

SUCCESS FACTORS FOR GEOTHERMAL ELECTRICITY DEVELOPMENT: THE PHILIPPINES CASE- CAN IT SUSTAIN ITS CURRENT STATUS?

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Overview

The Philippines and other countries in the Asia Pacific region are advantageously located along the so-called 'Pacific Ring of Fire', where economically viable geothermal energy resource potential is high. Geothermal energy exploration in the Philippines began in the late 1950s but it was only in 1969 that definitive results from studies of geothermal resources were obtained. The discovery was very timely as it happened during the 1970s oil crises; since then geothermal reservoirs of hot fluid found in many parts of the Philippines typically remain active for many years. Tiwi and Makiling-Banahaw (Mak-ban) were the first and second geothermal power plants in commercial operation in the Philippines, for more than 30 years since 1979.

The total installed capacity of geothermal electricity in the Philippines stood at 1,917 MW in 2014 which includes the 20 MW Maibarara geothermal power commissioned in February 2014 (BP, 2015). Since 1990, the Philippines maintained its current standing as the second largest geothermal energy producing country next to the United States in terms of installed capacity (IGA, 2015). Further to this, the Philippines has an estimated 4 GW potential capacity of hydrothermal resources - can be vapour or water-dominated with temperatures ranging from 750⁰C to over 2000⁰C (Fronza, 2014).

The Geothermal Service Contract Law was implemented in 1978 to legislate geothermal development until the passage of Renewable Energy (RE) Act of 2008 which modified the Law. In the RE Act, geothermal is treated as a mineral resource meaning, 100% foreign-owned corporations can enter into geothermal resource exploration, development and utilization, which is not possible before the RE Act was implemented. While the resources are owned by the State, the indigenous people are always consulted when developing geothermal resources for electricity as indicated in regulations such as the Indigenous Peoples' Rights Act and the Environmental Laws. The RE Law likewise provides fiscal and non-fiscal incentives to promote and accelerate the exploration, development and utilization of renewable energy resources which include geothermal energy.

The Asia Pacific Energy Research Centre (APERC) conducted a study assessing the current policies and factors affecting geothermal electricity development in the APEC region and the Philippines was one of the cases. The factors assessed among others were as follows: policy infrastructure (legal basis, government strategy, etc.); access to the resource (access to geothermal resources and secure and exclusive rights to the resources); environmental and other development permitting (permitting time limits and one-stop shop); government support for the geothermal industry (database and research and development) and access to the electricity market (transmission network and electricity sales contracting) (APERC, 2016). This paper shows the result of the assessment on the policy factors involved in geothermal electricity development in six APEC economy as cases including the Philippines.

Methods

Scorecard system – A scorecard was used to assess the Philippines geothermal electricity development comparing the developers' needs and expectations with the current government policies on geothermal electricity in the Philippines. To make comparisons among the issues, 'a color-coded bar chart' is used, with a scale from '0 (zero)' to '5 (five)'. Figure 1 shows the summary of the assessment of policy success factors in the Philippines.

Results

- 1) Generally, the Philippines shows potential in meeting developers' needs and expectations for geothermal electricity development.

- 2) While the Philippines meets most of the needs and expectations for geothermal electricity development, it needs to pay particular attention to the environmental and other development permitting (e.g. permitting time limits and one stop permitting) in order to maintain success in geothermal electricity development.

Conclusions

APERC assessed that there are at least five factors which need to be considered when implementing public policies to accelerate geothermal electricity production. If the Philippines can continue to consider these factors in implementing public policies when harnessing potential capacity of hydrothermal resources in the future, it can sustain its successful status in geothermal electricity development.

References

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Fronza, A. (2014). *Barriers and Opportunities for Geothermal Development in the Philippines*. Retrieved from http://aperc.ieej.or.jp/publications/presentations/annual_conference_detail.php?article_info__id=150.

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Figure 1: Assessment of Policy Success Factors in the Philippines

Factors	Score
Policy Infrastructure	
- Legal Basis	4
- The Government Strategy	4
- The Government Commitment to Investors	4
- Institutions	5
Resources Access	
- Access to Geothermal Resources	4
- Secure and Exclusive Rights to Resources	5
Environmental and Other Development Permitting	
- Permitting Time Limits	3
- One-Stop Permitting	3
- Inter-Agency Cooperation	4
Government Support for the Geothermal Industry	
- Database	5
- Research and Development (R&D)	5
- Human Resources Development (HRD)	4
- Financial Incentives	4
Access to the Electricity Market	
- Transmission Network	5
- Electricity Sales Contracting	5

Legend:

- the economy's public policy on geothermal electricity meets the overall expectations of developers (scale 5)
- the economy's public policy on geothermal electricity meets the expectations of developers in some respects (scale 4)
- the economy's public policy on geothermal electricity does not meet the expectations of developers at the moment, there is room for improvement (scale 0-3)