A stakeholders' dynamic to promote renewable energy in emerging markets: A geothermal case study

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Overview

Renewable energy (RE) development has increased substantially as a global effort to abate green house gases (GHG) emissions from the electricity sector. Geothermal, as a renewable energy source, could support the decarbonisation of the power sector by providing clean base-load electricity (IFC, 2013). However, geothermal power has only tapped a small proportion of the total of the global reserve. Indonesia as one of the emerging market countries has the second largest geothermal resources, but their current development is still limited only to less than 7% of the total potential capacity (Hasan and Wahjoesoedibjo, 2017). Many scholars argue that the major impediments to the geothermal energy are the high uncertainty of the resources and the long lead time of the development which requires government for de-risking the development phase (ESMAP, 2012; IFC, 2015; DiPippo, 2016).

Many governments have been supporting renewable energy development. Renewable energy investment in an emerging market, however, is different compared to any investment in industrial/developed countries. The energy market in these countries is mostly still as a regulated market with a substantial government subsidy to maintain a low electricity tariff. Futhermore, energy policy and regulations are frequently changed, which create uncertain conditions that makes investments riskier and adversely affect the economic returns to the investors (Booth, 2014). In this setting, Klessmann et al. (2008) and Michelez et al., (2011) highlighted that governments' supports and policy influence market risks, especially the case for tax incentives and similar policy measures such as Feed-in tariff (FIT), as they often can be repealed quickly and easily by political decision.

Currently, many scholars discuss the implication and effectiveness of the policies to accelerate renewable energy development. However, the studies on the effectiveness of the policy support are mostly focused on the financial assessment and have not assessed the dynamics of the stakeholders in promoting renewable energy. Given the above uncertainties and associated risks of the low carbon investment in geothermal energy in emerging countries, there is a knowledge gap in how the stakeholder dynamics affect the promotion of renewable energy, in particularly their actions and reactions to the government incentives, supports, and energy policy. The present research contributes to an understanding of stakeholders behaviours in such a policy and regulatory environment. Furthermore, this research provides empirical evidence on the multiple agency theory's ability to assess the multiple conflicts of interests in renewable energy development.

Methods

The research uses a qualitative approach besed on grounded theory to assess and understand the behaviour dynamics of the stakeholders in promoting renewable energy in the Indonesia. It aims to understand the motivation, ideas, and actions of the stakeholders in the geothermal energy. Multiple agency theory is used for observing the characteristics and interests of the multi-agencies (Hoskisson et al., 2013) in which the interactions and actions will provide findings to assess potential conflicts and effects caused by agent-owners and other relevant governance actors involved in of geothermal energy development.

Results

The power purchase agreements provide an umbrella for cooperation between developers and a utility company as the off-taker. Prolonged process for getting PPA is identified as one of the impediments to renewable energy development. However, all the decisions on a PPA are not made by the only principal and agent, but the off-taker as the principal is being in turn influenced by multiple principals (Board of Commissioners, Ministry of Finance, Ministry of Energy (as regulator), Ministry of Environment, and also their SBUs who are managing the O&M of the off-taker's generation facilities). At the same time, the developer as an agent also has the principals beyond the PPA (Stockholders, Financiers, Communities, Employees, Manufacturers, Contractors, as well as Consultants). The findings from the study show that stakeholders beyond the offtaker (principal) and developer (agent) influence the agreement to purchase and sell the electricity. There are two significant stakeholders' dynamics in renewable energy development: those related to the off-taker as a principal, and the principals behind the agent.

Conclusions

The dynamics of the geothermal energy stakeholders indicate multiple conflicts of interest and complex of the interactions among interests that affect the promotion of renewable energy. In addition to the complexities of such dynamics, our findings contribute to the multiple agency theory on dynamics by providing evidence on the dynamic of stakeholders in promoting renewable energy. We identify conflicts of interests among more than one agent group when at least one of those agents is connected to a different principal. In an emerging market, it is common for the government to prioritise cheap electricity and provides subsidies for electricity, meanwhile the penetration of renewable energy such as from geothermal, leads to additional cost beyond the current generation cost. Therefore, the government as regulator insist their utility company (SOE) enter any PPA with the best price approach. In addition, given the monopsony setting, the only off-taker holds strong monopsony market power who could push to have the best price to optimise their expected profit. On the other hand, the developer as agent should manage interests from their principals (beyond the offtaker) such as reasonable return, adequate payoff for the investors, acceptable contract amount for the contractors, and acceptable compensations for affected communities and civil societies.

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