

Geothermal : A green solution

Indonesia has the potency to be a superpower in electricity generation from geothermal energy, a clean source of locally available, though not exportable, energy. Yet challenges loom large in realizing this dream that has been shared by many – including Nobel laureate and former US vice president Al Gore. During his recent visit to Indonesia, Gore pointed out that Indonesia, with the biggest reserves of geothermal energy in the world, could easily follow the example of the world's largest geothermal energy users – the United States and the Philippines. By developing geothermal energy, Indonesia would be able to achieve its own target of reducing greenhouse gas emissions by 26 percent by 2020. Indonesia's geothermal energy reserves spanning from Sumatra to East Nusa Tenggara have the potential to produce up to 27,000 megawatts (MW) of electricity. However, Indonesia's current electricity generation from geothermal energy is less than 5 percent of this, totaling 1,100 MW, compared to 4,000 MW in the United States and 2,500 MW in the Philippines.

It's not just Al Gore. Even President Susilo Bambang Yudhoyono, himself a climate champion by setting an ambitious national target for greenhouse gas emissions, has raised the importance of geothermal energy in Indonesia's development during his address at the World Geothermal Congress in Bali last year. The government aims to accelerate geothermal development to deliver close to 4,000 MW by 2014, almost quadrupling our current output. To realize that target, Vice President Boediono summoned geothermal stakeholders, including governors, to help accelerate the development of geothermal energy in their respective areas. Developing geothermal energy is becoming more viable now, especially with international crude oil prices reaching US\$100 per barrel. Feeding our existing power generators with diesel is increasingly expensive. Thus, geothermal energy has become a solution to one of our biggest electricity problems, a shortage of power generation.

Geothermal energy not only offers a solution to our electricity problem, but more than that, it is a green solution. Another greener solution for our electricity generation problem would be nuclear energy. However, in light of our current political situation, nuclear energy is simply outside our calculations for now. Thus, we again come back to geothermal energy. We know from the outset that the problems and challenges in accelerating the development of geothermal energy in Indonesia are not at the policy-making level, as the government – especially at the top – fully supports green energy and geothermal energy. Our challenges are more at the implementation stages. The biggest challenge is in the investment level. A huge investment is required to build even a small power generation from geothermal energy. For example, it takes around US\$105 million in investment to develop a geothermal project to generate 45 MW of electricity. This investment includes the cost of drilling seven to nine geothermal wells, which cost around \$5 million per well, and to build related infrastructure such as roads. With this high investment cost, it's no wonder only big companies are entering geothermal energy development. Currently, we have three big companies that have produced electricity from geothermal sources: Star Energy, producing 425 MW, Chevron, producing 350 MW and Pertamina Geothermal, producing 325 MW.

Another challenge in geothermal development is the lacking coordination among government institutions, especially in the lower levels of government. For example, some geothermal projects are located in forest areas and, therefore, there are conflicts between the local forestry offices and the office of the energy and mineral resources. There are also differences in perception between developers and local governments. Such differences in interpretation and perception, if not addressed, could become bottlenecks in the acceleration of geothermal development.

The last and most challenging issue is from state utility company PT PLN, the buyer of electricity produced from geothermal projects. PLN is not aggressive and not particularly supportive of the development of geothermal energy because, for PLN, it costs more than electricity from coal-powered plants. However, the World Bank is interested in extending soft loans for green energy projects. So far, PLN has not signed even a single purchase agreement with geothermal developers.

Forcing PLN to buy geothermal energy at a higher price without governmental financial support – and in the face of consumers' unwillingness to pay more – will not solve the problem. Ambivalence on this issue is damaging to geothermal development. Thus, it needs a comprehensive solution, especially at the implementation levels, for electricity development using green geothermal energy.

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