

BWEENGWA



Location
Southern Province,
Zambia

PROJECT SUMMARY

Ground-breaking plans to build a ~10MW geothermal plant in Zambia are progressing well after REPP approved a loan to finance the drilling of up to three additional slim wells for pre-feasibility resource definition.

Although geothermal power generation in Africa is currently focused on the Great Rift Valley in Kenya and Ethiopia, exploration suggests that the Kafue Trough in Zambia's Southern Province, is also suitable for the technology. The difference is that, unlike Great Rift Valley projects where the heat source is magmatic, the heat source in Zambia is within crustal fault zones where deep circulating fluids are heated by the geothermal gradient and held in place by a cap rock. This type of geologic setting has been successfully exploited for power generation in Nevada, USA, and Anatolia, Turkey.

Developer Kalahari GeoEnergy Ltd had privately financed the drilling of 18 exploratory wells (thermal gradient holes and slim wells). Five of these have intersected a near-surface aquifer with temperatures of more than 100 degrees Celsius. This shallow aquifer is fed from a deeper ~150 degrees Celsius resource.

A portion of REPP's USD 3.2m funding has been used to enable the company to drill and test a further four slim wells which have enabled the collation of additional data for reservoir modelling, and which are being used in a feasibility study that is expected to be completed by September 2021. The intention is to install a prototype power unit of up to 500kW at one of the new wells, part funded by REPP, although the ultimate objective is to develop a 10MW power plant.

Nine people were employed during the latest round of drilling which took place between September 2020 and February 2021.

Adding geothermal to Zambia's energy mix would allow for a renewable source of baseload capacity, and have a potentially transformative impact on the region by facilitating the expansion of geothermal energy generation both nationally and regionally.

* Note: REPP is providing finance for drilling and part of the costs of establishing a prototype unit. KPIs refer to the plant once commercially operational.



Country policy alignment

Project supports Zambia's conditional NDC target to reduce GHG by 47% by 2030 (including through increased generation of renewable energy) and contributes USD 3.2m towards the estimated USD 35bn cost of implementing the conditional mitigation measures (NDC 2016; 2020). Also supports the aim of diversifying the energy mix, including through increased geothermal exploration, outlined as a priority in the National Energy Policy (2019).

AT A GLANCE

Technology:

Geothermal



Project type:

Exploratory (drilling)

Offtaker:

TBC

KPIs



GHG emissions avoided:
58,180 tCO₂e per year



Installed capacity:
10MW*

FUNDING STRUCTURE

Signed: 24 April 2020

Type: Convertible loan

REPP funding: USD 3.2m

SDGs

7



8



11



13



17



"The convertible loan facility from REPP will enable us to drill and test additional slim wells to determine the capacity of the reservoir. The addition of dispatchable, sustainable energy to the grid will be a positive step towards Zambia meeting its development targets, while the secondary uses of geothermal energy should attract investment into the district."

Peter Vivian-Neal, CEO, Kalahari GeoEnergy Ltd