

GEOHERMAL DRILLING IN CORBETTI, ETHIOPIA



PRE-QUALIFICATION
JUNE 2020

Table of Contents:

1. Introduction.....	1
2. General Instruction	1
3. Site Locations and Climate Conditions.....	2
4. Scope of Supply.....	4
5. Project Schedule	4
6. Submission of Pre-qualifications Text	5
7. Pre-qualification Information.....	6

1. Introduction

Corbetti Geothermal PLC (the Company) is developing a geothermal power project in the Corbetti caldera in Ethiopia.

Berkeley Energy (BE), which is fund manager of the African Renewable Energy Fund, along with Reykjavik Geothermal (RG) are the principal participants in the project.

The Company has a license that will allow it to develop up to 500 MW of electrical generating capacity in the Corbetti caldera (the Project). Numerous surface studies have shown that this caldera has significant geothermal potential that permits an overall project of this size. The Company has negotiated a PPA with Ethiopian Electric Power (EEP) and a support agreement (IA) with the Government of Ethiopia (GoE), signed in March 2020. The PPA sets out the commercial terms for a project of up to 150 MW split into two phases of 50 MW and 100 MW. The PPA also grants the Company a right of first refusal over further geothermal expansion up to 500 MW. The contracts are in the process of being made effective by GoE through satisfaction of a number of conditions precedent. Swift resolution is expected.

Corbetti Geothermal PLC is pleased to announce this pre-qualification notice for geothermal drilling in the area of Corbetti in Ethiopia, to identify potential drilling contractors that are interested in participating in the Project.

2. General Instruction

Interested drilling contractors are asked to send information about their company, their capability of performing the drilling of geothermal wells as described in this paper and their experience in international drilling. A reference list of similar drilling projects that the candidate has performed earlier, especially on the international market, is required.

Based on the information contained herein, candidates are invited to express their interest in making an integrated drilling contract with the Company for at least three geothermal exploration wells, and up to 26 productions wells.

The information provided is strictly confidential and solely for use in this pre-qualification and through the further development stages / phases.

Detailed tendering documents will be issued at later stage to selected bidders after the results from this pre-qualification. It is estimated that the drilling contract will be awarded in Q4 2020.

The Company is seeking information from qualified drilling contractors with the capability to drill geothermal wells of similar design to the following specifications:

Section	Corbetti (Well CB-01)		
	Bit Size	Casing	Depth (m)
Surface Casing	26"	20" 94 ppf K55 BTC	100
Anchor Casing	17-1/2"	13-3/8" 68ppf K55 BTC	360
Production Casing	12-1/4"	9-5/8" 47 ppf K55 BTC	1000
Perforated Liner	8-1/2"	7" 26 ppf K55 BTC	2500

The 3 initial wells will be of standard diameter and drilled deviated to maximize the information gathered from drilling of such wells. Depending on the outcome of the Corbetti exploration drilling a go/no go decision will be made on the drilling of additional production wells in the area for the future geothermal power plant targeted up to at least 150 MWe.

3. Site Locations and Climate Conditions

The Corbetti caldera is located some 250 km south of Addis Ababa the capital city of Ethiopia and is in the middle of the African Rift valley that stretches from the Red sea in the north towards Kenya and Tanzania in the south.

The elevation inside the Corbetti caldera is between 1,750 to 2,100 meters above sea level.

Since Ethiopia does not have any sea border, it relies on their neighbouring country Djibouti for import of goods. Candidates for this project should keep this in mind for the transport of heavy equipment to the Corbetti site. The access road to Corbetti is approximately 25 km long from the town of Shashamane. The road is suitable for transport as is the national road to Shashamane.

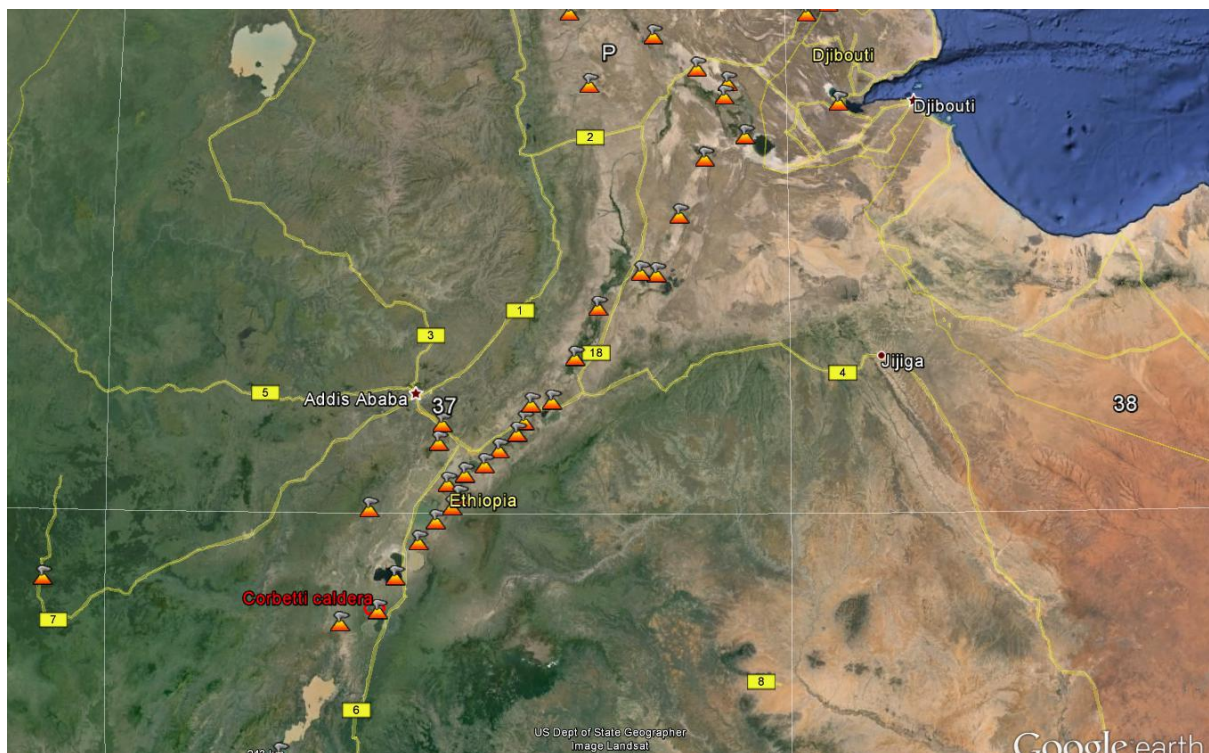


Figure 1: Location of Corbetti caldera with Addis Ababa and Djibouti.

Inside the Corbetti caldera a consistent pattern of chemical signatures has been observed in 12 fumarole gas samples now collected. These yield 260-360°C deep reservoir temperatures, based on CO₂ type geothermometers. Other historic studies conducted in Corbetti show similar results. Water samples in shallow exploration wells also suggest high recharge temperatures. When accounting for atmospheric effects and lack of support from other gas geothermometers, the Corbetti resource is conservatively defined as a large 250-300°C high grade geothermal reservoir.

Extensive geochemical sampling was carried out by RG on numerous active surface manifestations. No hot springs occur within the Corbetti study area, and all the samples are thus of geothermal steam from vents and fumaroles. The new data has been added to the existing database and the whole data set interpreted to evaluate likely subsurface temperatures and steam characteristics.

RG have performed a resistivity survey applying magnetotelluric (MT) and central loop transient electromagnetic (TEM) measurements in and around the Corbetti caldera. A total of 127 MT soundings and 119 TEM soundings measurements were collected.

All geological measurements that have been performed at Corbetti site indicate positive results regarding geothermal prospects. Due diligence carried out by an independent international geothermal consultant has confirmed the same.

The outdoor ambient dry bulb temperature ranges from about 8°C to 30°C in the winter and from about 13°C to 26°C in the summer. The rainy season is from May to September, mean rainfall per month up to 120 mm. December is the driest month with mean rainfall about 30 mm.

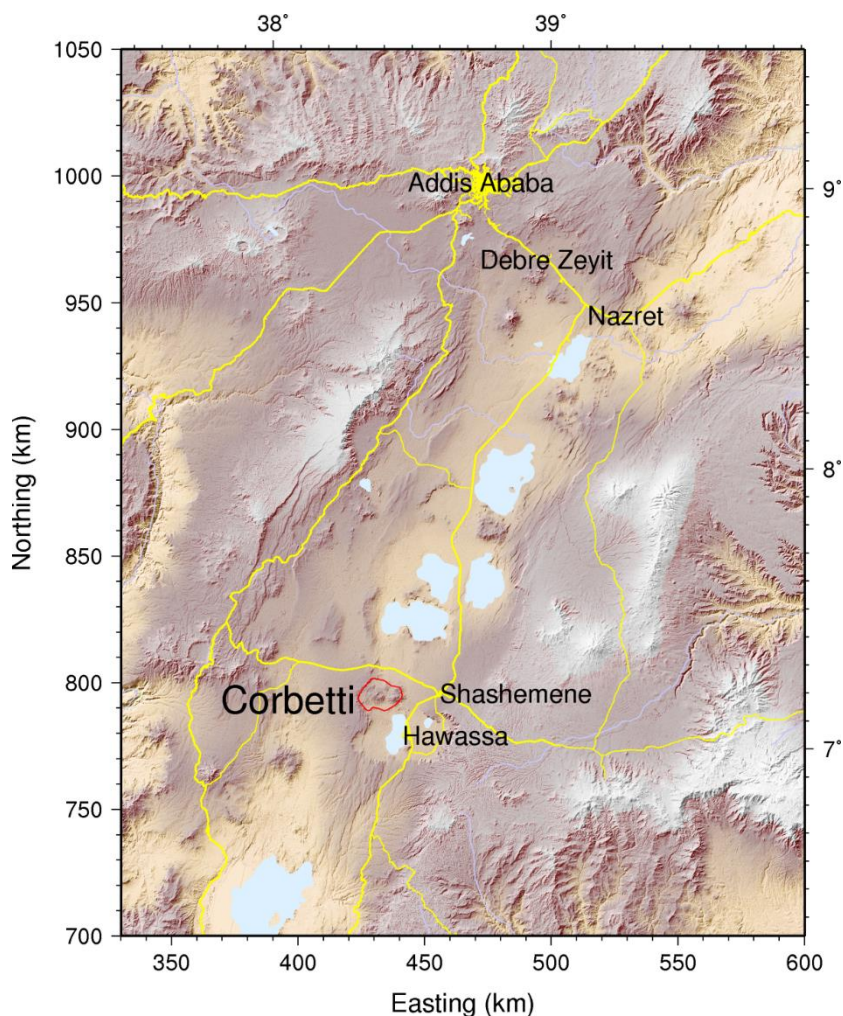


Figure 2: Location of Corbetti Geothermal Prospect

4. Scope of Supply

The drilling contractor shall supply all the necessary associated services listed below, experienced personnel, tools, equipment and material. The drilling contractor shall execute a comprehensive drilling plan resulting in the safe and timely completion of the wells comprising the Project requirements, all to be included within a single day rate contract. The Company plans to drill up to twenty-six (26) wells in 4 Lots (3+4+3+16 wells). The Contractor shall provide the following but not limited to:

- Drilling unit with all auxiliary equipment and Drilling Rig crew
- Drill string, Bottom Hole Assembly (BHA) and fishing equipment
- Blow out preventers
- Mud Logging
- Casing running services
- Cementing Services and materials
- Mud Engineering Services and materials
- Directional Drilling Services
- Drill Bits
- Rental tools
- Casings
- Wellhead Items
- Well testing equipment and installation
- Casing Accessories
- Wireline Logging Services
- Aerated Drilling Services
- HSE
- Fuel
- Assistance during testing of wells
- Drilling water supply system and operation
- Camp
- Material storage
- Security

The Company and third-party services will supply the following:

- Drilling Supervision
- Well Testing Supervision
- Part of Drill Bits, Casings, Casing Accessories and Wellhead items have already been procured for the first 2 wells.
- Civil Works
- Drilling water supply wells and piping

Technical details and Contract Conditions of the drilling requirements will be issued with the Drilling tender documents.

5. Project Schedule

The indicative time schedule for the project's first phase is the following:

- Drilling Contract award: Q4-2020
- Civil work contract award: Q3-2020
- Civil work completed: Q1-2021
- Drilling rig spudded: Q1-2021
- Drilling of 3 wells finished: Q3-2021
- Drilling work completed: Q2-2024
- Official COD for 50 MW: Q2-2024
- Official COD for further 100 MW: Q4-2025

6. Submission of Pre-qualifications Text

Drilling companies interested in being invited to submit a tender for this project are requested to provide the following information:

1. Confirmation, on headed letter, signed by a person with designated authority, of their interest in tendering for the project.
2. Summary information in relation to their experience of:
 - a. Drilling of geothermal wells – internationally and in Africa.
 - b. Managing an integrated drilling contract of similar size.
 - c. Procurement of all necessary materials for the drilling process.
3. Comments and feedback on any aspect of the proposed scope of work outlined in this document.
4. Information about the rig offered for this project as well as details of the company's fleet of rigs.
5. Information about the availability of rig and the workload of company's rig.

Timelines for the Pre-Qualification are as follows:

17th of June 2020 – launch of Pre-Qualification.

17th of July 2020, 16:00 East Africa Time – deadline for submission.

Feedback will be provided to all firms that submit a Pre-Qualification. All submissions, inquiries or comments to this Pre-Qualification should be sent by email to the following contact persons:

Contact Persons:

To: Helgi Leifsson

helgi@corbettigeothermal.com

Cc: Kristinn Ingason

kristinn@mannvit.is

7. Pre-qualification Information

The minimum score to qualify for the drilling tender will be 80%

PQQ ID	Pre-Qualification Information	Example Information & Support Documentation	Evaluation %
1	Main Base Location	Head Office Location & Regional Bases	-
2	Years of Experience	Company Established Since? Certificate of Registration	5%
3	Company Scale & Size	Company Turnover – Last 3 Years.	5%
4	Contractor Experience	Number of Years & Project Track – in Africa, Ethiopia, in International Geothermal Record List	20%
5	Drilling Services – Equipment and Experience	Directional Drilling, Cementing, Mud Engineering, Mud logging, Wireline logging, Aerated drilling and Drill Bits.	20%
6	Experience in Integrated Service Contracts	Number of Years & Project Track Record List	10%
7	Experience in providing materials from different manufacturers	Project Track Record List & Writeup	10%
8	Current Locations of Suitable Rigs	Size, location & quantity. Any in Ethiopia / East Africa?	5%
9	Total Number of Drilling Rigs Owned	Size and current location. In use / idle.	5%
10	Estimated Timescale to Mobilise to Site	Including shipping / transport, C&F and transport to site. Including all associated materials.	10%
11	Proposed Company Structure of Applicant	Whether applying as a corporate entity, JV or consortium. Whether Joint & Severally Liable	5%
12	Certifications, Quality & Safety	ISO / other Certification. Certificates of Membership to professional bodies	5%