

Legal Notice No.....

THE ENERGY ACT (No. 1 of 2019)

IN EXERCISE of the powers conferred by sections 73-90; 171; 181 and 208 of the Energy Act, 2019, the Cabinet Secretary for Energy makes the following Regulations:-

THE ENERGY (RENEWABLE ENERGY RESOURCES) REGULATIONS, 2025

PART I – PRELIMINARIES

- | | |
|-----------------------|--|
| Short title | 1. These Regulations may be cited as the Energy (Renewable Energy Resources) Regulations, 2025. |
| Application | 2. These regulations shall apply to persons involved in the exploration and use of wind, hydro, geothermal and marine resources for purposes of energy production. |
| Interpretation | 3. In these Regulations, unless the context otherwise requires — |
- No 1 of 2019
- “Act” means the Energy Act,;
- “Authority” means the Energy & Petroleum Regulatory Authority established under section 9(1) of the Act;
- “Cabinet Secretary” means the Cabinet Secretary for the time being responsible for energy;
- “licence” means geothermal resource licence as defined in the Act;
- “permit” means a document issued by the Cabinet Secretary granting official permission to any person for exploration of renewable energy resources;
- “person” means a natural or juridical person;
- “renewable energy resource” means non-fossil energy generated from natural non-depleting resources including wind energy, hydro energy, geothermal energy and ocean and tidal energy.
- “Tribunal” means the Energy and Petroleum Tribunal established under the Act.

General provisions

PART II – General Provisions

- 4.
- (1) The vesting of unexploited renewable energy resources shall be as defined in section 73 of the Act.
 - (2) A person may undertake renewable energy commercial activities either on, through, over or under any public, community or private land subject to the provisions of section 171 of the Act and any other relevant written law.
 - (3) The operation of renewable energy projects shall be as per the provisions of the Grid Code and other applicable Laws and guidelines

Requirements for Permit for Exploration of Renewable Energy Resources

PART III – Permit for Exploration of Renewable Energy Resources

- 5.
- (1) A person shall not undertake the exploration of a renewable energy resource unless through a permit issued by the Cabinet Secretary.
 - (2) Exploration for a renewable energy resource may be in an area declared as an energy resource area as defined in Section 181 of the Act or any other part of the country.

Application for Permit for Exploration of Renewable Energy Resources

- 6.
- (1) An application for exploration permit shall be made electronically or in any other manner that the Cabinet Secretary may, from time to time, prescribe and shall be in the form set out in **First Schedule** and accompanied by proof of payment of the application fees set out in the **Second Schedule**.
 - (2) Before making an application in sub regulation 1, the person intending to make an application shall give fifteen days' notice, by public advertisement, in at least two newspapers of nationwide circulation, in the form set out in the **Third Schedule**

Submission and Hearing of Objections

- 7.
- (1) Any objections to the grant of a permit as a result of the public notice issued under Regulation 6(2) shall be submitted not later than thirty days after the date of the public notice.
 - (2) Where the Cabinet Secretary receives an objection to the grant of a permit, he shall request the applicant to address, in writing, the issues raised in the objection within fifteen days.

**Review of 8.
Application for
Permit for
Exploration of
Renewable
Energy
Resources**

(3) The Cabinet Secretary may hear any objections in public, at a time and place of which not less than fifteen days' notice shall be given to the applicant and to every objector and the Cabinet Secretary shall make known their decision regarding any objection within thirty days after the hearing.

(1) The Cabinet Secretary shall, within fifteen days of receipt of an application for an exploration permit, inform the applicant if the application is complete.

(2) The Cabinet Secretary shall, in granting or rejecting an application for an exploration permit, consider—

- (a) availability of the proposed exploration site;
- (b) output of consultation with the relevant county government, local communities or any other relevant government agency;
- (c) the impact of the undertaking on the social, cultural or recreational life of the community;
- (d) land use or the location of the undertaking;
- (e) economic and financial benefits to the country or area of supply of the undertaking;
- (f) the economic and energy policies in place at the time;
- (g) that the contractual rights, privileges, liabilities and obligations accrued to an existing licensee or any other person are not materially adversely affected;
- (h) the cost of the undertaking and financing arrangements;
- (i) the ability of the applicant to operate in a manner designed to protect the health and safety of its employees and users of the service for which the permit is required and other members of the public who would be affected by the undertaking;
- (j) the technical and financial capacity of the applicant to undertake the exploration for which the authority is required;
- (k) any representations or objections in regulation 7(1); and
- (l) any other matter that the Cabinet Secretary may consider likely to have a bearing on the undertaking.

(3) Where an application for an exploration permit is declined, the Cabinet Secretary shall inform the applicant in writing the reasons for the decline.

- (4) Where the Cabinet Secretary approves the application, the approval shall grant the applicant site exclusivity for the period of the permit.
- (5) A holder of an exploration permit shall within sixty (60) days of expiry of the permit or at the end of the exploration submit an exploration report to the Cabinet Secretary. The report shall include an appraisal of the resource in the resource area.
- (6) A holder of the permit shall have the first right of exploitation of a feasible resource.
- (7) A holder of a permit under these regulations, who intends to utilize the resource shall obtain the applicable approvals.
- (8) Where the resource in sub regulation (7) is geothermal, the holder of the permit shall obtain a geothermal resource license.

PART IV – Geothermal Resource Licence

**Geothermal
Resource
Licence**

- 9. (1) A person shall not undertake the extraction of geothermal energy resource unless he is licensed by the Cabinet Secretary.
- (2) An application for a licence for extraction of geothermal energy resource shall be made electronically or in any other manner that the cabinet secretary may from time to time prescribe and shall be in the form set out in **Fourth Schedule**.
- (3) The Cabinet Secretary may call for such additional information as he may require under these Regulations to enable him to assess the suitability of the grant of a geothermal resources licence.
- (4) A person applying for the licence shall as part of the application include a proposal on benefit sharing during the exploitation of the resource.
- (5) The Cabinet Secretary shall, in granting or rejecting an application for a licence do so in an open, competitive and transparent manner subject to Section 80 of the Act and consider --
 - (a) output of consultation with the relevant county government local communities or any other relevant government agency;

- (b) the impact of the undertaking on the social, cultural or recreational life of the community;
- (c) land use or the location of the undertaking;
- (d) economic and financial benefits to the country or area of supply of the undertaking;
- (e) the economic and energy policies in place from time to time;
- (f) that the contractual rights, privileges, liabilities and obligations accrued to an existing licensee or any other person are not materially adversely affected;
- (g) prescribe adequate buffers between different licensed areas to safeguard subsurface resource interference. Such a buffer shall be at least one kilometer;
- (h) the cost of the undertaking and financing arrangements;
- (i) the ability of the applicant to operate in a manner designed to protect the health and safety of its employees and users of the service for which the license is required and other members of the public who would be affected by the undertaking;
- (j) the technical and financial capacity of the applicant to render the service for which the authority is required; and
- (k) any other matter that the Cabinet Secretary may consider likely to have a bearing on the undertaking.

(6) Where an application for a geothermal resource licence is declined, the Cabinet Secretary shall inform the applicant in writing the reasons for the decline.

PART V – General Provisions Regarding Permits And Licences

Timelines for processing application for Permits And Licences 10. The Cabinet Secretary shall process all materially complete applications and communicate the outcome in writing and in any event no later than—

- (a) Sixty (60) days from the date of receipt of an application for an exploration permit or a geothermal resource license;
- (b) Thirty days (30) from the date of receipt of an application for renewal of an exploration permit; and
- (c) Six (6) months from the date of receipt of an application for renewal of a geothermal resource license.

Form and Validity of Exploration Permit and Geothermal 11. (1) A permit issued under these Regulations shall be valid for a period of two (2) years but may be renewed for a period of one year from the date of expiration thereof or from the expiration of any renewal.

**Resource
Licence**

(2) The Cabinet Secretary shall issue a geothermal resource license in the form set out in the **Fifth Schedule**.

(3) A geothermal resource licence issued under these regulations shall be valid for a period not exceeding thirty (30) years.

**Geothermal
Resource
Royalties**

12. (1) The holder of a geothermal resource license shall pay a royalty as set out in Section 85 of the Act.

(2) The value of geothermal resources shall be computed using the method set out in the **Sixth Schedule**.

Permit Renewal

13. (1) The holder of a permit may apply for renewal to the cabinet secretary, as set out in Section 79 (4) of the Act.

(2) An application for renewal of a permit shall be made at least sixty (60) days before the expiry of the current permit.

(3) An application for renewal of a permit under these regulations shall be made electronically or in any other manner that the Cabinet Secretary may from time to time prescribe and shall be in the form set out in **First Schedule** and proof of payment of the renewal fees set out in the **Second Schedule**.

**Geothermal
Resource
License
Renewal and
Surrender**

14. (1) The holder of a geothermal resource license may apply for renewal to the Cabinet Secretary, as set out in Section 82 of the Act.

(2) An application for renewal of a geothermal resource license shall be made at least twelve (12) months before the expiry of the current license.

(3) An application for renewal of a geothermal resource licence under these regulations shall be made electronically or in any other manner that the Cabinet Secretary may from time to time prescribe and shall be in the form set out in **Fourth Schedule**.

**Permit and
licence Transfer**

15. (1) A permit granted under these regulations shall not be transferable

(2) A licensee shall not transfer or assign the licence or any part thereof without the written consent of the Cabinet Secretary.

- Forfeiture** 16. (1) A permit may be deemed to have been forfeited under the terms and conditions as set out in Section 79 (5) of the Act.
(2) A license may be deemed to have been forfeited under the terms and conditions set out in Section 84 of the Act
- Confidentiality** 17. (1) Information of a proprietary nature provided to the Cabinet Secretary by a holder of a permit or licensee shall be kept confidential and shall not be disclosed except with the written consent of the permit holder or licensee, which consent shall not be unreasonably withheld.
(2) Notwithstanding the provisions of sub regulation (1), the Cabinet Secretary may use any such information for the purpose of preparing and publishing reports and returns required by law, and surveys of a general nature.
(3) The Cabinet Secretary may publish any such information which relates to a surrendered area at any time after the surrender.
- Registers** 18. The Cabinet Secretary shall publish and maintain registers of-
a) Renewable energy resources maps and resource areas;
b) Permits and licenses issued under these Regulations;
c) Renewals, extensions, surrenders and forfeitures of authorities and licences; and
d) Open renewable energy resource areas.
- Local Content** 19. A holder of a permit or licence under these Regulations shall comply with local content requirements in accordance with the provisions of Section 206 of the Act.
- Health, environmental and safety obligations.** 20. A holder of a permit or licence shall comply with all the applicable health, safety, and environmental laws
- Performance Reporting** 21. (1) The holder of a permit or licence under these regulations shall submit to the Cabinet Secretary, by the end of the first quarter of every calendar year, a report in respect of the previous year, specifying the milestones, the results obtained and compliance to local content requirements
(2) The holder of a permit for geothermal exploration shall, in addition to the information in sub regulation (1), submit a report that shall contain at a minimum—
(a) the methods and equipment deployed;
(b) the geoscientific findings relevant to exploration for geothermal resource;
(c) surface or subsurface data acquired during the studies;
(d) interpretations and conclusions drawn; and
(e) a copy of the logs relating to the bore.

This report shall be submitted at the end of each stage of geoscientific operations and at the end of every boring operation.

- (3) The holder of a licence under these regulations shall submit to the Cabinet Secretary, by the end of the first quarter of every calendar year, a report in a format and manner prescribed by the Cabinet Secretary that contains at a minimum—
 - (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) Compliance to local content requirements

- (4) The Cabinet Secretary may demand any such additional information or data as may deem necessary to establish prudent operating practice, reservoir management and sustainability of geothermal resources.

- (5) A licensee shall, at his own cost, cause the annual accounts to be examined and audited by independent auditors and submit the audited accounts to the Cabinet Secretary by the end of the first quarter of every calendar year

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|---|-----|--|
| Accidents and Incidents | 22. | A holder of a permit or license shall notify the Cabinet Secretary and the Authority of any accident or incident within forty eight hours of the incident or accident in accordance with section 214 of the Act. |
| Offences and penalties | 23. | The offences and penalties specified in sections 90, 118, 168, 169, 210, 219, 220 and 221 of the Act shall apply to these Regulations. |
| Handling of Complaints, Disputes and Appeal Transition | 24. | Any person aggrieved by a decision or Order under these Regulations may appeal to the Tribunal in accordance with section 80 (7) of the Act. |
| | 25. | Upon coming to effect of these regulations— <ol style="list-style-type: none"> (a) the existing exploration permits and licences shall be valid for the remainder of their term; (b) geothermal royalty amounts payable by the licensee shall be as prescribed in the licence; |

(c) the holders of permits and licenses shall be required to comply with the other requirements of these Regulations.

FIRST SCHEDULE (r. 6(1), r.13(3))

RENEWABLE ENERGY EXPLORATION PERMIT APPLICATION FORM

Instructions to Applicants:

The Cabinet Secretary
Ministry of Energy
P.O. Box 30582-00100
NAIROBI

I/We.....

Hereby apply for the renewable energy resource exploration permit and commit to comply with all laws and regulations applicable in Kenya including those regarding use of such resources.

Type of application (New, Amendment or Renewal).....

A. Applicants Details	
Name of Applicant:	..... ..... ..... .....
Main Office Physical Address:	Building Name..... LR/Plot No..... Street/: Town/County:
Postal Address:	..... .....
Website (where available):	..... .....
Telephone/Mobile Number:	.....
Email Address:	..... ..... .....

Incorporation/registration certificate number <i>(Attach Copy)</i>	.....
Income tax registration (PIN) certificate number <i>(Attach Copy)</i>	..... .....
Description of Applicant's business activities	....................
Description of experience in exploration and resource development	....................
B. Details of the Contact Person <i>(Details of person to whom correspondence or enquiries concerning the application should be directed)</i>	
Name:	..... .....
Position Held:	..... .....
Mobile Number:	..... .....
Email:	..... .....

1. REGISTRATION DETAILS OF THE APPLICANT

(Check the relevant option)

- Sole Proprietorship
- Partnership
- Public Limited Company
- Private Limited Company
- Cooperative Society
- Other (Specify).....

2. OWNERSHIP DETAILS

(Give full details of proprietors or partners owning business or directors/shareholders of the company, as applicable)

Name	Nationality	Share Capital
.....
.....
.....

(Insert additional lines as appropriate)

State if you are or any of your partners/directors is an un-discharged bankrupt. *(If so, indicate the names)*

- a)
- b)
- c).....

(Insert additional lines as appropriate)

3. PROPOSED EXPLORATION AREA

3.1. Site of exploration area *(Village, Sub-County, County and Landmark)*

.....

3.2. Delineation of the area or areas proposed to be covered by the exploration

.....

3.3. Global Positioning System Co-ordinates of the exploration area (decimal format)

.....

3.4. Nearest landmark

.....

3.5. Socio-demographic and economic characteristics of the site *(Population, number of households, businesses, institutions, households main source of energy, main economic activities)*

.....

3.6. Resource

	Technology	Description and Capacity
	Wind	
	Hydro	
	Geothermal	
	Marine	
	Other	

	Total	
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3.7. Availability of land for the project (*Land Ownership; private, public and site accessibility*)

3.8. Source of financing for Exploration(*Debt, equity, grant, other*) (*Attach Audited accounts*)

3.9. Is approval issued under the Public Private Partnership Act, 2013(*Yes/No*)

If Yes, Attach evidence

3.10. Is the project approved by Host County Government(*Yes/No*)

If Yes, Attach evidence

3.11. Expected date of commencement of exploration.....

3.12. Estimated Total exploration costs.....Kshs

DOCUMENTATION AND INFORMATION TO ACCOMPANY APPLICATION FORM

1. Certified copy of the certificate of incorporation or business registration certificate.
2. Certified copy of form CR 12 from registrar of companies or CR 13 from the Business Registration Service that is not older than 12 calendar months from the date of issue.
3. Certified copies of identification documents (National Identification Card or Passports) for all the company's directors.
4. Certified copy of a valid Work Permit Class "G" for foreign directors working in Kenya or notarized declaration of non-residence for foreign directors not residing in Kenya.
5. Copy of PIN Certificate.
6. Copy of a valid tax compliance certificate.
7. A full statement giving the applicant's financial status including at least the past three years audited financial statements, bank statement(s), credit report and proposed financing arrangements.
8. Proof of previous experience in exploration
9. Proof of technical capacity to undertake exploration including the proposed methodology for exploration.

a) DECLARATION BY THE APPLICANT

I/we hereby declare that the information provided in this application is true to the best of my/our knowledge.

Dated thisday of20.....

Name

.....

Title.....

....

Signature.....

For Official Use Only

Project Reference Number			
Date of submission of application			
Date of receipt of application			
Application form complete?	Yes		No
Date of review			
Decision of Review	Approved		Rejected
Date of Response to the Applicant			

SECOND SCHEDULE (r. 6(1), 13(3))

EXPLORATION PERMIT FEES AND GEOTHERMAL RESOURCE ROYALTIES

License	Activities	Application Fees (Kshs.)	Renewal License Fee (Kshs.)
Exploration Permit	Exploration (wind energy, hydro energy and ocean and tidal energy) Resource energy areas (exploitation rights for solar energy, wind energy, hydro energy and ocean and tidal energy)	2,000.00	50,000.00
Geothermal Resource License	Developers required to pay royalties as per existing laws		

THIRD SCHEDULE (r. 6(2))

THE ENERGY ACT, 2019

(Insert name of the Applicant)

APPLICATION FOR PERMIT FOR EXPLORATION OF RENEWABLE ENERGY RESOURCES (state the renewable energy resource)

NOTICE is hereby given that **(Name of Applicant)**, having its registered office at **(registered office and postal address)** in the Republic of Kenya, (“the Applicant”), pursuant to the provisions of Section 171 of the Energy Act, 2019, will on **(proposed date of application)**, make an application to the Cabinet Secretary, Ministry of Energy and Petroleum for a permit for Exploration of Renewable Energy Resources for **(state the renewable energy resource)**.

(Describe the purpose, location, renewable energy resource and method of exploration). The grant of the permit will not have adverse effect on any Public or Local Authorities, Companies, persons or bodies of persons within the areas of the undertaking.

A copy of the application (subject to confidentiality considerations) will be available (once lodged) for inspection by the public at the registered office of the applicant.

Any public or local authority, company, person or body of persons desirous of making any representation on or objection to the application must do so by a letter addressed to the Cabinet Secretary and marked on the outside of the cover enclosing it "Renewable Energy Resource Permit Objection", on or before the expiration of Thirty (30) days from the date of application as stated in the notice and a copy of such representation or objection shall be forwarded to the applicant.

Dated _____

Name

Title of applicant’s representative

FOURTH SCHEDULE (r. 9(2), 14(3))

GEOHERMAL ENERGY EXTRACTION LICENCE APPLICATION FORM

Instructions to Applicants:

The Cabinet Secretary
Ministry of Energy
P.O. Box 30582-00100
NAIROBI

I/We.....

Hereby apply for the geothermal energy resource extraction licence and commit to comply with all laws and regulations applicable in Kenya including those regarding use of such resources.

Type of application (New, Amendment or Renewal).....

C. Applicants Details	
Name of Applicant:	..... ..... ..... .....
Main Office Physical Address:	Building Name..... LR/Plot No..... Street/: Town/County:
Postal Address:	..... .....
Website (where available):	..... .....
Telephone/Mobile Number:	.....
Email Address:	..... ..... .....

Incorporation/registration certificate number <i>(Attach Copy)</i>	.....
Income tax registration (PIN) certificate number <i>(Attach Copy)</i>	..... .....
Description of Applicant's business activities	....................
Description of experience in extraction and resource development	....................
D. Details of the Contact Person <i>(Details of person to whom correspondence or enquiries concerning the application should be directed)</i>	
Name:	..... .....
Position Held:	..... .....
Mobile Number:	..... .....
Email:	..... .....

4. REGISTRATION DETAILS OF THE APPLICANT

(Check the relevant option)

- Sole Proprietorship
- Partnership
- Public Limited Company
- Private Limited Company
- Cooperative Society
- Other (Specify).....

5. OWNERSHIP DETAILS

(Give full details of proprietors or partners owning business or directors/shareholders of the company, as applicable)

Name	Nationality	Share Capital
.....
.....
.....

(Insert additional lines as appropriate)

State if you are or any of your partners/directors is an un-discharged bankrupt. *(If so, indicate the names)*

- a)
- b)
- c).....

(Insert additional lines as appropriate)

6. PROPOSED EXTRACTION AREA

6.1. Site of exploration area *(Village, Sub-County, County and Landmark)*

.....
.....

6.2. Delineation of the area or areas proposed to be covered by the exploration

.....
.....

6.3. Global Positioning System Co-ordinates of the exploration area (decimal format)

.....
.....

6.4. Nearest landmark

.....
.....

6.5. Socio-demographic and economic characteristics of the site *(Population, number of households, businesses, institutions, households main source of energy, main economic activities)*

.....
.....

6.6. Generation Capacity

6.7. Availability of land for the project *(Land Ownership; private, public and site accessibility)*

.....
.....
.....

6.8. Source of financing for Exploration *(Debt, equity, grant, other) (Attach Audited accounts)*

.....

6.9. Is approval issued under the Public Private Partnership Act, 2013 *(Yes/No)*

.....

If Yes, Attach evidence

6.10. Is the project approved by Host County Government(*Yes/No*)
If Yes, Attach evidence

6.11. Expected date of commencement of exploration.....

6.12. Estimated Total exploration costs.....Kshs

DOCUMENTATION AND INFORMATION TO ACCOMPANY APPLICATION FORM

1. Certified copy of the certificate of incorporation or business registration certificate.
2. Certified copy of form CR 12 from registrar of companies or CR 13 from the Business Registration Service that is not older than 12 calendar months from the date of issue.
3. Certified copies of identification documents (National Identification Card or Passports) for all the company's directors.
4. Certified copy of a valid Work Permit Class "G" for foreign directors working in Kenya or notarized declaration of non-residence for foreign directors not residing in Kenya.
5. Copy of PIN Certificate.
6. Copy of a valid tax compliance certificate.
7. A full statement giving the applicant's financial status including at least the past three years audited financial statements, bank statement(s), credit report and proposed financing arrangements.
8. Proof of previous experience in exploration
9. A statement of the applicant's technical competence including, Curriculum Vitae of key personnel, company profiles and experience for the past five (5) years
10. Details of expected infrastructure requirements.

b) DECLARATION BY THE APPLICANT

I/we hereby declare that the information provided in this application is true to the best of my/our knowledge.

Dated thisday of20.....

Name

Title.....
....

Signature.....

For Official Use Only

Project Reference Number	
Date of submission of application	
Date of receipt of application	

Application form complete?	Yes		No	
Date of review				
Decision of Review	Approved		Rejected	
Date of Response to the Applicant				

FIFTH SCHEDULE (r. 11(2))
FORM OF GEOTHERMAL RESOURCE LICENCE
MINISTRY OF ENERGY AND PETROLEUM

ENERGY ACT, NO 1 of 2019

THE ENERGY (RENEWABLE ENERGY RESOURCES) REGULATIONS, 2024

Geothermal Resource Licence No./20YY

This Geothermal Resources Licence is granted this day of20YY by the Government of the Republic of Kenya (hereafter referred to as the “Government”) represented for the purpose of this Licence by the Cabinet Secretary in charge of Energy and Petroleum (hereafter referred to as the “Cabinet Secretary”) of P.O. Box 30582- 00100, Nairobi to, a limited liability company incorporated under the laws of Kenya and having a registered place of Business at (hereafter referred to as the “Licensee” which expression includes its successors) pursuant to the Energy Act, 2019 (the “Act”) and the Energy (Renewable Energy Resource) Regulations, 2024 (the “Regulations”).

1. The Licensee is hereby granted the following exclusive rights:
 - (a) The right and privilege to enter and explore, drill for, extract, produce, utilize and dispose of geothermal steam and associated geothermal resources in or under the land described in Appendix I and shown on the map set forth in Appendix II hereof (the “Licence Area”).
 - (b) The right to construct or erect and use, operate and maintain within the Licence Area, together with ingress and egress there upon all wells, pumps, pipes, pipelines, buildings, plants, sumps, brine pits, reservoirs, tanks, waterworks, pumping stations, roads, electric power generating plants, transmission lines, industrial facilities; electric, telegraph or telephone lines or cables and such other works and structures and to use so much of the surface of the land within the Licence Area as may be necessary or convenient for the production, utilization and processing of geothermal resources or for the full enjoyment of the rights granted hereunder, subject to compliance with all applicable laws and regulations.
 - (c) In so far as it may be necessary for and in connection with the operations described in this Licence, the right to:
 - (i) drill and construct all necessary boreholes;
 - (ii) erect, construct and maintain houses and buildings for the Licensee’s own use and for use by the Licensee’s employees;
 - (iii) erect, construct and maintain plant, machinery, buildings and other erections as may be necessary;

- (iv) utilize the geothermal resources;
- (v) subject to the Water Act 2016, reclaim and utilize any water; and
- (vi) construct and maintain roads and other means of communication and convenience;

subject to compliance with the Environment Management and Co-ordination Act, 2015, the Energy Act, 2019 and all other applicable laws and regulations

- (d) The rights to take, use, sell or apply the geothermal resources for the purpose of generating electric power, at any power station(s) to be erected upon the Licence Area, under Power Purchase Agreement(s) to be made between the Licensee, and/or an affiliate of the Licensee approved by the Authority, and the off taker. For the purposes of this sub-clause 1(d), “affiliate” shall mean an entity that directly or indirectly owns, is owned by or is under common ownership with the Licensee, and as used in this definition, “own” shall mean the possession, directly or indirectly, of any equity interests in or voting rights in such entity” “Off taker” shall mean any entity authorized to enter into a power purchase agreement with the Licensee.
 - (e) The rights to take, use, sell or apply the geothermal resources for the purpose of direct uses, at any facilities to be erected upon the Licence Area
2. The rights granted shall be for a term of thirty (30) years from the date hereof and such term may be renewed at the option of the Licensee, for one further period of five (5) years; provided the licensee has complied with all the terms hereof; and provided that the Cabinet Secretary shall in granting the Licence, allow an exploration phase of a period not exceeding three years and if at the end of that period no geothermal resource of potential commercial interest is discovered the Cabinet Secretary may require the Licensee to surrender the Licence Area.
3. The Licensee shall:
- (a) Conduct geothermal surface exploration in the Licence Area for a period of three (3) years commencing the date of issuance of this Licence.
 - (b) Carry out development of the power station(s) or direct use facilities in a period of three (3) years, which includes construction, and commissioning, starting from the end of the three (3) years geothermal exploration period under (a).
 - (c) Mount the first development plan to target generating capacity of MW of electrical power or thermal energy ofMW (thermal) or the maximum economically available as defined by a Board of Consultants hired by the Cabinet Secretary through competitive sourcing as per applicable law, under Terms of Reference (ToRs) proposed by the Licensee and approved by the Cabinet Secretary, and paid for by the Licensee, before the end of the three (3) years geothermal exploration period under (a).

- (d) Bear the costs of any consultancy relating to the project in full.
 - (e) Deposit the full amount of the consultancy fee for the Board of Consultants with the Cabinet Secretary on completion of the tendering process.
 - (f) Also deposit with the Cabinet Secretary the full amount required by the Survey of Kenya for preparation of Cadastral Maps and other supporting documents of the Licence Area which will be needed for registration of rights to the land.
4. The Licensee shall provide the Cabinet Secretary with periodic written reports of the progress of operations under this licence as set forth in Appendix III.
 5.
 - a) Where the Licensee during the exploration phase, discovers geothermal resources which is of potential commercial interest, they shall within sixty (60) days after discovery submit an appraisal programme to the Cabinet Secretary for approval.
 - b) If the appraisal programme results into a declaration by the Cabinet Secretary and the Licensee of a viable commercial geothermal resource, the Licensee shall, within twelve (12) months from the date of declaration, submit to the Cabinet Secretary a development and production programme which shall be in the form of Appendix IV.
 6. The Licensee shall pay the Cabinet Secretary for the grant of the rights and privileges under the Licence
 - a) yearly in advance a rental of about US\$5.00 per hectare amounting to US\$ (..... hectares; km² approximately) for each and every year or part thereof for which this licence is in effect and, if such rent is not paid within three months of becoming due, a penalty of ten percent (10%) shall be payable as if it were part of the rent; and,
 - b) a royalty of (....%) of the value of geothermal resource extracted.
 7. The Licensee shall comply with the provisions of the Regulations and the drilling conditions specified in the **Appendix V** thereto.
 8. The Licensee shall carry out appraisal and development of the geothermal resources in the Licence Area, working closely with a designated government representative or the Geothermal Development Company (GDC) in management of the geothermal reservoir(s).
 9. The Cabinet Secretary designates the Secretary, Geo-Exploration of the Ministry of Energy and Petroleum as his authorized representative for the purpose of receiving periodic reports, results of any geothermal appraisal programme and other written reports required under the Act or the Regulations.

10. The Licensee shall not transfer or assign this License or any part thereof without the consent of the Cabinet Secretary signified by the endorsement hereon, which consent shall not be unreasonably withheld.
11. The Licensee shall conduct operations under his License in workmanlike manner and in accordance with all applicable statutes and regulations to prevent bodily injury, danger to life or health or damage to property.
12. The Licensee shall comply where appropriate with the Health and Safety Guidelines as set out in the relevant Laws of Kenya and in the absence of such laws with the most recent World Bank guidelines currently in force, where appropriate.
13. The Licensee shall comply with the requirements for Privately Initiated Investment Proposals (PIIPs) as set out in the Public Private Partnerships (PPP) Act, 2013 and the Public Private Partnerships Regulations, 2014 of the Laws of Kenya.
14. The Licensee shall keep open at all reasonable time for the inspection of any duly authorized representative of the Cabinet Secretary, the License Area and all wells, improvements, machinery and fixtures thereon and all production reports, maps, records books, and accounts relative to the operations under the License Area.
15. The Licensee shall:
 - (a) Be liable for any actions, obligations, breaches or negligence arising from or connected with the Licensee's activities and operations conducted pursuant to this Licence.
 - (b) Indemnify and hold harmless the Government from all claims arising from or connected with the Licensee's activities and operations under this Licence except where such claims are caused by or arise from the direct acts or omissions of authorized representatives of the Cabinet Secretary.
16. The Cabinet Secretary may accept the surrender of this Licence or any part of the Licence Area upon such terms and conditions as he may deem fit but so, however, that no such surrender shall affect any liability incurred by the Licensee before the surrender shall have taken effect.
17.
 - a) Cabinet Secretary may, by notice to the Licensee, declare this License to be forfeited if the Licensee:
 - (i) Wholly ceases work in or under the Licence Area during a continuous period of six (6) calendar months, without the written consent of the Cabinet Secretary;
 - (ii) Commits a breach or is in default of any provision of the Act or the Regulations or any term or condition of the Licence and the Cabinet

Secretary has caused a notice to be served on the Licensee requiring the Licensee:

- (a) In the case of a breach which, in the opinion of the Cabinet Secretary, is capable of being repaired or made good, to repair or make good the breach within a period of six (6) months; and
 - (b) In the case of a breach which, in the opinion of the Cabinet Secretary, is not capable of being repaired or made good, to show cause why this Licence should not be forfeited.
- b) Forfeiture of this License under paragraph (a) shall not affect any liability already incurred by the Licensee.

18.

- a) Within ninety (90) days (or such longer period as the Cabinet Secretary may authorize because of adverse climatic conditions or other special circumstances) of the expiry, surrender or forfeiture of this Licence, the Licensee shall apply to the Cabinet Secretary to enter the Licence Area to remove the plant, machinery, engine or tools installed or erected thereon. The Cabinet Secretary's consent to such removal shall not be unreasonably withheld, delayed or conditioned.
- b) The Cabinet Secretary may require the Licensee to remove the plant, machinery, engines or tools within a reasonable time (being not less than one hundred and eighty (180) days after the expiry, surrender or forfeiture of this licence) and if the same are not so removed they may be sold by auction at the risk of the Licensee.
- c) The net proceeds of the sale conducted pursuant to paragraph (b) above shall be held by the Cabinet Secretary until applied for by the Licensee but may be used in the repair of breaches or faults not made good by the Licensee and for payment of the costs incurred in conducting the sale. Any costs incurred in such repair of breaches or faults or in conducting any sale shall be in accordance with the usual or customary rates for the type of expenditure involved and in all cases shall be reasonable and fair.

19.

- a) The Cabinet Secretary may, at the request of the Licensee, make available to the Licensee such land as the Licensee may reasonably require for the conduct of operations under this licence in accordance with the Constitution of the Republic of Kenya, 2010, the Community Land Act, 2016 and any other applicable law and:
 - (i) where such land is community land, the Cabinet Secretary shall procure that Government of Kenya shall set apart such community land in the License Area in consultation and concurrence with the local community

and in accordance with applicable law and Chapter Five of the Constitution of the Republic of Kenya, 2010 on Land and Environment;

- (ii)
 - (1) where such land is private land, the Cabinet Secretary Shall procure that the Government of Kenya acquires the land in accordance with the applicable laws;
 - (2) Prior to the Licensee requesting the Cabinet Secretary to make available to the Licensee private land for conduct of operations under this License, the Licensee shall first enter into negotiations with the owner or occupier of such private land for granting of the required permission or authorization or for the acquisition of the required permission or authorization or for the acquisition of the required interest (including way-leaves) over such land;
 - (3) In the event that the owner or occupier of any such private land fails to grant to the Licensee the required permission, authorization or interest in the land within one hundred and twenty (120) days of commencement of negotiations between the Licensee and such owner or occupier, the Cabinet Secretary shall procure the Government of Kenya to obtain in accordance with the applicable laws, the required permission, authorization or other interest in the land;
 - (4) In carrying out negotiations with the owner or occupier of private land, the Licensee shall act diligently. For the purpose of this clause “diligently” shall include pursuing all reasonably available procedures for obtaining the required permission, authorization or interest in land, including the offer of a rent or purchase price or other consideration which a person carrying out the Licensee’s activities would reasonably expect to pay for the grant of such permission or authorization or other interest in the land.
- (iii) Where such land is within a “National Park” or National Reserve” within the meaning of the Wildlife Conservation and Management Act, 2013 or within a “Forest Reserve” within the meaning of the Forest Conservation and Management Act 2016 the Cabinet Secretary shall procure the Government of Kenya to obtain all necessary consents and authorizations from a competent authority. The Licensee shall on its part provide the Cabinet Secretary with sufficient description of the area required for its operations and supply such other information as may be required for its operations and supply such other information as may be required by the Cabinet Secretary or the competent authority for the issue of such consent or authorization;
- (iv) The Licensee shall pay or reimburse the Cabinet Secretary any reasonable compensation that may be required for obtaining permission, authorization or interest or for the setting apart, use or acquisition of any

land as the Licensee may reasonably require for the conduct of operations under this Licence.

- b) Where the Licensee has occupied community land for the purpose of such operations before that land has been set apart, the Licensee shall notify the Cabinet Secretary in writing the need to set apart such land.
 - c) The Cabinet Secretary shall procure that the Government of Kenya shall grant or cause to be granted to the Licensee and its contractors and sub-contractors such way-leaves, easements, temporary occupation or other permissions within and (if necessary) without the Licence Area as are necessary to conduct such operations and in particular for the purpose of laying, operating and maintain pipelines, power lines, cables, communication facilities, roads and rights of way.
 - d) The Cabinet Secretary shall procure that the Government of Kenya shall at all times give the Licensee and its contractors and sub-contractors the right of ingress to and egress from the Licence Area to and from, in particular, the facilities wherever located for the conduct of operations under this Licence.
20. The Cabinet Secretary shall, subject to applicable laws and regulations, obtain for the Licensee any permit necessary to enable the Licensee to use the water in the Licence Area for the purpose of operations under this Licence but the Licensee shall not unreasonably deprive the users of land, domestic settlement or cattle watering place of the water supply to which they are accustomed.
21. The Licensee shall pay compensation as required by Section 173 of the Energy Act, 2019.
22. Where the 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 thereon, the Licensee shall give not less than twenty one (21) days notice in writing of his intention to the person in visible and immediate occupation of the land affected thereby and, if practicable to the owner of the land, and shall comply with Section 171 of the Act.
- 23.
- a) The Licensee shall notify the Cabinet Secretary, before operations begin, of the name and address of the person resident in Kenya who will supervise the operations under this Licence and prior notice of any subsequent change shall be given to the Cabinet Secretary.
 - b)
 - (i) Every notice demand or other communication under this Licence shall be in writing and may be delivered personally or by letter or facsimile transmission dispatched by the parties to each other in accordance with the

details set out below or to such other address and / or facsimile number as the parties may notify each other in accordance with this clause for the purpose.

The Licensee:

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.....
.....

The Cabinet Secretary
Ministry of Energy & Petroleum
Kawi House, South C
P.O. Box 30582-00100
NAIROBI

- (ii) Every notice, demand or other communication shall be deemed to have been received (if sent by post) twenty-four (24) hours after being posted first class postage prepaid (if posted from and to an address within Kenya) or five (5) working days after being posted prepaid airmail (if posted from or to an address outside Kenya) at the time of actual delivery or (in the case of a facsimile transmission) receipt if during normal business hours on a working day in the place of intended receipt or to the facsimile transmission number specified above, and otherwise at the opening of business in that number on the next succeeding such day.

24.

- a) Where the Cabinet Secretary or the Licensee is prevented from complying with this License by force majeure, the party affected shall promptly give written notice to the other and the obligations of the affected party shall be suspended, provided that party shall do all things reasonable within its power to remove such cause of force majeure. Upon cessation of the force majeure event, the party no longer affected shall promptly notify the other party.
- b) In this clause, “force majeure” means an occurrence beyond the reasonable control of the Cabinet Secretary or of the Licensee which prevents either of them from performing their obligations under Licence.
- c) For the purpose of this clause promptly shall be deemed to mean a period of twenty-one (21) days.
- d) Where the party not affected disputes the existence of force majeure, that dispute shall be referred to arbitration in accordance with the provisions for arbitration contained in this Licence.

- e) Where an obligation is suspended by force majeure for more than one (1) year, the parties may agree to terminate this Licence by notice in writing without further obligations; provided that each party shall remain liable for the fulfillment of any obligation which remains unperformed at that time.
- f) Subject to paragraph (e) of this clause, the term of the Licence shall be automatically extended for the period of the force majeure.

25.

- a) Whenever any dispute arises between the Licensee and an owner of private land or community land, then the owner of the private land or community land shall participate in the dispute resolution as stakeholder.
- b) Except as otherwise provided in this Licence, any question or dispute arising out of or in relation to or in connection with this Licence shall, as far as possible, be settled amicably. Where no settlement is reached within thirty (30) days from the date of the dispute, such dispute shall be referred to arbitration in accordance with the provisions hereinafter contained.
- c) All disputes arising out of this License or relating to any investment made under it for settlement by arbitration shall be settled in Kenya in accordance with Arbitration Act, 1995(Revised, 2012) of the Laws of Kenya.
- d) Any such arbitration proceeding shall be conducted in accordance with the Rules of Procedure for Arbitration proceedings in effect in Kenya on the date on which the proceeding is instituted.

Issued by:

.....
CABINET SECRETARY
MINISTRY OF ENERGY & PETROLEUM

APPENDICES

1. APPENDIX I - DELINEATION OF LICENSE AREA

The Licence Area shall be that area of land shown on the map annexed hereto as Appendix II for indicative purposes only. The Licence area, covering about Km2 in Sub County of County is bounded by geographical coordinates,,,in WGS84 datumas shown in Appendix II overleaf.

<i>Point</i>	<i>Latitude</i>	<i>Longitude</i>
<i>A</i>		
<i>B</i>		
<i>C</i>		
<i>D</i>		

2. APPENDIX II – MAP

3. APPENDIX III - PERIODIC REPORTS

- (1) *The Licensee shall supply to the Cabinet Secretary daily reports on geothermal drilling and production operations, and weekly reports on geothermal exploration operations.*
- (2) *The Licensee shall report in writing to the Cabinet Secretary the progress of the geothermal operations according to the following schedule-*

<i>Report</i>	<i>Time Schedule</i>
<i>Covering the previous three (3) months</i>	<i>Within one (1) month of the last day of March, June, September and December.</i>
<i>Covering the previous year</i>	<i>Within three (3) months of the last day of December.</i>
<i>Covering expiry or termination of this Licence</i>	<i>Within three (3) months of the date of expiry or termination of this contract.</i>

- (3) *A report under sub-clause (2) shall contain, in respect of the period which it covers-*
 - (a) *Details of the geothermal operations carried out and the factual information obtained;*
 - (b) *A description of the area in which the Licensee has operated;*
 - (c) *An account of the expenditure on the geothermal operations;*
 - (d) *A map indicating all boreholes, wells and other geothermal operations;*
 - (e) *On expiry or termination of this Licence details of the geothermal operations including all the matters described in paragraphs (a) to (d); and*
 - (f) *All information required in the Regulations and the drilling conditions specified in the **Appendix V** thereto not hitherto supplied.*

4. APPENDIX IV - DEVELOPMENT AND PRODUCTION PROGRAMME

- (1) *The Licensee shall supply to the Cabinet Secretary a development and production programme which shall include:-*

- (a) *The date by which the applicant intends to commence production;*
 - (b) *The capacity of production and scale of operations;*
 - (c) *The estimated overall production;*
 - (d) *The marketing arrangements made for utilization of the geothermal energy, including details of all contracts or arrangements made with proposed users;*
 - (e) *Proposals for the prevention of pollution, the treatment of wastes, the safeguarding of natural resources, the progressive reclamation and rehabilitation of lands disturbed by prospecting or production operations and for the minimization of the effect of such operations on adjoining or neighbouring lands;*
 - (f) *An approved Environmental and Social Impact Assessment detailing any significant adverse effect which the carrying out of production operations with proposals for controlling or eliminating that effect;*
 - (g) *A technical report on the production possibilities and the intention of the applicant in relation thereto; and*
 - (h) *A detailed forecast of capital investment, operating costs and sales reserves and the anticipated type and source of financing.*
- (2) *The development and production phase shall commence upon the approval by the Cabinet Secretary of the development and production programme.*

APPENDIX V - GUIDELINES FOR DRILLING OF BORES

The following conditions are intended as guidelines to ensure safety and environmental integrity. If these conditions would prove too restrictive for economical geothermal energy recovery, the licensee may propose an alternative.

1. All casing strings reaching the surface shall be cemented at a sufficient depth to provide adequate anchorage and support for the casing and any blowout prevention equipment required thereon. The several casing strings in order of installation are—
 - a) surface;
 - b) intermediate;
 - c) anchor;
 - d) production strings.

2. The following casing setting depth requirements are general in nature and subject to variation to permit the casing (if any) to be set and cemented in competent formation. Casing setting depths shall be based upon all geological and engineering factors including apparent geothermal gradients, depths and pressures of the various formations to be penetrated and all other pertinent information about the area. All depths in these Regulations referred to True Vertical Depth (T.V.D.) below ground level unless otherwise specified—
 - (1) *Surface Casing.*—This casing shall be set at a minimum depth of 30 metres and a maximum depth of 60 metres from the cellar top, before drilling into shallow formation suspected or known to contain geothermal resources, non-

condensable gases, or other mineral resources or upon encountering such formations;

- (2) *Intermediate Casing.*—This casing shall be set at any time when required by bore conditions encountered in drilling below the surface casing such as anomalous pressure zones, uncased fresh water aquifers, caveins, washouts, lost circulation zones, rapidly increasing thermal gradients or other drilling hazards;
- (3) *Anchor Casing.*—This casing shall be set at a depth equivalent to or in excess of 10 percent of the proposed total depth of the bore provided, however, that such setting depth shall be not less than 250 metres and no more than 400 metres;
- (4) *Production Casing.*—This casing may be set at the top of or through the potential producing zone and shall be set before completing the bore for production. Production casing shall be run to the surface. A liner shall be used below the production casing and the liner overlap shall be a minimum of 30 metres. The lap shall be tested by a fluid entry or pressure test to determine whether a seal between the liner top and the production casing string is achieved. The test shall be recorded on the driller's log. In the event of lap or casing failure during the test, the lap or casing must be repaired or recemented and successfully retested as required. Production casing shall normally be of consistent nominal outside diameter from the surface or from the top of the lap to the casing shoe. The surface casing shall not be used as production casing.

3. Cementing of casing

- (1) The surface, intermediate and anchor casing strings shall be cemented with a quantity of cement sufficient to fill the annular space back to the surface. Production casing shall be cemented with a high temperature resistant admix and shall be cemented in a manner necessary to exclude with, isolate or segregate overlying formation fluids from the geothermal resources zone and to prevent the movement of fluids into possible fresh water zones. The first stage of all cementing operations must be carried out by circulating cement from the surface to the bottom of the casings and back up the annulus.
- (2) Before any backfill cementing is carried out the casing annulus must be tested to prove cement can pass below the outer casing shoe so as not to trap water or explosive fluid in the annulus.
- (3) Production casing shall be cemented back to the surface.. A temperature and cement bond log shall be conducted if an unsatisfactory cementing job is indicated or as may be required by the Cabinet Secretary.

4. Pressure testing of casing

- (1) Prior to drilling out the casing shoe after cementing all casing strings set to a depth of 152 metres or greater, shall be pressure tested to a minimum pressure of 69 bars (1,000 p.s.i.) or 0.045 bars/metres (0.2 p.s.i./ft.) whichever is greater.

- (2) All casing strings set at a depth less than 152 metres (500 feet) shall be pressure tested to a minimum pressure of 20 bars (300 p.s.i.).
- (3) The tests under paragraphs (1) and (2) shall not exceed the rated working pressure of the casing or the blowout preventer stack assembly, whichever is lesser and in the event of casing failure during the test, the casing must be repaired or recemented until a satisfactory test is obtained.
- (4) A pressure decline of 10 percent or less in 30 minutes shall be considered satisfactory.
- (5) Casing test results shall be recorded on the driller's log. Advance notice of all casing and lap tests shall be given in sufficient time to enable the Minister or his representative to be present to witness such tests. The casing and lap tests shall give a detailed description of the test, including mud and cement volumes, lapse of time between running and cementing casing and testing, method of testing and test results.

5. Well survey

- (1) Deviation surveys (inclination from vertical or single shot) shall be taken on all bores during the normal course of drilling at intervals not exceeding 152 metres and in calculating all surveys, a correction from true north to Lambert-Grid north shall be made after making the magnetic to true north correction.
- (2) Bores are considered vertical if inclination does not exceed an average of five degrees from the vertical.
- (3) Bores are considered directional if inclination exceeds an average of five degrees from the vertical. Directional surveys giving both inclination and azimuth shall be obtained at intervals not exceeding 30 metres between stations prior to, or upon, setting any casing string or liner (except conductor casing) and at total depth.

6. Safety equipment and procedures

All necessary precautions shall be taken to keep all bores under control at all times, utilize trained and competent personnel, and utilize properly maintained equipment and materials. Blowout preventers and related bore control equipment shall be installed, tested immediately thereafter and maintained ready for use until drilling operations are completed. Certain components, such as packing elements and ram rubbers, shall be of high temperature resistant materials as necessary. All kill lines, blown down lines, manifolds and fittings shall be steel and shall have a temperature derated minimum working pressure rating equivalent to the maximum anticipated wellhead surface pressure. Except as otherwise provided by these Regulations, blowout prevention equipment shall have manually operated gates and hydraulic actuating systems and accumulators of sufficient capacity to close all of the hydraulically-operated equipment and have a minimum pressure of 69 bars (1,000 p.s.i.) remaining on the accumulator.

Dual control stations shall be installed with a high pressure backup system. One control panel shall be located at the driller's station and one control panel shall be located on the ground at least 15 metres away from the wellhead or rotary table. Air or other gaseous fluids drilling systems shall have blowout prevention assemblies. Such assemblies may include, but are not limited to, a rotating head, a double ram blowout preventer or equivalent, a banjobox or approved substitute thereof and a blind ram blowout preventer or gate valve, respectively.

7. Requirement for drilling

- (1) *Surface Casing.*—In the case of areas where higher pressures are anticipated at shallow depths, before drilling below this string, at least—
 - (a) one remotely controlled hydraulically-operated expansion type preventer; and
 - (b) a manual and remotely controlled complete shut-off single ram blowout preventer or equivalent having a temperature derated minimum working pressure rating which exceeds the maximum anticipated surface pressure at the anticipated reservoir fluid temperature. At least one ram set shall be for complete shut off. A drilling spool with side outlets or equivalent, shall be installed. A kill line and blowdown line with appropriate fittings shall be connected to the drilling spool.

- (2) *Anchor, Intermediate and Production Casings.*—Before drilling below the blowout prevention equipment shall include a minimum of—
 - (a) one expansion-type preventer and accumulator;
 - (b) a manual and remotely controlled hydraulically-operated double ram blowout preventer or equivalent having a temperature derated minimum working pressure rating which exceeds the maximum anticipated surface pressure at the anticipated reservoir fluid temperature;
 - (c) a drilling spool with side outlets or equivalent;
 - (d) a kill line equipped with at least one valve; and
 - (e) a choke line equipped with at least one valve and securely anchored at all bends and at the end.

- (3) *Testing and maintenance.*—Ram-type blowout preventer and auxiliary equipment shall be tested to a minimum of 69 bars (1,000 p.s.i.) or to the working pressure of the casing or assembly, whichever is the lesser. Expansion-type blowout preventer shall be tested to 70 percent of the above pressure testing requirements; and the blowout prevention equipment shall be pressure tested—
 - (a) when installed;
 - (b) prior to drilling out plugs and casing shoes;
 - (c) not less than once each week, alternating the control stations; and
 - (d) following repairs that require disconnecting a pressure seal in the assembly.

- (4) During drilling operations, blowout prevention equipment shall be actuated to test proper functioning as follows—
 - (a) once each trip for blind and pipe rams but not less than once each day for pipe rams; and
 - (b) at least once each week on the drill pipe for expansion type preventers.

- (5) All flange bolts shall be inspected at least weekly and retightened as necessary during drilling operations. The auxiliary control systems shall be inspected daily to check the mechanical condition and effectiveness and to ensure personnel acquaintance with the method of operation. Blowout prevention and auxiliary control equipment shall be cleaned, inspected and repaired, if necessary prior to installation to assure proper functioning. Blowout prevention controls shall be plainly labelled, and all crew members shall be instructed on the function and operation of such equipment. A blow-out prevention drill shall be conducted weekly for each drilling crew. All blowout prevention tests and crew drills shall be recorded on the driller's log.
- (6) Related Well Control Equipment.—At least one non-return valve shall be installed in the drill string at all times.

8. Drilling fluid

- (1) The properties, use and testing of drilling fluids and the conduct of related drilling procedures shall be such as are reasonably necessary to guard against the blowout of any bore. Sufficient drilling fluid materials to ensure bore control shall be maintained in the field area readily accessible for use at all times; and—
 - (a) before pulling drill pipe, the drilling fluid shall be properly conditioned or displaced. The hole shall be kept reasonably full at all times. Mud cooling techniques shall be utilized when necessary to maintain mud characteristics for proper bore control and hole conditioning;
 - (b) mud testing and treatment consistent with good operating practice shall be performed daily or more frequently as conditions warrant. Mud testing equipment shall be maintained on the drilling rig at all times.
- (2) The following drilling fluid system monitoring or recording devices shall be installed and operated continuously during drilling operations with mud, occurring below the shoe of the conductor casing—
 - (a) high-low level mud pit indicator including visual audio-warning device;
 - (b) desilters and desanders;
 - (c) a mechanical, electrical or manual surface drilling fluid temperature monitoring device. The temperature of the drilling fluid going into and coming out of the hole shall be monitored, read and recorded on the driller's or mud log for a minimum of every 9 metres of hole drilled below the conductor casing; and
 - (d) a hydrogen sulphide detectors and alarm shall be installed in areas suspected or known to contain hydrogen sulphide gas which may reach levels considered to be dangerous to the health and safety of personnel in the area.
- (3) From the time drilling operations are initiated and until the bore is completed or abandoned, a member of the drilling crew or the tool pusher shall monitor the rig floor at all times for surveillance purposes, unless the bore is secured with blowout preventers or cement plugs.

9. Bore logging

All bores shall be logged from surface to total depth with the goal of characterizing the geothermal reservoir and establishing the continuous integrity of the bore. The logs shall include but not limited to-

- a. Lithological logs;
- b. Temperature and Pressure logs;
- c. Cement bond logs;
- d. Casing logs.

10. Wellhead equipment and testing

- (1) All wellhead connections shall be fluid pressure tested to the appropriate working pressure rating. Cold water is recommended as the testing fluid. Welding of wellhead connections shall be performed using materials in conformity with industrial standards.
- (2) All completed bores shall be equipped with a minimum of one casing head with side outlets, one master valve and one production valve. The rating of the master valve shall not in any case be less than well shut in pressure.
- (3) All casing heads, christmas trees, fittings and connections shall have all temperature derated working pressure equal to or greater than the pressure of saturated steam at reservoir temperature.
- (4) Packing, sealing mediums and lubricants shall consist of materials or substances that function effectively at, and are resistant to high temperatures. Casing head connections shall be made such that fluid can be pumped between casing strings.
- (5) Any bores showing sustained casing head pressure or leaking of geothermal fluids between casing strings shall be tested to determine the origin of the failure, when such failure point is not otherwise determined corrective measures shall be taken. In case of any continuous leakages or casing breaches that shall remain unremedied within seven (7) calendar days, the Licencee shall notify the Cabinet Secretary. Such a notice shall contain remedial actions and timelines so as to prudently and effectively remedy the situation at the earliest. The Cabinet Secretary shall procure remedial action at the cost of the Licensee should the leakages and/or breaches continue for a further fourteen (14) days.

11. Bore spacing, plugging and permanent abandonment

- (1) Well bore spacing shall be determined by carrying out requisite well tests and reservoir models which the Licencee shall perform.
- (2) All bores not in use or demonstrated to be potentially useful shall be promptly plugged in the following manner—
 - (a) cement used to plug any geothermal resources bore, except that cement or concrete used for surface plugging, shall be placed in the hole by pumping through drill pipe or tubing, and in the cement shall consist of a high temperature resistant admix;
 - (i) in uncased portions of bores, cement plugs shall be placed to protect all subsurface mineral resources including fresh water aquifers; and

plugs shall extend a minimum of 30 metres below, if possible, and 30 metres above such aforementioned zones. Cement plugs shall be placed in a manner necessary to isolate formations and to protect the fluids in such formations from interzonal migration or contamination—

- (j) where there is an open hole (uncased and open into the casing string above) a cement plug shall be placed in the deepest casing string by either (a) or (b) below. In the event that lost circulation conditions exist or are anticipated, or if the well has been drilled with air or other gaseous substance, the plug shall be placed in accordance with (c) below;
 - a) a cement plug shall be placed across the shoe extending a minimum of 30 metres above and 30 metres (100 feet) below; or
 - b) a cement retainer with effective back pressure control set approximately 30 metres above the casing shoe with at least 61 metres of cement below the retainer and 30 metres above;
 - c) a permanent bridge plug set at the casing shoe and capped with a minimum of 61 metres of cement;

12. Waste

- (1) The licensee shall remove or store, in an orderly manner, all materials not in use, and shall provide and use pits and sumps of adequate capacity and design to retain materials and fluids necessary for drilling, production, or other operations. When no longer needed, pits and sumps are to be properly abandoned and the land restored;
- (2) Liquid well effluent or the liquid residue thereof containing substances, including heat, which may be harmful or injurious to persons or property shall be dealt with in such a way as to minimize such possible harm or injury;
- (3) Drill cuttings, sand, precipitates and other similar solids shall be disposed of in a suitable manner.

SIXTH SCHEDULE (r. 12(2))

DETERMINATION OF VALUE OF GEOTHERMAL ENERGY FOR COMPUTATION OF ROYALTIES

a) Value of geothermal energy for electricity generation

The value of geothermal energy for electricity generation shall be determined by the following formula

$$V = R - (D + G + P + OP + C) \quad (1)$$

Where

- V Value of the geothermal resource
- R Revenue
- D Cost of drilling amortized over the life of the plant
- G Cost of resource gathering amortized over the life of the plant
- P Cost of processing amortized over the life of the plant
- OP Operation and maintenance costs
- C Reasonable costs to point of delivery

The reasonable costs in equation 1 may include

- a. Resource exploration costs
- b. Feasibility studies costs
- c. Construction costs
- d. Costs of land rent, rates and leases
- e. Licenses
- f. Financing costs
- g. Insurance costs
- h. Legal fees
- i. Taxes
- j. Community liaison costs

b) Value of geothermal energy for direct use

The value of geothermal energy for direct use shall be determined by the following formula

$$V = N + S$$

Where

- V Value of the geothermal resource
- N Cost of steam to point of delivery
- S Tons of steam

Revenue for—

- i. electricity generation shall be gross proceeds from steam sales which is the steam charge multiplied by the units of electricity generated;
- ii. direct uses shall be the steam unit price multiplied by the quantity supplied by the licensee.

Exclusion from royalty returns

Any geothermal resources that do not get to point of delivery shall not be subject to royalty. ;

- a) Well testing and re-testing
- b) Venting
- c) Steam/brine transmission losses

The licensee shall submit the remittance form as per Second Schedule of these regulations.