

Positive outlook for Indonesia's geothermal sector

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PEFINDO views the outlook of the independent power producer (IPP) sector, specifically geothermal power, as positive in the near to medium term, driven by strong expected demand growth for renewable based IPPs, supported by an ample geothermal supply and a stable business profile.

Strong demand for electricity in Indonesia

We are of the view that the demand for electricity in Indonesia will exhibit above average growth in the near to medium term, considering the nation's low per capita consumption of electricity. As of 2016, electricity consumption per capita was 1 megawatt (MW), whereas neighboring countries such as Singapore and Malaysia consumed more than 4 MW per capita. This low consumption was further reflected by the non-optimal electrification ratio, as areas such as Papua and Nusa Tenggara had low electrification ratios compared to more developed areas in Java. As such, electricity consumption is expected to experience fast growth in the near to medium term, with the state-owned electricity company (PPLN, *id*AAA/Stable) expecting the nation's electricity consumption to reach 443 terawatt hours (TWh) in 2027, from the targeted 239 TWh in 2018. This implies an average growth of around 7% year-on-year (YoY) from 2018-2027. The electrification ratio is expected to reach 100% in 2024.

In line with expected growth in electricity consumption, the government expects electricity generation capacity to increase by 56 gigawatts (GW) in 2018-2027, bringing total capacity up to 120 GW. We note that the targeted electricity generation capacity has been revised from 78 GW to only 56 GW, and we are of the view that the new target reflects a more realistic assumption, considering the nation's economic growth is slower than projected.

Higher expected contribution from geothermal based power producers

Despite expecting coal to be Indonesia's main electricity generator in the near to medium term due to the country's significant coal reserves, we are of the view that new and renewable energy (NRE) will play a greater part in electricity generation, on account of government's commitment to reduce carbon emissions. The government targets increasing the composition of NRE from 13% in 2017 to 23% in 2025, with a 4,500 MW expected additional contribution from geothermal power producers in 2018-2027. Among NRE, geothermal energy is expected to be the main contributor as it is expected to contribute 12% of the country's total power generation in 2025. We view this as a realistic target considering the country's large geothermal potential, with estimated resources and reserves of 11 GW and 17.5 GW, respectively. Currently, there are four main geothermal operators: Star Energy Group (SEG), Pertamina Geothermal Energy (PGE), the Sarulla Consortium, and Geo Dipa Energy (GDE). with total installed capacity of 1,950 MW. The largest is SEG, with total installed capacity of 875 MW, followed by PGE, Sarulla Consortium, and GDE.

Stable geothermal IPP business profile

In general, PEFINDO views geothermal IPPs as having stable business profiles once they operate, as supported by the take-or-pay (TOP) scheme which mandates PPLN to absorb their electricity production as of the agreement, regardless of the amount. Sarulla Geothermal IPP, with 90% of the TOP scheme, will require PPLN to pay at least 90% of its capacity, even if it absorbs less. The TOP scheme, combined with its typically robust availability factor which averages 90% (much higher than coal at 75%), is expected to create a stable income stream for IPPs. Geothermal IPP profitability margins are viewed as stable as they do not need to purchase raw materials, such as coal or gas, making most costs more predictable, while contract terms generally incorporate several tariff adjustments which are tied to exchange rate and inflation movement. The regulatory framework governing private IPP activities is favorable as, in general, it provides a tariff structure, which provides a reasonable internal rate of return (IRR) of 12%-15%, while making available several financing facilities such as the Indonesia Infrastructure Guaranteed Fund (IIGF).

Constraints still limit geothermal IPP business profile

Several factors constrain the business profile of geothermal IPPs. They face a significant construction risk due to complexity of establishment, highly dependent upon the success rate of exploration activities to find an adequate steam well. During the operational phase, geothermal IPPs will need to conduct

further drilling of make-up wells to replenish the steam well, which must be done after a certain period of time, depending on the existing well's reserve profile and depletion rate. Operational factors act as an additional risk factor to geothermal IPPs, as they mainly operate on mountaneous areas which are prone to accidents. For example, Star Energy Geothermal (Wayang Windu) (SEWW, unrated), once suffered operational issues due to a landslide, which eventually caused a major disruption to its operations.

Stable credit quality IPP under our coverage

We have one power producer in our portfolio that operates and owns a geothermal IPP, which is PT Medco Power Indonesia (MEDP, *idA/Stable*) through its ownership in the Sarulla consortium. We note that having a geothermal IPP in its portfolio is a positive contribution for MEDP due to the stable nature of its revenue and profitability profile. However, in order to capture the additional electricity demand, MEDP engaged in significant expansion, which eventually made its capital structure aggressive with the long payback nature of IPP. Its rating reflects its status as a strategically important subsidiary of PT Medco Energi International Tbk (MEDC, *idA+/Stable*), a favorable off-taker agreement, and a stable profitability margin. Its rating is constrained by risks related to power producers, aggressive capital structure, and weak cash flow protection measures.

Figure 1. Financial Highlights of Geothermal IPP Operator Rated by PEFINDO

Financial highlights	MEDP
	31-Dec-17
Total adjusted assets [IDR Bn]	12,871.4
Total adjusted debt [IDR Bn]	7,868.8
Total adjusted equity [IDR Bn]	3,818.7
Total adjusted sales [IDR Bn]	3,730.8
EBITDA [IDR Bn]	1,068.3
Net income after MI [IDR Bn]	196.7
EBITDA margin [%]	28.6
Adjusted debt to EBITDA [X]	7.4
Adjusted debt to adjusted equity [X]	2.1
FFO to adjusted debt [%]	6.8
EBITDA to IFCCI [X]	2.1
Corporate Rating	<i>idA/Stable</i>

Source: Financial statements, processed by PEFINDO

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