

# NEWSLETTER

December 2020

---

■ **GEOTHERMAL DRILLING**

■ **TMGO HOLDS FINAL QUARTERLY BOARD MEETING FOR 2020**

■ **TMGO HOLDS MEDIA BREAKFAST MEETING**

■ **EPP AND MINISTRY OF WATER, IRRIGATION & ELECTRICITY VISIT TULU MOYE SITE**

■ **TMGO CORONA VIRUS ANTI- BODY TESTING**

■ **TMGO INTERNS AND BENEFITS**



Chief Executive Officer  
Darrell Boyd

### MESSAGE FROM DARRELL BOYD, CEO

Happy 2021 Everyone and Melkam Gena from sunny Addis. All the very best for the New Year and we hope you all got to or get to in the case of Ethiopia's Christmas on 7th-Jan-21, spend quality time with your families over Christmas. Despite the challenges the world has faced it has been a year of progress for TMGO thanks to the collaboration of our customer organizations EEP, MoWIE, EEA & MoFEC, the support from our Sponsors Meridiam & Reykjavik Geothermal, and the hard and smart work by the Tulu Moye Team and all our array of brilliant advisors, consultants, and supporters. An extra special thanks to KenGen, our drilling contractor, for their dedication and collaboration in continuing our geothermal exploration drilling campaign which is proceeding at pace with our second Well now. We have launched our Tender for the Engineering, Procurement & Construction of Phase 1 50MW Power Plant and it is our hope that we will build an equally strong and winning relationship with the successful EPC Contractor from our strong field of six world-class companies who pre-qualified and are participating.

Santa Claus has been particularly kind to us this year, delivering an early Christmas gift on 23rd-Dec-20 of Effectiveness. It is a big milestone for TMGO as the first IPP in Ethiopia to achieve this and our thanks and congratulations also go to EEP & GoE institutions for continuing to support, promote and attract invest-

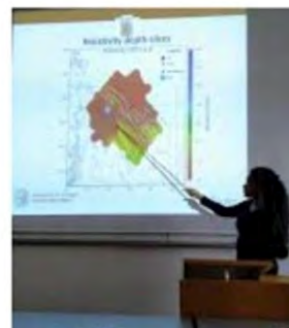
ment to Ethiopia despite the challenges that 2020 brought around the world. Santa has been especially generous to me as well, delivering me Liverpool at the top of the English Premier League in the first place. We hope that you continue to enjoy our Newsletters when they land in your Inbox. Thank you all so much for your support and we look forward to achieving even greater successes with you all in 2021.

### SUPPORT INITIATIVE

Ms. Getenesh Hailegiorgis, a young and energetic, and hardworking Geologist, was sadly involved in a really bad bus accident recently and has been very severely injured. She has been in a hospital since the accident with acute injuries and she is in very a serious medical situation. Her doctors say that her injuries cannot be resolved here in Ethiopia and therefore she needs to be medevacked abroad where she can receive the medical care needed for such severe injuries.

Getenesh is from a low-income family and needs our support at this time for her medical care and rehabilitation. TMGO is contributing to her medical expenses already and we would appeal to you all to contribute as well if you can please. Any donations can be made to the bank account details below, as the coordinators of the fundraising effort for Getenesh.

Welela Hailegiorgis Abebe  
Commercial bank of Ethiopia, Gerji Giorgis Branch,  
Account Numnber:1000259511988



## CIVIL WORK UPDATES

---

### POWERPLANT AREA

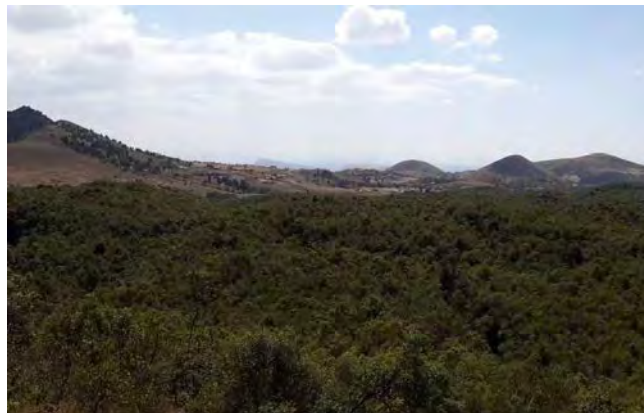
The access road to the future powerplant construction site is completed. Tulu Moye site is happy and excited to announce that it is now ready to welcome the awaited EPC bidders in January 2021.



### PAD GB

The cellar for the first well to be drilled in Pad GB, well GB-1, has been fully cast. The drainage pipe connecting the cellar of GB-1 to the mud pit (also known as circulation pond) has also been installed.

Compaction and base course work is in the advanced stage. Expansion preparation works have already started to accommodate a second well on the same pad (Well GB-2).



### PAD GA & GB EXPANSION AND PADS GC & GD

To accommodate a second well on pad GB (Well GB-2) and a third well (Well GA-3) on pad GA, expansion preparation works have already started. In addition, surveying and preliminary cost estimation work for Well pads GC and GD is well underway. The construction works of Well Pad GC and GD is scheduled to be completed at the beginning of the 3rd quarter of next year.

## WATER SUPPLY WORKS

---

There have not been any issues with the water supply during the month of December, the Water Pond has been most of the time full. Our groundwater well 3 has been continuously delivering 14-15 L/s and 24 hours of the water supply system operation is working out smoothly.

TMGO has directly contracted, ECC Energy (Grade 1 General water wells drilling company having drilled over 30 deepwater wells in Ethiopia) to drill our fifth groundwater well and works have advanced well. They reached a depth of 260 m and drilling is on-going.

Well 4 casing insertion and well development were completed successfully. Permanent pump installation will be completed in the first week of January as the well is expected to deliver a similar flow as well 3.





Water pipeline works connecting well 4 to the overall water system connecting to the rig site is now complete. So as soon as water well 4 starts producing water, all necessary infrastructure is ready for the water to reach the rig site.



## SEISMIC MONITOR INSTALLATION

Seismic monitors installation completed in various locations in the project concession area. The first readings are expected soon. A team of experts from Addis Ababa University led by Prof Atalay Ayele is at the forefront of the installation of the monitors, continuous acquisition, and interpretation of the data along with the TMGO Technical Team. This strengthens and is a demonstration of our commitment to collaborate with Ethiopia's fantastic learning institutions under our existing MOU's.

Real-time monitoring of local seismicity provides hard

data to assess the risks and manage the operation to minimize potential disruptions from seismic risks induced by well completions, production, and wastewater injection.



## GEOTECHNICAL SURVEY WORKS FOR THE POWER PLANT

### GEOTECHNICAL SURVEY

Following the agreement signed between Tulu Moya Geothermal Operations and Radice Engineering plc, a geotechnical soil investigation has been performed. The investigation includes core drilling, laboratory test, and geotechnical reporting to propose recommendations for foundation types, determine allowable bearing capacity and foundation depth for different facilities expected to be built in the powerplant area. The fieldwork of the geotechnical site investigation (by core drilling) was carried out from November 4th-20th, 2020. Moreover, samples were taken to determine the engineering properties and groundwater level measurement.

A detailed report that deals with the regional geology,

site geology, the methodology employed, field and laboratory tests conducted to determine the engineering properties of the subsurface strata including analyses and interpretations of test results have been submitted and is currently under review.

## TMGO HOLDS FINAL QUARTERLY BOARD MEETING FOR 2020

TMGO held its final Quarterly Board meeting of the year 2020 on December 15th. The Board Directors and the TMGO senior management team discussed the quarterly progress and updates of the TMGO project in addition to the regular Monthly Board call. Further to making decisions, provide a forum for discussion of long-term objectives and strategies, the TMGO Board of Directors continue to show their support, healthy challenge, and guidance as the Team looks forward to hosting them in the coming year of 2021. In addition, Mrs. Sandra Lagumina; following her appointment as Meridiam Deputy CEO has stepped off as a Board Director of the Project announced by TMGO Board Chairman; Mr. Mathieu Peller in September 2020. Sandra's position on the Board is taken up by Mr. Marvin Bell; Investment Director of Meridiam who has officially joined the TM SAS Board as a Director and representative of Meridiam as of September 2020. We welcome Marvin to our Board and thank Sandra so much for her guidance and leadership through our first few years.



TMGO Board field visit 2019



## GEOHERMAL DRILLING

On 28th of November 2020 spudding of exploration well GA-2 took place. The plan for GA-2 is to be drilled south-west directionally from the well pad reaching the geothermal reservoir under Tulu Moye. The first section of the well was reached in early December when drilling reached 210 m RT. Casing works and preparation started immediately. As of now, the drilling of the next section is ongoing with encountered challenges. Well GA-1 has brought a lot of information to the table and lessons learned from that well has led to a careful and gentle approach on how to deal with certain zones.

To start with, the challenges mentioned earlier were particularly clear while entering the zone below 400m. Losses started to occur earlier between 306 and 316 (which was cemented off) and more emphasized after reaching around 400m. The zone between 402-406 was particularly weak and prone to collapse and it took 5 cement plugs to gain control over the well and get adequate returns. It was highly important to seal off this area as much as possible. As we drilled deeper and reached 440 m, it was mutually decided that we start drilling blind using only water: in other words, continuing drilling using a big quantity of water despite having a total loss. Given the surprise high-pressure zone experienced in well GA-1 and the unknown in regard to when exactly we will experience the same in this well, a conservative approach and plan were developed to be able to reach casing depth: 50 m drilling followed by a waiting period until we fill our water reservoir (9000-9500 m<sup>3</sup>). This is for us to safely drill and case off this section (200-700m). Currently, we reached 500 m RT

It is important to note that given what we have learned from GA-1, the casing program of GA-2 has changed. For GA-1 we had: 20" surface casing up to around 160 m RT, 13-3/8" anchor casing up to around 405 m RT, 9-5/8" production casing up to around 700 m RT then finished off with 7" perforated liner to 1340 m RT (final depth). For GA-2 we have 20" surface casing up to around 210 m RT. We will then have 13-3/8" anchor casing up to around 710 m RT followed by 9-5/8" production casing up to around 1200 m RT (deviation starting from 700 m RT).

We believe the above casing arrangements with the anticipation advantage from GA-1 drilling will lead to successfully achieving our drilling program and hit the desired targets.



## TMGO HOLDS MEDIA BREAKFAST MEETING

TMGO held a media briefing meeting at its HQ in Addis Ababa on 18th December 2020. The purpose of the meeting is to update the local media stakeholders on the successes, challenges and share the achievements & milestones of the project since the first drilling spud was held early this year (March 4, 2020).

The meeting was also aimed at raising awareness of the journalists and the public on what geothermal energy is, how it works, and its impact on the environment. This is mainly needed because TMGO is a leading private geothermal company & one of the first independent energy company in Ethiopia.

CEO Darrell Boyd presented about the company from its establishment and Tadesse Mamo, Senior Geologist at TMGO presented basics of geothermal energy at the event. Darrell Boyd and other staff members responded to questions raised by the journalists.

Senior journalists from 12 local media houses in Ethiopia attended the meeting.



## EPP AND MINISTRY OF WATER, IRRIGATION & ELECTRICITY VISIT TULU MOYE SITE

The Tulu Moye Project site had the great pleasure of welcoming Mr. Yiheyis Eshetu from the Ministry of Water Energy of Ethiopia and Mr. Tesfaye Tamirat from the Ethiopian Electric Power on the 12th of December 2020. The site visit was coordinated by TMGO and their geothermal drilling contractor KenGen in the presence of TMGO's CEO, Darrell. A representative for Fortum, a Finnish state-owned energy company that operates many many power plants around the world, including co-generation plants, and generates and sells electricity and heat, Mr. Mika Turpeinen also participated in the visit.





## TMGO SUBMITTED THE FIRST PAYMENT APPLICATION TO THE GRMF GRANT

Following the signing of the USD 9,990,279 Grant Contract Agreement with the African Union Commission and Geothermal Risk Mitigation Fund (GRMF) on 23 October 2020, TMGO submitted the application for the first payment installment of the Drilling and Testing Grant on 10 December 2020. Application is made for 20% of the Drilling and Testing Grant amounting to almost USD 2M. The requirements for the application of the first payment include the finalizations of the well design, first well spud, and environmental, social, and other progress and compliance reports evidencing the completion of the requirements. The applied amount alongside Meridiam equity funding will support the continued financing and progress of our exploration drilling activities over the coming months. A great demonstration of the objectives of GRMF to be a Catalyst for Geothermal Development in East Africa.



## TMGO INTERNS AND BENEFITS

Our Company TM Geothermal Operations has so far accepted 8 interns under our internship program since we were established. The main objective of the internship program at TMGO is to develop the skills of young graduates or University students who are currently studying. This is aimed at creating practical knowledge transfer and empowering the next generation by enhancing their skills that are necessary for their area of expertise and knowledge, making them great candidates for their future opportunities as well.

As part of this program we have signed MOU with AAU and AASTU to coordinate in taking relevant interns based on their qualification and departments such as Geology, Administration, Accounting, Environmental & Social locally, as well as short placed international interns also.

So far there were 3 Female local interns from different departments & 2 Local Male interns while 3 interns are International.





## TMGO CORONA VIRUS ANTI- BODY TESTING



This month, TMGO has arranged a COVID- 19 anti-body test for all the Team so that they could be aware if they can be susceptible to the disease and understand their status of having a previous or current asymptomatic case of the virus.

After additional, some PCR testing the results have shown that there are no positive cases of COVID- 19 while some of our staff members have shown antibodies that could resist the virus in case of infection.

## TMGO AT YALI REGIONAL LEADERSHIP CENTER EAST AFRICA



Representing Tulu Moye Geothermal and Ethiopia, Ms. Beza Degafa; Executive Assistant of TMGO attended and an intensive 5-weeks Leadership training under the theme 'Women in African Power' hosted by YALI Regional Leadership Center East Africa and sponsored by Power Africa, USAID, Deloitte, and Kenyatta University in Kenya. The YALI RLC EA Power Africa Young

Women in African Power Online Cohort 1, took place from November 16th – December 18th, 2020.

Together with other diverse groups of peers from the power sector in East Africa, this training immersed me in a unique educational opportunity that embraced experiential learning, scholarship, mentorship, and collaboration. As Beza has successfully completed the 5-week program, she is now a part of the next generation of innovative leaders who are empowered to shape the future of Africa. Beza described this training experience as 'enlightening and empowering' as she hopes to share the takeaways with the rest of the TMGO team and other peers in the energy sector of Ethiopia and beyond.

## INTERNS' TRAINING

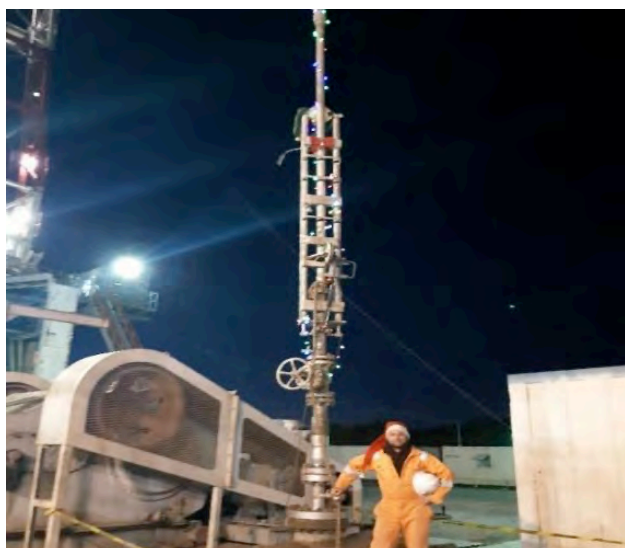
Tesfa and Lidya are the two geology interns from Addis Ababa Science and Technology University (AASTU) who joined TMGO recently. After getting theoretical basic geothermal geoscience training in the office they left for fieldwork at the Tulu Moye Geothermal Project site. In the field, they were given training on the basics of geological and surface hydrothermal alteration mapping techniques by TMGO's Senior geologist, Tadesse Mamo. In addition, they were given training on the geological activities which will be conducted during water well drilling at water well 5 sites, in Iteya town.



## CHRISTMAS CELEBRATION AT TULU MOYE SITE

Despite being away from home and family during the festive holiday season, the crew at the Tulu Moyo site have been tirelessly hard at work. To show appreciation, we attempted to bring the festive holiday season to the Tulu Moyo project site. TMGO in coordination with the site service provider Bey Pison has organized a Christmas day dinner and evening which involved a lot of laughter, dances, and a fun holiday spirit. TMGO representatives presented individual and personalized gift for ALL staff working at the project site (100 + personnel) which was received with warmth and gratitude.

Creativity was also part of the celebration that the team created a Christmas tree by assembling valves, spools, and fittings used for oil, gas, water injection, water disposal, gas injection, condensate, and other types of wells. It is named for its resemblance to a decorated tree at Christmas. That was an amazing and beautiful Christmas tree ever.



A special thanks to our two drilling supervisors, Tobias Brynleifsson and Péter Kazár, that continued their hard work during these festive periods running their 12/24 hours shifts.

A particular warm gratitude to Péter for covering the last weeks of the month of December despite his shift having ended due to last-minute changes of plans. The project had therefore continued running smoothly.







# MERRY CHRISTMAS AND HAPPY NEW YEAR

DESPITE THE UPS-AND-DOWNS, WE HOPE THAT 2020 HAS BEEN  
A SUCCESSFUL YEAR FOR YOU. ALL OF THE TMGO FAMILY WISH  
YOU A MERRY CHRISTMAS AND A HAPPY NEW YEAR FOR 2021  
THANK YOU FOR BEING SO SUPPORTIVE OF US ON OUR  
JOURNEY

WE ARE ALL VERY THANKFUL.



📍 Cape Verde Street, 1st Floor, A4  
Building,  
Opposite Rakan Building, Bole Sub-City  
Bole Sub-city, Addis Ababa, Ethiopia

☎ +251 116 393 106

✉ [info@tmgoethermal.com](mailto:info@tmgoethermal.com)

📞 +251 116 392603

📺 TMGOEthiopia

📺 EthiopiaTMGO

📺 Tulu Moye Geothermal  
Operations (TMGO)

📺 [https://www.flickr.com/  
people/189070984@N06/](https://www.flickr.com/people/189070984@N06/)