



TMGO

TULU MOYE GEOTHERMAL

**Monthly Update
January 2019**

TMGO SUBMITS ANNUAL 2019 WORK PLAN FOR TO EEA

TMGO submitted a Work Plan to EEA for the year of 2019. The Work Plan is first of its kind following the renewal of Exploration License as a Transfer license for TMGO in August 29th 2018. The former License holder was Reykjavik Geothermal Consulting Co., Inclusive of both Tulu Moye and Abaya geothermal areas.

The TMGO Work Plan for 2019 is based on the Ethiopian Parliament Ratification of the PPA and IA which will be finalized in early 2019.

The exploration work in Tulu Moye project area is currently on the stage of starting construction work which is planned for the first quarter of 2019 as a preparation for exploration drilling. In addition, the Work Plan also states the activities to be done prior to starting the drilling of 3 full size exploration wells by mid-year 2019.

The estimated total cost of exploration activities for TMGO in 2019 is ETB 1,168,923,159.



TMGO GEOTHERMAL DRILLING TENDER UNDERWAY



Tendering process is on-going, and the submission has been postponed to February 15th 2019 up on the request from the bidders needing more preparation time. Also, clarification process from the bidders is on-going and the drilling process is scheduled to start in the summer of 2019.

TMGO with their Owners Engineers defined long lead items for the above-mentioned works for the purpose of speeding up the process. These items are Master Valves, accessories, casings and water supply pipes.

The plan for the Geothermal drilling for the First Phase is to drill 3 exploration wells, 7 production wells and 3 re-injection wells along with all the required services for drilling activities. After a pre-qualification round, 6 companies were selected to participate in the final bidding round. All the selected companies that partook in the pre-qualification are world-wide known drilling companies. These are Great Wall Drilling Company (China); Halliburton (USA); Hilong Group (China); Icelandic Drilling Company (Iceland), KenGen (Kenya) and Zorlu (Turkey).



TMGO'S GRMF GRANT FUNDING APPLICATION APPROVED



The African Union Commission (AUC), the German Federal Ministry for Economic Cooperation and Development (BMZ) and the EU-Africa Infrastructure Trust Fund (EU ITF) via KfW Entwicklungsbank (KfW) established the Geothermal Risk Mitigation Facility (GRMF) to fund geothermal development in Eastern Africa. In addition, the UK Department for International Development (DFID) is also a contributor to GRMF.

The programme co-finances surface studies and drilling programmes aimed at developing geothermal energy projects being a largely untapped indigenous and renewable energy resource. The GRMF programme currently comprises 115 million USD available for funding.

TMGO submitted an application to the Geothermal Risk Mitigation Fund (GRMF) in June 2018 for funding to support plans for three full size exploration wells and associated support infrastructure, such as well pads,

roads and water supply. The team received the good news in late 2018 that the submitted application is successful with GRMF offering up to US\$10M in grant support funding for the project. It is acknowledged that GRMF grant funding is the single largest grant award to a geothermal development project and is a great vote of confidence and support to TMGO, project sponsors and investors and geothermal resource in Ethiopia.

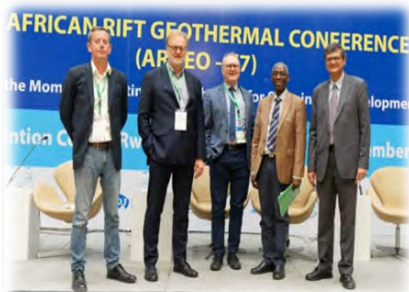


TMGO AT ARGeo-C7, KIGALI

The Seventh African Rift Geothermal Conference (ARGeo-C7) and "Pre- and Post-Conference activities" were held on 29 October -4 November 2018 in Rwanda. The conference is organized in the context of achieving the global and continental development

policy and strategic processes, i.e. The Agenda 2030 Sustainable Development Goals and the AU Agenda 2063; The Africa We Want. The Agenda 2063 harmonizes the two development processes in its Common Africa Position (CAP) that reflects (among others) the implementation of SDG 7 whose objective is "to ensure access to affordable, reliable and sustainable modern energy for all".

TM SAS Board Director Mr. Gunnar Orn Gunnarsson and TMGO's very own CEO; Mr. Darrell Boyd participated as panellists for the second day Plenary Session on Financing of Geothermal Projects. The panel discussion mainly addressed that governments need to put in place friendly policies and an enabling regulatory framework as a catalyst to attract funding in the sector.



TMGO ATTENDS THE FIRST AFRICA INVESTMENT FORUM (AIF)



TMGO was invited to attend the first edition of the African Investment Forum (AIF) organised by the African Development Bank (AfDB) which was held on 7—9 November in Johannesburg, South Africa. AIF is a multi-stakeholder, multi-disciplinary collaborative platform proactively promoting economic and social development on the continent. At this occasion, TMGO was pleased to host a dedicated session about the Tulu Moyo Geothermal project which was attended by H.E. Dr. Eng. Sileshi Bekele (Minister of Energy, Ethiopia), as well as major esteemed

project stakeholders such as the AfDB, the European Investment Bank, Power Africa and Delphos International.

During this session, TMGO's CEO Mr. Darrell Boyd presented a comprehensive progress update followed by the company's ambition and planning to start exploration drilling phase by end of June 2019 thereby involving a total FDI budget of c. US\$ 40 million to be committed to Ethiopia in 2019. TMGO also shared about some key challenges to this roadmap such as the imperative ratification by Parliament of the project's Implementation Agreement. All parties hence confirmed their support to this important project which pledges to bring (at final completion) c. US\$ 2 billion total investment to Ethiopia as well as major benefits to the Ethiopian people.

TMGO'S INVESTMENT REACHES US\$16 MILLION



Development cost to Tulu Moyo Geothermal Project to date have reached US\$ 16M.

The company is also committed to invest a further amount of c. US\$ 40 million in year 2019 when allowed to start the exploration drilling operations, after ratification of the IA.

TMGO EMPLOYEES MEDICAL AND LIABILITY INSURANCE

TMGO has come into an agreement with the Nyala Insurance for the execution of Medical and GPA insurances in the past. On this month, TMGO would like to gladly announce that it has agreed on a new insurance coverage with Nyala insurance for Public Liability and Third-Party Liability Insurance for its staff members.



ADDITIONAL GEOSCIENCE STUDY UNDERWAY

Additional surface studies are recommended in order to get in-depth geoscience information and refined interpretation and geological map over the Tulu Moye Geothermal field area.

There are various geoscience surveys carried out in collaboration with Geological Survey of Ethiopia (GSE) and Addis Ababa University (AAU) which divulged valuable information about geothermal potential of the Tulu Moye lease area. These surveys included 1) completion of the volcanological, tectonic and petrological mapping of Northern Gnaro along Salen Range, 2) Ground Gravity Survey over a km grid which covers the lease area and 3) Installing passive microseismic network in the TMGO's lease area before deep geothermal well drilling commences.

Now, additional geoscience surveys are recommended to supplement the previous study outcomes. These proposals enable to refine the picture of the lease area in relation to the geothermal resource occurrence to a better level. The recommended methods (Geoscience) include Geology/Petrology which is meant to upgrade the geological map of the lease area, Alteration minerals, Remote sensing that includes infrared and LiDAR survey (using drones or satellite da-

ta), hydrogeology which is done to target ground water occurrence, Geochemistry (Fluid chemistry and Soil gas flux and Temperature) which is used to know various parameters that define the nature of the resource and identify permeable areas for drilling and Geophysics (Micro-Seismicity, Micro-Gravity and 3D inversion of Resistivity data).



WATER WELL DRILLING



Drilling of wells supplying service water for the geothermal drilling has been concluded and due to the water level being too deep, the well had to be abandoned. A new site for drilling water wells has been decided.

Derba Drilling and Hydrology PLC will be mobilising the rig to the next drilling site which covers the southern part of the first water well area. If drilling for water in this new location will also be negative, the plan is to get water from Lake Koka, roughly 20km from the drilling site. Concept design as well preparation of ESIA study as for this new location has started.

CIVIL WORKS CONTRACT AWARDED

The Civil Work for the Tulu Moye project which includes constructing new access roads, geothermal well pads, water supply pipelines and reservoir, accommodation camp and lay-down area is to start January/February 2019. The Civil Work tender was out for bid in which three companies submitted offer i.e. Mikada, Rama and Varnero. Out of the three, Mikada got the award as the lowest bidder. As a result, contract between TMGO and Mikada will be signed. A notice to proceed will be given and Mikada will start mobilizing to the site in late January 2019.



TMGO & DELPHOS INTERNATIONAL CONTRACT SIGNING

It is to be recalled that USTDA grant agreement was signed by CEO of TMGO; Mr. Darrell Boyd and Mr. Thomas R. Hardy, Director of Congressional and Public Affairs of USTDA. The USTDA grant will be used to produce a feasibility study for lenders engagement into the project. Delphos International represented by Mr. Slav Gatchev; Managing Director of Delphos International as a prime contractor have signed the agreement to conduct the study for TMGO on December 4th, 2018. As a result, Delphos International has contracted international and national advisors for the various scopes of works which includes but not limited to legal, environmental and social, technical.

include drilling results and power plant technical details.



A kick off meeting has taken place on the 21st of January 2019 and the study is expected to be finalized by February 2020.

MERIDIAM AT WORLD ECONOMIC FORUM 2019, DAVOS



Meridiam's Founder & CEO (TMGO's majority shareholder), Mr. Thierry Deau met with H.E. Prime Minister Dr. Abiy Ahmed, Prime Minister of Ethiopia in Davos on January 22, 2019 in which he held a fruitful discussion. H.E. Dr. Abiy was one of the guest speakers at annual World Economic Forum in Davos this month making this his second European Tour since he was elected as the Ethiopian PM in March 2018.

TMGO ADVISORY TEAM

TMGO have assembled and appointed a high-caliber team of International and Ethiopian expert advisors in support of the project and investment. Delphos International, based in Washington DC, USA is an independent financial services firm that supports its clients with all aspects of the project financing process. Project and transaction advice is provided by both Trinity Law & FLS Law. Trinity International LLP is a niche projects, finance, corporate and commercial law firm focusing on emerging markets, notably Africa but also the Middle East, Latin America and Asia. Trinity have wide sector experience including in power, energy/renewable energy, resources, transport infrastructure, industry and agriculture. FLS Law Office is an Ethiopian law practice established by an all female team of lawyers with TMGO being one of their first clients.

DELPHOS
INTERNATIONAL

Trinity
INTERNATIONAL LLP

FLS
LAW OFFICE

TMGO APPOINTS MANNVIT-VERKIS & POWER ENGINEERS TO SUPPORT THE PROJECT



Mannvit-Verkis (M-V), a company jointly owned by Mannvit and Verkis for cooperation on international projects, has recently signed a consulting agreement with TMGO for Owner's Engineer services concerning the development of a geothermal power plant in Tulu Moye, Ethiopia. M-V will assist TMGO through the development stages regarding access roads, well pads, drilling and testing of wells and the development of the steam field among other things.

M-V collaborates with Landsvirkjun Power, ISOR and MGM Consult for the execution of the project. M-V and their team are now fully mobilized and providing engineering, design and procurement support to TMGO. The procurement to select and appoint TMGO's Civils & Water Infrastructure Contractor has recently been completed with Mikada; a 100% Ethiopian owned company being selected for contract award. Procurements for the Geothermal Drilling Contract is also progressing well, with six international contractors having pre-qualified to receive the Tender Documents.

In addition, the procurement for long-lead delivery materials that TMGO will buy themselves directly, to support an accelerated project schedule, such as Geothermal Well Master Valves, Water Pipes & Drilling Casings are all in progress. Design and Engineering work to support these procurements and appointments have all been completed by Mannvit-Verkis and the team.

Power Engineers is an American global consulting engineering firm specializing in the delivery of integrated solutions has been appointed to support TMGO for the development of the Geothermal Power Plant. The company will work to support TMGO in the design, engineering, procurement and construction management of the Phase 1 50MW Power Plant, appointed jointly by TMGO directly and also under a USTDA Grant funding contract.

TMGO TO DEVELOP HUMAN AND BUSINESS RESOURCE PLAN FOR PROJECT COMMUNITY



The human and business resource plan is mainly focused to work on human resource and business development. The plan targets in providing technical skill training for youth, who will potentially be recruited to work for the project. Thus, to implement the plan working relationship was formed with SOS Children's Villages; the world's largest non-governmental organisation focused on supporting children without parental care and families at risk. In addition, SOS work with communities, partners and states in TMGO project community in areas of Education, Health and water.

As such, SOS technical training facility in Addis Ababa will be used as one of the training facility and SOS will lead the implementation of the plan.

The training will focus on skills such as, plumbing, piping fitting, metalwork, automotive repair, elec-

trical and other short-term trainings including entrepreneurship.

Also, SOS offers access to vocational training, hands-on learning through apprenticeships and real-life work experience to give youth the skills that employers are looking for, while entrepreneurial skills development programs prepare young people to go into businesses on their own.



SOCIAL AND ENVIRONMENTAL



ers to assure them that the project will go through the necessary legal procedures to compensate for the affected land before the commencement of any activity. Engagement was made with the woreda administrator to request the formation of the property valuation committee. As such, a Property Valuation Committee was formed to facilitate the land acquisition process of the project water program. Property valuation Committee had two meetings with the owners of the grazing land and valued the property based on Ethiopian proclamation no. 455/2005 and regulation no.135/2007. Land acquisition and livelihood

The project's water drilling activity required a land access in the concession area, an area with the size of approx.. 40X20 meters. The social and environmental function has been engaged with the local administration to acquire such land, based on the hydrological study findings. The first well is located in one of the projects *kebele* of Anole. First contact was made with the land owner-

Restoration plan developed based on Ethiopian law and international standards, particularly of IFC Performance Standard and World bank Operation Procedures. The payment calculation was made based on the country law, but project top up the payment from the legal requirement of 10 years to 15 years. Compensation payment transfer made to owners accounts on 28th Sept. 2018.

BASELINE STUDY CONDUCTED

Two local contractors conducted a socio-economic and noise and air quality baseline study in the project concession area. Socio-economic data was also collected from a sample size of 1,572 households. The collected data address issues of social and economic significance, land ownership, livelihood activities, market values, available infrastructure etc.

The noise and air quality study collected data relevant for project impact monitoring. The study is based on the latest project information on the location of the first phase drilling pads



UMVOTO CONDUCTED TO INSTALL WEATHER STATION ON SITE

UMVOTO Africa Pty is hired to provide scientifically sound metrological equipment and consulting services that will provide robust data used for environmental monitoring of TMGO project. UMVOTO will install a Campbell Scientific CR800 Multi parameter weather Station. The station will provide records on wind speed and direction, temperature, relative humidity, solar radiation, solar hours, barometric pressure and precipitation.

HEALTH & SAFETY

As part of its commitment to maintain a strong health and safety culture, TMGO has published its Health & Safety Policy Statement. This Policy Statement supports TMGO's Health & Safety Policy which sets high standards for our supply chain owners engineers, contractors and consultants to follow to ensure the safe and healthy working practices for all stakeholders in the project.

TMGO has been supported in the development of its Health & Safety policies by Addis Environmental Services, an Addis based Ethiopian Consultancy company.



ADDIS ENVIRONMENTAL SERVICES
ENVIRONMENT | WATER | GREEN ENERGY



UPCOMING WORKSHOPS, EVENTS AND NEW HIRES

TMGO is working toward organizing two upcoming workshops in Sheraton Addis Hotel and Adama to be held on last week of January 2019. These workshops will convene to create a conducive environment for investment with respect of communication and good governance of the community whilst creating awareness of the energy sector investment and coordinate the benefit sharing in the region among our stakeholders i.e. EEP, EEA, MOWIE and other Regional, Zonal and Woreda Administrators. TMGO will also present the Environmental, Social and Socioeconomic aspects of the project and its benefits for the region to the new management team of the Governmental sectors.

Another upcoming TMGO events is Staff Awayday Trainings scheduled for 1-2 February 2019 at Marriot Hotel, Addis Ababa to provide staff with training & development by performing different team building activities.

Additionally, TMGO held a meeting with Turo Moye community on the upcoming water well drilling activities and has reported on the first well result. On this occasion, members of the community raised their concern and rumours surrounding the water well drilling activities. TMGO and the Woreda Water and Energy head respond wisely to the raised questions and explained the role of the government in providing permit for work and also monitor the work of TMGO.

TMGO hired a Deputy CTO to enhance its management and two interns that will work closely on Social & Environmental and Finance respectively. Upon the completion of their internships, they ought to develop soft skills and will be prepare them for the real work environment by enhancing their experience as TMGO creates opportunities for young university graduates.



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