) amounting to approx. 30% in total, the exact tax rate depending on a municipal trade tax multiplier.

13.2 Is the sale of energy subject to VAT?

Yes, the VAT on the sale of electricity is 19%.

13.3 Is VAT refundable and what is the procedure for VAT refunding?

VAT invoiced by license holders is not refundable for license holders but generally is refundable for the recipients of the electricity in case these recipients qualify as taxpayers for VAT purposes (i.e. are businesses and not private individuals).

14. Environmental impact assessment

14.1 What demands are there regarding EIA prior to exploration, exploitation and or production with geothermal energy?

1) EIA requirement:

Projects requiring an Environmental Impact Assessment (EIA) are listed in sec. 1 of the Or-

dinance Concerning EIA for Mining Projects (Verordnung über die Umweltverträglichkeitsprüfung bergbaulicher Vorhaben – UVP-V Bergbau).

A full EIA is required for:

- drilling of deep wells with a depth of 1,000 m or more in nature protection areas or Natura 2000 sites (protected areas under the Habitats Directive 92/43 EWG and the Birds Directive 2009/147/EG) for the purpose of exploration and exploitation of geothermal heat
- drilling of deep wells for the purpose of exploration and exploitation of geothermal heat by applying hydraulic fracturing (with certain exemptions).

Further, EIA may be required for drilling of deep wells with a depth of 1,000 m or more:

- for the purpose of exploitation on the basis of a general case-by-case screening
- for the purpose of exploration on the basis of a location-related case-by-case screening

If the screening pursuant the Act on Environmental Impact Assessment (Gesetz über die Umweltverträglichkeitsprüfung – UVPG) comes to the result that the project could have significant environmental impacts.

2) Scoping:

If EIA is required, the responsible authority shall upon request of the project developer or if the authority considers it necessary discuss with the project developer the subject, extent and methods of the EIA as well as other questions of significance for the conduct of the assessment according to the respective state of planning and on the basis of suitable documents provided by the developer. For this purpose, other authorities, experts and third parties may be called in. The competent authority shall inform the developer on the probable scope of the assessment as well as on the type and scope of the documents probably to be provided.

3) Environmental Impact Assessment:

The Environmental Impact Assessment is an integral part of the permitting procedure for the framework operating plan (see below). The project developer has to present to the competent



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authority the documents which are of significance for a decision on the project's environmental impacts at the beginning of the permitting procedure.

The documents have to contain at least the following information:

- a description of the project giving details on the site, design and size of the project as well as the amount of land required,
- a description of the type and the quantity of the emissions and residual substances to be expected, in particular of the air pollutants, wastes and waste water as well as other information which is necessary for determining and assessing significant impacts on the environment by the project,
- a description of measures by which significant impacts on the environment may be prevented, reduced or set off as far as possible, as well as of substituting measures in the case of interventions in the natural surroundings and landscape which cannot be set off but which have priority nonetheless,
- a description of the significant effects of the project on the environment which pays regard to the general level of knowledge and the generally acknowledged assessment methods,
- an outline of the main alternatives studied by the developer and an indication of the main reasons for his choice, taking into account the environmental effects.

A non-technical summary shall be enclosed.

Based on the documents provided by the developer, the statements made by other authorities and the opinions raised in the public participation procedure, the mining authority shall summarise the project's impacts on the protection objectives of the EIA, including interactions. The competent authority then assesses the project's environmental impacts on the basis of this summary and takes into account this assessment when deciding upon approval of the project with regard to efficient prevention of environmental damage.

15. Licenses

15.1 What other licenses are needed in order to commence exploration, exploitation and/or production with geothermal energy?

All significant mining operations such as exploration, exploitation and construction and operation of the power plant or other subsurface and above-ground facilities which are connected to the mining operation and directly serve their operation may only be performed based on one or more operating plans approved by the mining authority (Betriebsplanzulassung). Projects that require an EIA need approval of a mandatory framework operating plan (Rahmenbetriebsplanzulassung). The approval will be issued by the mining authority in a formal plan approval procedure including a comprehensive EIA and participation of the public. The approval concentrates all involved parallel permits (one-stop shop). Mining operations are subject to substantive standards and procedural rules provided in the Federal Mining Act and certain implementing ordinances, most of them aiming at a high safety level and at minimizing environmental effects.

Some installations and operations require additional authorisations pursuant to other laws. This is in particular the case with regard to the use of water such as extraction and reinjection of thermal water. Such use requires a permit (Erlaubnis) under the Federal Water Management Act (Wasserhaushaltsgesetz). Gas-fired compressor units and gas heating facilities may require a permit under the Federal Immissions Control Act (Bundes-Immissionsschutzgesetz) depending on their thermal input. Buildings usually require a permit (Baugenehmigung) under the State Construction Acts (Landesbauordnungen).



INDONESIA

HISWARA BUNJAMIN & TANDJUNG
HERBERT SMITH FREEHILLS

Hiswara Bunjamin & Tandjung in association with Herbert Smith Freehills

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Statistics:

In general, we note that the statistical information in Indonesia is difficult to obtain and is not always highly reliable. The information set out below is the best and most recent publicly available information for Indonesia.

1. Size of country: 1,913,578 km².
2. Population: 255,461,700 (2016).
3. Years of producing electricity from geothermal: Approx. 32 years, from 1982-1983.
4. Installed capacity of geothermal (MWe): 1,435.4 MWe (as of December 2015).
5. Installed capacity of other sources (MWe): 54,092.7 MWe (as of December 2015).
6. Electricity production from geothermal (GWh): 9,651 GWh (2014).
7. Electricity production from other sources (GWh): 235,520 GWh (2016).
8. Proportional production by source:

- Fossil Fuels – 89.9%
- Hydro – 6%
- Other Renewable Energy – 0.2%
- Geothermal – 3.9%



Sources: Statistical Yearbook of Indonesia 2016, Statistical Book of the Directorate General of New Renewable Energy and Energy Conservation 2015, PLN's 2016-2025 Electricity Business Plan, Think GeoEnergy (2017).

1. Ownership and access to geothermal resources

1.1 What are the rules on ownership of geothermal resources? Can private parties hold ownership of geothermal resources?

Pursuant to the Indonesian Constitution, all natural resources in Indonesia (including geothermal resources) are controlled by the State and must be used for the greatest welfare of the people of Indonesia. As a result, the ownership of geothermal resources in Indonesia resides with the State.

However, private parties may utilize geothermal resources by obtaining an appropriate geothermal concession or license.

The regulatory framework for geothermal operations in Indonesia is mainly governed by Law No. 21 of 2014 on Geothermal (the "2014 Geothermal Law"), which revoked the previous 2003 law regarding geothermal operations. The 2014

Geothermal Law was issued with the aim to accelerate the development of the geothermal business sector as an alternative source of energy and to address Indonesia's current electricity shortage and energy needs.

There is an on-going judicial review, which was submitted by the Governor of East Java to the Indonesian Constitutional Court, in relation to several provisions of the 2014 Geothermal Law. This judicial review alleges that the several provisions of the 2014 Geothermal Law are contrary to the regional autonomy principle set out under the Indonesian Constitution because (under the 2014 Geothermal Law) regional governments are no longer authorized to issue geothermal licenses in relation to the use of geothermal energy for electricity purposes. To date, this judicial hearing remains at the hearing stage and a final decision has not yet been issued by the Constitutional Court.

Under previous regulatory regimes, PT Per-



tamina (Persero) (“Pertamina”) (the state-owned energy company) held a monopoly over geothermal business activities in Indonesia. Under this regime, Pertamina was granted special privileges to appoint local and international contractors to carry out geothermal activities under joint operation contracts entered into with Pertamina. However, Pertamina’s monopoly over geothermal development in Indonesia ended in the year 2000. Since then, the Indonesian government has allowed the private sector to independently engage in geothermal business activities in Indonesia.

Nonetheless, Pertamina (through its subsidiary, PT Pertamina Geothermal Energy) still operates four producing geothermal working areas (i.e. Kamojang, Lahendong, Sibayak, and Ulubelu Working Areas) and has a further seven geothermal development projects in Indonesia. Pertamina has retained the ability to appoint local and international contractors to carry out geothermal activities in co-operation with Pertamina in relation to these concession areas.

1.2 Who can grant access to geothermal resources, only state or also landowners?

As the owner of all geothermal resources in Indonesia, only the State may grant access to geothermal resources. Under the 2014 Geothermal Law, utilization of geothermal resources for new geothermal projects is granted through licenses issued by the central government of Indonesia, the relevant provincial government or the relevant regency or municipality government pursuant to their respective authorities.

However, a geothermal license issued under the 2014 Geothermal Law does not include any right of access over the land surface within the area of the geothermal license. In order to access such areas, the license holder must first settle the use of land with the relevant land owner or occupier and/or obtain a forestry permit for its geothermal activities if such activities are conducted in a production forest, a protected forest or a conservation forest.

1.3 Is exploration/exploitation open to foreign investment?

Yes, geothermal power plant projects with a capacity of ≤ 10 MW are open to a maximum of 67% foreign ownership. Geothermal power plant projects with a capacity of > 10 MW are open to a maximum of 95% foreign ownership, or 100% foreign ownership if the project is part

of a public private partnership.

2. Allowed exploitation

2.1 Is exploitation of resources subject to licensing? Do landowners have a right to exploit resources without a license? If yes, to what extent?

Under the 2014 Geothermal Law and the current regulatory framework, the exploitation and utilization of geothermal resources in Indonesia is subject to a licencing regime, namely: (i) a license for the direct utilization of geothermal resources for non-electricity purposes, such as tourism and agribusiness (which is outside the scope of this guide), and (ii) a geothermal license (Izin Panas Bumi – “Geothermal License”) for electricity purposes and an electricity power supply business license (Izin Usaha Penyediaan Tenaga Listrik – “IUPTL”). Under previous regulatory regimes (pursuant to which several geothermal projects in Indonesia still operate), the Indonesian Government (typically through Pertamina) has also entered into various concession agreements directly with private parties to permit the exploitation of geothermal resources for electricity purposes.

The licenses referred to above are not directly linked to land ownership and landowners in Indonesia do not have any right to exploit geothermal resources without a license.

3. Role and voice of landowner in licensing procedure

3.1 Does the landowner have a role in the process for granting a license for (i) exploration, (ii) exploitation or (iii) a power plant?

Landowners in Indonesia do not have any specific or formal role in the process for the issuance of Geothermal Licenses.

However, Geothermal Licenses do not include any right of access over the land surface within the area of the Geothermal License. As a result, in order to actually conduct geothermal activities within a particular area, the Geothermal License holder must obtain an underlying land right. This land right is typically obtained through the following mechanisms:

- (i) land acquisition, whereby the Geothermal License holder formally acquires certified (or uncertified) land title/rights; and/or

- (ii) leases or compensation agreements, whereby the Geothermal License holder pays periodic rent or makes a one-off payment to the relevant landowner for the use of and access to the relevant land.

In addition, in relation to geothermal activities which are conducted in a production forest, a protected forest or a conservation forest, the Geothermal License holder must obtain a forestry permit from the relevant governmental authority to allow it to conduct geothermal activities within those forestry areas.

3.2 Can the opposition of the landowner change the granting of either an exploration, exploitation or power plant licenses?

As landowners in Indonesia do not have any specific or formal role in the process for the issuance of Geothermal Licenses in Indonesia, landowners cannot formally oppose the licensing process.

However, in practice, land acquisition and access issues remain a significant impediment to the development of geothermal projects in Indonesia. In practice, negotiations with a (typically large) number of individual landowners can be complex and protracted. While a compulsory land acquisition process was recently introduced in Indonesia, such processes are still unclear in the context of private projects and, in practice, must be led by government backed projects.

4. Criteria for granting of a license

4.1 Which documents need to be submitted and what is the criteria for obtaining a license for (i) exploration, (ii) exploitation and/or (iii) power plant?

The process for exploring and exploiting geothermal resources begins with a tender offer by the Minister of Energy Mineral Resources ("MEMR") for a geothermal utilization working area. Any Indonesian legal business entity (including state-owned enterprises, regional owned enterprises, cooperatives and privately owned companies) which participates in the tender for a geothermal utilization working area must satisfy the following requirements:

- (i) administrative requirements (including a Geothermal License application form, cor-

porate documents, company profile, taxpayer registration number, integrity pact, and statement letter);

- (ii) technical requirements (including evidence of experience in the oil and gas or geothermal sector, expertise in the oil and gas or geothermal sector, the proposed project organization structure, work program, and exploration commitment); and
- (iii) financial requirements (including the electricity tender price, evidence of a tender guarantee, a statement letter of financial capability, and evidence of financial capability).

The winner of the tender shall be determined by the MEMR tender committee based on the evaluation of the above requirements. Within 4 months of the determination of the tender, the winning party must: (i) pay the basic price for the working area data, and (ii) deposit the exploration commitment fund (being at least US\$10 million for projects with generation capacity of 10MW or more and at least US\$5 million for projects with generation capacity of less than 10MW). Once these obligations have been satisfied, a Geothermal License will be issued by MEMR to the winner of the geothermal utilization working area tender.

In order to exploit the geothermal resources and actually generate electricity, the Geothermal License holder must obtain an IUPTL (as defined above). If the electricity generated from the geothermal power plant is supplied to PT PLN (Persero) (being the state-owned entity which has an effective monopoly over power distribution in Indonesia) ("PLN"), the IUPTL will be issued by the Head of Indonesian Investment Board ("BKPM") on behalf of MEMR; otherwise, the IUPTL will be issued by the relevant governor, or the relevant regent/mayor. To obtain an IUPTL, the Geothermal License holder must satisfy the following requirements:

- (i) administrative and financial requirements (including an IUPTL application form, corporate documents, company profile, taxpayer registration number, and evidence of financial capability);
- (ii) technical requirements (including a feasibility study on the electricity supply business, details on the location of the installation

and the type and capacity of the plant, the construction and operation schedule, and a copy of the relevant power purchase agreement); and

- (iii) environmental requirements, as discussed further below.

5. Duration of licenses

5.1 What is the maximum duration of a license for (i) exploration, (ii) exploitation and/or (iii) power plant?

A Geothermal License may be granted for a period of up to 37 years and may be subsequently extended for up to 20 years for each extension. While only a single Geothermal License is issued for both exploration and exploitation activities, the Geothermal License will comprise of two stages:

- (i) exploration / feasibility study, for a maximum period of 5 years which may be extended twice for a maximum period of 1 year per extension; and
- (ii) exploitation / utilization stage, for a maximum period of 30 years.

An IUPTL is granted for up to 30 years and can be extended. There are no express limitations or restrictions on the number (or period) of extensions that can be obtained by an IUPTL holder. We note that the issuing authority has broad discretion on this matter by considering the term of the relevant power purchase agreement.

6. Terms of licenses

6.1 Are exploration license holders granted pre-emptive rights with regards to exploitation or do exploration licenses automatically convert into exploitation licenses if the resource has been substantiated? If so, are there any conditions?

A single Geothermal License is issued for both exploration and exploitation activities. However, in order to move from the exploration (feasibility stage) of the Geothermal License to the exploitation (utilization stage), the Geothermal License holder must submit to MEMR for prior approval the results of its feasibility study evidencing a technically and economically feasible



geothermal project and a copy of its environmental permit. In this sense, the holders of a Geothermal License in the exploration/feasibility stage effectively have a pre-emptive/exclusive right with regards to exploitation in that area provided that they can prove that the project is technically, economically and environmentally feasible.

6.2 Is an exploitation license included in a power plant license or are these licenses separate?

The authorisation to exploit and utilize geothermal resources (contained in the Geothermal License) is separate to the authorization to supply electricity (contained in an IUPTL).

7. Termination and revision of licenses

7.1 What actions by the license holder would warrant revision of exploration, exploitation and power plant licenses?

Once issued, there is no formal process for a license granting authority or a license holder to amend an existing Geothermal License or IUPTL (except for manifest error). However, in practice, the license holder will typically apply for a revision to its license if there have been any changes to the details set out in such license (including, for example, an expansion of the capacity or location of the project or a change in the name of the license holder).

7.2 Does the license granting authority have the power to revoke or terminate licenses? If yes, what actions of the license holder would warrant the termination of the license?

In general, any substantive breach of the 2014 Geothermal Law or the terms of the relevant Geothermal License could result in administrative sanctions which could, ultimately, lead to the revocation of a Geothermal License. For example, the relevant issuing authority may revoke a Geothermal License if the license holder: (i) does not settle land right issues prior to the utilization of the geothermal resources, (ii) does not perform exploration, feasibility study, exploitation or utilization activities within the required timeframes, (iii) does not pay the required state revenues, or (iv) does not comply with relevant work health and safety, environmental protection, and geothermal mining technical requirements.

In addition, any non-compliance by an IUPTL holder with the relevant electricity law and regulations or terms of the relevant IUPTL (for example, non-compliance with: (i) periodical reporting obligations, (ii) electrical safety requirements, (iii) local content requirements, or (iv) environmental protection and management requirements) may also ultimately lead to revocation of the IUPTL by the relevant issuing authority.

7.3 Can the license granting authority set forth conditions into licenses which provide for (i) stricter terms and conditions for licensees or (ii) more lenient terms and conditions for licensees, when such terms and conditions (whether stricter or more lenient) are not otherwise provided for by law?

Typically, license granting authorities have relatively clear guidelines and/or regulations which set out the specific terms and conditions which should attach to a license, including (in some cases) template license documents which are attached to the relevant guidelines and/or regulations. As a result, issuing authorities typically do not include additional conditions into licenses which are not otherwise provided for by law. However, to the extent that clear guidelines and/or regulations are not available, then licensing granting authorities will have the general discretion to determine the specific terms and conditions that will attach to the relevant license. In those circumstances, it would be possible for the licensing granting authority to exercise its discretion to attach stricter or more lenient terms for certain licenses or licensees.

7.4 Which remedies does the license granting authority have in order to enforce compliance to the terms and conditions of a license, other than by revoking the license?

Typically, license granting authorities may impose a series of administrative sanctions to enforce compliance to the terms and conditions of a license prior to ultimately revoking the license for continued non-compliance. These administrative sanctions may include written warnings, the temporary suspension of the license or the suspension of business activities.

8. Regulatory and information obligations

8.1 Briefly outline the surveillance carried out by the regulatory authorities during the license period, e.g. with regards to reporting duties and/or on-site visits?

Under the 2014 Geothermal Law, the relevant issuing authority can manage and supervise geothermal activities through examining the periodical reports required to be submitted by license holders and by conducting on-site visits. Typically, areas of particular scrutiny include environmental protection management and reclamation, local content utilization, development of Indonesian manpower, and local community development. In practice, the management and supervision of geothermal activities by regulatory authorities can be inconsistent and vary widely between provinces and regions.

8.2 Which information is required to be submitted to regulatory authorities during that same period for the holder of a license for (i) exploration, (ii) exploitation and/or (iii) power plant?

A Geothermal License holder must submit to MEMR: (i) quarterly reports and (ii) annual reports in relation to its work plan and budget and the implementation of such work plan and budget.

An IUPTL holder must submit semester reports to the Director General of Electricity which must contain: (i) general data on electricity supply, (ii) details of the stage of electricity supply, (iii) investment realization data, (iv) compliance with local content obligations, (v) manpower data, (vi) data on installation of electricity supply, (vii) consumer data, (viii) electricity production and purchase data, (ix) operation disturbance information, (x) environmental management and monitoring compliance, and (xi) compliance with corporate social responsibility requirements.

9. Power purchase agreements

9.1 Are general terms and conditions, such as duration of Power Purchase Agreements regulated? If no, are there any soft laws or general recommendations in place in your jurisdiction?

Other than feed-in tariffs (which are discussed further below), the general terms and conditions

of power purchase agreements are not specifically regulated in Indonesia. In theory, all power purchase agreements should be based on the negotiations between the power producer and the purchaser of the electricity. However, in reality, PLN has a standard form power purchase agreement and will typically only leave certain project specific issues open for negotiation (for example, local licencing issues, land/interconnection issues or other bespoke technical requirements).

9.2 What is the permitted or general duration of Power Purchase Agreements?

While it varies from project-to-project, the general duration of power purchase agreements in Indonesia is 25 to 30 years from the commercial operation date.

9.3 Are public and/or national regulatory authorities involved in any way in forming the terms of Power Purchase Agreements, either directly or indirectly?

Other than for feed-in tariffs (which are discussed further below), regulatory authorities in Indonesia are not typically involved in forming the terms of power purchase agreements.

10. Incentives

10.1 Are there any incentives offered by the government or local authorities for utilization of geothermal energy? If yes, in what form (e.g. tax and/or feed-in tariffs) and what are the maximum amounts permitted?

There are several incentives offered by the Government of Indonesia for businesses engaged in the geothermal sector, including:

- (i) Tax allowances: Geothermal License holders are entitled to: (a) an annual net income reduction of 5% of the amount of the taxpayer's total fixed tangible assets for a period of 6 years, (b) accelerated depreciation on tangible assets or amortization of intangible assets, (c) 10% income tax on foreign taxpayer dividends, and (d) compensation of losses for 5 to 10 years;
- (ii) Tax holiday: as an alternative to the above tax allowances, geothermal license holders are entitled to apply for a tax holiday (in the



form of corporate income tax deduction up to 100% of its income) for a certain prescribed period;

- (iii) Import duty exemptions: newly established foreign-owned Geothermal License holders are entitled to an exemption of import duty for certain goods for a maximum period of 4 years; and
- (iv) Business Viability Guarantee Letter: sponsors of qualified geothermal projects can also obtain the benefit of a Business Viability Guarantee Letter from the Indonesian Minister of Finance to support the projects' financial obligations based on the relevant power purchase agreement.

In addition to the above, the Indonesian Government has established a feed-in tariff in the form of a single tariff ceiling applicable for all geothermal projects during the tender process which are determined based on the region and the timing for achieving the Commercial Operation Date (ranging from US\$0.118/kWh in Sumatera, Java and Kalimantan for a Commercial Operation Date in 2015 to US\$0.296/kWh in remote areas where the majority of the electrical power is generated from fuel oil plants for a Commercial Operation Date in 2025).

10.2 What requirements must the project fulfil in order to be eligible to receive such incentives?

In order to be eligible for a Tax Holiday, the license holder must meet several criteria, being, among others: (i) a newly registered taxpayer, (ii) conduct business activities in a pioneering industry (including geothermal activities), (iii) have a minimum investment plan of one trillion Indonesian Rupiah, as approved by the Head of BKPM, and (iv) comply with the prescribed debt to equity ratio.

The import duty exemption is generally available for the geothermal industry but only for the import of machinery, goods, and materials which cannot be produced domestically and/or where the technical specification and quantity of domestic goods do not meet the requirements of the project.

As for Business Viability Guarantee Letters, this guarantee letter must be requested by the President Director of PLN to the Minister of Finance before conducting the procurement process for

the relevant electricity infrastructure development. Further detailed provisions on the granting of a Business Viability Guarantee Letter are governed by the Minister of Finance.

10.3 Are the incentives subject to recovery in any instances?

The abovementioned incentives are not subject to recovery.

11. Participation and authority of indigenous peoples

11.1 Are the rights of indigenous people in connection to geothermal resources regulated?

The 2014 Geothermal Law (and Indonesian laws and regulations more generally) do not specifically govern the rights of indigenous people in relation to geothermal projects. However, as Geothermal Licenses do not include the right of access over the land surface within the area of the Geothermal License, to the extent that relevant land is occupied by indigenous people, the holder of Geothermal Licenses must settle the relevant land rights with the indigenous people (like all other land owners/occupiers) prior to carrying out any geothermal activities.

11.2 To what extent are indigenous municipalities involved in the process of granting licenses?

Indigenous municipalities are not involved in the process of granting licenses in the geothermal industry in Indonesia.

12. Alteration of law and regulation

12.1 What are the principles regarding retroactivity of laws and regulations, can changes in such rules affect license holders?

It is possible and, in practice, relatively common for new laws and regulations to affect the rights and obligations of the holders of pre-existing Geothermal Licenses. However, new laws and regulations are not permitted to be retroactive in respect of: (i) criminal provisions, unless they pursue gross violations of human rights; or (ii) any provisions which impose any tax and retribution collection in previous tax years. Pursuant to Indonesian Law No. 12 of 2011 on the Enact-

ment of Laws and Regulations, if any laws and regulations are intended to be retroactive then that law or regulation must contain transitional provisions on the status of the legal actions committed or legal relationships formed during the period between the retroactive date and the enactment date. In practice, it is not uncommon for new Indonesian laws and regulations to include transitional provisions which require the holders of existing licenses or concessions to amend or adjust the terms of their license or concession so that they are in accordance with the new law or regulation within a certain period of time.

In this regard we note that there is no clear guidance under Indonesian law on stabilization clauses which may be sought to be included in various types of investment agreements. As such, stabilisation clauses are not commonly adopted in Indonesian power purchase agreements (specifically, power purchase agreements with PLN) or other investment/project agreements. Typically, political risk in Indonesia is managed through government force majeure clauses which may provide time and/or cost relief in the event of a prescribed set out political events (including, in some cases, change of law). Such government force majeure clauses are typically included in power purchase agreements entered into with PLN.

13. Environmental impact

13.1 What demands are there regarding EIA prior to exploration, exploitation and or production with geothermal energy?

All companies performing geothermal exploitation activities are required to obtain relevant environmental approvals and permits. An Environmental Impact Assessment (“AMDAL”) document is required for geothermal exploitation activities where: (i) the geothermal working area is ≥ 200 Ha, (ii) the open space area for geothermal utilization is ≥ 50 Ha, or (iii) the geothermal power plant has a capacity of ≥ 55 MW. Geothermal activities which are not required to have an AMDAL (including geothermal exploration activities), must prepare an Environmental Management Plan/Environmental Monitoring Plan (“UKL-UPL”) document or a statement letter regarding the readiness for managing and monitoring the environment, depending on the applicable relevant regional regulations.

Any business which conducts activities under an AMDAL or UKL-UPL (issued after 23 Febru-

ary 2012) must also obtain an environmental permit issued by the Minister of Environment and Forestry, the relevant governor, or regent/mayor (as applicable). An environmental permit is a pre-requisite for the relevant project to obtain its relevant operational or business activities license (and, for example, is a pre-requisite to obtaining an IUPTL).

14. Licenses

14.1 What other licenses are needed in order to commence exploration, exploitation and/or production with geothermal energy?

Numerous other licenses are required to commence exploration, exploitation and/or production of geothermal energy, including various general corporate, manpower and health and safety licenses. However, the main ancillary licenses to conduct geothermal activities include:

- (i) a Borrow and Use of Forest Area Permit, if exploration or exploitation activity is conducted in a production forest or protected forest area, or an Environmental Services Utilization Permit if the geothermal activities are conducted in a conservation forest;
- (ii) an investment approval from BKPM if the project is owned by an Indonesian company with any direct foreign investment; and
- (iii) various approvals from the relevant authorities if the license holder manages, stores, disposes or uses hazardous or toxic materials.



ITALY

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Statistics:

1. Size of country: 301,338 km².
2. Population: 59,801,000.
3. Years of producing electricity from geothermal: 112 years, from 1904.
4. Installed capacity of geothermal (MWe): 944 MWe (2017).
5. Installed capacity of other sources (MWe): 116,011 MWe.
6. Electricity production from geothermal (GWh): 5,916 GWh (2014).
7. Electricity production from other sources (GWh): 273,911 GWh (2014).
8. Proportional production by source:

- Coal – 17%
- Oil – 5%
- Gas – 34%
- Biofuels – 6%
- Waste – 1%
- Hydro – 22%
- Solar PV – 8%
- Wind – 5%
- Other – 0%
- Geothermal – 2%



Sources: Think GeoEnergy (2017), International Energy Agency (2014).

1. Ownership and access to geothermal resources

1.1 What are the rules on ownership of geothermal resources? Can private parties hold ownership of geothermal resources?

Ownership of natural resources, including geothermal, is governed by the Italian Civil Code, namely: - Article 826, para. 2, provides that: "The forests that by applicable laws constitute the forested domain of the State, mines, quarries and turf pits when their disposability is taken from the owner of the land [...] are part of the non-disposable patrimony of the State".

Article 840, para. 1, provides that: "Ownership of the soil extends to the subsoil, with all that is contained therein, and the owner can perform any excavation or work that does not cause harm to a neighbour. This provision does not apply to that which is the object of laws on mines, quarries and turf pits [...]".

Article 1, para. 6, of Legislative Decree No. 22/2010, provides that geothermal resources qualify as mineral resources that fall under the non-disposable patrimony of the Italian State or of the relevant region depending on the national or local interest of such resources.

Private ownership of geothermal resources is not permitted.

1.2 Who can grant access to geothermal resources, only state or also landowner?

Only the Italian State can grant access to geothermal resources.

1.3 Is exploration/exploitation open to foreign investment?

Yes. Even if Italian companies own the majority of geothermal power plants, the exploration and exploitation of geothermal resources are open to foreign investment.



2. Allowed exploitation

2.1 Is exploitation of resources subject to licensing? Do landowners have the right to exploit resources without a license? If yes, to what extent?

Yes, the exploitation of geothermal resources is subject to a specific license. Article 6 of Decree No 22/2010 sets out the procedure to obtain a license, which entails the involvement of all the authorities concerned (e.g. the Ministry for the Environment, Land and Sea, the Ministry of Economic Development and the local authorities). The license also includes the final approval of the works programme and the geothermal project

3. Role and voice of landowner in licensing procedure

3.1 Does the landowner have a role in the process of granting a license for: (i) exploration, (ii) exploitation and (iii) power plant?

Yes. In general, landowners are entitled to submit comments and observations in the procedure to obtain licenses for geothermal projects, which the authority must take into account.

3.2 Will an opposition of a landowner have a bearing on the process of granting a license for exploration, exploitation or power plant?

Opposition of a landowner does not have direct bearing on whether a license is granted. However, the authorities may take any negative comments and observations into account and, as a consequence, amend the project in question. Finally, pursuant to Article 15 of Legislative Decree No. 22/2010, the works necessary for the exploration and the exploitation of geothermal resources qualify as of public utility, and, therefore the expropriation procedure under Presidential Decree No. 327/2001 can take place, if necessary.

4. Criteria for granting of a license

4.1 What documents need to be submitted and what is the criteria for obtaining a license for:

(i) exploration: Article 7 of Presidential Decree No. 395/1991 stipulates that the following documents

have to be submitted with the application:

- a certificate attesting the applicant's nationality or, in case of a company, its memorandum and articles of association;
- a detailed description of the geographical boundaries of the required area;
- the works programme; and
- a technical report that sets out the experience the applicant has in mining, especially geothermal energy extraction.

(ii) exploitation: Article 34 of Presidential Decree No. 395/1991 and Article 12 of Presidential Decree No. 485/1994 sets out which documents must be submitted:

a) Under Article 34, the documents required by the abovementioned Article 7 of Presidential Decree No. 395/1991 must be submitted:

- a certificate attesting the applicant's nationality or, in case of a company, a copy of its memorandum and articles of association;
- a detailed description of geographical boundaries of the required area;
- the works programme; and
- a technical report that sets out the experience the applicant has in mining, especially in geothermal energy extraction.

b) Under Article 12, the following documents are required:

- a technical report and of the works programme;
- the geothermal project;
- the evaluation study of the environmental changes that the planned activities involve or may involve over time; and
- the restoration works programme.

(iii) power plant: The same documents as those required for an exploitation license must be submitted.

The criteria that must be met to be granted any of the licenses includes: a comprehensive works programme, including full details of geological studies and geochemical and geophysical surveys; details of how the geothermal works will be carried out, particularly with regard to safety, mitigating measures, and environmental protection; and evidence of the applicant's ability to



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complete geothermal works properly. Furthermore, the applicant is obliged to restore the sites after completion of the project and provide a suitable financial or insurance guarantee.

5. Duration of licenses

5.1 What is the maximum duration of a license for:

(i) exploration: Exploration license has a duration of 4 years, which can be extended by 2 years on request (Article 4 of Legislative Decree No. 22/2010).

(ii) exploitation: Exploitation license has a duration of 30 years (Article 8 of Decree No 22/2010).

(iii) power plant: The maximum duration of a power plant license is not limited by law. We assume that the maximum duration is 30 years, as for an exploitation license considering that the power plant license is included in the exploration license.

6. Terms of licenses

6.1 What are the general terms of the license for exploration, exploitation and power plant?

No general terms for any of the licenses are provided by law.

6.2 Are exploration license holders granted pre-emptive rights with regards to exploitation or do exploration licenses automatically convert into exploitation licenses if the resource is substantiated? If so, are there any conditions?

Exploration license holders have pre-emptive rights to obtain the related exploitation license.

An exploration license holder that finds geothermal resources must promptly inform the authority, which must publish the national or regional interest in the resource. In this case, the exploration license holder has a pre-emptive right over other competitors to apply for the exploitation license for the geothermal resources, which must be exercised within six months from the above publication (Article 8 of Decree No 22/2010). Competitors are entitled to apply for the license if the pre-emptive right is not exercised.

6.3 Is an exploitation license included in a power plant license or are these licenses separate?

The power plant license is included in the exploitation license.

7. Termination and revision of licenses

7.1 What actions by the license holder would warrant revision of exploration-, exploitation- and power plant licenses?

The license holder may request revisions, especially in case of prorogation, amendments to the works programme, extension or reduction of the areas involved, and transfer of the license to a third party.

The applicable law only provides for circumstances that can be invoked by the license holder to obtain a revision of the same license. There are no specific circumstances that lead the license granting authority to autonomously review the license.

7.2 Does the license granting authority have the power to revoke or terminate licenses? If yes, what actions of the license holder would warrant the termination of the license?

Under Legislative Decree No. 22/2010, the granting authority has the power to revoke or terminate a license when:

- a) a geothermal regional resource upgrades to national level and the geothermal license holder does not have the economic or technical means required for the project; or
- b) the license holder:
 1. does not exploit the site for at least two years;
 2. does not start works within the established term;
 3. does not complete the works programme or the geothermal project in accordance with the license or the established deadlines;
 4. does not timely pay the concession fee;
 5. transfers the license, totally or partially, without the authorization of the authority;
 6. fails to fulfil its obligations under the license; or
 7. fails to comply with Legislative Decree No. 22/2010.

7.3 Which remedies does the license granting authority have in order to enforce compliance to the terms and conditions of a license, other than by revoking the license?

Before adopting the revocation measure, the License Granting Authority requests the owner of the license to duly fulfil the relevant prescriptions and provides a deadline to do so.

7.4 Can the license granting authority set forth conditions into licenses which provide for (i) stricter terms and conditions for licensees or (ii) more lenient terms and conditions for licensees, when such terms and conditions (whether stricter or more lenient) are not otherwise provided for by law?

In certain cases, it happens that the License Granting Authority provides for additional terms and conditions in respect to those provided for by law (e.g. during the environmental impact assessment procedure, the License Granting Authority can impose prescriptions in order to protect the environment other than the standard prescriptions provided for by law).

8. Regulatory and information obligations

8.1 Briefly outline the surveillance carried out by the regulatory authorities during the license period, e.g. with regards to reporting duties and/or on-site visits?

In general, any authority or other entity that authorises geothermal projects is entitled to monitor the progress of the project, including through site visits, and has the power to punish breaches of the obligations.

8.2 Which information is required to be submitted to regulatory authorities during that same period for the holder of a license for:

(i) exploration: Under Article 27 of Presidential Decree No 395/1991, the license holder must provide the competent authority with (i) all the economic and technical information about the project, including the executive programme before the beginning of the exploration of geothermal resources / drilling of the wells (Articles 15–16); (ii) the milestones at the expiration of each calendar quarter (Article 18); (iii) the discovery of geothermal resources within 15 days from

the same discovery (Article 21), and (iv) the discovery of hydrocarbons as soon as the discovery occurs (Article 23).

(ii) exploitation: Under Article 57 of Presidential Decree No. 395/1991, the license holder must provide the authority all the economic and technical information about the project. Furthermore, the holder must inform the competent authority about the works completed and provide details regarding the energy production. In particular, under Article 45 of Presidential Decree No. 395/1991, every 20th of each month, the license holder has to submit the above information and provide the above details.

In addition to the abovementioned monthly communications, the holder of the license must provide technical and economic information required by the License Granting Authority at any time.

(iii) power plant: The same information as that required for an exploitation license must be submitted.

Please note that the license can set out other duties that must be fulfilled.

9. Power purchase agreements

9.1 Are general terms and conditions, such as duration of Power Purchase Agreements regulated? If no, are there any soft law or general recommendations in place in your jurisdiction?

The terms and conditions of PPAs are agreed between the producer and the PPA purchaser in the contract, which must respect Italian civil law. PPAs must also comply with the provisions set out in the resolution of the Italian Regulatory Authority for Electricity, Gas and Water (AEEG-SI) No. 111/2006 and the recent Resolution No. 444/2016 which regulate the main aspects of the PPA (the fee, the obligations of the parties, the mismatches discipline).

If the producer enters into a simplified purchase and resale arrangement (RID) with the GSE (Gestore Servizi Energetici), the RID is valid for one year and automatically renews each year. The price GSE pays is equal to the hourly price of the area where the power plant is located. All other conditions applicable to the RID are set out in AEEGSI Resolution No. 280/2007.

9.2 What is the permitted or general duration of PPA's?

The general duration of a PPA is one year and can be renewed.

9.3 Are public and/or national regulatory authorities involved in any way in forming the terms of PPA's, either directly or indirectly?

Please see above.

10. Incentives

10.1 Are there any incentives offered by the government or local authorities for utilization of geothermal energy? If yes, in what form (e.g. tax and/or feed-in tariffs) and what are the maximum amounts permitted?

Geothermal power plants are subsidised by the incentives under the Ministerial Decree dated 6 July 2012, in an amount equal to the difference between the base feed-in tariff set out in the decree – increased by any premiums that the power plant is eligible for – and the hourly electricity price that applies in the zone where the power plant is located. The incentives apply only if the geothermal power plant is enrolled in the register/auction roll managed by the GSE and when, after the completion of the works, is admitted by the GSE, upon specific request, to such incentives.

Producers that enter into an RID are not eligible for these incentives.

The incentives covered by the Ministerial Decree dated 6 July 2012 apply to new, totally rebuilt, reactivated, repowered/upgraded or renovated plants which will be commissioned on or after 1 January 2013. Starting from 30 June 2016 the Ministerial Decree of 6 July 2012 is replaced by Ministerial Decree 23 June 2016, which defines the new incentive procedure.

Please note that the application of the above Decree of 23 June 2016 terminates after thirty days of reaching one of the following dates:

a) 1 December 2016, or for the smallest plants, 1 December 2017;

b) the achievement of the "yearly indicative cumulative cost of incentives" of 5.8 billion euro per year. From the news published in the GSE website it results that, as of today, the amount of the "yearly indicative cumulative cost of incentives" is 5.310 billion euro.

10.2 What requirements must the project fulfil in order to be eligible to receive such incentives?

No specific technical requirements must be met. To apply for the incentives under the ministerial decree dated 6 July 2012, producers must hold the relevant power plant license and be registered in the auction roll/register managed by the GSE. The geothermal power plant benefits from the incentives only when the works are completed, in accordance with the technical requirements provided in the license and the deadline indicated in the above decree (i.e., 40 months from the enrolment).

10.3 Are the incentives subject to recovery in any instances?

Yes. GSE can revoke incentives when, for instance:

- a) the producer falls under one of situation listed in the "Antimafia" Code;
- b) the producer provided false declarations and statements in the incentive application; or
- c) the project for which the incentive was granted is substantially altered.

In some cases, revocation is coupled with criminal sanctions.

11. Participation and authority of indigenous peoples

11.1 Are the rights of indigenous people in connection to geothermal resources regulated?

Yes. Local communities and associations that represent are involved in the procedure to obtain a license (Articles 6 and 13 of Presidential Decree No. 485/1994). During the license granting procedure, local communities and associations representing indigenous people can raise objections that are taken into account by the competent authorities in assuming their final decision. In any case, if local communities and associations believe that their interests have not been adequately protected, they are entitled to challenge the granted license before the competent Administrative Court.



ITALY

11.2 To what extent are indigenous municipalities involved in the process of granting licenses?

Indigenous municipalities are involved in order to protect local interests and local values. They submit documents, opinions, authorisations, in order to ascertain whether the project meets local regulations and, as the case may be, to benefit from environmental compensation measures. Please refer to the comment above.

12. Alteration of law and regulation

12.1 What are the principles regarding retroactivity of laws and regulations, can changes in such rules affect license holders?

It is a general principle under Italian law that a new law cannot affect licenses already issued, unless the new law specifically provides so.

13. Taxation

13.1 How does taxation in the sector affect license holders?

License holders are subject to taxation according to the ordinary rules applicable to Italian corporate entities. They are therefore subject to corporate income tax (IRES - levied at 27.5%, which will be reduced to 24% in 2017) and regional tax on productive activities (IRAP - ordinarily levied at 3.9%, plus local surcharges).

13.2 Is the sale of energy subject to VAT?

Yes. However, the ordinary VAT rate of 22% is reduced to 10% VAT for consumers and certain businesses (e.g., manufacturing, mining, publishing, and agricultural). For sales of energy to a taxable dealer, the reverse charge mechanism applies (i.e., the taxable person liable for VAT is the purchaser, not the supplier).

A taxable dealer is a taxable person whose main business is the resale of gas, electricity heat or cooling energy and whose own consumption of these products is negligible.

13.3 Is VAT refundable and what is the procedure for VAT refunding?

VAT is refundable under the ordinary rules, within the limit provided by Articles 30 and 38 bis of Presidential Decree No. 633 of 1972.

14. Environmental impact assessment

14.1 What demands are there regarding EIA prior to exploration, exploitation and or production of geothermal energy?

Under Article 3, para. 5, and Article 6, para. 1, of Decree No. 22/2010, licenses for the exploration and exploitation of geothermal resources are granted following the successful completion of the environmental impact assessment procedure, when required by law. The procedure is regulated by Legislative Decree No. 152/2006, as modified from time to time. More specifically, i) the projects related to the exploitation of geothermal resources are subject to the EIA procedure; and ii) the projects related to the exploration of geothermal resources are subject to the screening procedure.

15. Licenses

15.1 What other licenses are needed in order to commence exploration, exploitation and/or production with geothermal energy?

Under Presidential Decree No. 395/1991, other licenses are needed to commence activities such as: (i) geophysical surveys (Article 15); (ii) well drilling (Articles 16 and 49); (iii) fluid injection (Article 55); and (iv) other civil works that require authorization.



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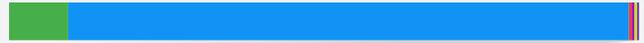
JOSEPH BEVASH

HIROKI KOBAYASHI

Statistics:

1. Size of country: 377,971 km².
2. Population: 126,920,000 (2016).
3. Years of producing electricity from geothermal: 50 years, from 1966.
4. Installed capacity of geothermal (MWe): 537 MWe (2017).
5. Installed capacity of other sources (MWe): 294,052 MWe (2014).
6. Electricity production from geothermal (GWh): 2,577 GWh (2014).
7. Electricity production from other sources (GWh): 1,051,140 GWh (2014).
8. Proportional production by source:

- Hydro: 9.4%
- Thermal power – 89%
- Nuclear power – 0.4%
- Wind power – 0.5%
- Solar power – 0.4%
- Geothermal – 0.3%



Sources: Think GeoEnergy (2017), Japan Oil, Gas and Metals National Corporation (2016), Statistics Committee of The Federation of Electric Power Companies of Japan (2014).

1. Ownership and access to geothermal resources

1.1 What are the rules on ownership of geothermal resources? Can private parties hold ownership of geothermal resources?

There are no express rules governing the ownership of geothermal resources in Japan (e.g. underground geothermal fluid and steam). The basic principle is that ownership and rights to the use of underground geothermal resources belong to the owners of the land under which such geothermal resources are located. Private parties are thus permitted to hold ownership rights in geothermal resources. However, in many cases, geothermal resources extend under multiple plots of land owned by different parties, and the courts have ruled that if any use of geothermal resources by a party can be shown to adversely affect the interests of other geothermal resources users, then such party will be liable to such other geothermal resources users for any damage caused. Further, pursuant to the Civil Code of Japan, if a region has been subject to specific customary use with respect to geothermal

resources, landowners are obliged to adhere to the terms of such customary use when accessing and using such geothermal resources.

1.2 Who can grant access to geothermal resources, only state or also landowner?

Access to geothermal resources requires (a) permission from the relevant landowner and (b) a license to be granted by the local government authority. However, a license from the local government authority is not necessary for drilling (i) in order to investigate geological features and/or geothermal structure, (ii) for injection wells in order to reinject geothermal fluid used for power generation, or (iii) to monitor fluid and steam levels, unless there is any intention when commencing such drilling to later convert a test well into a production well for a geothermal power plant.

1.3 Is exploration/exploitation open to foreign investment?

Yes, it is open to foreign investment. Please note that foreign investment into a power plant



business in Japan is subject to scrutiny by the government under Japanese law. All foreign investors are required to notify the government authority within 6 months prior to their proposed investment date, and will not be permitted to invest for a maximum period of 30 days after the notification date. If the government authority determines that the investment will affect Japan's national security etc., then the government authority will order the foreign investors to modify, or not to proceed with, the investment.

2. Allowed exploitation

2.1 Is exploitation of resources subject to licensing? Do landowners have a right to exploit resources without a license? If yes, to what extent?

The approval of the local government authority is required for any exploitation of resources. Landowners do not have the right to exploit resources without a license.

3. Role and voice of landowner in licensing procedure

3.1 Does the landowner have a role in the process for granting a license for (i) exploration, (ii) exploitation or a (iii) a power plant?

(i) To the extent that drilling is intended only for exploration (i.e. not for construction of production wells or exploitation of geothermal resources), a grant from the local government authority is not necessary, unless there is any intention to convert such test wells into production wells (as mentioned above).

(ii) In order for exploitation of geothermal resources to be approved by the local government authority, a grant from the relevant landowner is required.

(iii) Purely from an administrative point of view, neither notification to the Ministry of Economy, Trade and Industry ("METI") regarding the commencement of a power plant business nor approval for construction of such power plant requires any information relating to the ownership and rights to the use of land where such power plant is located. However, from a practical perspective, and in accordance with the Civil Code of Japan, it will ultimately be necessary for the

operator of the power plant to obtain ownership of, or rights to use, the land where the power plant is or will be located.

3.2 Can the opposition of the landowner change the granting of either an exploration, exploitation or power plant licenses?

(i) Exploration: If, at the time of an exploration which involves drilling, there is no intention to convert test wells into production wells after such exploration, then no administrative approval or license is required to be obtained. The opposition of the relevant landowner will therefore not have any impact on the exploration from an administrative perspective. However, in practice, the landowner may oppose the exploration in certain circumstances (e.g. if the exploration is outside the scope of the land lease).

(ii) Exploitation: Drilling for exploitation requires the approval of the local government authority, and ownership of the land or rights to use the land for such exploitation are necessary for such approval. If the landowner does not permit the exploitation (e.g. because the exploitation falls outside the scope of the land lease), approval for such drilling will be denied.

(iii) Power plant: The opposition of the landowner will not affect the granting of a license or approval related to a power plant as, from an administrative perspective, neither the power plant business notification nor power plant construction approval require land ownership or control as a prerequisite. However, in practice, the landowner may oppose development of a power plant in certain circumstances (e.g. if such development is outside the scope of the land lease).

4. Criteria for granting of a license

4.1 Which documents need to be submitted and what are the criteria for obtaining a license for (i) exploration, (ii) exploitation and/or (iii) power plant?

(i) Exploration: For exploration that does not involve drilling, no approval or license will be required. If exploration involves drilling but does not involve or contemplate the exploitation of geothermal resources, no approval or license will be required.

(ii) Exploitation: The following documents are required to be submitted in order to request approval from the local government authority for exploitation:

- A drilling approval request form (setting out the applicant's name and location, its representative's name, intended use of geothermal resources, location of the drilling site, description of its surrounding area, size of the transport pipe for geothermal resources, method of drilling, structure and performance capability of main facilities, start date and estimated end date of construction).
- A drilling site plan and a map of the surrounding area.
- A diagram/plan of the facilities, and structural drawings of main facilities.
- The applicant's rules and regulations in place to prevent accidents caused by natural gas at the drilling site.
- If the applicant is the landowner, a certificate from the real estate registry and cadastral map of the drilling sites. If the applicant is not the landowner, a certificate from the real estate registry and cadastral map of the drilling sites and a copy of the lease agreements for the drilling site.
- A written oath that the applicant has not (a) served any sentence for violation of the Hot Spring Act (which governs the drilling and exploitation of geothermal resources) in the past two years or (b) had its drilling approval revoked by the government due to a violation of the Hot Spring Act in the past two years.
- Documents designated by respective local government authorities in order to determine (a) the impact to yield, temperature and composition of geothermal fluid, (b) whether the drilling facilities meet the required technical criteria to prevent accidents caused by natural gas at the drilling site, and (c) damage to other public interests.

Drilling will be approved unless it is determined that:

- The drilling will have an impact on the yield, temperature and composition of geothermal fluid.
- The drilling facilities do not meet the required technical criteria for prevention of accidents caused by natural gas in drilling.

- There are risks of damage to public interests (e.g. landslide or land subsidence).
- The applicant has either (a) served any sentence for violation of the Hot Spring Act in the past two years, or (b) had its drilling approval revoked by the government due to a violation of the Hot Spring Act in the past two years.

In addition to the above documents, the following documents are required to be submitted in order to request approval from the local government authority for the use of geothermal resources:

- A request form for approval of geothermal resources usage (setting out the applicant's name and location, its representative's name, the address of the geothermal resources site, the expected start date of use).
- A diagram/plan of facilities, and structural drawings of main facilities.
- A document to certify that the diagram/plan, construction, facilities, exploitation method of the geothermal resources and exploitation facilities meet the necessary criteria for preventing accidents caused by natural gas.
- Photographs showing the present condition of the facilities.
- The quantity of methane gas (a) included in the geothermal fluid and (b) which will be emitted in the course of the exploitation.
- The applicant's rules and regulations in place to prevent accidents caused by natural gas at the drilling site (e.g. rules regarding safety management personnel and systems to implement measures to prevent accidents).
- A written oath that the applicant has not (a) served any sentence for violation of the Hot Spring Act in the past two years or (b) had its drilling approval revoked by the government due to a violation of the Hot Spring Act in the past two years.

The use of geothermal resources will be approved unless:

- It is determined that the facilities do not meet the required technical criteria for prevention of accidents caused by natural gas in drilling.
- The applicant has either (a) served any sentence for violation of the Hot Spring Act in

the past two years or (b) had its drilling approval revoked by the government due to a violation of the Hot Spring Act in the past two years.

(iii) Power plant: A notification to METI regarding the commencement of any power plant business and approval for the construction of any geothermal power plant is required.

The following documents are required to be submitted for notification to METI:

- Notification for commencement of a power plant business (setting out the business entity's name and headquarters location, its representative's name, its telephone number, its email address, primary office's name and location, addresses of power plants, type of engines used by the power plant, the frequency of electricity and generating power, maximum power that may be delivered to the grid and generating power of each power generator, expected business start date, supply destination of electricity and contents of the relevant power purchase agreements).
- Diagram / plan of power generation facilities on the site.
- Copies of the relevant power purchase agreements.

No approval is necessary other than the above notification to METI for commencement of the power plant business.

The following documents are required to be submitted in order to request approval from METI for construction of the power plant:

- A construction plan.
- A construction time schedule.
- A plan for power transmission.
- Description regarding environmental conservation.
- A short circuit resistance calculation sheet.

Construction of a geothermal power plant will be approved when:

- The power plant meets the statutory technical criteria.
- The power plant has the appropriate technical capability to ensure a continuous power supply.

- Environmental conservation measures have been taken.
- The power plant operator follows the evaluation document regarding environmental conservation.

5. Duration of licenses

5.1 What is the maximum duration of a license for (i) exploration, (ii) exploitation and/or (iii) power plant?

Basic exploration does not require any approvals or licenses.

For exploitation (drilling element only), the maximum duration of the license is two years.

For exploitation (for use of geothermal resources only) and power plants, the license is of perpetual duration.

6. Terms of licenses

6.1 Are exploration license holders granted pre-emptive rights with regards to exploitation or do exploration licenses automatically convert into exploitation licenses if the resource has been substantiated? If so, are there any conditions? Is an exploitation license included in a power plant license or are these licenses separate?

Basic exploration does not require any approvals or licenses. There are no laws or regulations granting pre-emptive rights with regard to drilling for exploitation. Parties who are conducting exploration are required to apply separately to obtain a drilling approval for exploitation.

Separate laws and regulations govern the exploitation of geothermal resources and the power plant business. Exploitation licenses and power plant licenses are therefore applied for separately.

7. Termination and revision of licenses

7.1 What actions by the license holder would warrant revision of exploration, exploitation and power plant licenses?

(i) Exploration (including drilling): Revision of approvals is not permitted. However, in exceptional cases (e.g. if delays in drilling have occurred due to a natural disaster or events outside the license holder's control), then the license holder will not be responsible for such delays, and the



approval may be revised once during the two-year validity period of such approval.

(ii) Exploitation (for use of geothermal resources) and power plants: Licenses/approvals for exploitation and power plants are perpetual (as mentioned above).

7.2 Does the license granting authority have the power to revoke or terminate licenses? If yes, what actions of the license holder would warrant the termination of the license?

(i) Exploration (including drilling): While drilling for exploration does not require a license, if there is any evidence that the drilling has had a material impact on the yield, temperature or composition of geothermal fluid, the local government authority can order the party conducting such drilling to take any necessary measures to remedy such impact.

(ii) Exploitation: The local government authority can revoke the license/approval if:

a) In the case of exploitation involving drilling only (and not the exploitation of geothermal resources), it is determined that the drilling will have an impact on the yield, temperature and composition of thermal fluid.

b) It is determined that the drilling facilities do not meet the required technical criteria for prevention of accidents caused by natural gas in drilling.

c) In the case of exploitation involving drilling only (and not the exploitation of geothermal resources), it is determined that there are risks of damage to public interests (e.g. landslide, overflow or land subsidence).

d) The license holder has violated the Hot Spring Act or governmental orders under the Hot Spring Act.

e) The license holder is not in compliance with the conditions of the license/approval.

(iii) Power plant: METI may order a power plant operator to suspend or restrict its use of the power plant if the power plant does not meet the required technical criteria.

7.3 Can the license granting authority set forth conditions into licenses which provide for (i) stricter terms and conditions for licensees or (ii) more lenient terms and conditions for licensees, when such terms and conditions (whether stricter or more lenient) are not otherwise provided for by law?

It is possible for the License Granting Authority to impose additional conditions into licenses which provide stricter terms and conditions for licensees, e.g. in connection with health and safety requirements, preservation of thermal water, prevention of accidents. However, the License Granting Authority cannot provide more lenient terms and conditions for licensees.

7.4 Which remedies does the license granting authority have in order to enforce compliance to the terms and conditions of a license, other than by revoking the license?

If the licensee is not complying with the terms and conditions of a license, the License Granting Authority may issue "administrative guidance" (which is not legally enforceable) to the licensee.

The License Granting Authority may also issue an order to the licensee to take measures to preserve thermal water and/or prevent accidents caused by combustible natural gas, or otherwise to protect public interests. Failure to comply with such an order is punishable by a fine of up to 500,000 yen and/or imprisonment for up to 6 months.

The final remedy available to the License Granting Authority is revocation of the license

8. Regulatory and information obligations

8.1 Briefly outline the surveillance carried out by the regulatory authorities during the license period, e.g. with regards to reporting duties and/or on-site visits?

(i) Exploitation: Local government authorities may impose reporting duties on the license holder (e.g. periodic monitoring and reporting regarding geothermal resources) and/or carry out on-site inspections during the license period.

(ii) Power plants: The license holder is required to periodically conduct internal inspections of the power plant facilities in accordance with

internal inspection policies (which are required to be compliant with the standards imposed by METI). The regulatory authority may (i) require license holders to report their business, and (ii) conduct on-site inspections at the license holder's business offices.

8.2 Which information is required to be submitted to regulatory authorities during that same period for the holder of a license for (i) exploration, (ii) exploitation and/or (iii) power plant?

(i) Exploration: Basic exploration does require any information to be submitted to the regulatory authorities.

(ii) Exploitation: For exploitation with drilling, the following information is required to be submitted to the regulatory authorities:

- Status of drilling.
- Natural gas emissions.
- Yield, water level, temperature and composition of geothermal fluid.

(iii) Power plants: For power plants, the following information is required to be submitted to the regulatory authorities:

Information regarding the status of construction, operation and maintenance, financial statements, information regarding safety operations and procedures, implementation of inspections, levels of monthly power generation and power transmission.

9. Power purchase agreements

9.1 Are general terms and conditions, such as duration of Power Purchase Agreements regulated? If no, are there any soft law or general recommendations in place in your jurisdiction?

METI has produced a model form of power purchase agreement that has been made available to the public. However, the model form does not fix the terms and conditions of each power purchase agreement.

9.2 What is the permitted or general duration of Power Purchase Agreements?

The model form of power purchase agreement includes guidance that the duration of the power purchase agreement should not exceed the

feed-in-tariff ("FIT") duration. However, practice varies across the country. Some electrical power companies have model form agreements stipulating that the agreements will have an initial term of one year which is subject to renewal thereafter. Other electrical power companies have model form agreements stipulating that the agreements will expire at the end of the FIT duration.

9.3 Are public and/or national regulatory authorities involved in any way in forming the terms of Power Purchase Agreements, either directly or indirectly?

Please see above regarding METI's model form of power purchase agreement.

10. Incentives

10.1 Are there any incentives offered by the government or local authorities for utilization of geothermal energy? If yes, in what form (e.g. tax and/or feed-in tariffs) and what are the maximum amounts permitted?

FIT applies to geothermal power generation. If the power plant business operator obtains FIT approval during the period from April 2016 to March 2017, the FIT price will be 26 yen + tax per 1kWh at geothermal power plants generating 15,000kW or more, and 40 yen + tax per 1kWh at geothermal power plants generating less than 15,000kW. The FIT duration is 15 years in all cases.

Tax favourable treatment will also apply to the operation of geothermal power plants. Business operators can benefit from the depreciation of relevant facilities or equipment. The depreciation rate is 30% as of April 2016.

10.2 What requirements must the project fulfil in order to be eligible to receive such incentives?

In order to be eligible for such incentives, approval must be obtained from METI by fulfilling the following requirements:

1. To maintain performance of the power plant during the FIT duration.
2. To appropriately measure power supply by using meters compliant with the Measurement Act of Japan.

3. To specify the manufacturer and model numbers of the power plant facilities.

4. To record facility costs, rent of the land, cost of connection to the grid, and a breakdown of power plant operating costs (including maintenance costs), and to submit those records to METI each fiscal year.

10.3 Are the incentives subject to recovery in any instances?

With respect to tax, the business operator will benefit from depreciation of its purchase of the facilities and equipment.

11. Participation and authority of indigenous peoples

11.1 Are the rights of indigenous people in connection to geothermal resources regulated?

There are no regulations preserving the rights of indigenous people in connection with geothermal resources in Japan.

11.2 To what extent are indigenous municipalities involved in the process of granting licenses?

There is no system expressly permitting indigenous people to be involved in the process of granting licenses. However, some local government authorities require applicants to hold explanatory meetings with existing geothermal resources holders or to obtain the written consent of such existing geothermal resources holder to the intended activity (exploration, exploitation etc.).

12. Alteration of law and regulation

12.1 What are the principles regarding retroactivity of laws and regulations, can changes in such rules affect license holders?

Retroactivity of laws and regulations is expressly prohibited with respect to criminal law, but is permissible (although rarely applied) under civil law and public laws (other than the penal code). The rights affected by any retroactivity will vary depending on the relevant laws or regulations.



13. Taxation

13.1 How does taxation in the sector affect license holders?

There is no special tax imposed on the sector other than general taxes such as corporation tax and consumption tax. Please see above regarding depreciation for corporation tax.

13.2 Is the sale of energy subject to VAT?

Both the sale of geothermal resources and the sale of power are subject to VAT (consumption tax).

13.3 Is VAT refundable and what is the procedure for VAT refunding?

It is possible to deduct VAT (consumption tax) from purchases. The purchase of goods and materials, purchase and lease of machinery, building, furniture and equipment, advertising expenses, communication expenses, utilities costs, and maintenance costs are all subject to deduction. The actual deduction is implemented in the relevant tax filing at the end of each fiscal year.

14. Environmental impact

14.1 What demands are there regarding EIA prior to exploration, exploitation and or production with geothermal energy?

(i) Exploration: Exploration does not require any environmental impact assessment ("EIA").

(ii) Exploitation: Exploitation of geothermal resources requires an assessment of its impact on the yield, temperature and composition of geothermal fluid.

(iii) Power plants: If a power plant is intended to have a power output of 10,000 kW or more, EIA is required. EIA will assess environmental matters such as air quality, noise, vibration, mal-odour, water quality and water level, topography, geological features and soil, ecosystem of animals and plants, landscape, waste materials, greenhouse gases and radiological dosage.

15. Licenses

15.1 What other licenses are needed in order to commence exploration, exploitation and/or production with geothermal energy?

No other licenses are required.



KENYA



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Statistics:

1. Size of country: 581,309 km².
2. Population: 46,050,000.
3. Years of producing electricity from geothermal: 35 years, from 1981.
4. Installed capacity of geothermal (MWe): 676 MWe (2017).
5. Installed capacity of other sources (MWe): 1,626 MWe.
6. Electricity production from geothermal (GWh): 4,059 GWh (2014).
7. Electricity production from other sources (GWh): 5,199 GWh (2014).
8. Proportional production by source:

- Oil – 18.5%
- Biofuels - 1.5%
- Hydro - 35.5%
- Geothermal - 44%
- Solar - 0%
- Wind - 0.5%



Sources: Think GeoEnergy (2017), International Energy Agency (2014), other based on the available market data.

1. Ownership and access to geothermal resources

1.1 What are the rules on ownership of geothermal resources? Can private parties hold ownership of geothermal resources?

Under the laws of Kenya, geothermal resources are natural resources¹. The Constitution of Kenya, 2010 (the Constitution) provides that natural resources vest in the people of Kenya and gives the Government of Kenya (the GOK) power to regulate and administer the same on behalf of the public. Further, the Geothermal Resources Act (No 12 of 1982) (GRA), which regulates the exploitation and use of geothermal resources, provides that “all un-extracted geothermal re-

sources under or in any land shall be vested in the Government subject to any rights which, by or under written law, have been or are granted or recognised as being vested in any other person”.²

Whereas the GRA provides for the ownership of “un-extracted” geothermal resources, there are no provisions in relation to the ownership of “extracted” geothermal resources or on the transfer of title to the geothermal resources from the GOK to the holder of a geothermal resources license (the Geothermal License).

The GRA states that the Geothermal License confers upon the holder of the Geothermal License (the Geothermal Licensee) the right to “utilize the resources”.³ The Geothermal Resources Regulations, 1990 (the GRA Regulations) promulgated under the GRA, provide that the Geothermal License may be accompanied by or be conditional on the execution of a Geothermal Resources Contract by the Geothermal Licensee and the relevant Government depart-

¹ Article 260 provides that “natural resources” means the physical non-human factors and components, whether renewable or non-renewable, including—

- (a) sunlight;
- (b) surface and groundwater;
- (c) forests, biodiversity and genetic resources; and
- (d) rocks, minerals, fossil fuels and other sources of energy.

² Section 3, GRA.

³ Section 8(1)(iv), GRA.

ment or other body designated by the Cabinet Secretary for the Ministry of Energy and Petroleum (the Cabinet Secretary). Such contract is to provide for the utilization of the geothermal resources.⁴

The model license set out in Schedule 1 of the GRA Regulations (the Model Geothermal License) provides that the Geothermal Licensee has the “exclusive right to take and use or apply the geothermal resources (in accordance with the geothermal contract”.⁵ In this regard, it can be inferred that the ownership in the extracted resources remains with the GOK subject to the Geothermal Licensee’s exclusive rights to apply the resources in accordance with terms agreed under the GRA.

Currently, there is no standard amount or specific percentage value for the royalty’s payable by the Geothermal Licensee. Clause 3(2) of the Model Geothermal License states that a royalty of a percentage value of each kilowatt hour shall be payable. The Model Geothermal License does not state what the percentage value is, but states that the value will be negotiated by the Geothermal Licensee and the Cabinet Secretary, taking into account expenses incurred by the Geothermal Licensee during the exploration phase. The GRA Regulations do not provide any indication on the calculation of the percentage value.

The legal landscape in respect of energy projects in Kenya will change in the near future when the Energy Bill, 2015 (Energy Bill) is passed into law. The Energy Bill provides that royalties between one percent (1%) and two and a half percent (2.5%) of the value of the geothermal energy at the wellhead⁶ produced from the geothermal resources during the first ten (10) years of production are payable by the Geothermal Licensee. After the initial ten (10) year period, royalties of between two percent (2%) and five percent (5%) are payable during each year after the ten (10) year period. The Energy Bill contains a provision providing the Cabinet Secretary with the power to exercise his discretion to waive, suspend or reduce any royalty in the interest of

encouraging the greatest utilization of geothermal resources.

1.2 Who can grant access to geothermal resources, only state or also landowner?

According to the GRA, the Cabinet Secretary has the power to declare any area of land where geothermal resources have been discovered or which is a source or is believed to be a source of geothermal resources as a “geothermal resources area”. A geothermal resources area may therefore be declared over private or public land.

(i) The Cabinet Secretary is therefore responsible for granting access to a geothermal resources area for the purposes of investigating, prospecting for or extracting geothermal resources through the issue of an authorisation or a Geothermal License.

(ii) A private landowner does not have the power to grant rights in respect of the exploration or exploitation of geothermal resources located on his land.

(iii) Where private land is required to be procured by the GOK for a power project, the compulsory acquisition process as prescribed in the Constitution, the Land Act, 2012 (Land Act) and the Land Registration Act (No. 3 of 2012) (LRA)⁷ will have to be followed.

(iv) For the GOK to compulsorily acquire private property the following conditions are required to be followed and satisfied:

(a) the GOK has to demonstrate that the acquisition is for a public purpose or in the public interest;

(b) the GOK has to comply with the provisions of the law relating to compulsory acquisition; and

(c) the GOK has to provide just and fair compensation for the property so acquired.

(v) The Land Act sets out further detailed procedures under which the GOK can compulsorily acquire private land.

⁴ Regulation 3(2), GRA Regulations.

⁵ Paragraph 1(3), Model Geothermal License.

⁶ Clause 84(2) provides that the value of geothermal energy at the wellhead is a value calculated by subtracting from the price that could reasonably be realized on sale of the energy to a genuine purchaser at arm’s length from the producer, all reasonable expenses, reasonably incurred by the producer in getting the energy to the point of delivery to the purchaser.

⁷ Section 28 of the LRA provides for the right of compulsory acquisition as an overriding interest on all registered land in Kenya.

1.3 Is exploration/exploitation open to foreign investment?

Yes, exploration and exploitation are open to foreign investment and both foreign and local entities may apply for an Exploration Authorisation or Geothermal License. In this regard, there are currently no local shareholding restrictions applicable to an applicant for an Exploration Authorisation or Geothermal License. Further, there are no local shareholding requirements under the Energy Bill.

It is worth noting however that under the Energy Bill there is a requirement that every person carrying out an undertaking or works falling within the scope of the Energy Bill, to comply with local content requirements in all of its operations. Local content is defined in the Energy Bill as “the use of Kenyan local expertise, goods and services, people, businesses and financing for the systematic development of national capacity and capabilities for the enhancement of the Kenyan economy”. A person is required to, inter alia, prepare and submit an annual and long term local content plan to the Energy Regulatory Authority, the regulatory body that will be established under the Energy Bill. Together with the provisions of the Energy Bill, there is a draft Local Content Bill, 2016 which sets the framework for local content application in entities undertaking exploration, development and extraction activities with respect to natural resources.

2. Allowed exploitation

2.1 Is exploitation of resources subject to licensing? Do landowners have the right to exploit resources without a license? If yes, to what extent?

(i) No person may exploit geothermal resources without a license acquired under the GRA.

(ii) It is important to note that the Constitution requires any agreement providing for the grant of a right or concession by or on behalf of any person, including the GOK, to another person for the exploitation of any natural resources to be ratified by Parliament.⁸ However, the grant of a concession or right to exploit a natural resource through a permit, license or other authorization issued in accordance with

the requirements of national or county government legislation is not intended to form part of the class of transaction required to be ratified by Parliament.

3. Role and voice of landowner in licensing procedure

3.1 Does the landowner have a role in the process for granting a license for: (i) exploration; (ii) exploitation; or (iii) a power plant?

(i) Exploration: Under Section 6 of the GRA, the Cabinet Secretary may authorise any person to make surveys, investigations, tests and measurements in search of geothermal resources and to carry out such activities including sinking any bore on the land in connection with the surveys, investigations, tests or measurements (the Exploration Authorisation). There is no provision in the GRA or the GRA Regulations which gives private landowners the right to be consulted prior to the grant of the Exploration Authorisation or the opportunity to object to the grant of the Exploration Authorisation. However, please note our comments below in terms of the rights afforded to all citizens of Kenya under the constitution to a clean and healthy environment and how such rights may be used to prevent the development of a project.

(ii) Exploitation: Under Section 7 of the GRA, the Cabinet Secretary has the power to grant the Geothermal License to any person for the purposes of exploiting the geothermal resources and specifically to enter upon the land to bore and to extract geothermal resources and do all such things necessary for the conduct of those operations.

The GRA Regulations promulgated under the GRA, set out in greater detail the application procedure for both the Exploration Authorisation and the Geothermal License, however these do not include any express rights in favour of any landowner.

Similarly, to the grant of an Exploration Authorisation, there is no formal provision which requires private landowners to be consulted on or the right to object to the grant of the Geothermal License.

Following the grant of the Exploration Authorisation and Geothermal License, landowners would however, be entitled to:

⁸ Article 71, the Constitution.

(a) reasonable notice of the intention to enter upon the landowner's property by the holder of the Exploration Authorisation;⁹

(b) compensation, as determined by the Cabinet Secretary, by the Geothermal Licensee or holder of the Exploration Authorisation if they are injuriously affected by the exercise of any of the powers conferred by the Exploration Authorisation or Geothermal Licensee;¹⁰

(c) compensation by a Geothermal Licensee or holder of the Exploration Authorisation, for any disturbance, nuisance or damage to land, crops, trees, buildings, stocks or works caused while searching or boring for geothermal resources;¹¹ and

(d) notice from a Geothermal Licensee when the Geothermal Licensee intends to occupy or disturb the surface of any particular area of private land or to disturb or otherwise interfere with any crops, trees, buildings or works on that land. The Geothermal Licensee is required to give at least twenty-one (21) days written notice of his intention to the occupier of the land and if practicable, the land owner. Where the disturbance by the Geothermal Licensee continues for a consecutive period of thirty (30) days, the owner or occupier may require the Geothermal Licensee to give security for any compensation payable under paragraph 3.1.3(b).¹²

(iii) Power Plant: Generation Licenses are issued by the Energy Regulatory Commission (ERC) in accordance with the terms of the Energy Act and the Energy (Electricity Licensing) Regulations, 2012 (Electricity Regulations). Pursuant to the provisions of the Energy Act and Electricity Regulations, a landowner would be entitled to object to the grant of a Generation License. An applicant for a Generation License is required to give notice to the public of their intention to apply for a license. Any person who may be directly affected or is in the area that is likely to be affected by the applicant's undertaking may object to the issue of the license by writing to the ERC. The ERC may hear such objections at a public hearing attended by the applicant and

the objector. The views of the objector will be taken into consideration by the ERC in granting or rejecting the application.

Environmental Laws: In addition to the above, landowners, owners of adjacent land and persons most affected by a geothermal project will have the opportunity to comment on a geothermal project since public participation is required prior to the grant of a Generation License and an Environmental Impact Assessment (EIA) License issued in accordance with the Environmental Management and Conservation Act 1999 (EMCA). It is possible that the lack of proper public participation may result in a project being found to be in violation of the constitutional right to a clean and healthy environment.

3.2 Can the opposition of the landowner change the granting of either an exploration, exploitation or power plant licenses?

Please see our response to Question 3.1.

4. Criteria for granting of a license

4.1 Which documents need to be submitted and what is the criteria for obtaining a license for: (i) exploration; (ii) exploitation; and/or (iii) power plant?

(i) Exploration: Under the GRA, any person (including a public officer) may apply to the Cabinet Secretary for the Exploration Authorisation. The applicant will be required to provide the following information: (i) name, nationality, nature of and the principal place of business of the applicant; (ii) name and nationality of every director and the name of the person(s) who beneficially owns more than five percent (5%) of the issued share capital; (iii) the delineation of the area proposed to be covered by the Exploration Authorisation; and (iv) the work and minimum expenditure proposed to be carried out in the area covered by the Exploration Authorisation and a statement on significant adverse effects on the environment by such works and how such effects will be controlled. The Cabinet Secretary has the discretion to request the applicant to provide him with additional information. According to the GRA Regulations, the application should be accompanied with an application fee of Kenya Shillings fifty thousand (K.Shs. 50,000) (approximately USD \$ 500).

⁹ Section 6(2).

¹⁰ Section 18, GRA.

¹¹ Section 19, GRA

¹² Section 20, GRA.



(ii) Exploitation: Under the GRA, any person may apply to the Cabinet Secretary for the Geothermal License over part or the whole of a geothermal resources area. The applicant will be required to complete the prescribed form and provide the following information: (i) the name, nationality, nature of and the principal place of business of the applicant; (ii) the name and nationality of every director and the name of the person(s) who beneficially owns more than five percent (5%) of the issued share capital; (iii) a statement on the applicant's financial status, technical competence and experience; (iv) the delineation of and a plan of the area proposed to be covered by the Geothermal License; (v) a general statement of the proposed programme of exploration including a comprehensive report on the location, nature and characteristics of the source of geothermal energy to be explored¹³; (vi) the terms on which the applicant proposes to negotiate; (vii) the proposals with respect to the employment and training of citizens of Kenya; (viii) the goods and services required for the production operations which can be obtained within Kenya and the applicant's intention in relation thereto; and (ix) details of expected infrastructure requirements. The Cabinet Secretary has the discretion to request the applicant to provide him with additional information. The GRA Regulations provide that the application should be accompanied with an application fee of Kenya Shillings one hundred and twenty thousand (K.Shs 120,000) (approximately USD \$ 1,200).

(iii) Power Plant: The applicant is required to complete the application form as per the prescribed form and accompanied by the documents set out in the Second Schedule to the Electricity Regulations and provide a license fee of Kenya Shillings ten thousand (K.Shs. 10,000) (approximately USD \$ 100) payable to the Rural Electrification Authority. Some of these supporting documents include copies of the applicant's most recent audited annual report and accounts, statement of the business proposal for the five (5) years following the application, statement of the applicant's expertise, the Environmental Impact Assessment Geothermal License or acknowledgment of receipt of Environmental Audit Report and statement on the proposed undertaking setting out, amongst other things, a description of the proposed locations of the

¹³ It should be noted that the Geothermal License term includes a five (year) exploration period.

generating stations, description of how the stations shall be driven and the expected commissioning date.

5. Duration of licenses

5.1 What is the maximum duration of a license for: (i) exploration; (ii) exploitation and/or; (iii) power plant?

(i) Exploration: The Exploration Authorisation is granted for a period of one (1) year from the date of issue but is renewable for a further period of one (1) year.

(ii) Exploitation: The Geothermal License is granted for a term not exceeding thirty (30) years and may be renewed by the Cabinet Secretary for a term not exceeding five (5) years subject to such terms and conditions as he thinks fit.¹⁴ The Geothermal License is to be negotiated on the basis of the Model Geothermal License. According to the Model Geothermal License, rights granted under the license shall be for a term of thirty (30) years from the date of the license and, provided the licensee has complied with the terms of the Geothermal License, the term may be renewed, at the option of the licensee, for two further periods of five (5) years each.

(iii) Power Plant: Generation Licenses are generally issued for a term of twenty (20) to twenty-five (25) years. This is usually linked to the terms of the power purchase agreement negotiated by the generator with the off-taker.

6. Terms of licenses

6.1 Are exploration license holders granted pre-emptive rights with regards to exploitation or do exploration licenses automatically convert into exploitation licenses if the resource has been substantiated? If so, are there any conditions?

(i) The GRA Regulations provide that the Cabinet Secretary when granting the Exploration Authorisation may also grant, on application, a "geothermal resources license" in respect of all or parts of the area covered by the Exploration Authorisation.¹⁵ In this regard, the holder of an Exploration Authorisation may obtain the

¹⁴ Section 9(a), GRA.

¹⁵ Regulation 2(3), the Regulations.

Geothermal License on or around the same time they receive the Exploration Authorisation.

(ii) Further, under the Geothermal License, the Cabinet Secretary may allow an exploration phase for a period not exceeding five (5) years. If at the end of this period no geothermal resources of a potential commercial interest are discovered, the Cabinet Secretary may require the licensee to surrender the licensed area.¹⁶

6.2 Is an exploitation license included in a power plant license or are these licenses separate?

As discussed above, these are separate licenses. An exploitation license will be issued under the GRA and the generation license under the Energy Act.

7. Termination and revision of licenses

7.1 What actions by the license holder would warrant revision of exploration, exploitation and power plant licenses?

(i) Exploration and Exploitation:

Section 9(b) of the GRA provides that the Cabinet Secretary has the discretion to, wholly or partly, remove all or any of the terms and conditions contained in any license where, owing to special circumstances, compliance with such terms and conditions would be impossible or great hardship would be inflicted upon the Geothermal Licensee. The Cabinet Secretary may also extend time to the Geothermal Licensee to comply with the terms and conditions of his license in such manner as he may think fit.

(ii) Power Plant:

The Energy Act and the model electricity generation license annexed to the Electricity Regulations (the Model Generation License) provide for the revision or alteration of the Generation License by the ERC provided that the consent of the licensee has been given.

7.2 Does the license granting authority have the power to revoke or terminate licenses? If yes, what actions of the license holder would warrant the termination of the license?

(i) Exploration:

The Cabinet Secretary is entitled to revoke an Exploration Authorisation where:

- the Exploration Authorisation holder has not complied with the requirements or conditions of the Exploration Authorisation;
- the operations being carried on by the Exploration Authorisation holder are, in the opinion of the Cabinet Secretary, detrimentally affecting other specified bores or the supplies of geothermal resources for other specified purposes; or
- it is in the public interest that operations being carried on under the Exploration Authorisation should cease.¹⁷

(ii) Exploitation:

The Cabinet Secretary may, by notice to the Geothermal Licensee, declare the Geothermal License forfeited where:

- the Geothermal Licensee ceases work in or under the licensed area for a continuous period of six (6) months, without the written consent of the Cabinet Secretary;
- the Geothermal Licensee commits a breach or is in default of any provision of the GRA, the regulations promulgated under the GRA, or any terms or conditions of the license and the Cabinet Secretary has served a notice to the Geothermal Licensee requiring him:

(a) (in the case of a breach which is in the opinion of the Cabinet Secretary remediable) to remedy or make good the breach within a specified period; or

(b) (in the case of a breach which is in the opinion of the Cabinet Secretary irremediable) to show cause, within a specified period, why the Geothermal License should not be forfeited.¹⁸

¹⁷ Section 6(6), GRA.

¹⁸ Section 11, GRA. See also Clause 7 of the Model Geothermal License.

¹⁶ Regulation 3(3), the Regulations.

(iii) Power Plant:

The ERC may revoke a Generation License where:

- the holder of the Generation License (the Generation Licensee) fails to meet its obligations under the Energy Act within the notice given to him by the ERC;
- the undertaking provided for in the license has not commenced at the expiry of twenty-four (24) months from the date on which the license was granted or at the expiry of any period extended by the ERC¹⁹;
- the ERC is satisfied that the Generation Licensee is either wilfully or negligently not operating in accordance with the terms and conditions of the license, the provisions of the Energy Act or any regulations promulgated under the Energy Act;
- the Generation Licensee is adjudged bankrupt; or
- the Generation Licensee, at any time after commencement of the license, makes representation to the ERC that the undertaking cannot be carried on with profit and ought to be abandoned and upon inquiry the ERC is satisfied that the representation is true.

The revocation provisions of the Model Generation License re-state the circumstances of revocation set out under the Energy Act and Paragraph 7.2.3 as well as providing for the following additional grounds for revocation:

(a) the Generation Licensee agrees in writing with the ERC that the license be revoked;

(b) any amount, unless it is being contested in good faith by the Generation Licensee, payable under the conditions of the license or the regulations prescribed under the Energy Act is unpaid for thirty (30) days after the due date and remains unpaid for a period of thirty (30) days after the ERC has given the Generation Licensee notice that the payment is overdue;

(c) the Generation Licensee is unable to pay its debts, unless it is being contested in good

faith by the Generation Licensee, or has any voluntary arrangement proposed in relation to it or enters into any scheme of arrangement (other than for the purpose of reconstruction or amalgamation upon terms and within such period as may previously have been approved in writing by the ERC);

(d) the Generation Licensee fails to comply with a final order of the ERC issued under the Energy Act and such failure is not rectified to the satisfaction of the ERC within sixty (60) days after the ERC has given notice of such failure to the Generation Licensee;

(e) the Generation Licensee ceases to carry on the undertaking authorized by the license;

(f) the Generation Licensee goes into liquidation or makes arrangement with its creditors' or a receiver/manager is appointed over the whole or any material part of the Generation Licensee's assets or undertaking (other than by the lenders);

(g) the Generation Licensee passes any resolution for winding up other than a resolution previously approved in writing by the ERC;

(h) the Generation Licensee becomes subject to an order for winding up by a court of competent jurisdiction;

(i) it is established that the Generation Licensee submitted information the Generation Licensee knew or had reason to know to be false when making its application for the license; or

(j) the Generation Licensee purchases or acquires the undertaking of, or associates itself with, any public or local authority, company, person or body of persons generating or transmitting or distributing electrical energy under any license or permit without the authorization of the ERC.

7.3 Which remedies does the license granting authority have in order to enforce compliance to the terms and conditions of a license, other than by revoking the license?

According to the Model Geothermal License, in addition to the forfeiture of the Geothermal License by the Geothermal Licensee in accord-

¹⁹ Under the revocation provisions of the Model Generation License which are subject to the Energy Act, there is an exception where the delay in the execution of works is as a result of events beyond the reasonable control of the licensee.

ance with the terms of the Model Geothermal License (including the right to remedy the breach within the specified cure period), the remedies available to the Cabinet Secretary will be limited and include the following:

- where the non-compliance is in relation to the non-payment of annual rent for the Geothermal License within three (3) months of the due date, a penalty of ten percent (10%) shall be added to the rent; and
- where the Geothermal Licensee's license has been forfeited, the Cabinet Secretary may require the Geothermal Licensee to remove the plant, machinery, engines or tools within a reasonable time and if they are not removed they will be sold at auction with the possibility of the proceeds being applied to repair breaches or faults not remedied by the Geothermal Licensee.

7.4 Can the license granting authority set forth conditions into licenses which provide for (i) stricter terms and conditions for licensees or (ii) more lenient terms and conditions for licensees, when such terms and conditions (whether stricter or more lenient) are not otherwise provided for by law?

Under section 7 of the GRA, the Cabinet Secretary has the authority to grant the Geothermal License under such terms and conditions as he may determine. In this regard, the Cabinet Secretary may issue a license subject to stricter or more lenient terms and conditions than those set out in the Model Geothermal License. Further, under section 9 of the GRA, upon the renewal of an existing Geothermal License, the Cabinet Secretary has the discretion to inter alia: (i) renew the Geothermal License subject to such terms and conditions as he may think fit; (ii) excuse compliance with, all or some of, the terms and conditions of the Geothermal License where, owing to special circumstances, it is in the opinion of the Cabinet Secretary that compliance with such terms and conditions would be impossible or inflict great hardship on the Geothermal Licensee; and (iii) extend time to the Geothermal Licensee for complying with the terms and conditions of the Geothermal License upon such terms and conditions as he may think fit.

8. Regulatory and information obligations

8.1 Briefly outline the surveillance carried out by the regulatory authorities during the license period, e.g. with regards to reporting duties and/or on-site visits?

(i) Exploration and Exploitation:

Under Regulation 16 of the GRA Regulations, the Cabinet Secretary or an authorised representative may inspect any geothermal operations and any records of a Geothermal Licensee. The Geothermal Licensee is required to provide to the inspectors, where available, facilities similar to those applicable to its own staff or to its subcontractor's staff for transport to the geothermal operations, subsistence and accommodation expenses and to pay all reasonable expense directly connected with the inspection.

(ii) Power Plant:

During the license period, the ERC or any person authorised by the ERC may at all reasonable times enter the premises of a Generation Licensee and inspect any plant, machinery, books, accounts and other documents and make copies of the same. The ERC may also require the Generation Licensee to provide it with such books, accounts, records and other documents in a form the ERC may demand and to verify the accuracy of their contents. Under the Model Generation License, the Generation Licensee is also required to give ERC officers access to its works for the purposes of the ERC ascertaining if the provisions of the Energy Act and the Generation License are being complied with.

8.2 Which information is required to be submitted to regulatory authorities during that same period for the holder of a license for: (i) exploration; (ii) exploitation and/or (iii) power plant?

(i) Exploration and (ii) Exploitation:

Under Regulation 17, the holder of an Exploration Authorisation is required to provide to the Cabinet Secretary an annual report in respect of the preceding year specifying: (i) the progress of operations, the results obtained, events of significance, occurrences, accidents and like matters; (ii) the number of persons employed



indicating each category; and (iii) at the end of each stage of geological or geophysical operations and at the end of every boring operation, a report on that stage of operations together with a copy of the logs relating to the bore. On the other hand, the Geothermal Licensee is required to provide the Cabinet Secretary within the first fifteen (15) days of every year, a report in respect of the preceding year, specifying in respect of each month in the year:

- (a) the quantities of geothermal fluids extracted and any subsequent variations of their physical characteristics;
- (b) the quantities of geothermal fluids delivered for consumption;
- (c) the amount of energy transmitted to cables from power stations;
- (d) the quantities of commercial products, if any, extracted from geothermal fluid, the quantities delivered for consumption and the end of month stocks;
- (e) all occurrences and accidents; and
- (f) the number of persons employed indicating each category.

The Geothermal Licensee is also required to provide the Cabinet Secretary, in triplicate and within the month following every annual general meeting, the report of its Board, its auditors, the statement of accounts relating to the previous year and copies of resolutions, if any, adopted at the general meeting.

Further, there is an obligation on Geothermal Licensees to maintain at the site a register of, amongst other things, the progress of operations specifying all important matters relating to the operations, geological and geophysical records and logs of all past and current bores and a register of the names of all persons employed. It is also required to maintain a register of production with daily entries including the quantity of geothermal fluids extracted and their physical characteristics, the quantities and characteristics of geothermal fluids delivered for consumption and the amount of energy transmitted to cables from the power station. These registers are to be presented, on demand, to an inspector or any person authorised by the Cabinet Secretary.

(iii) Power Plant: According to the Model Generation License, the Generation Licensee is required on request by the ERC, to provide it with any information relating to its activities conducted in connection with the Electricity Generation License. Further, the Generation Licensee is required to submit to the ERC: (i) an annual performance report at the end of each financial year, indicating the quality of service and performance of the license during the previous year against the Performance Standards set out in the license; (ii) annual reports on the financial and technical aspects of the undertaking's performance within one hundred and eighty (180) days of the end of the Generation Licensee's financial year or such other period approved by the ERC and such other reports or information as may be required by the ERC; and (iii) the Generation Licensee's financial statements for each financial year together with the report of an external auditor and any other financial data as the ERC may specify.

9. Power purchase agreements

9.1 Are general terms and conditions, such as duration of Power Purchase Agreements regulated? If no, are there any soft law or general recommendations in place in your jurisdiction?

(i) Standardised power purchase agreements (PPAs) have been provided for in relation to projects approved under the Feed in Tariff Policy (December 2012) (FiT Policy).²⁰ In this regard, small renewable energy projects (i.e. with an installed capacity of 0.2 – 10MW), will be based on the standard power purchase agreement published under the FiT Policy. For larger renewable projects (i.e. with an installed capacity of greater than 10MW), the standard PPA is used as a basis of negotiations with the off-taker, the Kenya Power and Lighting Company Limited (KPLC).

(ii) With respect to geothermal projects the minimum permitted capacity under the FiT Policy is 35 MW and as such the standard PPA would form the basis of negotiations between the Project Company and KPLC.

²⁰ First FiT published in March 2008 and revised in January 2010 and again in December 2012. 2012 FiT Policies are required to be revised every three (3) years.

9.2 What is the permitted or general duration of Power Purchase Agreements?

The PPA for a project approved under the FiT Policy applies for a duration of twenty (20) years from the date of first commissioning of the geothermal power plant.

9.3 Are public and/or national regulatory authorities involved in any way in forming the terms of Power Purchase Agreements, either directly or indirectly?

Pursuant to Section 43 of the Energy Act, the ERC has the power to review the PPA and give its approval prior to its execution by the Parties. In this regard, the ERC may suggest changes to the PPA, review the terms of the PPA to ensure that the tariffs thereunder are just and reasonable, satisfy itself that the application for approval meets the minimum requirements of the regulations under the Energy Act and take into account any other issues which may have a bearing on the operations of the proposed undertaking.

10. Incentives

10.1 Are there any incentives offered by the government or local authorities for utilization of geothermal energy? If yes, in what form (e.g. tax and/or feed-in tariffs) and what are the maximum amounts permitted?

(i) A standard tariff, USD 0.088/kWh, is applicable for twenty (20) years from the date of first commissioning of the geothermal power plant for a geothermal project approved under the FiT. The operations and maintenance (O&M) component of the tariff is escalable at twenty percent (20%) of the tariff for the first twelve (12) years and fifteen percent (15%) for the remainder of the term.

(ii) There are a number of taxation benefits available to foreign investors and developers in the energy sector that are not necessarily specific to the exploitation of geothermal energy resources alone. Some of these incentives were recently introduced under the Finance Act, 2015 and provide for the following:

(a) the exemption from withholding tax on interest paid on loans from foreign sources for the purposes of investing in the energy sector;

(b) allowance of indefinite carry forward of tax losses for a geothermal extraction/prospecting licensee (the position is different for other energy generating companies);

(c) the exemption from stamp duty on transactions relating to loans from foreign sources received by investors in the energy sector; and

(d) the exemption from withholding tax of payments made to non-resident persons on account of services rendered under a PPA.

(iii) Further, investors in the energy sector are allowed an investment deduction of one hundred percent (100%) of the capital expenditure (or one hundred and fifty percent (150%) where the constructing of the plant is outside the City of Nairobi or the Municipalities of Mombasa or Kisumu and the value of the investment exceeds Kenya Shillings two hundred million (K.Shs. 200,000,000)) in the year of first use for the power generating plant.

(iv) Investors may also choose to register with the Kenya Investment Authority (KenInvest) for the purposes of taking advantage of the benefits provided under the Investment Promotion Act, 2004. For example, KenInvest undertakes to facilitate the issuance of all necessary licenses and permits required for the investor's operations and the investor will be entitled to apply for entry work permits for three (3) members of the investor's management or technical staff and three (3) co-owners, shareholders or partners.

10.2 What requirements must the project fulfil in order to be eligible to receive such incentives?

A foreign investor qualifies for an investment certificate from KenInvest where the minimum value of his proposed investment is United States Dollars one hundred thousand (US\$ 100,000) or the equivalent in another currency. When issuing the investment certificate, KenInvest will consider the extent to which the investment will contribute to the Kenyan economy and specifically in increasing the number and quality of jobs in Kenya, offering training to Kenyans in new skills or technology, encouraging economic development, allowing the transfer of technology, adding to tax revenue or affect foreign exchange.

10.3 Are the incentives subject to recovery in any instances?

We are not aware of instances where the incentives are subject to recovery.

11. Participation and authority of indigenous peoples

11.1 Are the rights of indigenous people in connection to geothermal resources regulated?

(i) Currently, there are no specific provisions on the rights of indigenous people to geothermal resources. As stated above, under the Constitution, all natural resources, including geothermal resources, vest in the people of Kenya and the GOK has the power to regulate and administer the same on behalf of the public. Similar to the right to compensation owed to private landowners for any disturbance, injury or damage caused to land by a holder of Exploration Authorisation or a Geothermal License, the county government would be entitled to receive compensation on trust and for the benefit of indigenous communities where such disturbance or damage is caused on trust land. Section 20(3) provides that the term "owner" used in Sections 19 and 20 means:

(a) "in the case of trust land the county council in which the land is vested;

(b) in the case of land owned by group representatives under the Land (Group Representatives) Act, that Group; and

(c) in the case of other land, the registered owner, lessee or grantee".

(ii) The Constitution provides for the recognition of community rights to land. Article 63(1) stipulates that community land shall vest in and be held by communities identified on the basis of ethnicity, culture or similar community of interest. Any unregistered community land is to be held in trust by county governments on behalf of the communities for which it is held. Community land is stated to comprise of, amongst others, land that is lawfully held as trust land by the county governments.

(iii) It should also be noted that there is a draft

National Energy Policy²¹ (NEP) proposed by the Ministry of Energy which, when in force, will set out the policy framework for the entire energy sector in Kenya. It is expected that any energy related legislation that will be introduced will be predicated on the policies and principles set out in the NEP. The NEP proposes that for the purposes of fulfilling Article 66(2) of the Constitution which requires investments in property to benefit the local communities and their communities, there should be a framework for sharing benefits from the exploitation of energy resources with the local communities. In this regard, it is proposed that the government share of profits accruing from energy natural resources be shared in the following manner: National Government seventy-five percent (75%), County Government twenty percent (20%) and Local Community five percent (5%).²²

11.2 To what extent are indigenous municipalities involved in the process of granting licenses?

(i) Please see our responses to Question 4 with respect to the grant of exploration/exploitation licenses.

(ii) In relation to the grant of a Generation License, members of the public are entitled to object to the issue of the license by writing to the ERC. Please see Paragraph 3(iii).

(iii) In addition to considering any objections to the proposed undertaking, the ERC in deciding whether or not to grant the license shall consider: the impact of the undertaking on the social, cultural or recreational life of the community, the economic and financial benefits to the country or area of supply of the undertaking, the economic and energy policies in place from time to time and any other matter that the ERC may consider likely to have a bearing on the undertaking.

²¹ Current draft is dated 24th February, 2014.

²² NEP, dated 24th February 2015, p. 129-130.

12. Alteration of law and regulation

12.1 What are the principles regarding retro-activity of laws and regulations, can changes in such rules affect license holders?

Yes. For this reason, the licensee would be required to consider and negotiate the allocation of risk, compensation, and course of action with the relevant counterparty upon the occurrence of a political force majeure event, change in law or change in tax in order to place the licensee in the same position had the change not occurred.

13. Taxation

13.1 How does taxation in the sector affect license holders?

Income Tax

(i) The Ninth Schedule of the Income Tax Act²³ (the ITA) specifically provides for a special taxation regime applicable to entities granted geothermal prospecting licenses (referred to as “licensees”). A licensee is a person who has been issued with or granted a prospecting or extraction right (including a right to search for geothermal resources issued under the provisions of the GRA).

(ii) The Ninth Schedule provides for taxation at the corporation tax rate of thirty percent (30%) where the licensee is a company incorporated in Kenya and thirty-seven and a half percent (37.5%) where the licensee is a permanent establishment of a foreign company²⁴.

(iii) The Ninth Schedule provides for the specific taxation regime for licensees which include provisions dealing with exploration expenditure and extraction exploration, among others. In addition, the Ninth Schedule sets out the tax implications of the following transactions (amongst others):

(a) tax arising on direct and indirect sale of shares in a licensee;

(b) tax arising on transfer of participating interest under a license; and

(c) taxation of sub-contractors.

(iv) Sub-contractors: The Ninth Schedule further defines a sub-contractor as a person (other than an employee) supplying services to a licensee in respect of mining operations undertaken by the licensee. Withholding tax at a rate of five decimals six two five percent (5.625%) would be applicable on gross amount of service fees paid by a licensee to a non-resident sub-contractor without a permanent establishment in Kenya.

(v) We would point out that a separate regime applies to entities which hold an Electricity Generation License separately from the prospecting/extraction licenses granted under the GRA. Such an entity would be taxed under the ordinary company taxation regime but would enjoy incentives that apply to all energy generating companies described under paragraph (vi) and (vii) below.

(vi) Power Plant: For a company holding a Generation License, Legal Notice 165 of 2015 provides that payments made to a non-resident person on account of services rendered under a PPA shall be exempt from withholding tax. Further, Legal Notice 91 of 2015 provides that interest paid on loans from foreign sources for specifically investing in energy shall be exempt from tax. This legal notice therefore applies to both prospecting/extracting and generating companies.

(vii) Power Plant: For a company holding a Generation License, Legal Notice 106 of 2015 provides that instruments in respect to the transactions relating to loans from foreign sources received by investors in the infrastructure development sector, including energy, are exempt from the provisions of the Stamp Duty Act.

13.2 Is the sale of energy subject to VAT?

(i) Power Plant: The sale of electricity by an independent power producer to the national grid would be subject to Value Added Tax (VAT) at a rate of sixteen percent (16%) on the consideration paid for the supply. The provision of electrical or thermal energy is a taxable

²³ Chapter 470 of the Laws of Kenya

²⁴ Please note that under the PPP Act, the company holding the PPA needs to be registered under the laws of Kenya and therefore, the PE scenario would not arise.

supply of goods according to the provisions of the Value Added Tax Act, 2013 (the VATA).

(ii) Power Plant: Taxable supplies, excluding motor vehicles, imported or purchased for direct and exclusive use in the construction of a power generating plant, by a company, to supply electricity to the national grid are exempt for VAT purposes. This status is dependent upon the recommendation of the Cabinet Secretary and approval of the Cabinet Secretary for National Treasury.

(iii) Exploration: Further, taxable supplies, excluding motor vehicles, imported or purchased for direct and exclusive use in geothermal prospecting or exploration by a geothermal licensee are exempt from VAT. This is however upon recommendation by the Cabinet Secretary for Mining.

13.3 Is VAT refundable and what is the procedure for VAT refunding?

(i) No VAT refund would be due as all the supplies made by the PPA holder would be subject to VAT at a rate of sixteen percent (16%), but any VAT credit arising from input VAT can be carried forward perpetually.

(ii) In any case where tax is paid in error, a registered person can make an application to the Commissioner, for refund of such tax, within a period of twelve (12) months from the date such tax became due and payable.

(iii) Further, where a registered person has made a supply and paid tax on that supply but not received payment from the person liable to pay the tax, he may make a refund application to the Commissioner; either after a period of three (3) years from the date of the supply or from the date such customer becomes legally insolvent. Such application cannot however be made after a period exceeding five (5) years from the date of the supply.

14. Environmental impact assessment

14.1 What demands are there regarding EIA prior to exploration, exploitation and or production with geothermal energy?

The relevant statute is the EMCA and the subsidiary legislation promulgated thereunder which provides the legal framework on environmental management in Kenya. The EMCA, provides that notwithstanding any approval, permit or license granted under the EMCA or any other current law, prior to the commencement, carrying out or execution of designated projects set out in Schedule 2 of the EMCA by a proponent of a project²⁵, an Environmental Impact Assessment (EIA) is to be conducted. These designated projects include the "drilling for the purpose of utilizing ground water resources including geothermal energy" and projects concerning electrical infrastructure such as the set-up of "electricity generation stations, electrical transmission lines, electrical sub-stations, and pumped storage schemes". The EIA is to be conducted by experts authorised by the National Environmental Management Authority (NEMA). The proponent of a project is required to submit an EIA study report to NEMA in the prescribed form giving the required information together with the application fee. NEMA, if satisfied as to the adequacy of an EIA study, will issue an EIA license within forty-five (45) to ninety (90) days on such terms and conditions as may be appropriate and necessary to facilitate sustainable development and sound environmental management. In addition to carrying out the initial EIA and obtaining the EIA license, according to the Environmental (Impact Assessment and Audit) Regulations, 2003 (Environmental Audit Regulations) internal environmental audits are to be undertaken on a regular basis and the audit report prepared with each audit is to be submitted to NEMA annually or as may be prescribed by NEMA.²⁶ The proponent of a project is required to ensure that the audit is based on the environmental management plan developed during the environmental impact assessment process or after the initial audit. The proponent of the project would thereafter be required to comply with the recommendations suggested in its audits (if any) to enable it to improve its environmental performance and meet

²⁵ A proponent is defined to mean a person proposing or executing a project, programme or an undertaking.

²⁶ Regulation 34, Environmental Audit Regulations.

its environmental obligations. Dependent on the environmental implications of the project, additional environmental licenses may be required. These include:

- (a) an effluent discharge license required in the case effluents or other pollutants are discharged into the environment;
- (b) emissions license required in respect of an undertaking emitting a substance or energy which is causing or is likely to cause air pollution; and
- (c) license to emit noise/vibrations in excess of permissible levels as set out in EMCA Noise and Excessive Vibration Pollution (Control) Regulations, 2009.

15. Geothermal Licenses

15.1 What other licenses are needed in order to commence exploration, exploitation and/or production with geothermal energy?

Key licenses and consents that may be required to undertake a geothermal project include the following:

- (a) approval of the PPA by the ERC prior to execution of PPA by the licensee, or the licensee's contractor, and KPLC;
- (b) Generation License issued by the ERC;
- (c) registration of the construction works to be undertaken with the National Construction Authority (NCA) by the Geothermal Licensee as owner of the constructions works;²⁷
- (d) EIA License issued by NEMA;
- (e) permits from the Water Resource Management Authority under the Water Act, 2002 in respect of drilling boreholes and abstraction of ground water;

(f) development permissions and approval of building plans with respect to the buildings on site by local county council;

(g) approval for the upgrade of off-site public roads from the Kenya National Highway Authority and the Kenya Rural Roads Authority and NEMA;

(h) registration of premises where employment will be undertaken as a workplace by the Director of Occupational Safety and Health under the Occupational Safety and Health Act, 2007 before the occupation or use of such workplaces;

(i) annual single business permit from the local county council;

(j) Certification from the Kenya Bureau Standards and Pre-Export Verification of Conformity Programme (PVOC) Inspection for goods and equipment imported in Kenya at the port of origin, unless exempted; and

(k) customs exemptions and clearances by the Kenya Revenue Authority under the East African Community Customs Management Act for goods imported in Kenya.

²⁷ Please note that there is a separate registration required by the contractor with the NCA prior to that contractor commencing business as a contractor in Kenya and registration of all skilled construction workers and accreditation and certification of all construction workers and construction site supervisors expected to undertake the geothermal project.



MEXICO



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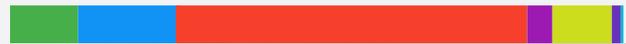
CARLOS RAMOS

MAXIMILIAN HECHL

Statistics:

1. Size of country: 1,964,375 km².
2. Population: 119,530,753 (2015).
3. Years of producing electricity from geothermal: 57 years, from 1959.
4. Installed capacity of geothermal (MWe): 926 MWe (2017).
5. Installed capacity of other sources (MWe): 64,525 MWe (2015).
6. Electricity production from geothermal (GWh): 6,070 GWh (2013).
7. Electricity production from other sources (GWh): 291,009 GWh.
8. Proportional production by source:

- Carbon – 10.8%
- Petroleum Products – 16.12%
- Natural Gas – 55.8%
- Nuclear – 4%
- Hydraulic – 9.43%
- Solar/Wind – 1.44%
- Biofuels – 0.41%
- Geothermal – 2%



Sources: Statistical and Geographical Yearbook of Mexico 2016, published by INEGI, Prospective on the Power Sector – SENER 2015, Report “Assessment of Geothermal Energy in Mexico” prepared for CRE with the support of the Inter-American Development Bank, Think GeoEnergy (2017).

1. Ownership and access to geothermal resources.

1.1 What are the rules on ownership of geothermal resources? Can private parties hold ownership of geothermal resources?

All land and water resources within the borders of Mexico are the inalienable property of the State (referred to as the Nation), as stated in Article 27 of the Mexican Constitution. The Nation allows private ownership of surface land, but retains state ownership of all minerals and resources beneath the surface. Additionally, the Geothermal Energy Law (“Law”), states that geothermal waters, which may be found as liquid or vapour, are also property of the Nation. Consequently, private parties cannot hold ownership of geothermal resources in Mexico. The Law

establishes the procedure by which any entity, whether public or private, may exploit geothermal resources.

Exploration of the area in question is a prerequisite to the exploitation of geothermal resources. Prior to performing exploration activities, interested parties must file an application with the Ministry of Energy (“ME”) to register the area and obtain a permit.

1.2 Who can grant access to geothermal resources, only the state or also landowners?

The ME is the authority in charge of granting permits or concessions for any of the geothermal activities regulated (exploration, exploitation and production, together the “Geothermal Activities”). Moreover, Geothermal Activities are deemed to be of public interest and take prior-



ity over other kind of uses, except for hydrocarbon-related activities. Any entity that intends to perform any of the Geothermal Activities must apply with the ME for the corresponding permit or concession.

1.3 Is exploration/exploitation open to foreign investment?

Art. 30 of the Geothermal Energy Law provides that permits for exploration and exploitation may be granted to individuals or entities incorporated pursuant to the laws of Mexico. However, the Foreign Investment Law does not limit foreign investment in Mexican companies that perform geothermal exploration/exploitation activities.

2. Allowed exploitation

2.1 Is exploitation of resources subject to licensing? Do landowners have the right to exploit resources without a license? If yes, to what extent?

Landowners may not exploit geothermal resources without a permit. Any exploitation of geothermal resources requires a concession granted by the ME. Applicants for the permit or concession must register the project and evidence legal, financial and technical capacity to perform Geothermal Activities.

3. Role and voice of landowner in licensing procedure

3.1 Does the landowner have a role in the process of granting a license for: (i) exploration, (ii) exploitation and (iii) power plant?

Exploration and exploitation: The Law does not specify any role for the landowner in the licensing process for exploration and exploitation. Nonetheless, if landowner falls under the class of "indigenous people", the 169 Treaty of the International Labour Organization applies. It grants indigenous people the right to be consulted regarding geothermal projects to be performed on their land. In addition, the Law also acknowledges specific rights granted to communal land owners (ejidatarios) regarding the use of their land.

Power Plant: Power generation activity is regulated under the Electric Industry Law which requires a permit to generate energy. Under this law, landowners also have no bearing with

respect to the issuance of the permit itself, but some exceptions exist for protected classes of landowners (generally communities of indigenous people or otherwise rural or vulnerable communities) whereby specific consultation processes and social impact studies are to be made in order mitigate possible adverse effects to such communities.

3.2 Will the opposition of a landowner have a bearing on the process of granting a license for exploration, exploitation or power production?

The use or occupation of privately owned lands is subject to negotiation between the owner and the developer. However, given that Geothermal Activities are prioritized, failure to agree to terms may result in the intervention of the Nation to create a public easement. If the landowner belongs to the class of indigenous people or communal landowners, opposition will have more bearing since the permit or concession process will be suspended until the consultation is completed.

The same principles apply to the construction of power plants, under the Electric Industry Law.

4. Criteria for granting of a license

4.1 What documents need to be submitted and what are the criteria for obtaining a license?

All Geothermal Activity permits require the following information to be submitted:

Legal capacity:

- For individuals, a copy of an official ID;
- For companies, a certified copy of its corporate charter evidencing that the Geothermal Activities are included in the company's corporate purpose.

Technical capacity:

- A list of projects in which the applicant has performed exploration and exploitation activities during the past five years, including the countries in which the projects took place;
- The CVs of the technical personnel that will work in the project evidencing their experience in exploration and exploitation activities.

Financial capacity:

- Financial statements for the past two years evidencing the applicant's financial condition.

Other Information:

- The location of the geothermal area to be explored or exploited;
- Documents which evidence the legal ownership or possession of the land;
- The project schedule with technical details;
- The financial plan detailing the investment to be made;
- If applicable, the Geothermal Registry data.

For a power plant permit, applicants must file an application that includes:

- The corporate name and address of the applicant;
- The name of the legal representative;
- The type of permit requested;
- The location of the power plant;
- Estimated annual capacity;
- The type of technology or main fuel used by the power plant;
- Documentation evidencing the applicant's legal, technical and financial capabilities;
- A description of the project;
- Evidence of payment for rights.

5. Duration of licenses

5.1 What is the maximum duration of a license for:

Exploration: Exploration permits are granted for a three-year period, which may be extended once for a three-year period if the terms and conditions of the permit are met.

Exploitation: Exploitation permits are granted for a thirty-year period, which may be extended for a similar term if the terms and conditions of the permit are met and the application is filed within the year prior to the expiration.

Power Plant Licenses: Generation permits are also granted for a thirty-year period, with the possibility for permit holders to request extensions. The law does not specify any limit of years for the extension, but it may not exceed the initial term.

6. Terms of licenses

6.1 What are the general terms of a permit or concession?

In addition to general information identifying the holder of the permit or concession, permits and concessions include:

- A general description of the project;
- The geographic location and limits of the geothermal area;
- The projected schedule of investment and works to be performed;
- Guarantees to be made by the permit/concession holder to comply with its obligations, including environmental obligations and rights of third parties;
- The duties to be paid for the permit/concession;
- Causes for termination or revocation;
- Periodic reports to be submitted to the regulator;
- The start date and the term of the permit/concession.

6.2 Are exploration license holders granted pre-emptive rights with regards to exploitation or do exploration licenses automatically convert into exploitation licenses if the resource has been substantiated?

There is no automatic conversion of permits into concessions, but exploration permit holders do have a right to request a concession to exploit geothermal resources at any time during the term of the exploration permit or up to six months after it expires. This right is only afforded to permit holders.

In the event the regulator desires to grant a concession that has not been requested by anyone, the granting of the concession is put up for public bids.

6.3 Is an exploitation license included in a power plant license or are these licenses separate?

As mentioned above, the power generation permits are regulated under different provisions, specifically, the Electric Industry Law. As a consequence, the permits are separate.

7. Termination and revision of licenses

7.1 What actions by the license holder would warrant revision of exploration, exploitation and power plant licenses?

The ME will not respond to misconduct with license revisions. It will, however, consider revoking the license entirely, as outlined below.

7.2 Does the license granting authority have the power to revoke or terminate licenses? If yes, what actions of the license holder would warrant the termination of the license?

Yes. The following actions may be grounds to revoke a permit granted by the ME:

- Breach of the terms and conditions established in the permit;
- Exploration or exploitation beyond the limits granted in the permit;
- Assignment, sale or transfer of the rights conferred without prior consent from the ME;
- Contamination of the area or surrounding areas by the permit holder without giving notice to the ME and without taking action necessary to remedy the situation;
- Failure to maintain appropriate insurance and guaranties;
- Substantial modification or alteration to the financial or works schedule/scheme;
- Failure to comply with the investment requirements;
- Damage beyond repair to the geothermal area;
- Failure to remedy damages suffered by third parties as a result of Geothermal Activities;
- Recurring failure to make required payments;
- Failure to comply with environmental regulations.

7.3 Can the license granting authority set forth conditions into licenses which provide for (i) stricter terms and conditions for licensees or (ii) more lenient terms and conditions for licensees, when such terms and conditions (whether stricter or more lenient) are not otherwise provided for by law?

Articles 37 and 31 of the Regulation of the Geothermal Energy Law sets forth that the Ministry

of Energy may include terms, conditions or information in the permits different from the ones provided by the Law and the Regulation.

7.4 Which remedies does the license granting authority have in order to enforce compliance to the terms and conditions of a license, other than by revoking the license?

Additionally, the Geothermal Energy Law provides fines from 179,200 MXN to 1,792,000 MXN in case of breaches to the provisions of the Geothermal Energy Law (Article 61)

8. Regulatory and reporting obligations

8.1 Briefly outline the surveillance carried out by the regulatory authorities during the license period, e.g. with regards to reporting duties and/or on-site visits?

The ME monitors the use of exploration and exploitation licenses as stated in the Law and its Regulations. The ME may, at any time, conduct an investigation to verify reports made by the license holder. As a result of such investigation, the ME may suspend work or activities related to construction or may revoke the permit/concession and require the cessation of all activities.

Other agencies, such as the environmental authorities, have jurisdiction over specific activities which may monitor activities to ensure that any obligations (e.g. environmental obligations) of the permit/concession holder are complied with, particularly conditions, actions or remediation activities imposed under the environmental impact study.

8.2 Which information is required to be submitted to regulatory authorities by the license-holder during the license period?

Permit holders are required to submit the following information annually, as part of their financial and technical reports:

- The reporting period;
- Investments made in accordance with the financial scheme or schedule;
- Geological information obtained during the performance of the geothermal activities;
- Production data;
- The results of geological, geo-hydraulic, geophysical, and geochemical studies of

the area;

- A study of the materials found;
- Drawings containing the location and description of the works performed;
- Information about the state of the geothermal area;
- A general description of the works performed in accordance with the works schedule;
- Results from the geothermal wells.

9. Power purchase agreements

9.1 Are the general terms and conditions, such as duration of Power Purchase Agreements, regulated? If not, are there any soft laws or general recommendations in place in your jurisdiction?

General terms and conditions of Power Purchase Agreements ("PPA") are not regulated by Mexican law. The recent opening of the power market in Mexico has resulted in a greater possibility of variation in the price of power. As such, PPA's are executed for shorter periods of time than before the reform. However, given obligations that significant consumers have with respect to consuming a percentage of their power from green sources, there is room to enter into long term PPA's with off takers, even if only for a portion of their total needs.

9.2 What is the permitted or general duration of a PPA?

The duration of PPAs is not regulated by law. Before the recent reforms, PPAs tended to last a period of time sufficient for the developer to amortize its investment and gain a reasonable profit. Under the current market conditions, PPAs last for reduced periods of time, or include tariff renegotiation clauses that trigger after a short periods of time.

9.3 Are public and/or national regulatory authorities involved in any way in forming the terms of PPA's, either directly or indirectly?

The general terms and conditions of PPAs are not regulated by law, so the national regulatory authorities are not involved in the formation of the terms between the parties. When a government entity, such as the Federal Electricity Commission, is the entity purchasing the power, it may impose the terms of the PPA to be bid.



However, such terms are not mandatory among private parties.

10. Incentives

10.1 Are there any incentives offered by the government or local authorities for utilization of geothermal energy? If yes, in what form (e.g. tax and/or feed-in tariffs) and what are the maximum amounts permitted?

Not directly. However, after the 2014 reforms to Mexican energy law, power purchasers are required to secure a certain amount of Clean Energy Certificates ("CEC"). These CECs are titles issued by the Energy Regulatory Commission, and evidence that the production of electric energy was made through "Clean Energy," for which geothermal energy qualifies. The amount of CECs that a power purchaser is required to have by law is determined by the ME, depending on the energy intake of such purchaser.

Furthermore, the government offers a tax benefit for renewable energy investments. Companies that invest in renewable energy production may deduct up to 100% of their investment in a single year instead of over the course of several years.

10.2 What requirements must the project fulfil in order to be eligible to receive such incentives?

The power producer has no impact on the CEC requirements of power purchasers and the tax incentive applies to all renewable energy investments.

10.3 Are the incentives subject to recovery in any instances?

N/A

11. Participation and authority of indigenous people

11.1 Are the rights of indigenous people in connection to geothermal resources regulated?

As mentioned in the response to question 3 above, indigenous people benefit from the 169 Treaty of the International Labour Organization which grants them the right to be consulted regarding any projects (geothermal or otherwise)

that will affect their land. Indigenous communities, however, are not entitled to any of the resources nor have any preferential rights thereto.

11.2 To what extent are indigenous municipalities involved in the process of granting licenses?

Indigenous people affected by the granting of a license must be consulted in accordance with the 169 Treaty of the International Labour Organization. This consultation must take place before work begins. It must be unrestricted, and the indigenous people must be fully informed of relevant project specifications.

12. Alteration of law and regulation

12.1 What are the principles regarding retroactivity of laws and regulations? Can changes to such rules affect license holders?

It is a general principle of Mexican law, as established in Article 14 of the Mexican Constitution, that laws should not have retroactive effects and should accordingly not adversely affect permits or concessions already issued.

13. Taxation

13.1 How does taxation in the sector affect license holders?

License holders are taxed in the same manner as other legal entities in Mexico. Companies or corporations in Mexico are subject to a 30% corporate income tax. Duties must be paid for holding a permit or concession. Payment of dividends may be subject to an additional withholding when made to individuals or foreign tax residents. The percentage of the withholding for dividends is 10%, unless a lower rate applies under a double taxation treaty.

13.2 Is the sale of energy subject to VAT?

Yes, the sale of electricity is subject to a 16% VAT.

13.3 Is VAT refundable and what is the procedure for VAT refunding?

VAT paid is credited towards VAT collected. Only final consumers are not entitled to credit nor recovery of VAT paid.

14. Environmental impact assessment

14.1 What demands are there regarding environmental impact assessment prior to exploration, exploitation and/or production of geothermal energy?

Exploration, exploitation and production of geothermal energy are subject to the prior authorization of the Federal Ministry of Environment and Natural Resources (“SEMARNAT”), through the filing of (1) a Preventive Assessment (Informe Preventivo) or (2) an Environmental Impact Assessment (Manifestación de Impacto Ambiental) depending on the circumstances.

(1) Preventive Assessment: Required for projects involving the exploration of geothermal reservoirs located on agricultural, livestock and wasteland zones (i.e. not on natural reserves or forest lands) Applicants must submit a Preventive Assessment to SEMARNAT in accordance with the provisions of the Mexican Official Standard.

(2) Environmental Impact Assessment: Required in all cases. Exploitation and production of geothermal energy as well as construction of geothermal energy plants must be authorized by SEMARNAT through the Environmental Impact Assessment (“EIA”). Other processes may be requested, as change of classification of lands (i.e. Forest Land classification).

Furthermore, if the project involves the use of hazardous substances (e.g. hydrogen sulphide), then the environmental impact authorization process will require further action: (1) the filing of an environmental risk assessment and (2) an accidents prevention program.

Special restrictions could apply if the project is to be executed in a natural protected area. Additional authorization may be required beyond that of SEMARNAT, the National Waters Commission and/or local and municipal authorities, depending on the specific characteristics of the project.

15. Licenses

15.1 What other licenses are needed in order to commence exploration, exploitation and/or production with geothermal energy?

In addition to the exploration, exploitation and production permits, we have identified the following required permits:

- Construction license issued by the corresponding municipality;
- Environmental impact approval from the Environmental Protection Ministry;
- Water use permit from the National Water Commission;
- Power generation permit issued by the Energy Regulatory Commission;
- Local land occupancy permits/authorization (if applicable);
- Permits for excavation, demolition or construction on properties adjacent to monuments protected by the National Institute of Anthropology and History (if applicable);
- Interconnection Agreement with the National Center of Energy Control. Power generators connected to the National Power System shall execute the corresponding interconnection agreements, as issued by the Energy Regulatory Commission.



NEW ZEALAND

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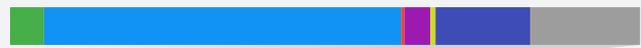
DANIEL MINHINICK

JESS RIDDELL

Statistics:

1. Size of country: 268,021 km².
2. Population: 4,730,600.
3. Years of producing electricity from geothermal: 58 years, from 1958.
4. Installed capacity of geothermal (MWe): 980 MWe (2015).
5. Installed capacity of other sources (MWe): 8,451 MWe (2015).
6. Electricity production from geothermal (GWh): 7,411 GWh (2015).
7. Electricity production from other sources (GWh): 35,466 GWh (2015).
8. Proportional production by source:

- Wind – 5.4%
- Hydro – 56.7%
- Biogas – 0.5%
- Coal – 4.1%
- Wood – 0.8%
- Solar – 0.08%
- Oil – 0%
- Gas – 15%
- Waste heat – 0.12%
- Geothermal – 17.3%



Sources: Population Clock November 2016, Ministry of Business, Innovation & Employment (2015).

1. Ownership and access to geothermal resources

1.1 What are the rules on ownership of geothermal resources? Can private parties hold ownership of geothermal resources?

In New Zealand, common law applies, which provides that geothermal resources are incapable of outright ownership until capture. The taking and use of geothermal resources is governed by New Zealand's principle environmental management statute, the Resource Management Act 1991 (RMA). Under the RMA, the sole right to tap and use geothermal resources, falling short of explicitly conferring ownership (due to the common law principle), is vested in the Crown. However, the RMA provides that any person may take and use geothermal resources in which the Crown has an interest, without obtaining the consent of the Crown, provided that

the take and use does not contravene the RMA or regulations.

1.2 Who can grant access to geothermal resources, only state or also landowner?

From a property rights perspective, a landowner is the only one able to grant access to geothermal resources on its land. However, the RMA establishes an environmental consenting regime for natural resources, including geothermal resources, that is separate from any property rights. Under the RMA, local government authorities can grant resource consent to take and use natural resources. Even if resource consent is granted, approval from the landowner to access the geothermal resources will still be required.

However, the Public Works Act 1981 provides the Crown with the statutory authority to compulsorily acquire land for a public work in certain



circumstances in accordance with the Act. The Crown, local authorities, and certain network utility operators (which the Minister for the Environment has classified as a "requiring authority" under the RMA) are the only organisations who can use the Public Works Act. If the Crown, a local authority or a requiring authority intended to take or use geothermal resources for a public purpose, the Public Works Act could be employed in order to acquire or lease the necessary land.

1.3 Is exploration/exploitation open to foreign investment?

Geothermal exploration and exploitation are not subject to industry-specific foreign investment controls in New Zealand. However, all foreign investment into New Zealand is required to comply with the Overseas Investment Act 2005 (OIA), which regulates foreign investment in New Zealand. The Overseas Investment Office (OIO) oversees the regime and is responsible for assessing applications from overseas investors who intend to make an overseas investment in New Zealand.

The OIA requires overseas persons to obtain consent from the OIO prior to giving effect to an investment where those overseas persons acquire ownership or control (either directly or indirectly) of:

- sensitive land; or
- significant business assets.

An investment in "sensitive land" occurs where an overseas person acquires a freehold interest, or a leasehold interest of three years or more (including any rights of renewal), in "sensitive land", or acquires 25% or more of the shares in a company where that company owns or controls (directly or indirectly) such an interest in "sensitive land". A number of categories of land are classified as "sensitive land" under the OIA. These include parcels of land over a certain size that include or adjoin land of particular significance (being reserves, public parks, foreshore, seabed, lakebed, Maori land, islands, land of historical significance and land held for conservation purposes), or any non-urban land of more than 5 hectares.

An investment in "significant business assets" is, in broad terms, the establishment or purchase of a business (or business assets) in New Zealand having a value in excess of NZ \$100 million, or

an acquisition of 25% or more of the shares in a company that owns New Zealand assets in excess of that value (or where the purchase price for the shares exceeds that value).

2. Allowed exploitation

2.1 Is exploitation of resources subject to licensing? Do landowners have the right to exploit resources without a license? If yes, to what extent?

There is no specific licensing regime for the exploitation of geothermal resources in New Zealand (unlike mineral resources which have a separate licensing regime). Rather, the environmental consenting regime for natural resources set out in the RMA governs the use of geothermal resources. Under the RMA, the presumption is that no person can take, use, dam, or divert water (including geothermal water), heat or energy from geothermal water, or heat or energy from the material surrounding geothermal water, unless it is expressly allowed by a national, regional or district planning document, or a resource consent under the RMA has been obtained. Currently there are no express allowances in any national planning documents so in the majority of cases the take and use of geothermal resources requires a resource consent. Limited exceptions may apply when regional or district planning documents permit small takes of geothermal resources for purposes such as domestic use or scientific investigation. Landowners are not exempt from needing to obtain resource consent.

3. Role and voice of landowner in licensing procedure

3.1 Does the landowner have a role in the process for granting a license for: (i) exploration; or (ii) exploitation; or (iii) power plants? Can the opposition of the landowner change the granting of either an exploration, exploitation or power plant license?

New Zealand does not have a specific licensing regime for geothermal resources. In terms of the resource consenting process, a consent authority must publicly notify an application for resource consent if the activity will have, or is likely to have, adverse effects on the environment that are more than minor. If an application is publicly notified, then a landowner may lodge a submis-

sion and be heard on the application.

Property rights are a separate issue from resource consenting. Before a resource consent holder is able to do any physical works on private land, the consent holder must reach an agreement with the landowner regarding access to the land. For the avoidance of doubt, no exploration or exploitation of resources on private land is possible in the absence of approval from the landowner.

4. Criteria for granting of a license

4.1 Which documents need to be submitted and what is the criteria for obtaining a license for: (i) exploration; (ii) exploitation; and/or (iii) power plants?

Although, New Zealand does not have a specific licensing regime for geothermal resources, there is an environmental consenting regime that requires certain documentation to be provided in support of an application for resource consent, which is discussed in more detail below.

5. Duration and Terms of licenses

5.1 What is the maximum duration of a license for: (i) exploration; (ii) exploitation; and/or (iii) power plants?

Under the environmental consenting regime under the RMA, consents for the take and use of geothermal water and any discharges can only be granted for a maximum term of up to 35 years.

5.2 Are exploration license holders granted pre-emptive rights with regards to exploitation or do exploration licenses automatically convert into exploitation licenses if the resource has been substantiated? If so, are there any conditions? Is an exploitation license included in a power plant license or are these licenses separate?

As New Zealand does not have a specific licensing regime there are no pre-emptive rights.

6. Termination and revision of licenses

6.1 What actions by the license holder would warrant revision of exploration-, exploitation- and power plant licenses? Does the license granting authority have the power to revoke or terminate licenses? If yes, what actions of the license holder would warrant the termination of the license?

In relation to the environmental consenting regime, consent authorities have the ability to change or review conditions on resource consents. When undertaking such a review, a consent authority can cancel an entire resource consent if there are significant adverse effects on the environment as a result of exercising the consent. Where a consent authority finds that the conditions of the resource consent are being breached, the RMA provides for a range of enforcement powers and penalties.

6.2 Can the License Granting Authority set forth conditions into licenses which provide for (i) stricter terms and conditions for licensees or (ii) more lenient terms and conditions for licensees, when such terms and conditions (whether stricter or more lenient) are not otherwise provided for by law?

There is no specific licensing regime for geothermal resources in New Zealand. For the environmental consenting regime under the RMA there is no statutory limit on the nature of conditions that may be imposed on a resource consent, but for a condition to be valid it must:

- Be for a resource management purpose and not for any ulterior purpose;
- Fairly and reasonably relate to the proposal which is the subject of consent;
- Not be so unreasonable that no reasonable consent authority could have approved it;
- Not involve an unlawful delegation of the consent authority's duties.

6.3 Which remedies does the License Granting Authority have in order to enforce compliance to the terms and conditions of a license, other than by revoking the license?

In relation to the environmental consenting regime, where a consent authority finds that the conditions of the resource consent are being breached, the RMA provides for a range of enforcement powers and penalties:

- an abatement notice - this is an official warning that the RMA is being contravened;
- an enforcement order - this is an order from the Environment Court that may demand compliance with the conditions of the consent, or change or cancel a resource consent; or
- an infringement notice - where an instant fine is payable.

7. Regulatory and information obligations

7.1 Briefly outline the surveillance carried out by the regulatory authorities during the license period, e.g. with regards to reporting duties and/or on-site visits? Which information is required to be submitted to regulatory authorities during that same period for the holder of a license for: (i) exploration; (ii) exploitation; and/or (iii) power plants?

Since New Zealand does not have a specific licensing regime for geothermal resources, the environmental consenting regime under the RMA does not include a statutory framework prescribing the frequency, extent, or type of surveillance or other information requirements of consented geothermal activities. However, consent authorities will usually include monitoring and reporting conditions of consent that are specific to the activity the consent authorises. Such monitoring can be anything from monthly to annually depending on the activity.

8. Power purchase agreements

8.1 Are general terms and conditions, such as duration of Power Purchase Agreements regulated? If not, are there any soft law or general recommendations in place in your jurisdiction?

Power Purchase Agreements are not subject to regulation in New Zealand. The only requirement is set out in the Electricity Industry Participation Code 2010 (Code), which requires that any electricity generated over 10MW must be sold to the market, thus leading to contracts for difference to hedge the market price.

8.2 What is the permitted or general duration of Power Purchase Agreements?

Power Purchase Agreements generally fall within one of two types:

- Where the project is procured on a project finance basis, linked to the term of the facility agreement, plus a tail; or
- Shorter term arrangements with rights of renewal.

8.3 Are public and/or national regulatory authorities involved in any way in forming the terms of Power Purchase Agreements, either directly or indirectly?

Although Power Purchase Agreements are not subject to regulation in New Zealand, they have regard to the provisions of the Code. The Code is developed, administered and enforced by the Electricity Authority and provides a set of rules that govern nearly every aspect of New Zealand's electricity industry including generation, transmission, system operation, security of supply, market arrangements, metering, distribution and retail of electricity.

9. Incentives

9.1 Are there any incentives offered by the government or local authorities for utilization of geothermal energy? If yes, in what form (e.g. tax and/or feed-in tariffs) and what are the maximum amounts permitted? What requirements must the project fulfil in order to be eligible to receive such incentives? Are the incentives subject to recovery in any instances?

There are no subsidies or other forms of incentive offered by New Zealand's government or local authorities for the utilization of geothermal activities. The government has committed to a "market principles" approach to the uptake of geothermal generation which applies equally to local and foreign parties.

10. Participation and authority of indigenous peoples

10.1 Are the rights of indigenous people in connection to geothermal resources regulated?

One of the central documents in the establishment of New Zealand is the Treaty of Waitangi signed in 1840 between the British Crown and representatives of many of the indigenous Māori tribes. In recent decades the Government has addressed restitution for past actions that were inconsistent with the spirit of the Treaty through a Treaty Settlements process. Many settlements have been reached in relation to geothermal interests, as such resources are recognised as a taonga (treasure) over which Māori exercise rangatiratanga (chieftainship). As part of settlements for Treaty of Waitangi breaches, lands with geothermal resources have been recommended to be returned to Māori. Settlement has also involved geothermal statutory acknowledgements which recognise the “particular cultural, spiritual, historical, and traditional association with, and use of, the geothermal energy and geothermal water”. In some circumstances, consent authorities must forward a summary of resource consent applications under the RMA concerning geothermal energy or geothermal water to the relevant Māori entity.

The RMA also allows geothermal water to be taken and used without resource consent, provided such use is in accordance with Tikanga Māori (customary practices) for the communal benefit of the tangata whenua (indigenous people) of the area and there is no adverse effect on the environment.

10.2 To what extent are indigenous municipalities involved in the process of granting licenses?

N/A.

11. Alteration of law and regulation

11.1 What are the principles regarding retroactivity of laws and regulations, can changes in such rules affect license holders?

There is a presumption at common law, confirmed in the Interpretation Act 1999, that enactments do not have retroactive effect. For example, when the RMA was introduced, licenses

that were in force under the previous Geothermal Energy Act 1953 were deemed to continue.

12. Taxation

12.1 How does taxation in the sector affect license holders?

In general, (subject to the specific rules relating to expenditure on geothermal wells, noted below), entities engaged in the exploration, exploitation or production of geothermal energy are taxed in the same manner as other legal entities in New Zealand under the Income Tax Act 2007 (ITA). Companies are currently taxed at a rate of 28%.

There are specific rules in the ITA that allow depreciation deductions in relation to geothermal wells. In general, geothermal wells that are capital assets and are available for use in deriving assessable income are depreciated over their useful life in the same way as other such depreciable assets. However, specific rules permit deductions under the depreciation rules to be claimed during the proving period for a geothermal well, or in respect of failed geothermal wells, which might not otherwise be deductible applying ordinary principles.

12.2 Is the sale of energy subject to VAT?

VAT in New Zealand is known as Goods and Services Tax (GST). In general, GST is chargeable at the rate of 15% on supplies (including supplies of energy) made in New Zealand by GST registered persons in the course of their business (or other taxable activity).

12.3 Is VAT refundable and what is the procedure for VAT refunding?

GST is refundable to GST registered persons. In order to claim a refund, a GST registered person must file a GST return disclosing their GST output tax liability (in respect of supplies made by them), and the GST input credits (in respect of supplies made to them) or other deductions from output tax to which they are entitled, in the relevant period. If the total input credits (or other deductions from output tax) exceed the GST output tax liability for the relevant period, the excess is refundable by Inland Revenue (the New Zealand government department responsible for administering taxes).

13. Environmental impact assessment

13.1 What demands are there regarding EIA prior to exploration, exploitation and or production with geothermal energy?

The RMA provides for a resource consenting regime. Local planning documents confirm whether resource consent is required for a specific activity. An application for resource consent must be made in the prescribed form and manner, and must include:

- a description of the activity;
- a description of the site at which the activity is to occur;
- the full name and address of each owner or occupier of the site;
- a description of any other activities that are part of the proposal to which the application relates;
- a description of any other resource consents required for the proposal to which the application relates;
- an assessment of the activity against the matters set out in Part 2 of the RMA (being the sustainable management purpose of the RMA, matters of national importance, Treaty of Waitangi and other matters);
- an assessment of the activity against any relevant provisions of a national, regional or district planning document; and
- an assessment of the activity's effects on the environment.

The Assessment of Environmental Effects (AEE) must include the following information:

- if it is likely that the activity will result in any significant adverse effect on the environment, a description of any possible alternative locations or methods for undertaking the activity;
- an assessment of the actual or potential effect on the environment of the activity;
- if the activity includes the use of hazardous substances and installations, an assessment of any risks to the environment that are likely to arise from such use;
- if the activity includes the discharge of any contaminant, a description of the nature of the discharge and the sensitivity of the receiving environment to adverse effects; and any possible alternative methods of discharge, including discharge into any other receiving environment;



- a description of the mitigation measures (including safeguards and contingency plans where relevant) to be undertaken to help prevent or reduce the actual or potential effect;
- identification of the persons affected by the activity, any consultation undertaken, and any response to the views of any person consulted (however, this does not place an obligation on the applicant to consult);
- if the scale and significance of the activity's effects are such that monitoring is required, a description of how and by whom the effects will be monitored if the activity is approved; and
- if the activity will, or is likely to, have adverse effects that are more than minor on the exercise of a protected customary right, a description of possible alternative locations or methods for the exercise of the activity (unless written approval for the activity is given by the protected customary rights group).

An AEE must address the following matters:

- any effect on those in the neighbourhood and, where relevant, the wider community, including any social, economic, or cultural effects;
- any physical effect on the locality, including any landscape and visual effects;
- any effect on ecosystems, including effects on plants or animals and any physical disturbance of habitats in the vicinity;
- any effect on natural and physical resources having aesthetic, recreational, scientific, historical, spiritual, or cultural value, or other special value, for present or future generations;
- any discharge of contaminants into the environment, including any unreasonable emission of noise, and options for the treatment and disposal of contaminants; and
- any risk to the neighbourhood, the wider community, or the environment through natural hazards or the use of hazardous substances or hazardous installations.

14. Licenses

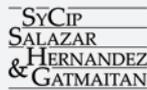
14.1 What other licenses are needed in order to commence exploration, exploitation and/or production with geothermal energy?

There are a range of other possible consents and permits that may be required for the exploration, exploitation and/or production of geothermal energy, depending on the specific activity and its location. Possible consents and permits include:

- building consent to authorize construction of structures such as power plants;
- heritage authorities to allow heritage (pre-1900) features to be modified or destroyed;
- access agreements with landowners;
- easements to allow for services over private land, such as electricity transmission; and
- OIO approval to allow overseas companies to purchase or lease land.



PHILIPPINES



SyCip Salazar Hernandez & Gatmaitan

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Statistics:

1. Size of country: 343,448 km².
2. Population: 100,980,000.
3. Years of producing electricity from geothermal: 39 years, from 1977.
4. Installed capacity of geothermal (MWe): 1,868 MWe (2017).
5. Installed capacity of other sources (MWe): 16,897 MWe (2015).
6. Electricity production from geothermal (GWh): 11,044 GWh (2015).
7. Electricity production from other sources (GWh): 71,369 GWh (2015).
8. Proportional production by source:

- Oil-Based – 7%
- Hydro – 11%
- Geothermal – 14%
- Coal – 45%
- Other Renewable (Wind, Solar, Biomass) – 0%
- Natural Gas – 23%



Sources: Department of Energy (2015), Think GeoEnergy (2017).

1. Ownership and access to geothermal resources

1.1 What are the rules on ownership of geothermal resources? Can private parties hold ownership of geothermal resources?

Geothermal resources are considered natural resources and are owned by the State. Article XII, Section 2 of the 1987 Philippine Constitution provides that all lands of the public domain, waters, minerals, coal, petroleum, and other mineral oils, all forces of potential energy, fisheries, forests or timber, wildlife, flora and fauna, and other natural resources are owned by the State. Such state ownership of geothermal resources is reiterated in Section 3 of Republic Act ("R.A.") No. 5092, and Section 19 (A) of Department of Energy ("DOE") Department Circular No. DC2009-05-0008.

There are jurisprudence and opinions issued by the Philippine Department of Justice stating that a natural resource such as water, once taken from its natural source, cease to be a part of the natural resources of the country. Thus, geother-

mal resources, once extracted from their natural source, may be subject of ordinary commerce.

1.2 Who can grant access to geothermal resources, only state or also landowner?

Since the State owns geothermal resources, only the State can grant access to geothermal resources. Under R.A. No. 9513 (known as the Renewable Energy Act), the right to explore for, tap, or utilize geothermal energy may be obtained and exercised by means of a service agreement entered into with the government, through the DOE, over a period during which the developer has the exclusive right to a particular area for exploration and development.

1.3 Is exploration/exploitation open to foreign investment?

Yes. Under Article XII, Section 2, paragraph 4 of the 1987 Constitution, it is stated that the President may enter into agreements with foreign-owned corporations involving either technical or financial assistance for large-scale explo-

ration, development, and utilization of minerals, petroleum, and other mineral oils according to the general terms and conditions provided by law, based on real contributions to the economic growth and general welfare of the country, provided that in such agreements, the State shall promote the development and use of local scientific and technical resources.

2. Allowed exploitation

2.1 Is exploitation of resources subject to licensing? Do landowners have the right to exploit resources without a license? If yes, to what extent?

As mentioned, a service agreement with the government, through the DOE, is required in order to exploit geothermal resources. R.A. No. 5092 provides that ownership or right to use land where geothermal resources are found does not include ownership of, nor the right to explore for, tap, or utilize the geothermal energy in, on or under the surface of such land.

3. Role and voice of landowner in licensing procedure

3.1 Does the landowner have a role in the process for granting a license for: (i) exploration, (ii) exploitation or (iii) a power plant?

As a rule, the landowner does not have a role in the process for granting the service agreement. The DOE awards services agreements for the exploitation of geothermal resources through either of the two processes provided under DOE Department Circular No. DC2009-07-0011: (i) by direct negotiation with the DOE; or (ii) by open and competitive selection process, similar to a bidding process. In either of these, the landowner does not have any role or participation.

Furthermore, Presidential Decree ("P.D.") No. 1442 provides that service contracts for the exploration and development of geothermal resources may cover private lands and that the right to enter private lands for the purpose of exploiting geothermal resources shall, in the absence of a voluntary agreement with the private landowner, be allowed by the courts subject to payment of reasonable compensation to the landowner.

While the service agreement authorizes the developer to utilize the geothermal resources for purposes of power generation, the construc-

tion and operation of geothermal power plants require separate and various licenses.

3.2 Can the opposition of the landowner change the granting of either an exploration, exploitation or power plant licenses?

As mentioned above, the landowner generally does not play a role in the grant of the service agreement for the exploration, development and utilization of geothermal resources. However, there may be instances where the landowner may oppose the grant of a license. For example, if the land belongs to an indigenous cultural community, the "free and prior informed consent" of the community must be obtained.

4. Criteria for granting of a license

4.1 Which documents need to be submitted and what is the criteria for obtaining a license for (i) exploration, (ii) exploitation and/or (iii) power plant?

DOE Department Circular No. 2009-07-0011 states that any person, natural or juridical, local or foreign, may, subject to the limits herein set, apply for service agreements.

(i) In general, the applicant for a service agreement with the government must be a Filipino or, if a corporation, must be a Filipino corporation. At least 60% of the capitalization of a corporation must be owned by Filipinos and duly registered with the Securities and Exchange Commission ("SEC").

(ii) In the case of the exploration, development or utilization of geothermal resources, the applicant may either be a Filipino, natural or juridical, or a foreign corporation (which must be licensed to do business in the Philippines).

(iii) Consistent with Article XII, Section 2, of the 1987 Philippine Constitution and applicable laws, any foreign-owned corporation duly authorized to operate in the Philippines may apply for service agreement in the nature of a financial or technical assistance agreement for large-scale exploration, development or utilization of geothermal resources.

Apart from documentary requirements proving the requisite legal capacity, the applicant must

possess the necessary technical capability to undertake obligations under the service contract in terms of:

- a. a proven track record or experience in the technical and specialized aspects of the project;
- b. a viable work program illustrating the minimum expenditure commitments as well as “environmental protection/conservation and social acceptability plans;”
- c. experience and technical expertise of key personnel; and

(iv) sufficient equipment to be used for operations either held in ownership by the RE applicant or by way of lease.

The applicant must also submit to the DOE proof that it possesses adequate financial capacity to sustain the needs of the proposed project.

From exploration to exploitation, the developer must submit a declaration of commerciality, which the DOE must confirm.

As mentioned, separate and various licenses are needed for the construction and operation of geothermal power plants.

5. Duration of licenses

5.1 What is the maximum duration of a license for (i) exploration, (ii) exploitation and/or (iii) power plant?

Service agreements for the exploration, development and utilization of geothermal resources have a term of not exceeding twenty-five (25) years, renewable for not more than twenty-five (25) years. The total period of the service contract should not exceed fifty (50) years. Please note that separate and various licenses are needed for the construction and operation of geothermal power plants and these have separate and various durations.

6. Terms of licenses

6.1 Are exploration license holders granted pre-emptive rights with regards to exploitation or do exploration licenses automatically convert into exploitation licenses if the resource has been substantiated? If so, are there any conditions?

A service contract gives the developer the exclusive right to explore, develop or utilize a particular contract area. The contract is divided into two (2) stages:

- a. Pre-development stage – this involves the preliminary assessment and feasibility up to the financial closing of the project; and
- b. Development/commercial stage – this involves the development, production or utilization of resources, including the construction and installation of relevant facilities up to the operation phase of the facilities.

The developer will apply for the conversion of the contract, prior to its expiration, from Pre-development stage to Development/Commercial stage by submitting a declaration of commerciality, which the DOE will confirm. This signifies that the developer is now ready to exploit the geothermal resources.

Upon application for conversion, DOE will examine the technical and financial aspects of the project and determine whether the project is viable or feasible. Thus, if based on DOE’s determination the project does not appear to be viable or feasible, the DOE will not issue the declaration of commerciality.

6.2 Is an exploitation license included in a power plant license or are these licenses separate?

As discussed above, separate and various licenses and permits are required for the construction and operation of power plants. Such licenses and permits are separate and distinct from the service agreement for the exploration, development and utilization of geothermal resources.

7. Termination and revision of licenses

7.1 What actions by the license holder would warrant revision of exploration, exploitation and power plant licenses? Does the license granting authority have the power to revoke or terminate licenses? If yes, what actions of the license holder would warrant the termination of the license?

The DOE has the power to suspend and terminate a service agreement, after due notice to the developer. The grounds for suspension include, among others:

- a. Non-compliance with the approved work program and any of its obligations under the service contract;
- b. Non-compliance with the technical design standards adopted by the DOE;
- c. Non-observance of environmental regulations imposed by the Department of Environment and Natural Resources ("DENR");
- d. Non-payment of financial obligations agreed upon under the contract; and
- e. Non-remittance of government share.

The terms and conditions of the various licenses and permits for the construction and operation of power plants usually provide for their revocation or cancellation in case of violation of such terms and conditions as well as violation of applicable laws.

7.2 Can the license granting authority set forth conditions into licenses which provide for (i) stricter terms and conditions for licensees or (ii) more lenient terms and conditions for licensees, when such terms and conditions (whether stricter or more lenient) are not otherwise provided for by law?

Under R.A. No. 9513, or the Renewable Energy Act, the Department of Energy (DOE) is granted the power to implement the provision of the law. Thus, the DOE is empowered to issue the rules and regulations implementing R.A. No. 9513, including the guidelines governing the issuance, management, monitoring and evaluation of service agreements.

The Energy Regulatory Commission (ERC), on

the other hand, is the agency vested with the power to issue certificates of compliance (COCs) to generation companies under R.A. No.9136, or the Electric Power Industry Reform Act (EPIRA). The COC shall stipulate all obligations of a generation company consistent with the EPIRA, its implementing rules, and such other operating guidelines as ERC may establish. Under the implementing rules and regulations of the EPIRA, the ERC is given the power to establish and publish the standards and requirements for issuance of a COC.

Nonetheless, under Philippine Law, the DOE and ERC, as license granting authorities, are bound by the terms of the law enacted by Congress. This is so because the law cannot be broadened by a mere administrative issuance. It is axiomatic that an administrative agency cannot amend an act of Congress. (Nasipit Lumber Company, Inc. v. National Wages and Productivity Commission, G.R. NO. 113097, April 27, 1998)

For as long as the guidelines or conditions imposed by the DOE or the ERC are within the bounds of the law, they are valid. However, when the implementing guidelines exceed the limitations set by the law, such guidelines become subject to challenge.

7.3 Which remedies does the license granting authority have in order to enforce compliance to the terms and conditions of a license, other than by revoking the license?

The DOE is empowered under R.A. No. 9513 to impose administrative fines and penalties for any violation of the provisions of R.A.9513, its implementing rules and regulations, and other issuances. Similarly, under the EPIRA, the ERC is given the authority to impose fines or penalties for any non-compliance with or breach of EPIRA, its implementing rules and regulations, and other issuances of the ERC.

8. Regulatory and information obligations

8.1 Briefly outline the surveillance carried out by the regulatory authorities during the license period, e.g. with regards to reporting duties and/or on-site visits?

Governmental surveillance is primarily carried out by an Evaluation and Monitoring Team (created under DOE Department Order No. 2013-

12-0021) composed of a chairperson, a vice chairperson and 3 other members. The team must, among others:

1. Conduct the evaluation and monitoring of service contracts based on the requirements provided under the relevant contract and schedules prescribed by the DOE; and
2. Submit appropriate reports to the Review and Evaluation Committee for further review and endorsement by the Secretary of the DOE.

Under the regulations, during the pre-development stage there shall be a mid-term and end-term monitoring and evaluation, while during the development/commercial stage, monitoring shall be based on the schedules indicated in the duly approved work plan.

8.2 Which information is required to be submitted to regulatory authorities during that same period for the holder of a license for (i) exploration, (ii) exploitation and/or (iii) power plant?

Under existing rules, developers with service agreements with the government are required to submit technical and financial reports in the format prescribed by the DOE including, but not limited to, the following:

- a. Annual Progress Report — the annual progress report is submitted not later than two (2) months prior to the end of each contract year and shall contain the summary of all the activities, i.e., exploration, drilling or infrastructure development, with relevant comments and recommendation on any technical findings;
- b. Procurement Plan — the procurement plan is designed according to the approved work obligations containing an itemized list of equipment, materials and supplies to be procured with corresponding estimated costs. It shall be submitted not later than one (1) month from the approval of the work program or work plan or revision thereof, as the case may be;
- c. Quarterly Progress Report — the quarterly progress report is submitted not later than one (1) month from the end of each Contract Quarter and shall contain the work and financial accomplishment under the work program or work plan;

d. Monthly Generation Report; and

e. Other technical data and reports relevant to the Geothermal Resources, when necessary as determined by the DOE.

Licenses and permits for the construction and operation of power plants also provide for different reportorial requirements.

9. Power Purchase Agreements

9.1 Are general terms and conditions, such as duration of Power Purchase Agreements regulated? If no, are there any soft law or general recommendations in place in your jurisdiction?

As a rule, the terms and conditions of Power Purchase Agreements (“PPAs”) are not regulated. However, PPAs wherein the off-taker is a distribution utility are subject to the approval by the Energy Regulatory Commission (“ERC”). There is also a general prohibition on anti-competitive behavior, especially where the off-taker is a contestable customer, or one who has a choice of a supplier of electricity based on a threshold average monthly peak demand as determined by the ERC.

9.2 What is the permitted or general duration of Power Purchase Agreements?

The duration of PPAs is subject to stipulation by the parties. However, the duration of a PPA where the off-taker is a contestable customer is two (2) years.

9.3 Are public and/or national regulatory authorities involved in any way in forming the terms of Power Purchase Agreements, either directly or indirectly?

As discussed above, a PPA where the off-taker is a distribution utility is subject to approval by the ERC. There is also a general prohibition on anti-competitive behavior, especially in PPAs where the off-takers are contestable customers.

10. Incentives

10.1 Are there any incentives offered by the government or local authorities for utilization of geothermal energy? If yes, in what form (e.g. tax and/or feed-in tariffs) and what are the maximum amounts permitted?

Under the Renewable Energy Act, the following incentives are granted to developers:

- a. Tax incentives;
- b. Cash incentive of renewable energy developers for missionary electrification;
- c. Exemption from the universal charge;
- d. Option in payment of transmission charges; and
- e. Preferential financial assistance from government financial institutions.

The following are the tax incentives under the Renewable Energy Act:

- a. Income tax holiday for a period of 7 years from commercial operations;
- b. Duty-free importation of machinery, equipment, and materials within the first 10 years from issuance of the certification to the developer;
- c. Special realty tax rates on equipment and machinery;
- d. Net Operating Loss Carry-Over (“NOLCO”) from the start of commercial operations and for a period of 7 consecutive years immediately following the year of loss;
- e. Corporate tax rate of 10% on net taxable income (in lieu of the regular 30% corporate income tax rate);
- f. Accelerated depreciation for plant, machinery and equipment;
- g. Zero Percent Value-Added Tax rate on the sale of fuel or power generated;
- h. Tax exemption of from the sale of carbon emission credits; and

- i. Tax credit on certain purchases of domestic capital equipment and services.

The government share on renewable energy development projects is equal to one percent (1%) of the gross income of renewable energy resource developers resulting from the sale of renewable energy produced and such other income incidental to and arising from the renewable energy generation, transmission, and sale of electric power except for indigenous geothermal energy, which shall be at one and a half percent (1.5%) of gross income. Previously, a service contractor for geothermal resources is paid a fee not exceeding forty percent (40%) of the balance of the gross value of the geothermal resources after deducting the necessary expenses incurred in the geothermal operations.

The Renewable Energy Act also provides for a feed-in tariff. However, this incentive is not available to developers of geothermal resources.

10.2 What requirements must the project fulfil in order to be eligible to receive such incentives?

The developer should be registered with the DOE and the Board of Investments (“BOI”). To qualify for BOI registration, the proposed activity must be in the Investments Priority Plan (“IPP”). In this regard, renewable energy development has been declared a priority investment that will regularly form part of the annual IPP.

The requirements for the DOE registration (for a certificate of endorsement to BOI) are the following:

- i. Request letter addressed to the Secretary of the DOE;
- ii. Developer’s company profile; and
- iii. Project profile which must include the financial statements, total project cost and assumptions, selling price, target market, technology used, and the process of generating energy.

The certificate of endorsement is then submitted to the BOI for registration together with the following:

- i. Accomplished BOI-registration application form;
- ii. Project Study/Report;

- iii. SEC registration certificate, articles of incorporation, by-laws;

- iv. Financial Statements and Income Tax Returns for the past 3 years or for the number of years the applicant has been in operation if less than 3 years; and

- v. Board resolution authorizing the registration.

10.3 Are the incentives subject to recovery in any instances?

The Renewable Energy Act does not generally provide for any recovery mechanisms for the above-mentioned incentives. However, if the developer avails of the duty-free importation of machinery, equipment and materials and subsequently sells the machinery, equipment and materials to another person (specially a person who is not registered as a renewable energy developer), the appropriate taxes and duties must be paid.

11. Participation and authority of indigenous peoples

11.1 Is the right of indigenous people in connection to geothermal resources regulated?

There are no specific rules that apply to indigenous people insofar as geothermal resources are concerned. As previously mentioned, the “free and prior informed consent” of the indigenous people is required if the geothermal resources that will be exploited are found in an area reserved for indigenous people.

11.2 To what extent are indigenous municipalities involved in the process of granting licenses?

Indigenous people are effectively involved in the process of getting the licenses since they must give their “free and prior informed consent”. Certain laws and regulations prescribe the procedure for getting such consent, which requires consultation of the indigenous people and the execution of an agreement where the consent given will be manifested.

12. Alteration of law and regulation

12.1 What are the principles regarding retroactivity of laws and regulations, can changes in such rules affect license holders?

The prevailing rule under the Civil Code of the Philippines is that laws shall have no retroactive effect, unless the contrary is provided. Nevertheless, and despite the non-impairment of contracts provision under the 1987 Constitution, Philippine jurisprudence provides that a license may validly be revoked pursuant to a law that is given retroactive effect provided only that the law was enacted pursuant to the police power of the State.

13. Taxation

13.1 How does taxation in the sector affect license holders?

Tax incentives and the other fiscal grants are intended to provide the license holders with the most favourable business climate for the industry, thereby attracting the interest and encouraging participation of the private sector as well as foreign investors.

13.2 Is the sale of energy subject to VAT?

The sale of electricity is subject to VAT under Republic Act No. 9136. However, pursuant to Section 108 (B) (7) of Republic Act No. 9337, sale of power generated through renewable sources of energy is subject to VAT at zero percent (0%).

13.3 Is VAT refundable and what is the procedure for VAT refunding?

Since the VAT rate is 0%, there is technically no VAT to pass on to the buyer of electricity generated from renewable resources.

With regard to the refund of Input VAT, R.A. No. 9337 allows a VAT-registered person whose sales are zero-rated to apply for the issuance of a tax credit certificate or refund of input tax attributable to such sales. The claim must be filed with the Bureau of Internal Revenue within two (2) years after the close of the quarter when the sales were made.

14. Environmental impact assessment

14.1 What demands are there regarding EIA prior to exploration, exploitation and or production with geothermal energy?

Under the Renewable Energy Act, all renewable energy explorations, development, utilization, and renewable energy systems operations must be conducted in accordance with existing environmental regulations as prescribed by the DENR and/or any other concerned government agency.

DENR Administrative Order No. 2003-30, implementing P.D. No. 1586 and providing for the Environmental Impact Statement system, mandates all agencies and instrumentalities of the national government, including government-owned and controlled corporations, as well as private corporations, firms, and entities to submit an Environmental Impact Statement and secure the issuance of an Environmental Compliance Certificate as both a pre-requisite and a continuing requirement for project planning, construction, and operation of Environmentally Critical Projects or projects in or affecting Environmentally Critical Areas.

15. Licenses

15.1 What other licenses are needed in order to commence exploration, exploitation and/or production with geothermal energy?

There are numerous permits needed in order to commence exploration, exploitation and/or production with geothermal energy. These include the following:

- a. Environmental Compliance Certificate (from the DENR);
- b. Certification from the National Commission on Indigenous Peoples that the area does not overlap with ancestral domains or that the free, prior and informed consent of the affected indigenous peoples has been secured; and
- c. Favourable endorsement by the affected local government units.



TURKEY



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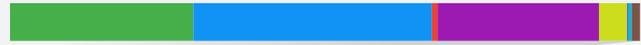
ZEKİCAN SAMLI

YUNUS AKŞİN PINAR

Statistics:

1. Size of country: 783,562 km².
2. Population: 78,741,053 (2015).
3. Years of producing electricity from geothermal: 32 years, from 1984.
4. Installed capacity of geothermal (MWe): 820 MWe (2017).
5. Installed capacity of other sources (MWe): 77,614 MWe (2015).
6. Electricity production from geothermal (GWh): 3,424 GWh (2015).
7. Electricity production from other sources (GWh): 254,935 GWh.
8. Proportional production by source:

- Coal – 29.09%
- Natural Gas – 37.90%
- Liquid Fuels – 0.85%
- Hydro – 25.65%
- Wind – 4.45%
- Waste Heat – 0.16%
- Biomass – 0.52%
- Solar – 0.07%
- Geothermal – 1.31%



Sources: Turkish Electricity Transmission Company ("TEİAŞ") Annual Report 2015, TEİAŞ Monthly Report October 2016, Turkish Statistical Institute, Chamber of Geological Engineers, Report on Turkey's Geothermal Resources, Projections, Problems and Advices, February 2016, Think GeoEnergy (2017).

1. Ownership and access to geothermal resources

1.1 What are the rules on ownership of geothermal resources? Can private parties hold ownership of geothermal resources?

Article 4 of the Law on Geothermal Resources and Natural Mineral Waters numbered 5686, published in the Official Gazette dated 3 June 2007 and numbered 26551 (the "Geothermal Resources Law") clearly states that all geothermal resources in Turkey belong to the State, independent from the ownership of the land on which they are located. Even if private persons own the land, the geothermal resources under such land are owned solely by the State. Although exploration and excavation licenses may be issued by the State for the operation of geothermal resources, the ownership of such

resources may not be transferred under any circumstances.

1.2 Who can grant access to geothermal resources, only State or also landowner?

Since the landowner has no right of disposal over the resources themselves, only the State may grant access to geothermal resources. However, the access rights to the land itself still belong to the landowners. The State will grant a license over the resource itself only. Access to the land itself will need to be obtained by the licensee either by reaching an agreement with the landowner (i.e. an outright purchase of ownership or a limited proprietary right agreement) or by requesting the State to expropriate the land for the benefit of the licensee.



1.3 Is exploration/exploitation open to foreign investment?

The Geothermal Resources Law states explicitly that exploration and exploitation may be carried out by either Turkish citizens or companies incorporated under Turkish law. However, there are no limitations as to the foreign shareholding structure of such companies and foreign investment can take place in the geothermal energy market through a project company incorporated under Turkish law with foreign shareholders.

2. Allowed exploitation

2.1 Is exploitation of resources subject to licensing? Do landowners have to right to exploit resources without a license? If yes, to what extent?

All explorations and exploitation of geothermal resources is subject to licensing and an exception is not granted for landowners.

The exploitation of geothermal resources is subject to two separate licenses both granted by the State. The first is the exploration license. Under the exploration license, the licensee is granted the right with the right to explore the land for the existence of geothermal resources and analyse the feasibility of its findings. The second is an operating license which may only be granted to licensees already holding an exploration license. Issuance of an operating license, without first obtaining an exploration license is not possible under Turkish law. The operating license grants its owner the right to fully exploit the geothermal resources on the project site within the boundaries of the project that it has submitted to the relevant State authority for obtaining the operation license.

The licenses described above do not cover any other licenses or permits that may be required to put the geothermal project site into operation. For instance, for the construction and operation of a power plant based on geothermal energy, an electricity generation license must also be obtained in addition to the exploration and exploitation licenses that are required to source and exploit geothermal resources.

3. Role and voice of landowner in licensing procedure

3.1 Does the landowner have a role in the process for granting a license for (i) exploration, (ii) exploitation or a (iii) power plant?

None of the processes above may be influenced in any way by the landowner who has no part in license granting processes concerning geothermal resources or the generation of electricity from these resources. However, in the event that the party requesting a license for the exploitation of geothermal resources is not the landowner, the landowner might have a role in such process by allowing its property to be used by the license owner. The landowner has an option to allow the land to be used in exchange for a price, or if the license owner and landowner cannot reach an agreement for the purchase or usage of the land, the land may be expropriated by the State.

3.2 Can the opposition of the landowner change the granting of either an exploration, exploitation or power plant licenses?

If the landowner considers that the issuance of a geothermal license or the expropriation of the land is unlawful, then it can file a lawsuit for the cancellation of such transactions. If the court decides in favour of the landowner, such licenses might be cancelled or the expropriation procedure might be reversed. However, in such lawsuits, elements of violation should be proven by the claimant.

4. Criteria for granting of a license

4.1 Which documents need to be submitted and what is the criteria for obtaining a license for

For the three main types of licenses, the licensing procedures are briefly as follows:

(i) exploration: The primary documentation in order to obtain an exploration license is a mapped and detailed design of the exploration project including a detailed description which must be prepared in line with the technical format determined by the State. The State will evaluate the application for the exploration license based on the project design. Additional documentation accompanying the project design varies de-

pending on whether the applicant is a person or a company. A real person's full ID information, place of residence and notification address must be provided, whereas the applicant company's articles of association, current management structure and signature circular (a Turkish law document showing the signatories of a legal entity) must be provided. The criteria for granting an exploration license is the feasibility of the project design that is submitted to the State which is evaluated based on technical examinations. The State mainly examines the financial capacity of the applicant and environmental impact of the exploration process. If the project is found to be feasible on all counts, then an exploration license will be issued for such project.

(ii) exploitation and/or: Similar to an exploration license, a request for an exploitation license must be accompanied by a mapped and detailed description of the project that is being planned for that particular site, with the same technical specifications as required for an exploration license. Additionally, any licenses or permits that may be required for operating the specific project relating to the geothermal resource must also be obtained after the exploitation license is granted but before the project for the exploitation of geothermal energy may commence. For example, if electricity generation is being planned from the geothermal resource, an electricity generation license must be obtained prior to commencement of the construction that will exploit the geothermal resource. The application for an exploitation license must be submitted on the expiration date of the exploration license at the latest. The main criteria are once again the financial capacity of the applicant and environmental impact of the exploitation project.

(iii) power plant?: A power plant using geothermal energy will be subject to an electricity generation license issued by the Energy Market Regulatory Authority ("EMRA"), which is obtained through a two tier process: First a 24-month pre-license is obtained wherein the necessary requirements for a project and a subsequent license are fulfilled. Many of these requirements involve undertakings with respect to the corporate structure of the applicant company (such as the requirement for having certain minimum share capital) and technical readings that sufficiently demonstrate the feasibility of constructing a power plant in that specific location. Once the requirements of the pre-license are fulfilled,

an electricity generation license is issued. As a secondary requirement, the licensee must execute a grid connection and usage agreement with the relevant electricity distribution company in order to be connected to the grid and sell electricity to this grid. Permits that are not specific to electricity generation licenses will also be required to operate the power plant. As stated above, the land rights must be obtained for the project site. Further, relevant zoning plans, construction permits and workplace opening permits must also be obtained in order to initiate the operation of the power plant.

For each of the licenses stated above, the relevant State authority will also demand the relevant documentation showing the shareholding structure of the company applying for such licenses.

5. Duration of licenses

5.1 What is the maximum duration of an license for

- (i) exploration, – 3 years
- (ii) exploitation and/or – 30 years, may be extended for an additional 10 years if necessary
- (iii) power plant? – 49 Years

6. Terms of licenses

6.1 Are exploration license holders granted pre-emptive rights with regards to exploitation or do exploration licenses automatically convert into exploitation licenses if the resource has been substantiated?

The request for an exploitation license could only be made by persons or companies already in possession of an exploration license. Therefore, the exploration license is a prerequisite for an exploitation license. However, it does not convert to an exploitation license even if a resource is substantiated, still the necessary conditions for obtaining an exploitation license must be met.

If so, are there any conditions?

There is no conversion from one license to another. Therefore, no conditions exist.

6.2 Is an exploitation license included in a power plant license or are these licenses separate?

These licenses are separate as detailed above.

7. Termination and revision of licenses

7.1 What actions by the license holder would warrant revision of exploration-, exploitation- and power plant licenses?

None of the abovementioned licenses are subject to unilateral revision by the State according to Turkish law, with two exceptions provided for electricity generation licenses in the event of force majeure situations or changes in legislation that require a revision of licenses. Revision of licenses must be requested by the licensee under certain conditions. If there is a change in the scope or timeline of the project, the licensee must apply for a revision and/or extension in order to adapt the license for the changing conditions of the project. The State will grant the revision if the requested change is in accordance with the applicable law.

7.2 Does the license granting authority have the power to revoke or terminate licenses? If yes, what actions of the license holder would warrant the termination of the license?

There are situations in which a license may be terminated by the State. Briefly, a license may be terminated if the licensee no longer meets the requirements necessary for obtaining such license. If a new requirement is introduced for persons already holding a license, a time period is given for these new requirements to be fulfilled, a failure to do so will likely result in the termination of the license. The license will also end if the licensee initiates insolvency proceedings or loses its legal capacity to enter into transactions.

7.3 Can the license granting authority set forth conditions into licenses which provide for (i) stricter terms and conditions for licensees or (ii) more lenient terms and conditions for licensees, when such terms and conditions (whether stricter or more lenient) are not otherwise provided for by law?

The law provides explicitly for the terms and conditions of the abovementioned licenses, in-

cluding their provisions, possibility of revisions, termination and incentives attached depending on the energy source. Therefore, the terms and conditions of licenses are set and the relevant regulatory authorities issuing such licenses do not ordinarily have discretionary powers in amending the conditions to reflect stricter or more lenient provisions. However, the Law provides in exceptional cases, discretionary powers to government authorities to provide for more lenient conditions for certain aspects of the licensing process involving monetary values (such as the amount of security or penalty) whereby the law sets out the upper limit and the government authority has the right to set a lower value. Under no condition can the conditions of licenses become stricter without being expressly provided for by law.

7.4 Which remedies does the license granting authority have in order to enforce compliance to the terms and conditions of a license, other than by revoking the license?

A variety of remedies are available to the authorities in the event of non-compliance, before the license is unilaterally revoked. For instance, for geothermal exploration and exploitation licenses, guarantees that license applicants provide to the authorities are considered forfeited and are cashed in for several situations of non-compliance. Further, in the event that the project is not operated in accordance with the relevant legal provisions and the project submitted as part of the license application, the authorities may order an injunction to be put in place in respect of the project until such time as the non-compliance is remedied.

For electricity generation licenses, remedies other than license revocation come in the form of monetary fines levied by the regulator in specific events of non-compliance. The amount of the fine is dependent on the nature of the non-compliance and is specifically set out in the law.

The law provides, in all the cases specified above, a period before measures are applied to the licensee to remedy the non-compliance.

8. Regulatory and information obligations

8.1 Briefly outline the surveillance carried out by the regulatory authorities during the license period, e.g. with regards to reporting duties and/or on-site visits?

The State carries out inspections of the project sites once a year and the licensee is responsible for bearing the expenses of these inspections. With respect to geothermal resources, the licensee does not have any specific reporting duties, but must make certain payments to the State in any way necessary for the inspection to properly take place.

8.2 Which information is required to be submitted to regulatory authorities during that same period for the holder of an license for (i) exploration, (ii) exploitation and/or (iii) power plant?

For the geothermal exploration and exploitation licenses, licensees are not obliged to provide specific information during the inspection period. However, the licensee is under an obligation to not only bear the expenses of the inspection and expedite the inspection process, but also to provide whatever information that the State may need during the inspection, including but not limited to corporate books and technical data.

For electricity generation licenses, the licensees are required not only to bear the expenses of the inspections in the same manner as described above, but also to submit the following regular reports to EMRA:

- During the construction of the power plant, the licensee is obliged to submit detailed yearly progress reports on the construction of the power plant and provide information concerning the fulfilment of the deadlines stated in the project design;
- Detailed information on the status of all licenses, permits and applications that are relevant to the project; and
- Yearly reports, measurements and data on all activities conducted in relation to the electricity generation license.

9. Power purchase agreements

9.1 Are general terms and conditions, such as duration of Power Purchase Agreements regulated? If no, are there any soft law or general recommendations in place in your jurisdiction?

Power purchase agreements (“PPAs”) are not regulated under Turkish law. The parties are free to determine the terms and conditions of PPAs within the general rules of contract. However, if the license holder is registered to the Renewable Energy Support System (see explanations on incentives), the electricity will be sold to a pool, the terms of which will be subject to certain requirements under the support system.

9.2 What is the permitted or general duration of power purchase agreements?

No such limit exists.

9.3 Are public and/or national regulatory authorities involved in any way in forming the terms of Power Purchase Agreements, either directly or indirectly?

The authorities are not involved in any way with the formation of PPAs. However, PPAs must be notified by the parties to the electricity balancing and settlement system operator in order to determine the balancing and settlement rights and obligations of the parties.

One State owned enterprise, the Turkish Electricity Trading and Contracting Corporation (“TETAŞ”) has an active role in entering into PPAs with electricity generation facilities on behalf of the State, with the aim of purchasing electricity from these facilities for the wholesale of electricity at a reasonable cost. There are rules regarding its own PPAs. However, this State enterprise has no regulatory or binding role in determining the terms and conditions of PPAs for the private market.

10. Incentives

10.1 Are there any incentives offered by the government or local authorities for utilization of geothermal energy? If yes, in what form (e.g. tax and/or feed-in tariffs) and what are the maximum amounts permitted?

Since geothermal energy is regarded as “renewable energy”, it is subject to a variety of incen-

tives in order to attract investors to the renewable energy market. These, for the most part, come in the form of exemptions and discounts in taxes, fees and feed-in tariffs where the State undertakes to purchase the electricity generated in the power plant based on geothermal energy. The current feed-in tariff for geothermal energy is USD 10.5 cents / KWh. An additional incentive is available with the condition that domestic products are used for the construction of the power plant. If the power plant fulfils this condition, an additional USD 1.3 cents / KWh (maximum) to the feed-in tariff is available for geothermal power plants. It is important to note that these feed-in tariff is available to licensees registered to the Renewable Energy Support System and the beneficiary of such tariffs is required to sell generated electricity to the State during the calendar year that it preferred to benefit from the Renewable Energy Support System.

10.2 What requirements must the project fulfil in order to be eligible to receive such incentives?

In order to benefit from renewable energy incentives, the power plant in question must become operational until 31.12.2020 and must be registered with the “Renewable Energy Support System”. The registration to this system requires an application by the licensee. Further, the incentive package is available for a duration of 10 years.

10.3 Are the incentives subject to recovery in any instances?

The incentives are not subject to recovery by the State.

11. Participation and authority of indigenous peoples

11.1 Are the rights of indigenous people in connection to geothermal resources regulated?

Specific regulations with regards to indigenous people are not provided for in the exploration and exploitation of geothermal resources. However, project sites involving geothermal resources are required to pay a yearly fee corresponding to a certain percentage of their income to the State, 20% of which is given to the local municipality in which the project site is located. Such

payments are used for the reparation of any possible adverse effects that may have been caused to indigenous peoples in that area. Further, the public is allowed to express their opinion during the public meetings organised for obtaining the relevant environmental impact assessment decision.

11.2 To what extent are indigenous municipalities involved in the process of granting licenses?

Local municipalities are not involved in granting any of the licenses detailed above. Municipalities do however grant zoning plans and construction permits that are required to make any project operational. These are not specific to licenses required to explore and exploit geothermal resources.

12. Alteration of law and regulation

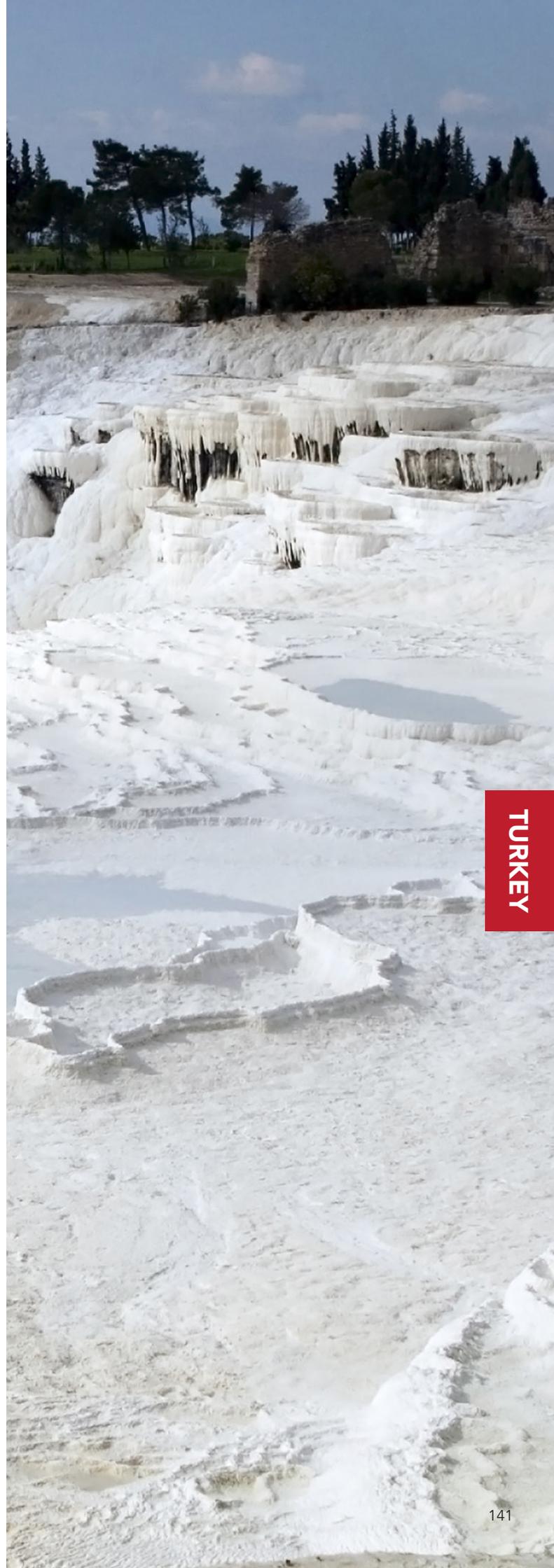
12.1 What are the principles regarding retroactivity of laws and regulations, can changes in such rules affect license holders?

Although Turkish law as a rule provides that laws and regulations do not apply retroactively, licenses in the energy market may be subject to retroactive effects. For example, a new requirement for a given license may be introduced that is also expected to be fulfilled by existing licensees. However, in such situations, a period of several months is given to licensees to fulfil such additional requirements, in order to protect the investment in the sector and to ensure the validity of the new legislation.

13. Taxation

13.1 How does taxation in the sector affect license holders?

Licensees are subject to a number of taxes, must notably VAT for the energy that is generated and sold in the market. However, many of the incentives for licensees in the renewable energy sector concern taxation, thereby eliminating many of the concerns that investors have with respect to taxation. For example, projects that are within the scope of the incentive scheme detailed above are exempt from stamp tax and certain fees entirely.



13.2 Is the sale of energy subject to VAT?

The sale of energy is considered a transfer of goods under Turkish law and is subject to VAT (currently 18%).

13.3 Is VAT refundable and what is the procedure for VAT refunding?

Ordinarily, VAT refunds are not available to investors in the sector because of an already existing tax incentive scheme. The exception to this rule is the VAT collected for the construction of projects that involve an investment of more than TL 500 million. In such projects, any VAT not deducted as part of the incentive scheme is refundable within the following year.

There are specific conditions for this incentive to apply – the project must be classified as a strategic investment, whereby the amount of local investment in that specific service must be lower than the amount of foreign import for the same service. This is a temporary incentive scheme available until 21.12.2023 in accordance with the Council of Ministers Decision on State Aid in Investments, numbered 2012/3305.

14. Environmental impact

14.1 What demands are there regarding EIA prior to exploration, exploitation and or production with geothermal energy?

EIAs are required for project sites before licenses are issued. If it is determined by the State authority granting the license that the environmental impact is too adverse for the project to proceed, a license will not be granted.

An EIA is not always required for all licenses. For all geothermal electricity generation licenses over 20 MW, a positive EIA decision is necessary. For the exploration and exploitation of geothermal resources, an EIA Report is required depending on the decision of the Ministry of Energy and Natural Resources.

15. Licenses

15.1 What other licenses are needed in order to commence exploration, exploitation and/or production with geothermal energy?

Yes, as explained above, secondary permits required for the operation of the facility in question are required. Other than the ones listed above, no other licenses are required for exploration, exploitation and/or production with geothermal energy.

However, there are land specific permits that are required to start operations with respect to any facility. These are mostly local permits concerning the land and the workplace opening permits issued by the local municipalities.



USA



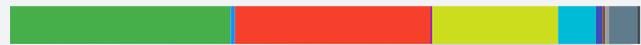
AUTHORS:

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Statistics:

1. Size of country: 9,308,000 km².
2. Population: 325,032,763 (est. 2016).
3. Years of producing electricity from geothermal: 56 years, from 1960.
4. Installed capacity of geothermal (MWe): 3,567 MWe (2017).
5. Installed capacity of other sources (MWe): 1,163,798 MWe (2015).
6. Electricity production from geothermal (GWh): 16,688 GWh (2015).
7. Electricity production from other sources (GWh): 3,885,830 GWh (2015).
8. Proportional production by source:

- Coal – 35%
- Petroleum – 0.7%
- Natural Gas – 31%
- Other Gases – 0.3%
- Nuclear – 20%
- Hydroelectric Pumped Storage – 0%
- Hydroelectric – 6%
- Wood – 1%
- Waste – 0.5%
- Solar – 0.6%
- Wind – 4.5%
- Geothermal – 0.4%



Sources: Bureau of Land Management, United States Census Bureau, U.S. Department of Energy, Think GeoEnergy (2017).

1. Ownership and access to geothermal resources

1.1 What are the rules on ownership of geothermal resources? Can private parties hold ownership of geothermal resources?

Geothermal resources are regulated by both the federal and state governments. Up to 90% of geothermal resources in the United States are located on lands managed by the federal government. It is possible for a private (non-governmental) party to own geothermal resources, but that is unusual. This Chapter therefore focuses primarily on federally managed geothermal resources. The federal agency charged with managing federal minerals, the U.S. Bureau of Land Management (“BLM”), manages about 58 million acres of split estate lands.

Ownership of interests in real property (known as “estates” in land) may include rights in both the surface estate and the subsurface estate (including subsurface geothermal resources). When the surface and subsurface estates are separately owned, then the ownership is referred to as “split” or “severed.” To understand the current state of geothermal resource ownership in the United States, an understanding of how the surface estate became separated from the subsurface estate is helpful. When land was first acquired by the United States, much of the private ownership of these public lands was established through federal land disposition acts, including railroad land grants, mining laws and homestead acts. The land that was conveyed to private landowners under these initial acts (e.g., the Original Homestead Act of 1862 or the Enlarged Homestead Act of 1909) included

mineral (subsurface) rights along with surface rights. It was not until 1910 that the U.S. Congress recognized that some federal land was not only valuable for agriculture, but also subsurface minerals that had a different value. In response, Congress enacted the Stock-Raising Homestead Act (“SRHA”) in 1916, which required that any federal land conveyed expressly reserve mineral rights to the United States—resulting in split estates. The mineral rights reserved under the SRHA have been construed by the courts to include geothermal rights.

In 1970, Congress passed the Geothermal Steam Act of 1970 (“Geothermal Steam Act”), which reserved mineral rights on federal lands to the United States. Any laws passed subsequent to the Geothermal Steam Act in which “mineral rights” are reserved, are construed to include a reservation of geothermal resources.

Apart from federally owned lands, private parties may own geothermal resources depending on how the state in which the geothermal resource is located classifies the resource. In general, the states regulate geothermal resources under one of three classifications as: (i) a mineral, (ii) water, or (iii) something unique (*sui generis*). Private rights to geothermal resources therefore vary from state to state. States that classify geothermal resources as a mineral generally recognize the surface owner as the presumptive owner, unless the resource has otherwise been severed by deed or some other process and conveyed to another owner. Jurisdictions that regulate geothermal fluids as water under groundwater appropriation systems require an appropriation permit to develop these fluids and may or may not recognize the ownership interest of the surface owner.

1.2 Who can grant access to geothermal resources, only state or also landowner?

Under common law in the United States, the mineral estate is the dominant estate. In practice, this means that the owner of the mineral estate has an implied right of access and use of the surface estate as necessary for development and operation of the mineral or other subsurface resource (which may include the geothermal resource). This right is explicitly recognized by federal laws. This right to access the surface estate, however, is not unqualified, and BLM requires the geothermal operator seeking to develop a geothermal resource to make a good faith effort to obtain an agreement with the surface owner





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for surface access. The operator must engage the surface estate owner in negotiations for: (i) a surface use agreement, (ii) a waiver from surface owner for access, or (iii) an agreement regarding compensation. If an agreement cannot be reached, the mineral owner can post a bond (also known as “bonding-on”) to protect the interests of the surface owner. However, in most cases a bond is not necessary because surface access is granted by mutual negotiation and agreement with the landowner.

1.3 Is exploration/exploitation open to foreign investment?

There is no per se restriction on foreign investment in the geothermal sector. However, any foreign person or entity investing in a business in the United States may voluntarily submit the transaction for review by the Committee on Foreign Investment in the United States (“CFIUS”). CFIUS review is authorized under § 721 of the Defense Production Act of 1950, as amended by the Foreign Investment and National Security Act of 2007, and as implemented by Executive Orders and the regulations published by the U.S. Department of the Treasury. It is not a mandatory requirement to file a notice for review by CFIUS. However, if a notice is not filed, and CFIUS subsequently determines that the transaction raises U.S. national security or critical infrastructure concerns, then CFIUS has the authority to unwind the transaction. A party considering an acquisition of operating geothermal assets (whether a stock or asset acquisition) by a foreign-controlled person should carefully consider whether the acquisition qualifies for CFIUS review. An acquisition of an undeveloped or non-operating lease site may or may not be subject to CFIUS depending on the context of the transaction.

2. Allowed exploitation

2.1 Is exploitation of resources subject to licensing? Do landowners have the right to exploit resources without a license? If yes, to what extent?

The rights to develop privately and utilize geothermal resources owned by the federal government may be acquired solely in accordance with the leasing program enabled by the Geothermal Steam Act and amended by the Energy Policy Act of 2005 (“EPA 2005”). The leasing pro-

cess is managed by BLM, which is the delegated authority to issue leases for federal lands. BLM issues geothermal leases using one of two processes: (i) either through a competitive auction of lands or (ii) through a non-competitive leasing mechanism. There are two exceptions to this rule: (i) the U.S. Department of Defense may develop geothermal resources on lands within their jurisdiction and, (ii) offshore geothermal leases are authorized and governed by the Outer Continental Shelf Lands Act. BLM’s geothermal resource leasing process is detailed in Title 43, Part 3200 of the Code of Federal Regulations, 43 C.F.R. pt. 3200 (2016).

3. Role and voice of landowner in licensing procedure

3.1 Does the landowner have a role in the process of granting a license for: (i) exploration, (ii) exploitation and (iii) power plant? Will an opposition of a landowner have a bearing on the process of granting a license for exploration, exploitation or power plant?

As discussed above, the mineral estate owner is the dominant estate owner and has an implied right of access to, and reasonable use of, the surface estate. However, BLM has developed policies to protect the rights of surface estate owners and will consider a lease’s effects on private ownership before issuing a lease. Before granting a lease, BLM usually requires the mineral developer to attempt, in good faith, to reach a surface use agreement with the surface owner as to access rights and compensation. BLM also allows the surface owner to attend and identify development preferences during the reclamation inspection, and to participate in certain on-site inspections and meetings with the geothermal operator. Additionally, BLM will consult with the surface owner prior to approving final reclamation. The private surface owner also has the right to protest and comment on pending lease sales. Notwithstanding these surface owner participation rights, federal law explicitly recognizes the right to exploit geothermal resources without the consent of a surface owner if a bond is posted.

In addition to the BLM process, there are various environmental, health, and safety laws applicable to construction and operation of electric generating facilities, including consideration and issuance of permits dealing with air and water quality, and protected species. A full dis-

cussion of applicable environmental laws is beyond the scope of this Chapter, but in many cases there are typically multiple opportunities for various stakeholders, including landowners, to challenge issuance of necessary environmental permits.

4. Criteria for granting of a license

4.1 What documents need to be submitted and what are the criteria for obtaining a license for: (i) exploration, (ii) exploitation, and (iii) power plant?

(i) exploration: To conduct exploration on federal land, developers must obtain a Notice of Intent to Conduct Geothermal Resources Exploration Operations (“NOI”) from BLM. “Casual Use” activities, or those that “ordinarily lead to no significant disturbance of federal lands, resources, or improvements” under 43 C.F.R. § 3200.1, do not require a permit. With that said, developers typically submit a NOI even for Casual Use activities. The NOI also allows for more invasive exploration activities such as seismic surveys, electromagnetic surveys, and the drilling of temperature gradient wells. However, any drilling beyond a temperature gradient well will require an approved Geothermal Drilling Permit (Form 3260-002). Upon completion of exploration operations, if the BLM approved the NOI, the developer must send BLM a complete and signed Notice of Completion of Geothermal Resource Exploration Operations (Form 3200-010).

(ii) exploitation: First, the land on which a developer is seeking to conduct geothermal exploitation must be nominated. The land can be nominated by BLM or by the developer themselves using the “Nomination of Lands for Competitive Geothermal Leasing” form. Nominated lands cannot be included in a lease sale until National Environmental Policy Act of 1969 (“NEPA”) (see Question #14) requirements are met and the leasing conforms to the applicable land use plan. After nomination, a developer must complete a Lease for Geothermal Resources (Form 3200-024a) in order to obtain federal geothermal mineral rights. A Geothermal Lease conveys the exclusive right to drill for, extract, produce, remove, utilize, sell, and dispose of all geothermal resources in the lands subject to the lease. As mentioned, any drilling beyond a temperature gradient well will require an approved Geothermal Drilling Permit (Form 3260-002).

(iii) power plant: In order to exploit the geothermal resources and convert them to marketable electricity, developers need an approved Plan of Utilization (“POU”) for the construction of a power plant and related activities. A POU involves a Utilization Plan, Facility Construction Permit (43 C.F.R. § 3272), Site License (43 C.F.R. § 3273), and Commercial Use Permit (43 C.F.R. § 3274). Developers must complete the environmental review process under NEPA before the Site License and Facility Construction Permit will be approved by BLM. The sales of electricity in the wholesale power market (including from geothermal power generation facilities) are largely deregulated and in most cases subject to relatively limited review by the Federal Energy Regulatory Commission (“FERC”) so long as the seller is not able to exercise market power.

5. Duration of licenses

5.1 What is the maximum duration for a license for (i) exploration, (ii) exploitation, and (iii) power plant?

The time periods and detailed requirements on extensions of license periods can be found in 43 C.F.R. § 3207.5. In general, the primary term of a federal geothermal lease is for a period of ten years. Several different types of extensions are available after the 10-year period depending on the stage of development and BLM issues them on a case-by-case basis:

- Initial extension of five years (must meet terms in § 3207.11).
- Additional extension available in 15th year of lease (must meet terms in § 3207.12).
- Drilling extension up to five years (must meet terms in § 3207.14).
- Production extension up to 35 years if producing or utilizing geothermal resources in commercial quantities or in quantities sufficient in volume in terms of flow and temperature to produce a reasonable return after meeting all costs of production (must meet terms in § 3707.15).
- A renewal period up to 55 years if producing or utilizing geothermal resources in commercial quantities (must meet terms in § 3207.16).

6. Terms of licenses

6.1 What are the general terms of the license for: (i) exploration, (ii) exploitation, and (iii) power plant?

Under EPCA 2005, a single lease may be as large as 5,120 acres. As noted above, a geothermal lease has an initial 10-year term but the lease can be extended for two additional 5-year terms by making a minimum payment or meeting work requirements. A lease can also be held for an additional 35 years for production or diligent development, or held for an additional 55 years for commercial production. BLM collects revenue from annual rental fees, royalties, and a nominal processing fee (\$145). The annual rental fee of a competitive geothermal lease is fixed at \$2 per acre for the first year of the lease, \$4 per acre for years 2-10, and \$5 per acre from the 11th year onward. Royalties are set at 1.75% and are collected if the project reaches commercial operation in the first ten years of production and 3.5% thereafter. These terms and other pro forma terms that are generally included in a lease are set forth in 43 C.F.R. § 3207. Although these terms are generally adhered to, BLM may waive certain provisions. For example, 43 C.F.R. § 3212.16 provides the lessee with the ability to apply to BLM for a reduction, suspension or waiver of the royalty or rent.

6.2 Are exploration license holders granted pre-emptive rights with regards to exploitation or do exploration licenses automatically convert into exploitation licenses if the resources have been substantiated? If so, are there any conditions?

No, a NOI or permit does not automatically convert into a Geothermal Lease. A Form 3200-024a, Lease for Geothermal Resources, must be completed to exploit resources. See Question #4.

6.3 Is an exploitation license included in a power plant license or are these licenses separate?

Not included, see Question #4.

7. Termination and revision of licenses

7.1 What actions by the license holder would warrant revision of exploration, exploitation and power plant licenses?

A lessee can revoke or terminate their lease under 43 C.F.R. § 3213. Only the record title owner may relinquish a lease in full or in part. If there is more than one record title owner for a lease, all record title owners must sign the relinquishment. In order to terminate the lease, the lessee must send BLM a written request that includes the serial number of each lease it is relinquishing. If relinquishing the entire lease, no legal description of the land is required. If relinquishing part of the lease, the request must describe the lands to be relinquished. BLM may require additional information if necessary. It is important to note that there are certain caveats to relinquishing a lease in part: the lease must still contain the 640-acre minimum, all rents/royalties are due before relinquishment, all wells must be plugged and abandoned properly, and the lessee must restore the surface. The applicable regulations do not expressly provide for revision of leases, but this may be subject to negotiation with BLM.

7.2 Does the license granting authority have the power to revoke or terminate licenses? If yes, what actions of the license holder would warrant the termination of the license?

Yes, a federal geothermal lease can be terminated by BLM for failure to pay rent, failure to pay royalties and fees, or the failure to complete any of the other requirements under 43 C.F.R. § 3200.4. BLM may also cancel a lease that was issued in error.

7.3 Can the license granting authority set forth conditions into licenses which provide for (i) stricter terms and conditions for licensees or (ii) more lenient terms and conditions for licensee, when such terms and conditions (whether stricter or more lenient) are not otherwise provided for by law?

As mentioned in Question #6, the standard terms of a lease are set forth in 43 C.F.R. § 3207. Any deviation from these terms is at BLM's discretion. To request a waiver, the lessee must contact BLM directly.



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7.4 Which remedies does the license granting authority have in order to enforce compliance to the terms and conditions of a license, other than by revoking the license?

If BLM finds a leaseholder is not in compliance with BLM requirements pertaining to utilization operations, drilling, or exploration, BLM will issue a written "Incidence of Noncompliance" directing the leaseholder to take corrective action within a specified amount of time. If the noncompliance continues or is serious in nature, BLM will take one or more of the following actions: enter the lease and correct any deficiencies at the leaseholder's expense, collect all or part of the bond if one is available, order modification or shutdown of operations, take other enforcement action against a lessee who is ultimately responsible for the noncompliance, or terminate the lease. If the lessee fails to pay rent, fails to pay royalties and fees, or fails to complete any of the other requirements under 43 C.F.R. § 3200.4, BLM can terminate the lease.

8. Regulatory and information obligation

8.1 Briefly outline the surveillance carried out by the regulatory authorities during the license period, e.g. with regards to reporting duties and/or on-site visits. Which information is required to be submitted to regulatory authorities during the license period for the holder of the license for (i) exploration, (ii) exploitation, and (iii) power plant?

The BLM requires a Monthly Report of Geothermal Operations to be prepared for each month beginning with the month in which drilling is initiated, and filed on or before the last day of the month following unless exception is granted by BLM. The Report includes details regarding individual well production such as the total monthly production or injection of steam and water and the average temperature and pressure of steam going in and steam leaving the well. BLM may inspect all operations to ensure compliance with the requirements of 43 C.F.R. § 3200.4. BLM must be given access during normal operating hours to inspect all facilities utilizing federal geothermal resources. All records and operations pertaining to the operation of a utilization facility, royalty, production meters, and safety training must be available for BLM inspection for a

period of five years following the time the records and information are created.

9. Power purchase agreements

9.1 Are general terms and conditions, such as duration of Power Purchase Agreement regulated? If no, are there any soft laws or general recommendations in place in your jurisdiction?

Wholesale sales of electricity (whether through Power Purchase Agreements ("PPAs") or simply into organized markets) is largely deregulated and subject to limited review by FERC, as discussed above. Terms and conditions, including prices, of PPAs are not generally regulated as part of the geothermal regulatory regime.

9.2 What are the permitted or general duration of PPAs?

There is no limit on duration of PPAs negotiated and agreed to between buyers and sellers.

9.3 Are public and/or national regulatory authorities involved in any way in forming the terms of PPAs, either directly or indirectly?

As noted above, wholesale of electricity using a PPA is largely deregulated and subject to limited review by FERC. FERC's review focuses primarily on ensuring that the seller does not have market power that would improperly diminish competition in the relevant markets for wholesale electricity. Apart from that consideration, buyers and sellers of electricity are largely free to negotiate all terms of a PPA.

10. Incentives

10.1 Are there any incentives offered by the government or local authorities for utilization of geothermal energy? If yes, in what form (i.e. tax and/or feed-in tariffs) and what are the maximum amounts permitted?

Various laws at the federal and state level are aimed at encouraging geothermal production, use, and development. Some of the key policies and incentives are:

- Renewable Portfolio Standards ("RPS") – Through adoption of the RPS, many states have mandated that electric utilities procure a minimum amount of their overall electricity resource portfolio from renewable ener-

gy resources, and RPS has therefore driven the development of renewable energy across the United States. Utilities that seek renewable energy credit under the RPS have been assessing geothermal energy as they balance their renewable energy supply portfolios.

- Tax incentives – Geothermal power projects can qualify for an Investment Tax Credit (“ITC”) or Production Tax Credit (“PTC”).
- Public Utilities Regulatory Act of 1978 (“PURPA”) – Developers may choose to seek status as a Qualifying Facility (“QF”) under PURPA. QF status provides certain benefits under the law. For example, QFs have the right to sell energy or capacity to a utility, the right to purchase certain services from utilities and interconnect to the transmission system, and relief from certain regulatory burdens.

10.2 What requirements must the project fulfil in order to be eligible to receive such incentives?

- RPS – RPS requires electric utilities to use or acquire (such as through a PPA) renewable energy sources to supply a minimum portion of their retail sales. Geothermal power qualifies as an eligible renewable resource under most RPS programs.
- Tax incentives – The federal renewable electricity PTC is an inflation-adjusted per-kilowatt-hour (“kWh”) tax credit for electricity generated by qualified energy resources at a qualified facility during the 10-year period beginning on the date the facility was placed in service and sold by the taxpayer to an unrelated person during the taxable year. Electricity generated using geothermal resources qualifies as an “eligible renewable energy technology” for purposes of the PTC. In 2016, the PTC amounts to \$0.023 kWh for electricity produced from geothermal energy. In order to qualify for the PTC, construction on a QF must begin before January 1, 2017. As an alternative, a qualified geothermal energy facility may elect the ITC which provides a tax credit for 30% of the cost of a geothermal energy facility placed in service after 2008 and commencing construction prior to January 1, 2017, and 10% for a geothermal energy facility beginning construction after December 31, 2016. The equipment used to

produce geothermal power qualifies up to, but not including, the electric transmission stage. The 10% ITC for a qualified geothermal energy facility has no stated expiration date.

- PURPA – A generating facility may be eligible to receive benefits under PURPA if it qualifies under FERC regulations as a small power production facility. A generating facility of 80 MW or less whose primary energy source is a geothermal resource can seek QF status as a small power production facility.

10.3 Are the incentives subject to recovery in any instances?

Generally, no, but if the facility loses its status as a QF or eligible renewable energy technology then it will lose all associated benefits and may be subject to penalties imposed by FERC.

11. Participation and authority of indigenous peoples

11.1 Are the rights of indigenous people in connection to geothermal resources regulated?

Native American cultural resources and geothermal resources on tribal lands are regulated by laws such as the National Historic Preservation Act of 1966, NEPA, the Indian Mineral Leasing Act of 1938, and the Indian Mineral Development Act of 1982. Under NEPA review, the impact on cultural resources must be taken into consideration prior to issuance of any applicable federal permits or licenses. Furthermore, most federal laws impose a federal government trust obligation to consult with an affected tribe.

11.2 To what extent are indigenous municipalities involved in the process of granting licenses?

If the geothermal resources are located on tribal lands, developers will negotiate with the appropriate tribe for a lease, which must be approved by the Bureau of Indian Affairs.

12. Alteration of law and regulation

12.1 What are the principles regarding retroactivity of laws and regulations, and can changes in such rules affect license holders?

Leases that were issued under the Geothermal Steam Act are still honoured even though the Act was amended by EPOA 2005 and the process by which a lease is obtained changed from a competitive bid process to an auction process.

13. Taxation

13.1 How does taxation in the sector affect license holders?

13.2 Is the sale of energy subject to a Value Added Tax ("VAT")?

Please refer to Question #10 on tax incentives.

13.3 Is VAT refundable and what is the procedure for VAT refunding?

The United States has no VAT.

14. Environmental Impact Assessment

14.1 What demands are there regarding Environmental Impact Assessment prior to exploration, exploitation and or production with geothermal energy?

As mentioned in Question #4, nominated lands cannot be included in a lease sale until NEPA requirements are met and the leasing conforms to the applicable land use plan. NEPA requires federal agencies to review the potential environmental impact of proposed actions in order to determine whether the proposed actions will "significantly affect the quality of the human environment." For purposes of geothermal development, NEPA is usually triggered because the proposed project is on federally managed lands or federal funds are contributed to the project. NEPA review is often conducted multiple times at a given geothermal development project location, including during the BLM's land use planning and leasing analysis phases, and during a developer's exploration, drilling, power plant, and transmission project phases. There are various types of NEPA-related reviews and it is not always clear what type of analysis might be required as the decision is made on a

project-by-project basis by BLM staff and may change throughout the environmental review process. With that said, either an Environmental Assessment ("EA") or an Environmental Impact Statement ("EIS") are the most likely instruments to complete a NEPA review. The analysis considers factors such as: the environmental impact of the proposed action, whether any adverse environmental effects can be avoided through an alternative action and how many resources will have to be committed for the proposed action.

15. Licenses

15.1 What other licenses are needed in order to commence exploration, exploitation and/or production with geothermal energy?

As discussed above, the lease issued by BLM grants the lessee access to the land's geothermal resources. Other principal licenses and permits are noted above. In addition to the licenses and permits discussed above, there may be other state and local permits required but these are typically obtainable in the ordinary course of business (such as a local building permit) and are omitted from this Chapter.



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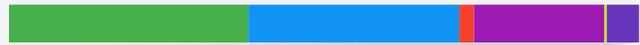
CHI LIEU DANG

THANH HAI NGUYEN

Statistics:

1. Size of country: 330,966.9 km².
2. Population: 91,713,300.
3. Years of producing electricity from geothermal: 0.
4. Installed capacity of geothermal (MWe): 0 MWe.
5. Installed capacity of other sources (MWe): 38,553 MWe.
6. Electricity production from geothermal (GWh): 0 GWh.
7. Electricity production from other sources (GWh): 159,680 GWh.
8. Proportional production by source:

- Hydro – 38%
- Coal fired power: 33.5%
- Oil fired power – 2.3%
- Gas fired power – 20.7%
- Renewable – 0.4%
- Diesel and Small hydropower – 5.1%



Currently, Vietnam does not have a specific and separate legal framework for geothermal yet. Therefore, this report is prepared on the general regulations under the Electricity Law and the Mineral Law of Vietnam.

1. Ownership and access to geothermal resources

1.1. What are the rules on ownership of geothermal resources? Can private parties hold ownership of geothermal resources?

Ownership of natural resources, including geothermal, is governed by the following key rules: (i) the Constitution of Vietnam; (ii) the Law on Minerals; and (iii) the Land Law.

Geothermal resources are mainly governed by the Law on Minerals. Accordingly, "minerals" are defined as "useful minerals and mineral substances which are naturally accumulated in solid, liquid or gaseous form and exist underground or on the ground, including minerals and mineral substances at tailing sites of mines". Geothermal resources can include "natural thermal water" and/or "mineral water" as defined and governed by the Law on Minerals. Specifically, "mineral water" is defined as "underground and/or over-ground natural water containing

contents, features and some biological active compounds in conformity with Vietnamese standards or technical regulations or foreign standards which are allowed to apply in Vietnam". "Natural thermal water" is defined as "underground and/or over-ground natural water which has a temperature in conformity with Vietnamese standards or technical regulations or foreign standards which are allowed to apply in Vietnam".

Private parties cannot hold ownership of geothermal resources. Under the Constitution of Vietnam, land, water resources, mineral resources and other natural resources are "public property under the ownership of the entire people of Vietnam represented and uniformly managed by the State of Vietnam". This means that the State cannot transfer ownership of geothermal resources, and these sources cannot be sold, to private entities.



1.2. Who can grant access to geothermal resources, only state or also landowner?

Only the State of Vietnam can grant access to geothermal resources through State-authorized agencies.

The State authorities shall grant private parties the rights to use land and the rights to explore and exploit geothermal resources (through the Ministry of Natural Resources and Environment (MONRE), provincial People's Committee (PCs) and local Departments of Natural Resources and Environment (DONREs)). Land used for a geothermal power project is classified as land used for public affairs. Since a geothermal power project is considered a business project, the land is further classified as public land used for a business purpose. Accordingly, the land will be leased by the State (through relevant local PCs and local DONREs) to the geothermal power project investor for its development and operation for an annual or lump sum land rental payment. The maximum land lease term is 70 years, renewable for an identical maximum term subject to the applicable laws at the time of renewal.

For the power generation from geothermal sources, depending on the scale of the project, the Ministry of Industry and Trade (MOIT), through its General Department of Energy (GDE) is also involved in giving approvals for adding relevant projects to the power master planning.

Additionally, investment projects are also subject to the Investment Law and the Enterprise Law, with the Ministry of Planning and Investment (MPI) and the local Departments of Planning and Investment (DPIs) being the authorities in charge.

If a private entity holds a valid exploration license, a transfer of the exploration right (rights to access to geothermal resources) to another private entity may be subject to a regulatory approval or required amendment to the exploration license by relevant State authorities.

1.3 Is exploration/exploitation open to foreign investment?

Although there is no express provision on foreign ownership restrictions under the law in exploration/exploitation, the master plans for different types of minerals are among the bases for the authorities' assessment of the projects. These master plans often contain the policy on investment forms. Normally, foreign investment

is sought in large-scale projects that need strong financial capacity or high technology to develop. This gives the authorities certain discretion to decide whether to approve the foreign ownership in a project or not.

2. Allowed exploitation

2.1 Is exploitation of resources subject to licensing? Do landowners have the right to exploit resources without a license? If yes, to what extent?

Yes, the exploitation of geothermal resources is subject to a mineral exploitation license in accordance with the Law on Minerals.

A private entity can only be granted the right to use land, not the right to own land, in Vietnam. To have the right to exploit resources in the ground, a private entity also needs to apply for a land use right certificate under the Land Law.

If the exploitation and utilization of geothermal energy is for power generation, the project company will need to apply for a "power generation license," except for limited circumstances (e.g., power generation for own use without sale to any other entities; power generation with installed capacity of less than 50KW).

3. Role and voice of landowner in licensing procedure

3.1 Does the landowner have a role in the process of granting a license for: (i) exploration, (ii) exploitation, and (iii) power plant?

No, the prior land user (occupier) only has a role during land clearance procedures, but not in the process of granting a license for: (i) exploration, (ii) exploitation, or (iii) power plant. Land clearance procedures must be conducted by the relevant local PCs. The land is only handed over to an investor once it is clear. If the land is cleared and handed over in parts (in several phases), then only the free and clear parts are considered handed over. This means that prior occupiers of land are not given the right to co-exist. Compensation for land in Vietnam has usually been complained about as being unfair (by prior occupiers) and time consuming (by investors). However, the land clearance procedures fall completely under the exclusive jurisdiction of the State authorities, leaving an investor in a passive role awaiting results from any government land clearance action.



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3.2 Can the opposition of the landowner change the granting of either an exploration, exploitation or power plant licenses?

As stated above, an opposition of the prior land user (occupier) will not have a direct bearing on whether a license is granted to the investor of a geothermal project as the new land user.

4. Criteria for granting of a license

4.1 Which documents need to be submitted and what is the criteria for obtaining a license for:

(a) exploration:

The exploration of geothermal resources is subject to a mineral exploration license (under the Law on Minerals).

(i) Principles and general requirements for mineral exploration licenses:

- A mineral exploration license may be granted only for areas in which no organization or individual is lawfully conducting mineral exploration or exploitation and which are not within the areas banned or temporarily banned from mineral activities, national mineral reserve areas or areas in which geological baseline surveys are being conducted for minerals of the same kind of minerals being applied for;
- Each organization or individual may be granted no more than 5 mineral exploration licenses (excluding any expired ones); and
- The to-be-explored total area for a specific mineral under all licenses must not exceed 2 times the size of the exploration area under a single license. Currently, for mineral water and natural thermal water, the size of an exploration area under a single exploration license must not exceed 2 square kilometres (km²).

(ii) Conditions for an applicant for a mineral exploration license:

In order to apply for a mineral exploration license, an entity must:

- either be (i) selected by a competent State authority, or (ii) the winner of an auction for mineral exploitation rights, for the areas not yet explored in accordance with the Law on Minerals;

- first be registered to carry out mineral exploration activities in accordance with the Enterprise Law, as well as have necessary and relevant facility, equipment and personnel. If not, an ineligible entity will need to sign a contract with an eligible entity;
- have prepared an exploration project in line with the mineral master plans; and
- have equity owner capital of at least 50% of its total investment capital (i.e., including both loan capital and charter/owner capital), for the implementation of the mineral exploration project.

(iii) Required documents for a mineral exploration license:

- An application for an exploration license, specifying, among others, details about the project company, the relevant investment project, type of minerals, exploration location, total areas and exploration duration, objective of the use of minerals;
- A mineral exploration plan/project that is in line with the national and provincial mineral master plans;
- A map of the mineral exploration area;
- A competent state authority's decision approving mineral deposits;
- A copy of the business registration certificate and/or relevant establishment or business licenses;
- A document certifying the winning of the exploitation right, in case of winning the exploitation right through auction; and
- A document certifying satisfaction with respect to the applicant's required equity owner capital.

(b) exploitation:

The exploitation and utilization of geothermal resources is subject to a mineral exploitation license (under the Law on Minerals).

(i) Principles and general requirements for mineral exploitation licenses:

- A mineral exploitation license is granted only for areas in which no organization or individual is lawfully exploring or exploiting minerals, but not for areas banned or temporarily banned from mineral activities or areas of national mineral deposits; and
- A mineral area, in which large-scale exploitation can be effective, must not be di-

vided for the grant of mineral exploitation licenses among many organizations or individuals for small-scale exploitation.

(ii) Conditions for an applicant for a mineral exploitation license

In order to apply for a mineral exploitation license, an entity must:

- have an investment project which is located in the explored area with approved mineral deposits in conformity with the master plans. The project must contain a plan on professional employment, advanced and appropriate equipment, and technologies and exploitation methods; for toxic minerals, the Prime Minister's written permission is also required;
- have an environmental impact assessment report or an environmental protection plan made under the Law on Environment Protection; and
- have an equity capital of at least 30% of the total investment capital of the exploitation investment project.

(iii) Required documents for a mineral exploitation license:

- An application for a mineral exploitation license, specifying, among others, details about the project company, the relevant investment project, exploration results, exploitation areas, exploitation reserves, exploitation capacity, exploitation's depth, exploration duration, objective of the use of minerals;
- A map of the exploitation area;
- A competent state authority's decision approving mineral deposits;
- An exploitation investment project, enclosed with the project-approving decision and a copy of the investment certificate;
- An environmental impact assessment report or an environmental protection plan depending on the scale of the projects;
- A copy of the business registration certificate;
- A document certifying the winning of the exploitation right, in case of winning the exploitation right through auction; and
- A document certifying the applicant's equity capital.

(c) power plant:

In order to operate a power plant, the project company is subject to apply for a power generation license.

(i) Conditions for the application for a power generation license

In order to be eligible to apply for a power generation license, the project company must meet all of the following key conditions:

- have a feasible investment project for construction of a power plant in accordance with the approved power development master plans; have technical equipment, vehicles, warehouses and architectural works which are compliant with the approved technical designs, and which are approved, built, installed and tested in accordance with the laws;
- members of its personnel, who directly engage in technical management and operation, must have university or higher degrees in electricity or another relevant/appropriate technical area and have at least five years working experience in power generation. Its personnel, directly involved in operations, must be trained in relevant professional areas in safety, and trained and granted certificates in the operation of power plants and electricity market;
- have entered into a power purchase agreement;
- have an information technology infrastructure system, and a control, supervision and data collection system, which meet the requirements of the electric system and electricity market; the equipment, which is subject to strict labour safety requirements, must be inspected and meet technical requirements;
- have an environmental impact assessment report or an environmental protection plan for its power generation project, which is approved by the competent authorities;
- have a fire prevention and fire-fighting system for the power plant which has passed pre-acceptance tests conducted by competent authorities;
- have minutes of acceptance for information technology and telecommunication infrastructure system; and have minutes of acceptance for signal connection completion to SCADA/EMS and SCADA/DMS systems

at a moderating level with controlling rights for electricity system and market operation; and

- have internal regulations or a process for establishing cooperation between the operation of the power plant and the electricity system moderation entity.

(ii) Required documents for a power generation license:

- A written application for a power generation license;
- A copy of (i) Enterprise Registration Certificate; and (ii) Investment Registration Certificate;
- A list of direct technical management staff, a list of heads of power plant under the required form; a copy of graduation diploma and operation certificate granted by the dispatching level with control rights to the persons named on the list in accordance with the Procedures of national electricity systems granted by the MOIT;
- A copy of Decision from competent State authorities approving the investment project of the power plant;
- A copy of Decision from the competent State authorities approving the environmental impact assessment report or the written certification of environmental protection Plan of the power plant;
- A copy of power purchase agreement;
- A list of equipment with strict requirements on labour safety and commitment of project investor to fully comply with laws in using equipment with strict requirements on labour safety;
- A certified copy of a document that ensures the fire prevention and fighting conditions as prescribed by law;
- A copy of acceptance minutes of information technology and telecommunications infrastructure system and the acceptance minutes of completion of signal connection to SCADA/EMS, SCADA/DMS systems of dispatching level with control right for proper operation of electricity system and electricity market;
- A copy of final acceptance minutes or written certification ensuring the commercial operation conditions for each generating unit; and
- A copy of the coordinated operation proce-

dures of the power plant with the Dispatching agencies.

5. Duration of licenses

5.1 What is the maximum duration of a license for:

(i) exploration:

The duration of a mineral exploration license is up to 48 months, which may be extended multiple times for a total maximum duration of 48 months. Upon each extension, the licensed applicant must return at least 30% of the exploration area as stated in the granted existing license.

(ii) exploitation:

The duration of a mineral exploitation license term is up to 30 years and may be extended multiple times with the total duration of extension not exceeding 20 years.

(iii) power plant:

The duration of a power generation license shall be for up to 20 years for major power plants with significant importance in terms of economy, society, national defence or security under a list of projects as approved by the Prime Minister, or 10 years for other power plants. The term of the license is renewable.

6. Terms of licenses

6.1 What are the general Terms of license for:

(a) exploration/exploitation of minerals:

In a license for exploration/exploitation of mineral, the following details are specified:

- name of the license holder (being the entity exploring or exploiting minerals);
- mineral type, location, area and region of mineral exploration or exploitation;
- method and scale of exploration or exploitation;
- duration of the license; and
- financial obligations and other relevant obligations.

(b) power plant:

In a power generation license, the following are specified:

- information of the license holder;
- specific field of operations;
- scale of operations;
- duration of the license;
- other detailed contents of the license; and
- the obligations of the license holder.

6.2 Are exploration license holders granted pre-emptive rights with regards to exploitation or do exploration licenses automatically convert into exploitation licenses if the resource has been substantiated?

Exploration licenses do not automatically convert into exploitation licenses if the resource has been substantiated.

Holders of exploration licenses have the exclusivity to apply for exploitation licenses for substantiated mineral resources. However, this right is only effective within a period of 6 months from the expiry date of their exploration licenses.

If so, are there any conditions?

This pre-emptive right applies only to areas that are not subject to an auction for exploitation rights. In order to enjoy such a pre-emptive right, it is the responsibility of the holder of an exploration license to prepare and submit an application dossier. This must be done within a period of 6 months from the expiry date of the exploration license.

6.3 Is an exploitation license included in a power plant license or are these licenses separate?

These licenses are separately granted. Exploitation licenses are granted by the MONRE or local DONREs on the basis of the Law on Minerals with the conditions and requirements related thereto. Power generation licenses are granted separately by the Ministry / Department of Industry and Trade on the basis of the Electricity Law.

7. Termination and revision of licenses

7.1 What actions by the license holder would warrant revision of exploration, exploitation and power plant licenses?

In general, if there is any change to the registered contents in a license, the license holder is required to prepare and submit an application dossier for amended licenses to register updated contents.

(a) mineral exploration license or exploitation licenses:

Depending on the change to the registered contents in a license, it is compulsory or encouraged to apply for amendments to the license. It is compulsory if the license holder wishes to renew the term of the license, increase, decrease or change the area for exploration or exploitation, or transfer the right to another entity.

(b) Power plant licenses:

If there is any change to the registered contents in a power plant/generation license, the license holder is required to prepare and submit an application dossier for an amended license.

- The licensing authorities can take the initiative to amend a power plant/generation license in certain cases necessary for protection of economic-social benefits and public welfare.

7.2. Does the license granting authority have the power to revoke or terminate licenses? If yes, what actions of the license holder would warrant the termination of the license?

Yes.

(a) exploration licenses:

A mineral exploration license may be revoked and terminated under the Law on Minerals if:

- (i) the license holder fails to conduct exploration within 6 months from the effective date of the license, except for force majeure events;
- (ii) within a period of 90 days from the date on which a relevant State authority issues a warning letter for any failure by the license holder to comply with the legal requirements, including:

- pay a licensing fee and fulfil other financial obligations prescribed by law;
- strictly comply with the mineral exploration license and implement the approved exploration plan;
- report to the licensing authorities for approval when there are changes in exploration methods or scales which result in an



increase of more than 10% in estimated expenses;

- compensate for any damages caused by exploration activities;
- notify the exploration plan to the provincial PCs of the relevant locality before conducting the mineral exploration;
- collect and keep mineral-related information and report exploration results to the State authorities in charge of minerals; and report other activities to competent authorities under law; and
- the relevant exploration area is declared to be banned or temporarily banned from any mineral activities.

(b) exploitation licenses:

A mineral exploitation license may be revoked and terminated under the Law on Minerals if:

(i) The license holder fails to build mine infrastructure within 12 months from the effective date of the license, except for force majeure events;

(ii) the license holder fails to conduct exploitation within 12 months from the proposed date of commencement of exploitation, except for force majeure events;

(iii) the relevant exploitation area is declared to be banned or temporarily banned from mineral activities;

(iv) within a period of 90 days from the date on which a relevant State authority issues a warning letter for any failure by the license holder to comply with the legal requirements, including:

- pay the fee for the grant of the exploitation right, a licensing fee, royalties, taxes, and charges, and fulfil other financial obligations under law;
- ensure/follow the schedule of mine infrastructure construction and exploitation activities as stated in the exploitation investment project and mine design;
- register the date of commencement of mine infrastructure construction and date of commencement of exploitation with the relevant State authorities and notify them of the relevant PCs in the locality in which the mines are located before construction

- or exploitation;
- protect mineral resources; ensure labour safety and sanitation and take measures to protect the environment;
- collect and keep information on results of further exploration for mineral reserves and on exploitation results;
- report exploitation results to the relevant State authorities under the regulations of the MONRE; and
- compensate for any damages caused by exploitation activities.

(c) power plant licenses:

A power plant/generation license may be revoked and terminated if the license holder:

- (i) fails to implement the licensed activities within six (6) months from the date of issuance of the license;
- (ii) fails to ensure compliance with the power operation conditions as required by the Electricity Law;
- (iii) fails to comply with the contents required under the license; and
- (iv) leases, lends or modifies the license without permission by the authority.

7.3 Can the license granting authority set forth conditions into licenses which provide for (i) stricter terms and conditions for licensees or (ii) more lenient terms and conditions for licensees, when such terms and conditions (whether stricter or more lenient) are not otherwise provided for by law?

The licenses are normally issued following the forms prescribed under the law. Therefore, there is little leeway for the authority to provide for additional terms and conditions to the licenses.

7.4 Which remedies does the license granting authority have in order to enforce compliance to the terms and conditions of a license, other than by revoking the license?

Administrative sanctions (such as monetary fines, suspension of the license for a period of time...) are the most common remedies that the authorities would apply.

8. Regulatory and information obligations

8.1 Briefly outline the surveillance carried out by the regulatory authorities during the license period, e.g. with regards to reporting duties and/or on-site visits?

The monitoring of exploration and exploitation licenses is based on the Law on Minerals. The General Department of Geology and Minerals of Vietnam under the MONRE, and relevant local DONREs, are responsible for monitoring exploration and exploitation based on granted licenses.

Under the Law on Minerals, the holders of mineral exploration licenses and mineral exploitation licenses are required to make and submit annual reports on the implementation of the activities as permitted under the license, as well as any extraordinary reports at the request of the relevant State authorities.

Monitoring of power plant/generation licenses is based on the Electricity Law. The Electricity Regulatory Authority of Vietnam ("ERAV") under the MOIT and relevant local DOIT are responsible for monitoring power generation activities based on granted power generation licenses.

In addition to regular and extraordinary reporting requirements, the relevant State authorities can conduct inspections or on-site visits.

8.2 Which information is required to be submitted to regulatory authorities during that same period for the holder of a license for:

(a) exploration

Under the Law on Minerals, before the 1st of February, the license holder must, on an annual basis, send a report on the mineral activities results to provincial DONREs and/or the General Department of Geology and Minerals of Vietnam under the MONRE. The report must specify, among other details, the implementation of mineral activities status regarding the explored mineral amount and expenses.

(b) exploitation

Before the 1st of February, the license holder must, on an annual basis, send a report on the mineral activities results to provincial DONREs and/or the General Department of Geology and Minerals of Vietnam under the MONRE. In terms of exploited mineral activities, the report must include, among others, details about (i)

total investment capital, (ii) total deposits for the environment restoration duties, (iii) the actual amount of exploited mineral in accordance with financial statements, (iv) total revenue, (v) payment made to the State's budget, (vi) the remaining un-exploited minerals.

(c) power plant

Before 1 March, the holder of a power plant/generation license must, on an annual basis, send a report on the status of conditions and maintenance of generation license to competent State agencies on the implementation of the project.

Additionally, the license holder must report on the electricity generation readiness, the output capacity, the implementation of mode of operation of power plants at requests of the ERAV under the MOIT and/or any other relevant authorities.

9. Power purchase agreements

9.1 Are general terms and conditions, such as duration of Power Purchase Agreements regulated? If no, are there any soft law or general recommendations in place in your jurisdiction?

Yes, general terms and conditions (including duration) of power purchase agreements ("PPA") are generally regulated by Vietnamese law by way of the Vietnam Government's issuance of standardized model of PPAs. The use of standardized model of PPAs is required for power projects in most cases, especially on-grid power projects. Specifically, Vietnamese law requires that the parties to such a PPA may only supplement other contents not yet included in the model PPA in order to further clarify the rights and obligations of both sides, but not in order to change the main content provided in the government-provided standardized PPA model, or requires that any significant changes compared to the standardized PPA model may need to be reported or consulted with the ERAV under the MOIT.

Currently, unlike other renewable resources (e.g., wind, biomass) or other conventional power resources, Vietnam has not issued any standardized PPA model for geothermal resources yet. Thus, in practice, the local power purchaser/off-taker, i.e., Vietnam Electricity (EVN) or the ERAV, can refer to the general terms and conditions under the standardized PPA models for other energy resources to negotiate for or apply

for geothermal power projects, together with the general regulations of the Electricity Law of Vietnam.

9.2 What is the permitted or general duration of Power Purchase Agreements?

Duration of PPA is generally regulated by Vietnamese law under a standardized model of PPAs. Duration of PPA generally ranges from 10 to 20 years from the commercial operation date ("COD") of the power plant, and is renewable. Currently, for geothermal power, no specific duration of PPA has been provided. For other renewable power sources (e.g., wind, biomass), the duration of a PPA (under their relevant standardized PPA model) is 20 years from the COD. For other conventional power, it is 10 years from the COD.

9.3 Are public and/or national regulatory authorities involved in any way in forming the terms of Power Purchase Agreements, either directly or indirectly?

Yes, the MOIT (through its relevant departments, including the ERAV and the GDE) is involved in forming the terms of PPAs. Specifically, the MOIT is the authority to formulate and issue standardized PPA models. Any changes by the parties to a PPA compared to the standardized PPA models may need to be reported or consulted with these authorities.

10. Incentives

10.1 Are there any incentives offered by the government or local authorities for utilization of geothermal energy? If yes, in what form (e.g. tax and/or feed-in tariffs) and what are the maximum amounts permitted?

Yes, renewable power plant operation (including geothermal) is within preferential investment areas in Vietnam. Accordingly, there are certain incentives offered by the Government, including: mobilization of investment capital, import duty incentives, enterprise income tax incentives, land incentives, etc.

On 25 November 2015, Vietnam issued a strategy for the development of renewable energy until 2030 with a vision to 2050 (Decision No. 2068/QĐ-TTg), and also amended the Power Master Plan (Decision No. 428/QĐ-TTg), with a prioritized increase of the power contribution

from renewable energy to meet increased demands for power supply and national socio-economic developments.

Accordingly, renewable power projects (including geothermal) are entitled to incentives as discussed below. Depending on the specific incentives and other conditions involved, the duration for the incentives may be perpetual or may be limited in time.

(a) Tax incentives:

(i) Import tax: The development projects using the renewable energy shall be entitled to import duty for imported goods to create the fixed assets for the projects; the imported goods as raw materials, supplies, semi-finished products in the country not yet domestically produced are imported for production under the projects in accordance with current regulations of law on import and export tax.

(ii) Enterprise income tax: The exemption and reduction of enterprise income tax for the development projects using the renewable energy shall be done the same as the projects in the field of investment incentives in accordance with current regulations of law on tax.

(b) Land incentives: The development projects using the renewable energy shall be entitled to exemption or reduction of land use fees or land leasing fees in accordance with current regulations of law applied to the projects in the field of investment incentives.

(c) Mobilization of investment capital: Renewable power projects may enjoy incentives under current regulations on the State's investment credit. The regulations on the State's investment credit are currently provided under amended Decree No. 75/2011/ND-CP, dated 30 August 2011. Accordingly, investors of projects which are on the list of projects eligible for the Vietnamese State's investment credit may receive loans from the Vietnam Development Bank. The list of projects eligible for the investment credit, among other projects, includes investment projects under Group A, B in construction of electricity-generating plants using energy sources of wind and other renewable energy sources. The level of debt capital allowed for each project is up to 70% of the total investment capital of the project, but the maximum level of lending capital for

each investor should not exceed 15% of the actual charter capital of the Vietnam Development Bank. Decree No. 75/2011/ND-CP sets out certain conditions for a project to ask for a State investment credit.

(d) Financial support: Under Vietnam's strategy for the development of renewable energy until 2030 with a vision to 2050, Vietnam will set up a financial source to give financial support to renewable power projects, including geothermal ones (called "Sustainable Energy Development Fund). Renewable projects are prioritized to use this financial source.

(e) There is a general policy to give priority to research related to the development and use of natural resources of renewable energy in the field of scientific and technological development and high-tech industrial development.

10.2 What requirements must the project fulfil in order to be eligible to receive such incentives?

Generally, geothermal projects should be able to enjoy the incentives mentioned above by virtue of being renewable power projects. There can be certain other specific requirements that are provided under relevant laws (particularly, tax laws for tax incentives, the Land Law for land incentives, and the Electricity Law for electricity tariff incentives, etc.) which may impact the level or the duration of incentives involved.

10.3 Are the incentives subject to recovery in any instances?

Yes, the incentives are subject to whether the project company continues to meet the relevant requirements and conditions. They are subject to changes in law. In this case, the State of Vietnam does not guarantee the investment incentives in case of changes in law for the reasons of national defence and security, social order and security, social ethics, public health or environmental protection. In such a case, the investors may be considered by the government authorities to be supported with (i) taxable income deduction based on the actual damage caused by such changes; (ii) adjustment of the investment project's objective; or (iii) support to recover from damages caused by such changes.

11. Participation and authority of indigenous peoples

11.1 Are the rights of indigenous people in connection to geothermal resources regulated?

N/A. Indigenous people may have a role during land clearance process, but once land is granted or leased to an investor, indigenous people do not have any significant right in connection with the investor's exploration and exploitation of geothermal resources.

11.2 To what extent are indigenous municipalities involved in the process of granting licenses?

N/A.

12. Alteration of law and regulation

12.1 What are the principles regarding retroactivity of laws and regulations, can changes in such rules affect license holders?

In general, Vietnamese laws should not be retroactive and should accordingly not affect licenses already issued. Specifically, Vietnamese law requires that a legal document must not have retroactive effect in the case: (i) the document imposes a new legal liability upon an act which does not incur such legal liability when it is committed, and (ii) the document imposes a heavier legal liability. However, Vietnamese law includes an exception that a legal document may have a retroactive effect if it is necessary for assurance of common interests, rights and interests of the entities regulated by that document.

In practice, new rules can affect license holders to the extent that in many newly issued legal documents of Vietnam, there is a transitional provision saying that any changes to granted licenses from the effective date of the new rules are subject to the requirements under the new rules.

13. Taxation

13.1 How does taxation in the sector affect license holders?

As license holders must be a business registered entity, the taxation applied to license holders is similar to that applied to other business entities.

In principle, license holders may be subject to following taxes:

(a) Business Registration Tax (BRT): BRT is applied to any business activities. For an enterprise, the BRT ranges from VND 1 mil to VND 3 mil (approx. USD 48 to USD 144) dependent on the amount of investment capital.

(b) Enterprise Income Tax (EIT): The current EIT rate is 20% of taxable income of an enterprise, which is the enterprise's revenue minus deductible costs and expenses, exempted income, and loss carry forwards.

However, as this is a renewable energy project, an incentive EIT rate of 10% shall be applied for a period of 15 years since the first year in which the project generates revenue. Further, the project may be exempt from EIT for a maximum period of 4 years, and also entitled to a 50% reduction of EIT for a subsequent period of up to 9 years since the first year that taxable income is generated.

Law on EIT also allows loss in current year to be carried forward to subsequent year. Duration of such loss carry forwards is up to 5 consecutive years since the year subsequent to the year in which loss is generated.

Taxable period is calendar year or financial year.

(c) Export/Import Duty: The export/import duty shall apply when license holders import machines and equipment, input materials, spare parts, and accessories for the implementation of the project. Nonetheless, geothermal energy projects are entitled to import duty exemption for the importation of fixed assets. In order to receive duty exemption for fixed assets, license holders are required to register a list of fixed assets with customs authority before the importation of the first fixed asset.

d) Value Added Tax (VAT): Electricity is subject to a VAT rate of 10%. However, exportation of electricity is entitled to 0% VAT.

VAT for electricity is calculated on the basis of selling price (environment protection tax and special consumption tax are not applicable).

13.2. Is the sale of energy subject to VAT?

Yes, as mentioned above.



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13.3. Is VAT refundable and what is the procedure for VAT refunding?

VAT is recoverable if the business activity of the taxpayer is subject to output VAT.

However, VAT is refundable only in some limited cases. One of the cases eligible for VAT refund is new investment projects which is in the pre-operating period and has the input VAT not yet recoverable exceeding 300 million VND.

14. Environmental impact

14.1 What demands are there regarding EIA prior to exploration, exploitation and/or production with geothermal energy?

Vietnam has been making a concerted effort to improve its environmental legislation. Current environmental law and policy are based primarily on the Law on Environmental Protection (2014) (LEP).

During the preparatory stage and implementation stage, the developer will be required to conduct several environmental assessment reports/plans, which are to serve as the basis for the relevant authorities to assess the potential impacts of the project on the environment, as well as implement solutions proposed by the developer to limit such impacts. Similar to other business establishments, geothermal power projects must limit noise, vibration, light and heat emissions that negatively affect the surrounding environment and facility employees. Emitting noise or causing vibration exceeding the allowable technical and environmental protection standards are prohibited activities under the LEP.

As per the Environmental Protection Law 2014, the Investment Law and relevant implementing legislation, a foreign investor investing in a geothermal power project in Vietnam must comply with the following requirements:

- (a) At the preparatory stage: Conducting an Environment Impact Assessment Report or an Environmental Protection Plan

Vietnamese law provides for certain types of environmental assessment that the investor must conduct prior to implementing the project. Depending on the characteristics of the project, the project may either fall under the group required to have a Strategic Environment Assessment, or the group required to have an Environment Impact Assessment Report (EIAR), or the group re-

quired to have an Environmental Protection Plan (EPP).

A geothermal power project would likely fall under the group required to prepare an EIAR. Specifically, mineral exploitation projects for extraction of mineral water, natural hot water (underground or on the surface) with 500 m³ of water per day and night or more are subject to the requirement for preparation of an EIA report prior to the grant of mineral exploitation license.

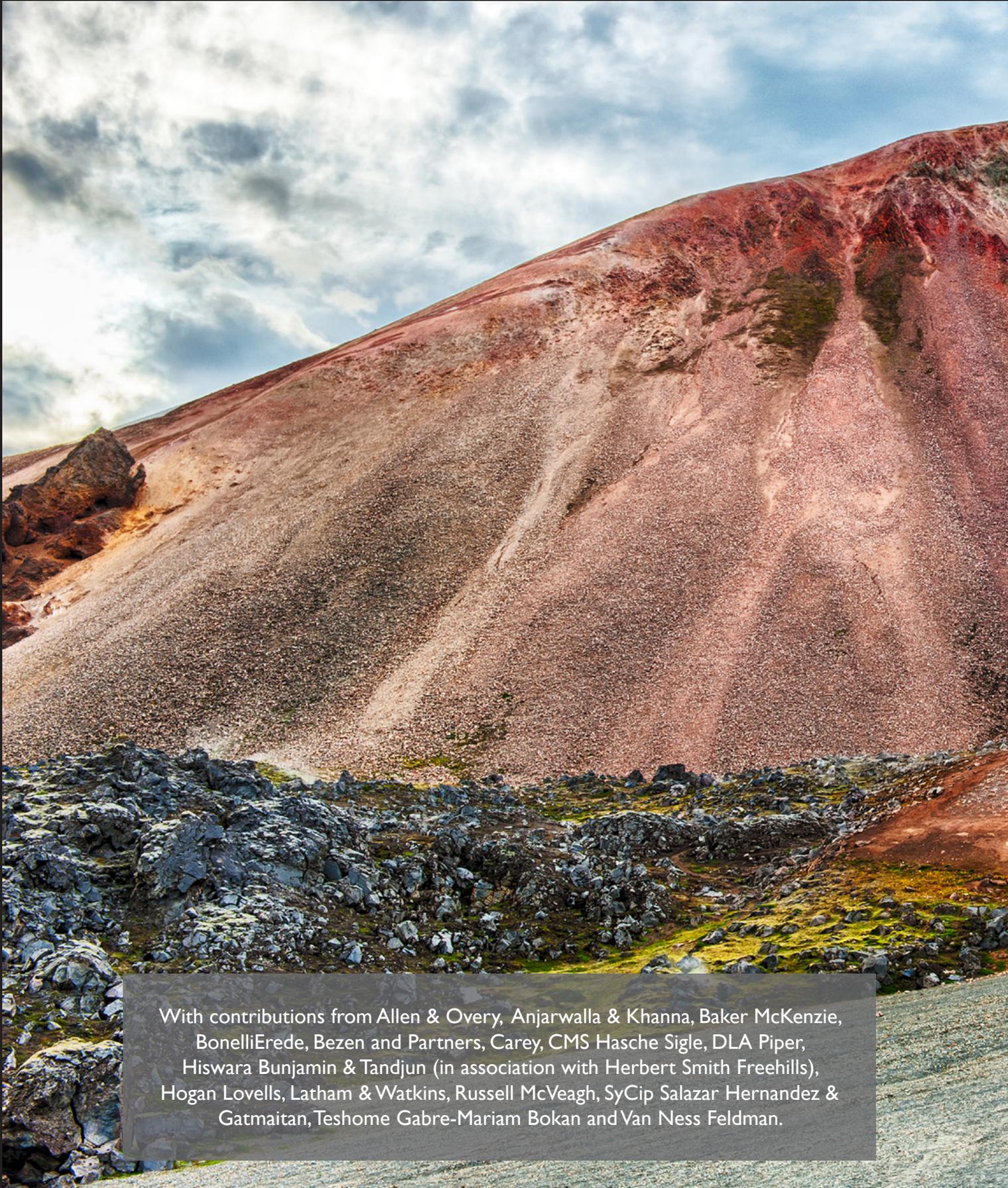
- (b) At the implementing stage, the project company must comply with waste management obligations, apply for a permit for discharging waste water, and submit periodical Environmental Supervision Reports.

15. Licenses

15.1 What other licenses are needed in order to commence exploration, exploitation and/or production with geothermal energy?

In addition to the licenses for exploration, exploitation of geothermal resources and power generation license, the following key licenses are needed:

- (a) an Enterprise Registration Certificate, for the establishment of the project company, in accordance with the Enterprise Law;
- (b) an Investment Registration Certificate, for the registration of the geothermal power project, in accordance with the Investment Law (applicable to foreign invested projects in Vietnam);
- (c) a Certificate of Land Use Right and Ownership of Assets attached to the Land (LURC), for the leased/granted land used for the project, and a decision of the authority on land lease for mineral exploration and exploitation in accordance with the Land Law; and
- (d) a Construction Permit, for project facilities, in accordance with the Construction Law.



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