SARULLA - ENERGISING THE GEO SECTOR

IN THIS ARTICLE, ASIAN DEVELOPMENT BANK AND JAPAN BANK FOR INTERNATIONAL COOPERATION AS LEAD STRUCTURING BANKS, AND LATHAM & WATKINS AS INTERNATIONAL LEGAL COUNSEL TO THE LENDERS, PROVIDE AN OVERVIEW OF THE PROJECT FINANCING OF THE SARULLA GEOTHERMAL POWER PROJECT IN INDONESIA AND DESCRIBE SOME OF ITS NOTABLE FEATURES. BY **JACKIE B SURTANI**, **LAZEENA RAHMAN** AND **DON PURKA** OF **ASIAN DEVELOPMENT BANK**, **YUICHIRO ROBERT YOI** OF **JAPAN BANK FOR INTERNATIONAL COOPERATION,** AND **JOSEPH BEVASH**, **CLARINDA TJIA-DHARMADI** AND **ANDREW ROCHE** OF **LATHAM & WATKINS**.

The US$1.6bn Sarulla geothermal project achieved signing of the financing documentation on March 28 2014, marking an important milestone for the geothermal power market in Indonesia. Overall power demand in Indonesia is projected to grow by more than 8% per annum until 2029. As such, the Government of Indonesia recognises the economic imperative of sustainable growth and aims to increase the share of renewable energy in Indonesia's primary energy supply from 5% in 2010 to 25% by 2025.

With more than 29,000MW of geothermal resources (equivalent to 40% of the global geothermal resource base) located in Indonesia and with a number of new geothermal power projects at various stages of development, it is expected that geothermal power will account for the vast majority of the new sustainable power generation to come on line, as well as a significant portion of Indonesia's overall new power generation capacity. As the first greenfield geothermal power project to achieve successful signing of limited-recourse project finance documentation since Unit 1 of the Wayang Windu Geothermal Power Project in 1997, the Sarulla Geothermal Project should establish a new blue-print for the next generation of geothermal power projects in Indonesia.

Project overview

The Sarulla geothermal project is a 320.8MW geothermal power facility comprising three separate units that will utilise geothermal resources (steam, brine and gases) from the Namora-I-Langit and the Silangkitang fields located in the North Sumatra Province of the Republic of Indonesia. Once completed, the Sarulla geothermal project is expected to be the largest geothermal power project in the world to-date.

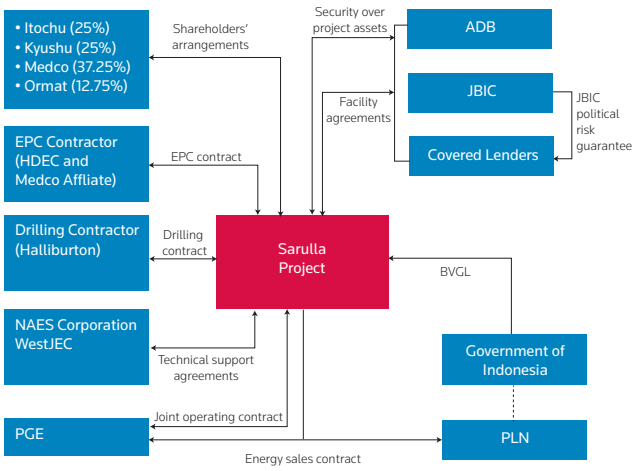
The project will provide base load power to the Sumatra grid using clean and sustainable geothermal energy sourced from the contract area managed by PT Pertamina Geothermal Energy (a subsidiary of PT Pertamina, PGE). Under a joint operating contract entered into with PGE, PGE has granted the project the exclusive right to develop, produce, transport and convert the geothermal energy into electricity, in return for a fixed-rate royalty payable to PGE. The electricity will be sold to PT Perusahaan Listrik Negara (Indonesia's state-owned electricity company, PLN) under a long-term (30 years per unit) energy sales contract entered into between the project, PGE and PLN.

The Government of Indonesia has agreed to guarantee certain payments by PLN to the project under the energy sales contract via a Business Viability Guarantee Letter issued pursuant to Regulation 139. This guarantee also extends to PLN support for certain of PGE's obligations to the project given PGE's unique role in the project as the concession provider. The Sarulla Geothermal Project is the first geothermal project in Indonesia to benefit from Indonesian Government support in the form of a Business Viability Guarantee Letter.

The first unit is expected to be completed in 2016 and project completion is expected to occur in 2018.

The project sponsors are Itochu Corporation (25% ownership interest), Kyushu Electric Power Company (25% ownership interest), PT Medco Power Indonesia (37.5% ownership interest) and Ormat International (12.75% ownership interest). The project raised US$1.17bn of 20 year door-to-door limited recourse project financing loans through a combination of a JBIC direct loan (US$492m), commercial bank loans, which benefit from an extended political risk guarantee provided by JBIC (US$329m), an ADB direct loan funded from its ordinary capital resources (US$250m), plus two additional ADB tranches of senior debt funded by the Clean Technology Fund (US$80m) and the Canadian Climate Fund for Private Sector in Asia (funded by the Government of Canada) (US$20m). The syndicate of commercial banks comprise Bank of Tokyo-Mitsubishi UFJ Ltd, ING Bank NV, Société Générale, Sumitomo Mitsui Banking Corporation, Mizuho Bank Ltd and National Australia Bank Ltd. Halliburton will undertake

DIAGRAM 1 - SARULLA PROJECT STRUCTURE



the drilling of the production and injection wells. The gathering facilities, the three separate electricity generating units and the transmission facilities connecting the units to PLN's substation will be constructed pursuant to engineering, procurement and construction contracts wrapped by Hyundai Engineering & Construction Co Ltd. The turbines will be supplied by Toshiba and Ormat Technologies will supply its Ormat Energy Converters to the three units. The project will be self-operated but will benefit from technical support provided by Itochu and Kyushu for at least the initial years of operation.

Notable features of the Sarulla geothermal project

• *Clean, green and sustainable base load power* – Despite Indonesia's vast geothermal energy resource, the country's installed geothermal capacity is still only 1,341MW, representing less than 5% of its total geothermal potential. The Sarulla Geothermal Project demonstrates the ability of the private sector to work with the Indonesian public sector to utilise the country's geothermal resources and provide clean, base load power to an Indonesian grid currently dominated by ageing coal and oil-fired power plants that still account for over 65% of the country's installed capacity.

Geothermal power plants typically emit less than 10% of the greenhouse gases emitted by fossil-fuelled thermal plants. Once completed, the Sarulla Geothermal Project is expected to avoid 1.3m tons of carbon dioxide emissions per year and will be well-positioned to capitalise on any carbon trading credits that may become available. Moreover, unlike other intermittent renewable energy sources such as wind or solar, geothermal power plants such as Sarulla generate reliable base load power throughout the day and night and provide a more secure indigenous energy source.

Further economic advantages for geothermal power projects in Indonesia arise from the typical pass-through of all fuel costs in power purchase agreements entered into with PLN. Because of this pass-through mechanism, Indonesia's heavy reliance on coal-fired and oil-fired power generation exposes the country to significant commodity price risk during the operating phases of these projects. In contrast, the cost of a geothermal power project's drilling programme essentially represents an upfront payment for the project's entire fuel supply. Since this cost is built into the fixed component of the tariff payable by PLN, there are substantial economic advantages to the Government of Indonesia (and, ultimately, consumers) by increasing geothermal energy's share of installed capacity in Indonesia.

• *Integrated project financing* – The Wayang Windu project and many other geothermal power projects are typically financed on a unit-by-unit basis due to the lengthy and costly development phase and the need to "prove up" the project's reserves. In contrast, the Sarulla Geothermal Project took an alternative approach by financing all three separate power generating units as an integrated whole.

The integrated nature of the project financing for the Sarulla Geothermal Project presented a set of challenging issues for the sponsors and lenders when structuring the development and financing package. The bankability of the project hinged on detailed reserve analysis, and technical and legal due diligence reports provided by lenders' independent consultants. A critical component of this exercise was the development of a co-ordinated drilling and construction programme, which complied with the commissioning and testing requirements agreed with PLN and expedited and maximised the exploitation and ongoing maintenance and management of the geothermal resource.

Based on this due diligence and robust drilling and construction programme, and supplemented by key structural enhancements, the parties negotiated a funding package that predominantly comprised debt and equity but that was also supported by the considerable pre-completion revenues projected to be earned during the period from commercial operation of the first unit until commercial operation of the third unit.

• *Completion risk* – Completion risk for the Sarulla Geothermal Project will be shared predominantly by Hyundai Engineering & Construction Co Ltd pursuant to a wrapped engineering, procurement and construction contracts, and Halliburton pursuant to a drilling contract. The absence of full sponsor-recourse completion support and a single turnkey EPC contract required the development of various completion risk mitigants for the lenders' benefit.

These risk mitigants included a tranche of contingent equity to fund potential cost overruns, a robust lenders' completion test designed to trap pre-completion revenues and maintain the contingent equity support until the physical, operational and other completion requirements of lenders are satisfied, and reporting, monitoring, scheduling and other covenants designed to reduce construction risk to lenders.

Sarulla should quite literally re-energise Indonesia's geothermal power sector and hasten Indonesia's bold plans to become a world leader in geothermal

- *Financing structure* – The financing package for the Sarulla Geothermal Project utilises JBIC direct and covered commercial bank loans that benefit from JBIC's extended political risk cover. In addition, Asian Development Bank deployed its traditional direct loan with two concessional climate funds that it administers. A US$250m direct loan from ADB was blended with a US$80m loan funded from the Clean Technology Fund (CTF) and a US$20m loan from the Canadian Climate Fund for Private Sector in Asia (funded by the Government of Canada) under the ADB's Clean Energy Financing Partnership Facility.

Given the few precedents in the sector and constraints in the capital markets, the Sarulla geothermal project required an innovative finance structure to help address the risk profile of a first-mover private sector investment. The need for significant upfront capital and resource risk mitigation placed pressure on the amount of debt financing that could be sustained from the project's cash flows. ADB-administered concessional funding helped bridge the financing gap between the commercial lenders and the equity investors and augmented the project's debt capacity. It also provided flexibility in connection with the timing of funding and payment under those facilities, while ensuring that loans under those facilities share in the project security package on a pari passu basis.

Conclusion

The successful project financing of the Sarulla geothermal project is a milestone for geothermal energy in Indonesia. In addition to the Rantau Dedap, Muara Laboh and Rajabasa geothermal power projects, which already have been awarded, the Indonesian Government is expected to award more geothermal (as well as other renewable) energy projects in the near future. While these projects will need to overcome numerous obstacles, not least of which is development risk and the associated challenges of raising financing during this period before the resource has been proven to levels acceptable to financiers, Sarulla sets important new precedents that will help facilitate this next generation of Indonesia's geothermal power projects.

As the first greenfield geothermal power project in Indonesia to reach a successful signing of limited-recourse project finance documentation since Wayang Windu Unit 1 more than 15 years ago, Sarulla should quite literally re-energise Indonesia's geothermal power sector and hasten Indonesian's bold plans to become a world leader in geothermal power production. ■

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