

NEWSLETTER

DECEMBER 2019



HIGHLIGHTS

TMGO, EEP, MoWIE & MOFEC Met to Progress Contract Effectiveness

Drilling Mobilization Engagement Held at Iteya and Assela

Air Quality Monitoring Equipment Installed

TMGO Sponsors the Annual Beaujolais Nouveau Day, 2019

TMGO celebrates Christmas with the British Embassy



Representing the TMGO Team, CEO; Mr. Darrell Boyd, had the honour to attend the pre-Christmas cocktail party at the British Embassy in Addis Ababa. Hosted by the British Ambassador; H.E. Dr Alastair McPhail and his wife Mrs. Jo McPhail, a senior Foreign and Commonwealth Office Department Lead herself, at their residence. The event included mulled wine and mince pies [British Christmas traditions] which was all homemade and thoroughly enjoyable alongside most foreign ambassadors to Ethiopia and many government officials of Ethiopia.

TMGO, EEP, MoWIE & MOFEC Met to Progress Contract Effectiveness



Led by EEP's CEO; Dr. Abraham Belay, of our customer organization EEP, good progress was made at recent meetings to move TMGO towards effectiveness. This includes concluding the amended and re-stated Power Purchase Agreement and Implementation Agreement so that various documents can go to Council of Ministers and House of People's Representatives to seek their approval. Being one of the first Independent Power Producers and private sector investments in the generation sector in Ethiopia, these are all required to conclude the deal and to allow the investment, of around \$800M in Ethiopia to proceed at pace. The meetings were constructive and concluded positively. All parties made commitments to reach effectiveness by end of January 2020.

Site Updates

Ditch Works

Concreting works for ditch RHS and LHS of the town section is completed. The road is travelable and can withstand load required. Subbase material back fill is in progress particularly on the outside of the ditches.



Road Works

Earthen ditch and embankment works alongside the road have been well in progress. Subbase material shortage has been solved and materials have been laid in different sections. All critical points have also been addressed for heavy load bearing.



Access Road to well pads and reservoir is passable; this is also accessible for heavy load. Finishing works will be done upon completion of Pad GA and water reservoir. Pad GA leveling, compaction and cellar works are almost finalized. OE sent representative to Olkaria to physically see requirements and Kengen has revised the Cellar design.



Water reservoir heavy excavation works are in progress with parallel filling works.



Water Pipeline Materials are being delivered to site and currently being stored at two locations with installation works progressing.



Water Well Drilling

Two water well drillings have been carried out in Hitossa Woreda, Sheki Kebele, which are going to be used as cold water supply for geothermal well drilling and other processes. Well one failed alignment test despite a deep-water level measurement that coincides with the level of well two. Well two reached 550 m depth (with rimming works) after instructed to increase the depth, given water level determination by well tests (at 370m). All casings have been installed, well development works are completed and pump test shows very good yield which maxed the capacity of the pump installed for the test (3.5 l/s); much greater yield expected with increased size of pump.

New rig is being mobilized at two additional well locations for which drilling will be finalized in January. Method Statement has been developed in accordance to all findings on well two. The drilling subcontractor has organized drilling crews and new rigs (with better performance capacity) and is confident to finalize the wells in 30 days. Land acquisition of additional space required has been finalized.

KenGen Rig Mobilization Update

TMGO's geothermal drilling contractor KenGen, has been working diligently on Mobilization to site which is set for 10th January with Spud ready date of February 1st, 2020.

KenGen has commenced rig mobilization to Tulu Moye site, where drilling rig along with associated equipment and materials are being packed and loaded onto trucks. The first fleet was dispatched on 24th December 2019, releasing a total of 52 trucks from Olkaria, Naivasha, through Moyale to Tulu Moye project site. The trucks are expected to take between seven to ten days to arrive at the drilling site in Tulu Moye. KenGen estimated to have had approximately 33 Kenyan national persons during the rig move/rig up period.

Similarly, KenGen's Logistics/Freight Forwarder company visited Tulu Moye Site as well as the rig site and confirmed site is ready to receive the shipments. Freight forwarders have partnered up with Massida, a local logistics company that is already familiar with TMGO and the site. For all imports TMGO will be the consignee and KenGen the notifying party since TMGO is the one with the tax exemption privileges. Thus, TMGO have obtained required temporary importation documents along with duty free permit support letter from Ethiopian Energy Authority (EEA).



Drilling Mobilization Engagement Held at Iteya and Assela



Meetings were held at zonal, woreda and community levels to provide timely information to the stakeholders on the drilling mobilization and project progress.

Stakeholders were updated on the project civil work, water drilling, pipeline work progress and the geothermal drilling plans. Road transport safety was given the most attention in all the meetings held with the community and schools in the project area.



Air Quality Monitoring Equipment Installed

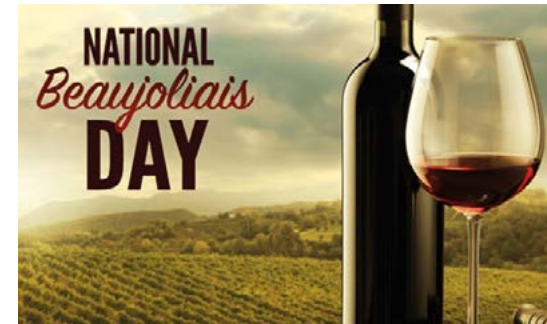
TMGO installed three AQT420 air quality monitoring equipment in the project site, at the identified site based on the air quality and noise assessment result.

AQT420 is an air quality transmitter that measures up to four most common gaseous pollutants such as nitrogen dioxide (NO₂), nitrogen monoxide (NO), sulphur dioxide (SO₂), carbon monoxide (CO), hydrogen sulphide (H₂S), and ozone (O₃) and weather data, such as humidity, air pressure and temperature, plus particles (PM_{2.5} and PM₁₀) in the ambient air. The measurement data will be sent wirelessly to a web-based database.

Monitoring helps in assessing the level of pollution to the ambient air quality standards. Robust monitoring helps to guard against extreme events by alerting people to start action.



TMGO Sponsors the Annual Beaujolais Nouveau Day, 2019



Annually, the French Embassy in Ethiopia celebrates *Beaujolais Nouveau*; a special variety of wine produced from the delicious jewel-like Gamay grapes grown in the Beaujolais area of France. This day is marked and festively celebrated in France with fireworks, music, festivals and of course – Wine.

The event is organized by Le Club d'Affaires Franco-Ethiopien (CAFE) and sponsored by the French Embassy, Ethiopian Airlines, Sheraton Addis, BGI Ethiopia, Castel Winery, Bollore Transport & Logistics, Total Ethiopia and other French affiliated companies in Ethiopia. Attended by approximately 1,300

guests from many of Ethiopia's prominent businesses and governmental agencies, all food and wine are imported specifically for this event by the French Embassy. This prominent event was hosted at the Sheraton Addis Hotel on December 12th, 2019, where TMGO had the pleasure of sponsoring for the second time, with the first being in 2018.

TMGO Employees

This month, TMGO is glad to announce new hires at both Addis and Iteya Offices. TMGO has hired its new Steam Systems Specialist Mr. Mekasha Debele who has more than 30 years of experience working in the steam related field during his stay at the Ethiopian Shipping and Logistics Services Enterprise. Mr. Mekasha will be working on supervising the Steam Systems, Technical aspect on site area and overall technical maintenance and follow up on related works.

Working with Mr. Mekasha we have also hired Mr. Legesse Kassa who is a recent graduate in Electro-Mechanical Engineering. He has interned in Wonji Sugar Factory for four months and also worked in Yapi Merkezi on Awash- Kombolcha- Woldia railway project.

New staff will continue joining the team starting from January holding the positions of Contractor Liaison Officer, Logistics Officer, and Communications Officer in which all selection and appointment processes are being finalised.

TMGO had its last Away Day training for the year at Adulala Resort in Debre Zeit. The focus of this Away Day was on stakeholder engagement, communication and, moving forward how TMGO can improve its current position with its customers/stakeholders.



'TMGO Employee Spotlight': Meet Mrs. Hayat Seid



Mrs. Hayat Seid graduated with Electrical Engineering Degree from San Diego State University in 2003. Hayat has over sixteen years of work experience in Project Management, Electrical Design, Installation, Procurement, Validation, QA/QC, Commissioning, Budgeting and Cost Engineering in Design/Build services, Industrial and Commercial Developments, and Power Distribution projects working with international private companies as well as state and federal government agencies in San Diego CA.

Hayat has specialized experience on Federal Capital Improvement Projects where she worked for the U.S. Navy for more than eight years as Senior Design Manager on broad range of projects including military facilities, served by NAVFAC. Projects support military installations (Air Force, Navy, Army,

Marine Corps), and range from military hospitals, JSF Aircraft Maintenance Hangar, highly sophisticated test facilities, military family housing, repair and maintenance of existing facilities on U.S. military bases. Hayat is currently pursuing her Professional License (PE) and online MBA in Sustainability program with George Washington University. Hayat moved back to Ethiopia in 2017 from California with her family and three children with the desire and passion to contribute and work in the energy sector in Ethiopia. Hayat joined TMGO in August 2018 as a consultant then became the Chief Commercial Officer where she plays a key role in technical and commercial matters while handling and overseeing various special assignments in the project and the company as a whole, with close coordination of the CEO and the technical team.

'Did you Know'? History of Geothermal Energy

History says that the first use of geothermal energy occurred more than 10,000 years ago in North America by American Paleo-Indians. People used water from hot springs for cooking, bathing and cleaning. The first industrial use of geothermal energy began near Pisa, Italy in late 18th century. Steam coming from natural vents (and from drilled holes) was used to extract boric acid from the hot pools that are now known as the Larderello fields. In 1904, Italian scientist Piero Ginori Conti invented the first geothermal electric power plant in which steam was used to generate the power.

With the above experiment, the first geothermal plant in USA started in 1922 with a capacity of 250 kilowatts. It produced little output and due to technical glitch had to be shut down. However, in 1946 first ground-source geothermal heat pump installed at Commonwealth Building in Portland, Oregon. During the 1960's, Pacific Gas and Electric began operation of first large scale geothermal power plant in San Francisco, producing 11 megawatts. Today there are more than 60 geothermal power plants operating in USA at 18 sites across the country.

In 1973, when oil crisis began many countries began looking for renewable energy sources and by 1980's geothermal heat pumps (GHP) started gaining popularity in order to reduce heating and cooling costs. As effect of climate change started showing results, governments of various countries joined hands to fight against it, for which Kyoto Protocol was signed in Japan in 1997, laid out emission targets for rich countries and required that they transfer funds and technology to developing countries, 184 countries have ratified it.

Geothermal power today supplies less than 1% of the world's energy needs in 2009 but it is expected to supply 10-20% of world's energy requirement by 2050. Geothermal power plants today are operating in about 20 countries which are actively visited by earthquakes and volcanoes.



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