



## **EXPRESSION OF INTEREST FOR INVESTING IN DIRECT USES OF GEOTHERMAL ENERGY IN MENENGAI GEOTHERMAL FIELD, KENYA.**

**REFERENCE NUMBER – GDC/DU/EOI/052/2020-2021**

### **1. BACKGROUND**

Geothermal Development Company Limited (GDC) is a 100% State-owned Corporation established as a Special Purpose Vehicle (SPV) to fast-track development of geothermal resources in Kenya through surface exploration, drilling, management of geothermal reservoirs and in geothermal technology capacity building. Currently, GDC has operations in Menengai and Baringo-Silali geothermal fields.

One of GDC's mandates is to promote alternative uses of geothermal resources, commonly referred to as Direct Uses. GDC has been demonstrating direct-use technology in Menengai geothermal field since the year 2015 where five (5) demonstration demo projects have been set up and commissioned. The demo projects are meant to showcase the direct-use technology to potential investors with the aim of attracting investments.

With the observed benefits of direct uses, GDC plans to commercialize the technology by inviting investors to use the technology to power processes in their firms or investments. It is for this reason that, GDC invites Expression of Interest (EoI) from potential investors.

### **2. Geothermal Energy Applications**

Geothermal energy can be utilized for a different range of applications ranging from industrial, agriculture, tourism, leisure and domestic, as per the Lindal diagram (Figure 1) depending on the resource temperature and usage. Since geothermal energy is transported through pipelines, it is preferable to have the investments located adjacent to the geothermal field to reduce energy losses and infrastructural costs. The investments are, therefore to be located adjacent to Menengai geothermal projects where key infrastructure and other requirements are already available.

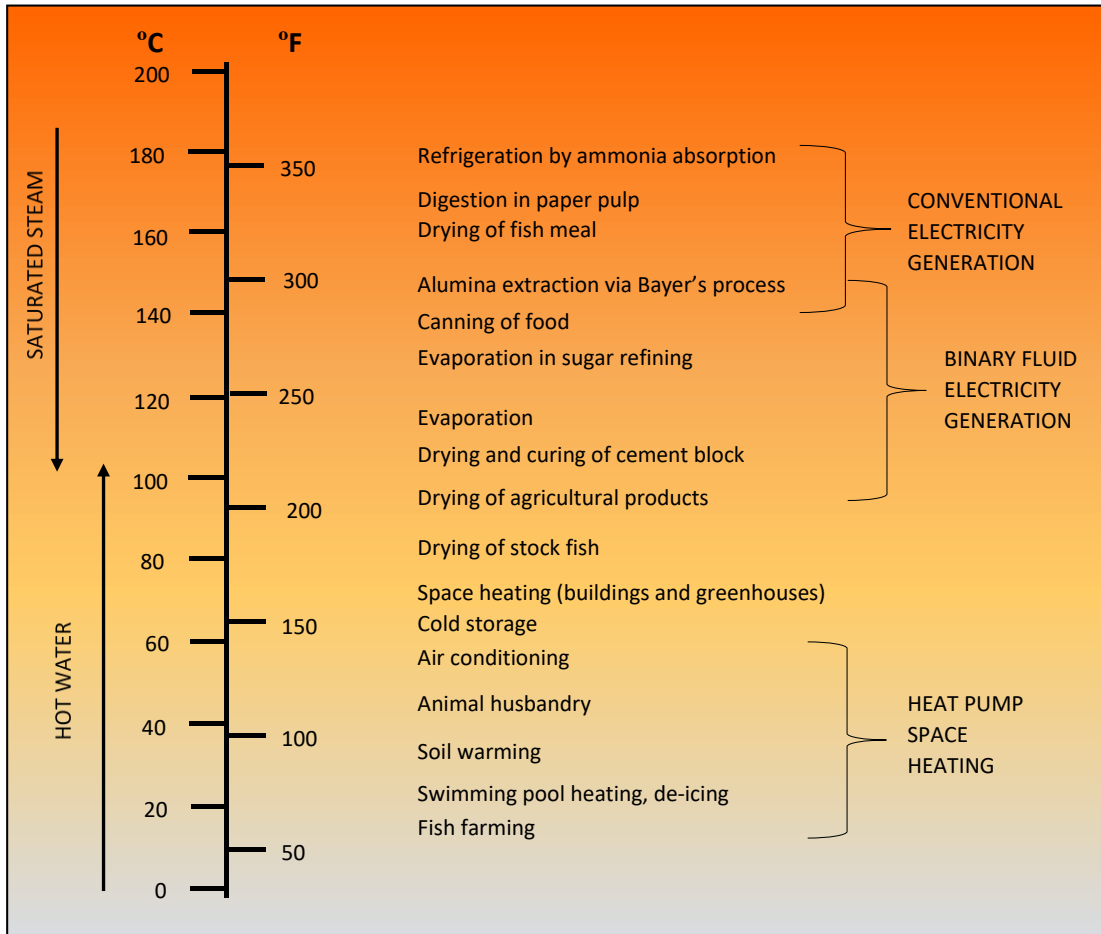


Figure 1: Geothermal Energy uses based on the temperature (Lindal diagram, 1973, updated in 2020)

### 3. Available Infrastructure and Facilities

The following resources, facilities and infrastructure, summarised in Table 1, are available to investors:-

- a) **Thermal energy:** GDC has drilled geothermal wells in Menengai field and will avail geothermal fluids (steam and water) at temperatures of up to 165°C and pressures up to 7 bars absolute
- b) **Environmentally friendly energy:** Geothermal energy is indigenous and environmentally benign. Investors will benefit from the low carbon footprint of their products by using geothermal energy.

- c) **Cheaper energy option:** The investors will benefit from affordable geothermal energy which is up to 50% cheaper than most alternatives.
- d) **Land:** GDC has leased a portion of over 10,000 acres of land from Kenya Forest Services within the Menengai geothermal field which can be sub leased to potential investors for investments to utilise geothermal directly of direct uses of geothermal energy.
- e) **Water:** GDC has drilled boreholes in Menengai which supply raw fresh water for various operations. In addition, Nakuru Water and Sanitation Services Company Limited (NAWASSCO) supplies water to GDC to supplement the borehole water. Investors will have access to the water at a fee.
- f) **Roads:** Menengai geothermal project is about 20 to 30 kilometers from Nakuru town (depending on the access point). The project is accessible through two entries, Bahati side and Kabarak side. Murram roads connect the Menengai project to the tarmac roads and provide access within the project. Nakuru town has all-weather access roads therefore allowing transit of goods to and from the field. GDC also has heavy equipment for constant maintenance of these roads.
- g) **Electricity:** Menengai geothermal field has electricity grid connection network supplied by Kenya Power therefore investors will access the electricity at tariffs agreeable with Kenya Power.
- h) **Telecommunication:** GDC has reliable telecommunication network in the Menengai field which allows for efficient communication.
- i) **Labour:** Skilled and non-skilled labour is readily available from the communities that surround both Menengai Geothermal Field.
- j) **Market:** Nakuru County has a large population and the town is earmarked to be elevated to city status in the near future. The residents of the town and county offer a large market for various industrial and agricultural products. The county has good road networks connecting it to other towns and neighbouring countries. The Kenya - Uganda railway passing through the county also enhances the transport of goods and services.
- k) **Raw Materials:** Raw materials for most industrial and agricultural-based industries would be available in Nakuru, and its environs. Besides, the local economies have the capacity to scale up supplies of such raw materials.

#### 4. EXPRESSION OF INTEREST TO UTILIZE GEOTHERMAL ENERGY FOR DIRECT USE INVESTMENTS

Interested firms/consortium are therefore invited to express their interest in investing in projects that would utilize geothermal energy for Direct-Uses by;

- (a) Requesting for the investment term-sheet which contains a summary of the expected tariffs and costs of access to the utilities and land respectively, and the scoring schedule which will be used to grade the priority of the investment. The Score will be higher for higher amounts of energy requirements, higher local employment, lower land foot print and faster speed of investment (between sign off and start of utility off-take commissioning).
- (b) Submitting a summary of the proposed investment in the provided format, covering the parameters therein.

**TABLE 1: INFORMATION SHEET**

<b>A. Energy and Infrastructure information</b>	
1. Thermal Energy	
i. Geothermal Steam	
- Temperature	Up to 165°C
- Pressure	Up to 7 bar-a
- Flow rate	200 t/hr
ii. Geothermal Brine	
- Temperature	Up to 165°C
- Pressure	Up to 7 bar-a
- Flow rate	500t/hr
iii. Heated raw water	
- Temperature	Up to 100°C
- Pressure	Atmospheric pressure
2. Available Land	1800 acres
3. Fresh cold water	Borehole and municipal council water
4. Roads	Well maintained murram roads
5. Electricity	Supply from Kenya Power Company
6. Telecommunication	Good telecommunication network is available

***NB: Please note that the figures (and numbers) given in this table are ALL approximate values.***

**B. Information Requirements from the Investors**

Name of the Company/Consortium/Joint Venture	
Address and Location of the Company/Consortium/Joint Venture	
Business Sector	
Project concept	(give a short description of the project concept)
<b>Thermal Energy Requirements</b>	
Geothermal steam	
- Temperature	°C
- Pressure	bar-a
- Flow rate	t/hr.
Geothermal Water (Brine)	
- Temperature	°C
- Pressure	bar-a
- Flow rate	t/hr.
Hot fresh water	
- Temperature	°C
- Pressure	bar-a
- Flow rate	t/hr.
Electricity demand	
- -Off-take Voltage	V
- Consumption	
- KVA	KVA and kWh
- kWh	
Size of land required	Acres
Raw water requirements	
- Quantity	m <sup>3</sup> /day
Other infrastructural requirements (list them and quantify)	
-	
-	
-	
-	

-		
-		
Raw materials to be used		
- Type of raw (s)		
- Quantity		
- Availability		
Final products		
- Type		
- Quantity		
- Market		
Waste generation and Management		
- Type		
- Nature of waste (solid, liquid, gaseous, sludge)		
- Quantity		
- Disposal		
- Nature of waste (solid, liquid, gaseous, sludge)		
- Quantity		tons/day
Impact of the investment to the local community (state Four main impacts - - -)		
Potential for job creation		
- Direct labour		Number of persons
- Indirect labour(value chain)		Number of persons
Firms expertise in that investment venture (experience in that investment) - Attach a summary of the achievement in this area		Number of years
Financial status of the company		Audited books for the last three (3) years

## Criteria for evaluating Potential Investors

Evaluation of the potential investors in direct uses of geothermal energy will be skewed towards parameters tabulated below:

### Mandatory Requirements

- i. Certificate of Incorporation/ Registration in Kenya or domicile country certified by an advocate.
- ii. Tax compliance or equivalent for foreign countries valid at the time of opening. The validity of the Tax certificate shall be confirmed from KRA Tax Checker
- iii. Certificate of Confirmation of Directors and Shareholding (CR12) or equivalent for foreign countries.
- iv. Attach evidence of physical location.

Table: 2 Rating Criteria

Parameter	Remarks
1. Thermal Energy	High rating for high energy consumption
2. Environmental impact	High rating for low environmental impact
3. Job creation	High rating for high number of jobs created
4. Source of raw materials	High rating for locally sourced raw materials
5. Social impact	Low rating for negative social impact
6. Financial capability	High marks for strong balance sheet / funds availability
7. Experience	High marks for relevant experience

The EOI considerations will be prioritized based on the above table. Investments that demonstrate the following parameters will be highly rated.

- i. Energy requirements based on GDC's potential shown in Table 1.
  - ii. Efficient use of land (energy usage per unit area)
  - iii. Efficient utilization of water
  - iv. utilization of locally available raw materials
  - v. utilization of local labour
  - vi. Positive impact on the community
  - vii. Least impact on the environment
  - viii. Demonstration of expertise in the area of interest
- (c) As part of the evaluation, bidders will be invited to make a 30 minutes detailed presentation of the proposed investment to the Evaluation Committee. The presentation may be made in a virtual meeting and bidders **must** have/cover the following items, among others:

- (a) Legal status of the company including memorandum and articles of association, the company profile, current composition of its Board of Directors and composition of its management.
- (b) Approval by the investor's Board of Directors to the proposed direct use investment in Menengai.
- (c) Proposed timelines to commence the proposed investment (Prepare a work plan)
- (d) Summary of requirements in Table 1

## **5. CLARIFICATIONS**

Any form of clarifications can be sent to GDC at least seven (7) days before the closing date of the expression of interest and must be sent in writing by paper mail, facsimile, or electronic mail to:

### **The Manager, Supply Chain**

**Geothermal Development Company,**

**Head office: Kawi House, South C Bellevue- off Mombasa Road**

**P.O Box, 100746-00100,**

**Nairobi, Kenya.**

**Pilot line: +254 719 037000; 020 2427516**

Any updates on this EoI will be posted on GDC website, [www.gdc.co.ke](http://www.gdc.co.ke) or <http://tenders.go.ke> free of charge.