



Ministry of Water Irrigation and Electricity
Federal Democratic Republic of Ethiopia



ETHIOPIAN GEOTHERMAL POLICY, LEGAL AND REGULATORY FRAMEWORK

**6th African Rift Geothermal Conference,
31st October to 6th November 2016
United Nations Conference Centre - Addis
Ababa, Ethiopia**

ENERGY POLICY FRAMEWORK

- The overarching objective is to ensure reliable supply of energy at the right time and at affordable prices, particularly to support the country's agricultural and industrial development strategies.

CLIMATE RESILIENT GREEN ECONOMY STRATEGY

- The main objective is to improve the living condition of the population by reaching a middle income country status by 2025 based on a carbon-neutral growth pathway
- Guide the country against adverse effects of climate change
- Maximize the utilization of the country's hydro, wind, solar and **geothermal** resources, develop fuel efficient stoves, reduce the role of hydrocarbon fuels in industry and transport

ENERGY POLICY FRAMEWORK

- Gives high priority to hydropower development, which is considered as the backbone of the country's energy sector development
- Wind, **geothermal** and solar
- Exploration for hydrocarbon fuels
- Bio-fuels for transport and household use
- The supply of various household fuels
- Energy efficiency and conservation
- Environmental sustainability
- Capacity building

Challenges and Opportunities for Geothermal Energy Development in Ethiopia

- ✘ Challenges / weaknesses
 - ✘ Large financial requirement
 - ✘ Resource and other risks
 - ✘ Long gestation period
 - ✘ Lack of institutional capacity
 - ✘ Shortage of professional skills (scientific, technical, commercial, legal)
 - ✘ Sub optimal legal and regulatory framework (upstream mineral – downstream energy/power)

Challenges and Opportunities for Geothermal Energy Development in Ethiopia

✘ Opportunities / strengths

- ✘ Large resource (considerable detailed investigations and test drillings done/ongoing)
- ✘ Strong policy commitment (cost competitive, base load, renewable, heat as well as electricity, indigenous, energy security and climate resilience)
- ✘ Possibilities of private sector participation
- ✘ Availability of regional risk mitigation facilities

LEGISLATIONS RELEVANT TO GEOTHERMAL DEVELOPMENT

- Energy Proclamation 810/2013
 - Energy Authority
 - Energy efficiency and conservation
- Electricity Operations Regulations 49/1999
- Investment Proclamation 769/2012
- Investment Areas Reserved for Domestic Investors Regulations 270/2012
- Income Tax Proclamation 286/2002
- Environmental Impact Assessment Proclamation 299/2002

Revision of Geothermal Legal and Regulatory Framework

- Comprehensive review of the geothermal sector and design of strategy for development conducted
- Geothermal Resource Development Proclamation issued—overarching legal framework
 - formerly under Mining Proclamation 678/2010

Geothermal Development Models

	Preliminary survey		Surface exploration	Test drilling	Production drilling / field development	Power plant construction	Operation and maintenance	
Model A	Public	Private	Private	Private	Private	Private	Private	Fully private
Model B	Public		Public	Private	Private	Private	Private	PPP
Model C	Public		Public	Public	Private	Private	Private	PPP
Model D	Public		Public	Public	Public	Private	Private	PPP
Model E	Public		Public	Public	Public	Public	Public	Fully public

Highlights of the Geothermal Resource Development Proclamation

Objectives

- ensuring that the country's geothermal resources are developed in an orderly, sustainable and environmentally responsible manner;
- supporting the generation and delivery of electricity from geothermal energy for local consumption and export;
- promoting the use of Grade II geothermal resources for various uses;
- ensuring security of tenure for all investors in respect of geothermal resources development operations; and
- encouraging a sustainable, carbon-neutral economy in Ethiopia.

Highlights of the Geothermal Resource Development Proclamation

- Productive Use of Land and Other Resources
 - coexistence of non-geothermal development activities within the license area of geothermal operations.
 - other natural resources in the geothermal resource license area may be developed
- Resource Conservation and Sustainability
 - promote the sustainability of geothermal resources and avoid unreasonable waste affecting environment
- Known Geothermal Resource Area
 - known geological, geochemical and geophysical characteristics of the area proposed for designation; and
 - the existing and potential uses of the land overlying the geothermal resources.

Highlights of the Geothermal Resource Development Proclamation

- Protected Areas
 - archaeological remains or national monuments;
 - areas reserved for natural habitats or national parks
 - cemeteries and religious sites
 - within five hundred (500) meters from the boundary of a village, city, water reservoir or dam
- Classification of Geothermal Resources
 - Grade I – high enthalpy resources capable of generating electricity
 - Grade II – low enthalpy resources used for direct heat applications

Highlights of the Geothermal Resource Development Proclamation

- **Major Powers and Duties of the Licensing Authority – Ethiopian Energy Authority**
 - issue or deny, renew, suspend, extend, revoke and terminate geothermal operations license issued on Grade I and Grade II geothermal resources operation;
 - determine whether a license on certain license area shall be given through competitive bid or application;
 - ensure that any licensee has the necessary financial resources, technical capability and experience;
 - designate an area as a known geothermal resource area;

Highlights of the Geothermal Resource Development Proclamation

- **Major Powers and Duties of the Licensing Authority**
 - inspect to ensure that geothermal operations are carried out in accordance with the law and applicable licenses conditions;
 - in collaboration with other relevant authorities ensure that geothermal operations comply with environmental, health and safety laws of Ethiopia;
 - issue health and safety standards, drilling code of practices, inspection guidelines, and other codes and standards related to geothermal operations and supervise the implementation of same;
 - Establish and maintain a geothermal resources register that is open to the public

Highlights of the Geothermal Resource Development Proclamation

- **Types of Licenses**

- reconnaissance license;
- exploration license;
- geothermal well-field development and use license;
- Grade II geothermal resource the temperature of which do not exceed one hundred twenty (120) degree centigrade and volume not exceeding two million (2,000,000) m³/year - Regional States

Highlights of the Geothermal Resource Development Proclamation

- **Reconnaissance license**
 - undertake surface exploration activities without environmental impact and that are intended to assess geological, geochemical and geophysical characteristics for the purpose of determining whether a land may have geothermal resources; but not including drilling activities;
 - not exceed 2000 sq. km (generic);
 - non-exclusive, non-renewable and non-competitive basis;
 - requirement of work program;
 - maximum period of validity twenty four (24) months.

Highlights of the Geothermal Resource Development Proclamation

- **Exploration License**

- Establish the dimensions, position, characteristics and extent of geothermal resources by detailed geological, geochemical and geophysical studies including by drilling wells, discharge of geothermal fluids for the purpose of well testing, and also includes conducting environmental and social impact assessment, resource assessment and feasibility studies and other related activities in order to establish the existence of geothermal resources and to determine their extent and economic value;
- Not exceed 200 sq. km (generic)
- Requirement of work program;
- Exclusive and may be competitively awarded.
- Maximum initial period of validity five years (may be renewed twice for one year each).

Highlights of the Geothermal Resource Development Proclamation

- **Geothermal Well-field Development and Use License**

- undertake geothermal resource assessment and feasibility studies, advanced geological, geochemical and geophysical studies, drilling of production, re-injection and monitoring wells, steam-field development, extraction and use of geothermal resources;
- Not exceed 50 sq. km (generic)
- Requirement of work program;
- Exclusive and may be competitively awarded
- A Power Purchase Agreement required
- Maximum period of validity twenty five years.

Highlights of the Geothermal Resource Development Proclamation

- **Rights and Obligations of Licensees**
- **EHS**
- **Inspections**
- **Records and Reports**
- **Certificate of Professional Competency for Geothermal Consultancy Service and Technical Works**
- **Transfer, Surrender, Suspension, Termination and Revocation of Licenses**
- **License Fees**
- **Dispute Resolutions**
- **Transitory Provisions**

Other

- Detailed regulations, directives and codes under development
 - licensing, bidding, permitting, drilling, health, safety, etc)
- New institution being considered to lead geothermal development



Thank you