

**IFC Response to the Trust Fund Committee: Approved by Mail: CTF Indonesia:
Geothermal Electricity Finance (IGEF) Program (IFC)**

INDONESIA GEOTHERMAL ELECTRICITY FINANCE (IGEF) PROGRAM

IFC Responses to the comments from Trust Fund Committee members

Comments from France

Comment While confidentiality reasons naturally prevent the IFC to disclose the names of the project sponsors, as well as the exact projects in the pipeline, would it be possible to have some more 'anonymous' information on the projects (size, stage of development, the expected timeline to reach financing closure, etc.) allowing the Committee to have an idea of the feasibility to achieve funds commitment by December 2014 (very tight timeline)?

IFC response The development of a geothermal project is a long process with difficult-to-predict timeline, as a track record of private sector projects is scarce. Hence, the timelines, financial closure dates, and commercial operation dates indicated in the proposal are IFC's best estimate and are indicative.

The projects in the IGEF pipeline are in a fairly advanced stage of development with reasonable expectations of moving forward quickly. IFC is working with several project sponsors, each developing a few geothermal fields. While the work on some of the fields is more advanced than the others, all these projects are currently in the exploration phase with some drilling data already available.

At this time, IFC expects that some of the projects in the pipeline will receive MDB approval by July 2014, with some of the others potentially receiving approval by December 2014. The timeline is indicative and subject to further refinement depending on the outcomes of IFC's on-going due diligence.

Comment In order to understand precisely the business of this facility, would it be possible to have an illustrative business case (in particular type and range of expected costs)?

IFC response Typically, when private sector program proposal is submitted to the TFC for the review, the pipeline of projects is at a much earlier stage of development relative to the public sector proposals. Therefore, the specific financing structure and pricing for the CTF and IFC funds on a project level cannot be determined with certainty yet, as it will depend on the outcomes of IFC's on-going due diligence. In one possible scenario, however, CTF may provide a loan to a project sponsor along with IFC loan of similar amount. To cushion some of the geothermal

exploration risks, CTF funds may need to be concessional in price and/or junior to IFC.

Comment It seems that there are already various subsidy facilities in Indonesia dedicated to the financing of geothermal development. Could it be possible to provide a quick mapping of these and/or elements of demonstration of the additionality of the proposed facility with respect to the existing ones?

IFC Response Although there appears to be several facilities for geothermal development, most of them are set up to provide support to public sector projects. For example, in 2013 the Ministry of Finance announced a \$300 million fund to finance the exploration of geothermal energy resources that can be accessed by local governments. Additionally, there is a number of initiatives, such as the GEF Geothermal Power Generation Development program and others, that support economic and sector studies, workshops, and other knowledge activities.

There is a very limited number of programs that provide *direct support for the private* sector geothermal project development in Indonesia. Among the very few, is the \$145 million geothermal fund that is currently being designed with the aim to reimburse the costs of survey and initial exploration incurred by the bidder that wins the tender for geothermal working areas under the Public Private Partnership scheme. However, these funds will only be available to a purely greenfield operation. This means that over a dozen of geothermal projects that started exploration in early- to mid-2000s may not be able to benefit from this and similar new programs and schemes. At the same time, these projects have been in development for several years, are in the most advanced stages, and can reach financial closure within a short period of time. The IGEF Program aims to provide financial support to some of these projects with the objective of catalysing the development of the geothermal sector in Indonesia and unlocking other 'stagnant' projects. The IGEF Program will complement the only other initiative aimed at moving this cohort of private sector projects forward – the recently approved ADB's geothermal private sector program.

Comments from UK

Comment Could you clarify which is the figure will be used to report for the CTF results?

IFC response IFC will use the figures associated with 660 MW of new installed capacity.

Comment Can you clarify why the other 50% of the funding will only buy up to another 340MW?

IFC response Like many other renewable energy projects, every geothermal project is unique. Moreover, the number of factors affecting the success of a specific geothermal project is probably larger than that of any other renewable energy project. Therefore, IFC can only provide its best estimate of the outputs, including project-specific installed capacity as well as the cumulative size of the pipeline. At this time, IFC estimates that the potential new generation capacity enabled by the IGEF program can be somewhere in 660 MW to 1,000 MW range. These numbers will be further verified and adjusted based upon the results of the exploration phase. To stay on the conservative side, IFC uses the lower-end estimate of 660 MW.

Comment At the Oct TFC meeting there was a decision that each proposal needs to report on the cost-effectiveness of projects in the following ways:

a) In addition to CTF investment per ton of CO₂-equivalent reduced, an estimate of total project costs (CTF investment plus co-financing) per ton of CO₂-equivalent reduced should also be provided.

b) In addition to the above, CTF proposals will provide an analysis, where applicable and feasible, of the expected reduction in the cost of the technology due to technological progress and scale effect at a global level, and/or through organizational learning and scale effects at the country level.

This analysis (or rationale for why it is not possible) has not been provided.

The proposal has given an estimate of the cost effectiveness: “Based on the above calculations and an expected Program cost of US\$50 million the implied direct GHG reductions per CTF US dollar spent will be 2.2 tCO₂e/\$ over the life of the sub-projects.” However, there is no estimate of total project costs per ton of CO₂e reduced provided. It is also unclear how the CTF investment per ton CO₂e has been calculated. We calculate this as \$0.45/t. With the overall investment cost/ton:\$20.1/t.

IFC response Estimated total project costs per tCO₂e reduction is:

- \$20.7, assuming 30 years of asset life; and
- \$31.2, assuming 20 years of asset life (see also response to comments from Germany).

The figures calculated by the UK are correct and congruent with IFC’s calculations:

- CTF investment cost is \$0.45/tCO₂e (\$0.68/tCO₂e, assuming 20 year
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project life); and

- overall investment cost is \$20.1/tCO₂e (\$31.2/tCO₂e, assuming 20 years project life).

Besides the specifics of the exploration phase, the geothermal project technology is well-known and unlikely to experience any material cost reduction. More importantly, project costs vary more because of site specifics rather than evolution of the technology cost. It is not feasible to provide an accurate analysis of the effect of the Program on the cost of the technology.

Further, the main problem with geothermal projects is not the cost of the technology but rather the high uncertainty of the exploration phase, limited data on the evolution of this uncertainty during the exploration phase and its impact on project costs. Most importantly, as all the private sector geothermal projects in Indonesia are in the exploration phase, it is challenging to identify the current technology cost baseline. The IGEF Program will help unlocking the pipeline of the projects by improving understanding of the costs (and risks) of exploration as well as the total cost of a project.

Comment How will this investment lead to transformational change? How will we actually achieve a long term impact? Are the investors investing in these 3 projects more likely to invest afterwards in further geothermal plants because of the learning involved? The transformational element of the proposal seems to hinge on private sector learning and the knowledge generated by these investments being disseminated and shared but there is no knowledge sharing strategy or articulation of how this will actually happen for a five-fold scale up.

IFC response There is a limited number of geothermal project developers globally; and the success of this Program with selected projects may help raising the overall level of confidence among the developers. Further, if IFC is successful in financing the exploration phase of such geothermal projects, then other DFIs may also consider similar financing structures. Additionally, several commercial senior lenders – financiers with global reach – may become better equipped to conduct transactions in the geothermal sector.

The outcomes of the Program will be disseminated by IFC in collaboration with global geothermal programs led by the World Bank Group and others. Thus, IFC may deliver a “lessons learned” workshop upon successful completion of the Program and share its experience with the ESMAP-led Global Geothermal Development Program.

Comment Please can you confirm that any credits sold to the market will be reported to the CTF? The use of financial instruments such as equity and mezzanine finance seems to go beyond the activities that are usually financed under the CDM. Please can you confirm?

IFC response IFC confirms that any sale of carbon credits on carbon markets will be reported to IFC and can be made available to the TFC. As of now, results based mechanisms, such as CDM, provide little help, as the projects cannot complete resource exploration phase to be able to reach financial closure, let along start

generating monetized carbon benefits.

Comments from Germany

Comment To improve comparability, could you please calculate GHG emissions savings using a 20-year operational period (as ADB does for the Indonesia Private Sector Geothermal program) instead of 30 years? (GHG emissions savings will still be high)

IFC response Estimated GHG emission savings for 20-year operational period are 73.8 million tCO₂e. The respective cost effectiveness and total project cost per tCO₂e are calculated above.

Comment Could you please provide all information requested by the last committee meeting's decision re Cost-effectiveness (see also request by UK), including e.g. total project investment in relation to GHG emissions savings?

IFC response Please see above.

Comment As already requested by France, could you provide some more information on the projects in the pipeline with respect to size, stage of development, obtaining all necessary governmental licenses and permits, the expected timeline to reach financing closure, business case, etc.?

IFC response Please see above.
The projects in the pipeline possess all the permits and licenses needed for the current exploration phase. IFC will ensure that the projects meet all the required conditions, including obtaining required permits and licenses, before disbursement of funds.

Comment Financing Instruments: a wide range of investment terms is indicated, including equity/quasi-equity and mezzanine (subordinated) debt loan, involving high level of risk to the CTF. Very little information is provided on deploying these financing instruments. We are concerned that an extensive commitment of these risky instruments could be a burden for the CTF and could also cause an exaggerated level of concessionality. We therefore kindly ask you for some more information on restrictions and precautions to prevent inadequate risks for the CTF and to avoid over-concessionality. In particular, we would ask you to consider whether a deployment of financial instruments besides (non subordinated) senior loans could be restricted to a maximum share of the total 50 million USD allocation.

IFC response Definitive information on the use of specific instruments and terms is not available at this stage yet. To succeed, however, the Program should retain flexibility in choosing the appropriate customized financial instruments that would most effectively address one of the key barriers in developing geothermal projects—the need for upfront capital that covers exploration costs.

The IFC IGEF Program is aimed at supporting projects that are currently in the “valley of death” – past the early equity stage (early exploration), when funds are available from risk-capital providers, but before the project finance stage, when the senior loans are available from senior lenders. The projects under

consideration are not likely to move, unless they receive the funding in an appropriate form. IFC will seek to employ the financing instruments best tailored to the specifics of each project and best suited to bridge this “valley”. In the current context of geothermal sector in Indonesia, IFC’s ability to utilize the full spectrum of CTF-approved instruments to structure transactions is critical and may help unlock the multi-billion dollar pipeline of the geothermal projects in Indonesia, creating a powerful transformational impact.
