

Ex-ante Evaluation

1. Name of the Project

Country: The Republic of Indonesia

Project: Engineering Services for Kamojang Geothermal Power Plant Extension Project

(Loan Agreement: March 29, 2006; Loan Amount: 995 million yen; Borrower: The Republic of Indonesia)

2. Necessity and Relevance of JBIC's Assistance

In the National Energy Policy (KEN), effective usage of renewable energy is stated as one of the national policies, and the goal is to use renewable energy, including geothermal energy, for 5% or more of the nation's total energy by 2020.

According to the National Power General Plan (RUKN), the peak demand for power in Indonesia nationwide in 2003 was 20,967 MW (14,053 MW in the Java-Bali System; 6,914 MW in Outer Java-Bali systems), and peak demand is expected to grow at an average of 6.4% annually henceforth (5.6% in the Java-Bali System; 7.8% in Outer Java-Bali systems). Moreover, the plan states that, together with reforming the electric sector, every endeavor will be made to supply power to all levels of society.

Peak demand in the Java-Bali System where this project is located is 14,053 MW (actual demand for 2003), and this is expected to grow at an annual average of 5.6%, to reach 24,319 MW in 2013. Meanwhile, the installed capacity of the power generation facilities in the system is 18,658 MW (actual capacity in 2003), and taking into consideration future operation stoppages due to the aging of existing facilities and development of new power sources, the installed capacity in 2012, immediately prior to the scheduled starting date of this project's operation, is expected to be 27,021 MW. Because the power supply reserve margin in 2012 is expected to drop to 17.9%, development of a new power source is urgently required.

Japan's "Assistance Plan for Indonesia" (November 2004) places emphasis on economic infrastructure development and announces support for "private sector-led sustainable development" as a priority area and an important subject for assistance. The plan includes assistance particularly for increasing the transmission capacity primarily in the Java-Bali System using ODA loans. Moreover, in JBIC's current Medium-Term Strategy for Overseas Economic Cooperation Operations (April 2005), priority areas for support are infrastructure development for sustainable growth and global-scale problems, and specific efforts are mentioned for assistance for renewable energy, including promotion of CDM (Clean Development Mechanism) loans. In assistance to Indonesia, a priority area is installation of economic infrastructure in order to improve the investment climate.

Therefore, JBIC's assistance is highly necessary and relevant.

3. Project Objectives

The objective of this project is to relieve the tightness in power supply and demand in the Java-Bali System and to improve the stability of the supply by developing steam-producing sources for power generation and expanding the geothermal power plant (60 MW class), in West Java Province on Java, and thereby to contribute to the economic development of Java through improvement of the investment climate. Moreover, the project will contribute to the lowering of the burden placed on the global environment by using renewable energy. This loan is for the engineering services including the

detailed design, etc., of the said project and is to promote the smooth implementation of the overall project.

4. Project Description

(1) Target Area

Bandung District, West Java Province

(2) Project Outline

Construction of a 60 MW geothermal power plant, etc., procurement of necessary materials and equipment, and civil engineering works, etc., for the project will be carried out as follows.

- (a) Construction of a geothermal power generation facilities (1 unit, 60 MW)
- (b) Additional power transmission facilities
- (c) Excavation of production well and re-injection well and installation of well-head assembly
- (d) Laying of geothermal pipeline
- (e) Consultant services

This loan is for engineering services (E/S) that will be rendered prior to the main construction. The engineering services are outlined as follows.

- (a) Detailed design (including exploratory test well drilling)
- (b) Tendering assistance
- (c) Survey of Lumut Balai geothermal field (including exploratory test well drilling)

(3) Total Project Cost/Loan Amount

1,327 million yen (for this E/S portion only) (Yen Loan Amount: 995 million yen)

(4) Schedule

April 2006-November 2008 (32 months)

(5) Implementation Structure

- (a) Borrower: The Republic of Indonesia
- (b) Executing Agency: PT. PLN (Persero) (State Electricity Company) and PT. PERTAMINA (Persero) (State Oil Company)
- (c) Operation and Maintenance System: PT. PLN (Persero) (State Electricity Company) and PT. PERTAMINA (Persero) (State Oil Company)

(6) Environmental and Social Consideration

(a) Environmental Effects/Land Acquisition and Resident Relocation

(i) Category: B

(ii) Reason for Categorization

This project is classified as Category B because it is an engineering service loan and the overall project does not belong in Category C, under the “Japan Bank for International Cooperation Guidelines for Confirmation of Environmental and Social Considerations” (established April 2002).

(iii) Other

<p>This is a loan for engineering services, but because it includes a test drilling survey, etc., the national oil company will give appropriate consideration to the environmental and social impact and will conduct monitoring of the air and noise, etc.</p> <p>(b) Promotion of Poverty Reduction None</p> <p>(c) Promotion of Social Development (e.g. Gender Perspective) None</p> <p>(7) Other Important Issues None</p>
<p>5. Outcome Targets</p>
<p>(1) Evaluation Indicators (Operation and Effect Indicator) The evaluation indicators are scheduled to be set when the main part of the project is implemented.</p> <p>(2) Internal Rate of Return (Financial and Economic Internal Rate of Return) The internal rate of return is scheduled to be set when the main part of the project is implemented.</p>
<p>6. External Risk Factors</p>
<p>None</p>
<p>7. Lessons Learned from Findings of Similar Projects Undertaken in the Past</p>
<p>In the ex-post evaluations of previous similar projects, it has been learned that securing steam-producing sources is important for achieving the planned effects of the project. In this project, steam has already been confirmed by a test drilling survey by the national oil company. However, based on the lesson that has been learned, the test drilling conducted using this E/S loan will check the adequacy of the supply of steam.</p>
<p>8. Plans for Future Evaluation</p>
<p>(1) Indicators for Future Evaluation Scheduled to be set when the main part of the project is implemented</p> <p>(2) Timing of Next Evaluation Scheduled to be set when the main part of the project is implemented</p>