

ABOUT KALAHARI GEOENERGY LTD - Corporate, Regulatory and Supervisory

Kalahari GeoEnergy Ltd: Private Company, Registered in Zambia.

Aims and Objectives: To explore and, if viable, develop geothermal energy resources to produce electrical power in East and Southern Africa, with current focus on Zambia. To become an Independent Power Producer.

Permitting for Exploration and Development Rights: Agreement with Zambian Government, represented by Department of Energy, provides exclusive exploration rights to an area within the Kafue Trough associated with identified geothermal systems and provides basis for development of viable targets.

Reporting and Supervisory: In Zambia the Company reports to a steering committee composed of stakeholders.

Technical Collaboration: Technical co-operation agreement with National Institute for Scientific and Industrial Research, Zambia.

Peer Review & Consultancy: Geologica Geothermal Group, USA. www.geologica.net

Investment Licence: Kalahari has a Zambian Development Agency Investment Licence specifically for its geothermal investment.

Environmental: Environmental Impact Assessment for geothermal drilling approved by Zambia Environmental Management Agency ("ZEMA").

Funding: USTDA committed to fund feasibility study. Currently share-holder funded. Following the completion of preliminary drilling, partners or third party funding may be sought.

Directors: - Dr. Moses Banda - Director (previously chairman of Kiwara Resources Ltd, Zambian subsidiary of minerals exploration company, Kiwara plc.)
- Peter Vivian-Neal - CEO (previously a founder and the chief executive of minerals exploration company, Kiwara plc.)

BWEENGWA RIVER GEOTHERMAL RESOURCE

Project Location

The Bweengwa River Geothermal Resource Area covers the southern part of Lochinvar National Park and traditional lands sparsely occupied by the pastoralist Tonga ethnic group to the south of the Park. The area is accessed via the Livingstone – Lusaka truck road from Monze, which is some 45km by tarred and gravel roads.

Exploration work undertaken:

- Geological mapping
- Hydrochemistry sampling
- Geophysics (including ground magnetics, AMT resistivity, radiometric, gravity, combined 3D modelling, and LiDAR/Thermal IR)
- Shallow soil temperature measurements
- Engineering, drilling and logging of fourteen (14) temperature gradient holes, designated Wells LOCH 01-14
- Commencement of deep (1100 m) slim well drilling

Current results confirm a geologic setting conducive for geothermal hydrothermal systems

Initial Indicated Resource: Greater than 10MW of usable power

The surface manifestations of the Bweengwa River Geothermal Resource Area include geothermal springs that extend over 9km and lie on the southern basin bounding regional fault of the Kafue Trough. Ongoing exploration has to-date included the drilling of fourteen temperature gradient/slim wells totalling 3,500m. Results confirm a geologic setting conducive for geothermal hydrothermal systems and give a strong probability of a medium-low enthalpy geothermal resource that can support a power generation project of at least 10MW. Heat-in-place, power density and heat flow methods were used, providing a consistent estimated usable resource capacity in the range of 10-20MW.

The Bweengwa River Geothermal Resource Area contains compelling evidence of the three key elements required for hosting a hydrothermal system: temperature, permeability and water. Evidence for minimum reservoir temperature from 130C to more than 150C is provided by both fluid chemistry and temperature gradient holes. Permeability is confirmed by the discharge of the hot springs along the regional bounding fault and the associated geologic structures. The reservoir is in fractured basement rocks at a shallow to medium depth adjacent to the bounding fault. The source of water is local meteoric water that is plentiful.

The resource capacity is being verified by the 2019 drill programme, if successful, will lead to a feasibility study by the end of the year.

STEPS TO DEVELOP AND PRODUCE POWER AT BWEENGWA RIVER

Development

Each 10MW Development phase to consist of:

- Wells: Produce and inject ~1,000 m³/h of ~130-160°C geothermal fluid: 3-4 production and 2-3 injection wells drilled either vertical or directionally to maximise reservoir penetration
- Well-head Equipment: Fluid collection and reinjection piping systems, pumps, wellhead and pipeline valves and monitoring equipment
- Power Plant: Water-cooled binary unit capable of generating 10MW net including heat exchangers, turbines and auxiliary equipment
- A generator step-up transformer and switch yard to export power to the transmission line. Access/meter/sync point to energized 33kV line <6 km from location of wells

Concurrent Exploration to increase resource

- Geophysics suggests likely extensions and systems at Bweengwa River Resource Area
- Company has identified and is conducting surface exploration including geophysics at additionally identified targets within the Kafue Trough exploration area
- Assessment is that license area may contain 50-80MW. KGE's objective is to have 50MW either in production or as defined resources by 2022

GEOTHERMAL: ENERGY BEYOND POWER

Cascade Energy Applications

A binary power plant will utilise thermal heat from well head temperature down to some 100°C; thereafter the energy can be used in pre-heaters and a range of activities that require thermal energy, typically in the agro-industrial sector. There is growing international interest in utilising geothermal energy for direct use applications such as utilisation for district heating /hot water, balneology, dairy processing, horticulture and aquaculture.

At Lochinvar, and in Zambia generally, identified direct applications include dairy, horticulture and aquaculture, with associated processing and packaging facilities. Such a cluster or 'resource park' could be situated in the southern part of the geothermal resource area; these activities would create rural development with sustainable employment. At the end of the cascade utilisation of thermal energy the geothermal fluid will be re-injected into the reservoir.

Such direct applications of geothermal energy in the Kafue Trough could play an important role in rural energy & rural industrialisation policies, leading to food security and sustainable economically viable employment. This is particularly pertinent in the context of developing resilience to implications of climate change.