

IBRD response to questions submitted by France on the approval of CTF funding for the Indonesia: Geothermal Clean Energy Investment Project

We just have three questions on how to secure the transformational potential of the proposed project:

- 1) this project aims at ensuring the financial viability of the investments performed by Pertamina Geothermal Energy (PGE) in 2 power plants of 110 MW and 40MW, and at helping PGE becoming a world-class geothermal developer. Could we have more information on the business development plan for the scaling-up of PGE's geothermal activity to reach 1000 MW of viable projects? (Self-financing? Further external support? Pending on regulatory milestones?)

PGE has a number of geothermal (working areas or WKPs) fields under its control (concessions, if you will) including the two (Ulubelu and Lahendong/Tompaso) proposed for financing under the CTF/World Bank loans, Annex 7, table A7.2 in the Project Appraisal Document (PAD) indicates the scale-up in development that is planned. Pertamina/GGE are committed to this program as evidenced by the commitment of their own resources to complement the CTF/World Bank loans. They would seek similar arrangements for developing the remaining fields through a combination of debt and equity financing. In addition to the CTF/World Bank loan, PGE is also preparing the Lumut Balai field with assistance from the World Bank/Government of The Netherlands, which will be financed by the Japan International Cooperation Agency (JICA). In a number of additional fields (such as Hululais, Sungai Penuh, Kotamabagu), PGE is now initiating exploration drilling and are in discussions with other development partners such as the Asian Development Bank (ADB), Agence Française de Développement (Afd), and Kreditanstalt für Wiederaufbau (KfW). Given the substantial investment needs to implement the proposed scale-up in a sustainable manner, the World Bank would could also consider building upon the success initiated through the current engagement with PGE, to partner and help finance further investments.

	2010	2011	2012	2013	2014	Total
Increase in Installed Capacity (MW)	0	75	405	165	425	1070

- 2) As outlined in the document, one of the main barriers to the large scale development of this energy remains the relative low regulated tariffs and the lack of a comprehensive pricing and compensation mechanism for geothermal. We understand that this project will provide a benchmark to support this process. Could you be more specific on what lessons are to be learned from this project and the consequences it could have on pricing policy?

As noted in the PAD, the Gol has been undertaking initiatives to develop a comprehensive pricing and compensation policy for geothermal in Indonesia - an effort that is actively being supported by the World Bank through the GEF funded *Geothermal Power Generation Development Project*. The aim is to help the Gol move away from a piecemeal approach to developing such a policy to a comprehensive one where it would include: a) a mandatory off-take, b) simple and efficient price setting mechanism, and c) a fully funded compensation scheme. Although there is considerable research at present regarding generalized geothermal cost information, performance standards,

resource characteristics, and operational reliability, there is limited recent project level information since most geothermal developments in Indonesia were carried out in the 1990's. As a result, it is more challenging to implement an effective pricing policy since such information provides the basis for putting the reforms into practice (for example, if you were to set a feed-in tariff, then you would need relatively accurate cost figures. If you were to develop a risk mitigation program, you would need benchmarks on well productively and drilling success rates). However, with a number of Gol supported projects getting underway, the Gol will have access to improved benchmark information that will enable them to design more effective policy.

3) Several other initiatives seem to aim at a transformational impact in geothermal power in Indonesia, such as *the Geothermal Power Generation Development Project* and the series of *Climate Change Development Policy loans*. How will be addressed the synergy between these initiatives and what could be proposed to maximize their joint outcome?

As noted in the PAD, the proposed *Geothermal Clean Energy Investment Project*, the *Geothermal Power Generation Development Project*, and the *Climate Change Development Policy Loans* all compliment each others by bringing together different tools to support the development of the geothermal sector in Indonesia. The *Geothermal Power Generation Development Project* is mainly designed to help Gol reform the policy and regulatory environment to improve the investment climate in the sector. As noted previously, one of its key components, to assist the Gol develop a comprehensive pricing and compensation policy will need to rely on benchmark information from the *Geothermal Clean Energy Investment Project* and other investments to effectively achieve its objectives. Another example would be that the current negotiations between PGE and PLN on a power purchase agreement (PPA) as a part of the *Geothermal Clean Energy Investment Project* could result in a model PPA that is essential for conducting a successful and bankable competitive tender that is being supported on a demonstration basis under the *Geothermal Power Generation Development Project* with the Ministry of Energy and Mineral Resources. The *Climate Change Development Policy Loans* on the other hand bring together various Gol agencies including the Ministry of Finance to secure commitments for providing adequate compensation for covering the incremental costs of geothermal - an essential element of a pricing policy. Such synergies are important to providing effective support to implementing a multi-sector effort such as the Gol geothermal scale-up program.