

Ex-Ante Evaluation (for Japanese ODA Loan)

1. Name of the Project

Country: The Republic of Indonesia

Project: Indramayu Coal Fired Power Plant Project (E/S)

Loan Agreement: March 28, 2013

Loan Amount: 1,727 million yen

Borrower: The Republic of Indonesia

2. Background and Necessity of the Project

(1) Current State and Issues of the Power Sector in Indonesia

According to PT. PLN (Persero) (hereinafter referred to as “PLN”), the peak demand for power in Indonesia nationwide in 2011 was 26,664MW, while the installed capacity is 32,898MW and the reserve margin is 23%, far short of PLN’s target of 35%. PLN’s Long Term Electricity Development Plan (RUPTL) (2011-2020) (hereinafter referred to as “RUPTL”) estimates that electricity demand of the country will reach 55,053MW in 2020, annually increasing approximately 8% on average. Thus alleviation of stringency in power demand is an urgent issue.

Especially in Java-Bali system, peak demand in 2011 was 19,739MW and is expected to reach 38,742MW by 2020 with strong economic growth. On the other hand, installed capacity in 2011 was 27,091MW. In this circumstance, it is highly needed to develop new power plants in order to stabilize the electricity supply.

(2) Development Policies for the Power Sector in Indonesia and the Priority of the Project

With the issuance of Ministerial Regulation on National Energy Policy No.983/2004, the Government of Indonesia aimed to utilize coal as primary energy which is abundant in the country, instead of oil or other exportable energy. In addition, Presidential Regulation No.5 /2006 sets a target for an energy mix that coal will account for 33 percent by 2025. In addition, under the second “Crash Program” established in January 2010, approximately 10,000MW of power development was planned with the aim of increasing power supply, diversifying power resources and introducing renewable energy including geothermal. The Indramayu Coal Fired Power Plant Project (hereinafter referred to as “the Project”) is mentioned in the said program and will supply power to Jakarta Metropolitan Area and West Java province, load center of Java-Bali system in order to stabilize the electricity supply. Making use of the abundant supplies of coal in the country effectively, the Project is consistent with the energy mix policies.

(3) Japan and JICA’s Policy and Operations in the Power Sector

The Government of Japan considers “Assistance for further economic growth” as one of the priority areas in the “Country Assistance Policy for Indonesia” (April 2012).

It specifically prioritizes infrastructure improvement and “the program for stable electricity supply in the Metropolitan Area”. JICA analyzes “stable electricity supply, improvement of reliability” and “reduction of impact on the global environmental” as key development issues. Therefore the Project is consistent with such policies and analyses. In addition, the Project is one of the Fast Track Projects under Metropolitan Priority Area (MPA) which was agreed upon between the two governments. In the power sector of Indonesia, JICA has provided 116 loans (total commitment of 908,792 million yen). Concerning technical cooperation, support for geothermal development and energy-saving policies has been provided. Recently, “The Project for Promotion of Clean Coal Technology (CCT)” (2011-2012) has been implemented.

(4) Other Donors' Activity

The World Bank expresses the necessity of power plant capacity to meet the increasing power demand in the “Country Partnership Strategy (2009-2012)” and implemented “Power Transmission Development Project” in 2010 and “Upper Cisokan Pumped Storage Hydro-Electrical Power Project” in 2011. Asian Development Bank aims at promoting renewable energies and improving the efficiency of power transmission based on “Country Operations Business Plan (2012-2014)”, and implemented “Java-Bali Electricity Distribution Performance Improvement Project” in 2010.

(5) Necessity of the Project

As mentioned above, the Project is consistent with the country's issues and development policies, as well as the assistance policies of Japan and JICA. Therefore it is highly necessary and relevant for JICA to provide assistance through the Project.

3. Project Description

(1) Project Objectives

The objectives of the project are to improve the power supply capacity in the Java-Bali system, to ease the stringency of power demand in the Java-Bali System, and to improve the reliability of power supply by introducing 1,000MW ultra super critical coal-fired power plant in Indramayu, West Java Province, with related transmission line, substation and marine works, thus contributing to the economic development in the region by the improvement of investment climate and the mitigation measures against climate change through the high efficient energy utilization.

(2) Project Site/Target Area: West Java Province

(3) Project Components

- 1) Ultra super critical coal fired power plant (1,000MW) and coal/ash handling equipment
- 2) Related marine facilities
- 3) Transmission line (110km), substation and switchyard

- 4) Consulting services (basic design, tender assistance, construction supervision and environmental monitoring etc.)

This loan will be provided for above 4) as the engineering services (E/S) loan for the Project.

- (4) Estimated Project Cost (Loan Amount)

1,810 million Yen (Loan Amount: 1,727 million Yen)

- (5) Schedule

March 2013 – March 2020 (85 months in total)

The project will be deemed completed when the facilities come into service (March 2019).

- (6) Project Implementation Structure

- 1) Borrower: Republic of Indonesia

- 2) Executing Agency: PT. PLN (Persero)

- 3) Operation and Maintenance System: PT. Indonesia Power or PT. PJB (to be determined one year before the commercial operation by PLN)

- (7) Environmental and Social Consideration/Poverty Reduction/Social Development

- 1) Environmental and Social Consideration: See Annex

- 2) Promotion of Poverty Reduction: None in particular

- 3) Promotion of Social Development (e.g. Gender Perspective, Measure for Infectious Diseases Including HIV/AIDS, Participatory Development, Consideration for the Person with Disability, etc.): The contractor will take HIV/AIDS measures for construction workers to be employed for the Project.

- (8) Collaboration with Other Donors: None in particular

- (9) Other Important Issues: As the Project is expected to apply ultra super critical steam condition, it will also contribute to reduce greenhouse gas (GHG) emission. Compared to the same scale of subcritical coal fired power plant, GHG emission will be reduced by approximately 334,000t of CO₂/year.

4. Targeted Outcomes

- (1) Quantitative Effects

- 1) Performance Indicators (Operation and Effect Indicator): To be finalized by loan for construction

- 2) Internal Rate of Return: To be finalized by loan for construction

- (2) Qualitative Effects

- (i) Improvement of the stable power supply in Java Island, (ii) promotion of economic activities, (iii) improvement of the investment climate, and (iv) mitigation of climate change

5. External Factors and Risk Control

None in particular

6. Lessons Learned from Past Projects

(1) Lessons from similar projects

According to the ex-post evaluation of Vietnam's "Pha Lai Thermal Power Plant Project", experiences and skills acquired through the project have been shared with other power plants. This result shows that further development effects can be expected by prioritizing the aspect of technology transfer.

(2) Lessons applicable to the Project

In the same way, technical transfer is important in this Project since it is the first ultra super critical power plant that PLN is to operate and maintain. Maintenance staff will be assigned in the operation/maintenance organization and receive training from the contractor during the construction period. In addition, consultants will also support the preparation for operation and maintenance as part of the consulting services.

7. Plan for Future Evaluation

(1) Indicators to be Used

To be finalized by loan for construction

(2) Timing

To be finalized by loan for construction

Environmental and Social Consideration for Indramayu Coal Fired Power Plant Project

① Category: A

② Reason for Categorization:

The Project falls into the thermal power sector under the JICA Guidelines for Environmental and Social Considerations (April 2010).

③ Environmental Permit:

Environment Impact Assessment (EIA) report has been prepared separately for power plant and transmission line, and the latter was approved by West Java Province in June 2011. The report for power plant is expected to be approved by Indramayu District, West Java Province by June 2013.

④ Anti-Pollution Measures:

Concerning the air pollution, emission concentration and maximum surface concentration of NO_x, SO_x and particulate matters are expected to comply with the national and international standards. Mitigation measures will also be taken for waste water, coal ash, and noise, etc.

⑤ Natural Environment:

The project area is not located in and around any sensitive areas such as national parks, and it is likely to have a minimal adverse impact on the natural environment.

⑥ Social Environment:

The Project involves land acquisition of approximately 314ha, and the steps will be taken in accordance with Indonesia's domestic law and the basic plan for resettlement. No involuntary resettlement is expected so far. It has been suggested to employ unskilled workers during a local stakeholder meeting, and the executing agency is considering the possibility that the contractor may employ those unskilled workers.

⑦ Other/Monitoring:

In the Project, executing agency will monitor the impact on the atmosphere, water quality and marine environment (water temperature, flora and fauna, etc.) during construction. Air quality and noise will be monitored after the start of its operation.

⑧ Conclusion

As stated above, the Project is not likely to have significant adverse impact on the environment and society.