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IIGCE: Interview with Exergy on Indonesian geothermal development

EXERGY's Akça plant, Turkey (Courtesy of EXERGY)

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In an interview with Dario Mulazzani, Sales Manager for Exergy, we talk about the view of a supplier on the Indonesian geothermal market in conjunction with the Indonesia International Geothermal Convention & Exhibition.

The 2016 Indonesia International Convention and Exhibition is about to start and government representatives, policy makers, developers, investors and technology suppliers will gather to discuss the future of geothermal development in Indonesia and the challenges to win to meet the targets set by Indonesian government for more sustainable energy development plan. The main theme of the event this year will focus around “Innovative breakthrough to achieve 7000 MW Geothermal development by 2025. Innovations in geothermal technology can be one of the key factors to help Indonesia exploiting its abundant geothermal potential. We had pleasure to discuss about these hot topics with Dario Mulazzani, Far East sales manger for EXERGY, one of the participant companies at this event.

How is the geothermal market developing in Indonesia and what contribution geothermal could give to meet the target set by government for 2025?

The total geothermal installed capacity in Indonesia to date is approximately 1400 MW and additional 750 MW are under construction. Projects in advanced planning stage account for approximately 2400 MW. This means that over 4600 MW should be online within 2025. Considering an electrical power growth rate of 8%, the total Indonesian installed capacity in 2025 should be 120 GW. To meet the government minimum target of 5% geothermal contribution to the total power generation mix this is still not enough. Additional 4800 MW from geothermal are needed by 2025, for a total installed capacity of 6500 MW.

What are the main obstacles slowing down geothermal projects in Indonesia?

The exploration risk as well as the upstream costs are very high compared to other markets, mainly due to high drilling cost (40% to 50% more expensive than in Turkey for the same depth and bore). Moreover Indonesia experiences delays in the development of strategic geothermal resources often due to lack of experience of developers licensed for the concession. The ceiling FIT (feed in tariff) is adequate but it needs to be negotiated with PLN, which is often proven to be tricky and time consuming. Moreover, local communities are often concerned about geothermal projects in their lands and these concerns might slow down or even, in some cases, stop the development.

What could be the solutions to give more impulse and speed up the development of this sector?

Existing plants design is often very conservative and far from being the most efficient one. New developments (green fields) should make use of state of the art technology, such as combined geothermal power plants. It is estimated that optimising existing units (brown field) using bottoming binary plants could contribute to approximately 1400 MW by 2025. Development of brown fields should be supported by proper regulations, where the FIT for the existing plant would also automatically apply to the optimisation project. A fixed FIT for the green-fields (such as in Turkey) might also accelerate the development and decrease the investment risk. Finally engaging the local

communities at survey stage would help to identify and cope with possible concerns.

You mentioned steam-field optimisation using bottoming binary plant, this is also the topic of a paper you will be presenting at IIGCE 2016 this year. Can you give us some anticipations about EXERGY presentation?

On day 2, August 11th, Exergy will present a case study optimisation of a high enthalpy single flash steam-field, recovering the hot brine stream energy otherwise wasted. Conclusion will show how it is possible to safely and efficiently increase by 50% the steam field electrical power output by applying EXERGY's bottoming binary plant based on our unique Radial Outflow Turbine.

EXERGY will be also an exhibitor welcoming all the conference attendees at booth C11.