Keynote Speaker: **Novi Ganefianto**

Vice President of Exploration and Subsurface Engineering, PT Supreme Energy

Novi has 25 years of geothermal industry experience, working for various geothermal developers, inducing Unocal Geothermal Chevron Geothermal, Star Energy, Thermochem, and Mighty River Power in New Zealand.

He has been involved in exploration, development and field management for many geothermal fields in Indonesia and New Zealand, such as Salak, Darajat, Sarulla, Wayang-Windu, Rotakawa, Mokai, Kawerau and Ngatamariki geothermal fields.

Before joining PT Supreme Energy in 2015, he was the Country Manager for Thermochem Indonesia, which one of his tasks was to project manage the well testing activities during the implementation of the development drilling program currently underway in the Sarulla Geothermal Field. Novi has a bachelor degree in Geology from ITB and a Diploma in Geothermal Technology from the University of Auckland.

“Innovating Geothermal Wells”

Geothermal development began in Indonesia in 1974 following the establishment of President Decree No.16/1974, which was subsequently strengthened by President Decree No.22/1981, President Decree No.23/1981, President Decree No. 45 in 1991 and President Decree No.49/1991. Under these decrees, PERTAMINA, a wholly government-owned entity, was granted the right to manage the geothermal resources of Indonesia. All of the geothermal fields currently operating in Indonesia (total ~1300 MWe) were developed under this earlier legal framework.

Subsequent laws, passed in 2003 and 2014 (Law 27/2003 and Law 21/2014), significantly changed the legal structure for geothermal development. Geothermal resource management was transferred from PERTAMINA to the Government of Indonesia (GOI) and a competitive tender process was introduced, with regions given authority to grant geothermal licenses (IPB). Following this change in law, numerous privately-owned Indonesian and international companies have been granted geothermal licences however PT Supreme Energy and KS Orka are the only privately-owned companies that are currently actively developing geothermal resources in Indonesia.

PT Supreme Energy was founded on 11 September 2007, having the following subsidiaries:

1. PT Supreme Energy Muara Laboh (SEML), the owner of Geothermal License (IPB) for the Muara Laboh Geothermal Concession Area, located in Solok Selatan, West Sumatra. PT SEML is a consortium of PT Supreme Energy, Sumitomo Corporation and ENGIE.
2. PT Supreme Energy Rajabasa (SERB), having the same consortium as of PT SEML, is the owner of the Rajabasa Geothermal Prospect located in the South Lampung Regency, Lampung Province.
3. PT Supreme Energy Rantau Dedap (SERD), the owner of Geothermal License (IPB) for the Rantau Dedap Concession Area located in South Sumatera Province. PT Supreme Energy Rantau Dedap is a consortium of PT Supreme Energy, ENGIE, Marubeni and Tohoku Electric.

In 2009, through a tender process, PT. SEML was granted a licence to develop the Muara Laboh Geothermal Concession Area. A Power Purchase Agreement (PPA) with PT.PLN (government owned utility company) was signed on 2 March 2012, followed by drilling of six exploration wells, confirming resource capacity of at least 60 MWe. Resource modelling and power plant design utilizing dual-flash technology led to a decision to proceed with developing 80MWe capacity on the field. Following the signing of the PPA amendment on 10 August 2016, the financing process began which was completed on February 2017.

Development Drilling in Muara Laboh started on the 28th of May 2017 and was completed on the 12th of June 2018. A total of twelve wells were completed during the campaign (nine production and three injection wells). All production wells were completed into a high temperature (>280 ˚C) and high permeability geothermal reservoir. Well testing has confirmed their capability to flow commercially to support the 80 MWe field development. All wells produce high temperature (>280 ˚C), near-neutral (pH 6.8) and low-gas geothermal fluid, suitable for carbon steel surface facilities. The new injection wells encountered sufficient permeability in the reservoir to be able to accept all brine and condensate injection. The power plant and steam gathering system construction are well underway, with the Commercial Operating Date (COD) scheduled to occur in Q4 2019.

The Rantau Dedap concession area is located in South Sumatera Province which and was granted to PT SERD in 2010. Following the signing of a PPA in 2012, PT SERD drilled six (6) exploration wells in 2014, delineating a high temperature (>260 ˚C) reservoir to the southwest (SW) of the field. The Numerical simulation conducted based on the exploration well results suggests that the SW portion of the Rantau Dedap reservoir is capable of sustaining output of approximately 92 gross MWe by the use of utilizing a dual-flash plant supplied by self-flowing, two-phase production wells. Following the signing of the PPA amendment in 2017, the financing process started until it began which was successfully completed in April, 2018.

The fundamental resource development strategy for Rantau Dedap is to produce fluid predominantly from the high temperature (>240 ˚C), high elevation (>2000 masl) area to southwest, and inject by gravity into the lower temperature (<220 ˚C) and lower elevation (<1800 masl) outflow zone to northeast. A total of 11 eleven production wells will be drilled, consisting of 8 eight new production wells and 3 three “buffer” wells. The development drilling program and surface facilities construction are currently underway, with the COD is scheduled to occur in Q4 2020.

The Rajabasa Prospect is located at the southern end of the Sumatera Island alongside the eastern coast of Lampung Bay on the volcanic cone of Mount Rajabasa. The occurrence of a high temperature geothermal system at Rajabasa is indicated by numerous fumaroles and associated sulfate hot springs.

PT SERB signed a PPA with PT.PLN on 2 March 2012. Following a long delay due to forestry permitting, PT SERB is now ready for the executing an exploration drilling program as all required permits for exploration have been secured, and all the surface geoscientific studies have been completed.