

## Signing of Japanese ODA Loan Agreements with the Republic of Indonesia

### –Meeting the Rapidly Growing Power Demand with Ultra Super Critical Coal-Fired and Geothermal Power Plants–

On March 28, the Government of the Republic of Indonesia and Japan International Cooperation Agency (JICA) concluded loan agreements to provide Japanese ODA loans up to 10,142 million yen for the following three projects.

Indonesia has achieved an annual economic growth rate at approximately 6 percent based on the robust domestic demand including private consumption and corporate capital investment, and has been identified as one of the most attractive foreign investment locations. However, Indonesia encounters serious deficiency of infrastructure to sustain this economic growth. In October 2012, cabinet members of Japan and Indonesia approved the Master Plan for Establishing Metropolitan Priority Area for Investment and Industry in the Jakarta Metropolitan Area, or Jabodetabek area (generally referred to as the "MPA Strategy Plan"), and agreed to accelerate the infrastructure development in Jabodetabek area both in construction and institutional reforms. Indonesian economy is expected to keep its annual growth by more than 6 percent, and the Government of Indonesia put high priorities on sustaining economic growth and expanding employment opportunities through improvement of further investment climate and infrastructure development.

Indonesia is also suffering from frequent disasters, such as earthquakes, flooding, tsunamis and landslides. From 1980 to 2011, natural disasters killed approximately 0.19 million people and affected 19.6 million people. Disasters not only take many lives, but cause huge damages to socio-economic infrastructure. Since economic loss is so huge, strengthening and enhancement of disaster management such as community disaster management, improvement of seismic resistance, and integrated water resources management, are critical issues for the Government of Indonesia.

Taking into account these circumstances, Japanese ODA loan agreement was signed for the following three projects.

(1) Construction of high-efficiency coal-fired power plant to improve power supply capacity in the capital region, load center of Java-Bali system

While the peak demand in Indonesia was 26,644 megawatts in 2011, the current installed capacity is 32,898 megawatts, which the reserve margin is only 23 percent, far short of the target 35 percent set by PT PLN (Persero). Furthermore, it is expected that power demand will grow by an average of 8 percent per year through 2020. Especially Java-Bali system, which accounts for approximately 75 percent of the total power demand in Indonesia, supplies power to Jabodetabek where many Japanese companies have operations. Thus alleviating the stringency in power demand is the urgent issue.

The Indramayu Coal Fired Power Plant Project (E/S), one of the Japanese ODA loan projects, will construct a large capacity (1,000 megawatt), high-efficiency coal-fired power plant applying ultra super critical (USC) steam condition, a state-of-the-art technology, and supply power to Jabodetabek and West Java Province, load center of Java-Bali system. It will improve the capacity and reliability of the power supply, thus contributing to further economic growth in Indonesia.

(2) Supporting geothermal development in Indonesia's eastern areas

Although Indonesia enjoys a robust economic growth, nearly half of the total population, 46.1 percent, still lives on less than two dollars per day (purchasing power parity base). Especially, the poverty is severe in the eastern areas. Therefore, poverty reduction and alleviation of economic disparity are important issues in Indonesia. For power supply, there are 6 out of the 33 provinces in the country where the household electrification rate is less than 60 percent, and all of those provinces are located in the eastern areas. Therefore, improving the power supply in those areas is also an urgent issue. As the power supply in those areas depend primarily on diesel power generation, which comes with high unit cost of production and severe environmental burden, diversification of power generation is also important. Under such conditions, the Government of Indonesia is promoting the expansion of renewable energy, including geothermal resource, which Indonesia has one of the highest potential in the world.

The Geothermal Development Acceleration Program (Tulehu Geothermal Power Plant Project (E/S)), one of the Japanese ODA loan projects, will construct a 20-megawatt geothermal power plant to replace the aging diesel power plant in Ambon Island, Maluku Province, a region with extreme poverty. This will provide a stable power supply and improve the living standards, thus reducing poverty and further developing renewable energy in Indonesia.

(3) Enhancement of flood management in the Bandung Metropolitan Area, the core of the textile industry

Flood damage causes not only physical losses to infrastructure and homes, but entails socio-economic losses such as economic stagnation and poverty, therefore has potential risk for hindering sustainable growth. The Government of Indonesia is carrying out water resources management including flood prevention measures, particularly in major cities where population and industry are concentrated. However, due to financial limitations, the existing water resource facilities constructed or improved by the Government of Indonesia are not sufficient, and level of safety achievement for flood control remains low. To respond to recurring flooding and future flood risks, structural and non-structural measures have become high priorities for the integrated water resources management in terms of surveying the river basins, planning the development of water resources management, and formulating watershed plans.

The Upper Citarum Basin Flood Management Sector Loan, is to implement the structural measures such as river improvement works, as well as non-structural measures including institutional strengthening for the Citarum River Basin Organization or Balai Besar Wilayah Sungai Citarum (hereinafter referred to as "BBWSC) and capacity development for community against flood disaster. This will reduce flood damage that occurs frequently in Bandung. The Upper Citarum River Basin, located in south of Bandung, the capital of West Java Province, is one of the core areas for the textile industry.

JICA has implemented not only these project-type loans, but also policy reform loans such as the Development Policy Loan (VIII) and technical cooperation projects for development planning, policy formulation, and policy implementation. In relation to the abovementioned Japanese ODA loans, JICA has implemented technical cooperation projects for promotion of high-efficiency, low-carbon, low-pollution coal-fired power plant technology, for capacity development of geothermal resource analyses and explanatory well drilling to mitigate geothermal development risks, and for capacity development to promote integrated water resources management for flood management. JICA will continue to support stable economic development and disaster management of Indonesia by utilizing all schemes of ODA (technical cooperation, Japanese ODA loans and grant aid).



After signing, Atsushi Sasaki, Chief Representative, JICA Indonesia Office and Robert Pakpahan, Expert Staff of State Revenue, Full Mandate as Director General of Debt Management, Ministry of Finance shook hands.

## Reference

### 1. Terms and Amounts of Loans

Project title	Amount (million yen)	Annual interest rate (%)		Repayment (years)	Grace Period (years)	Procurement
		Project	Consulting services			
(1) Indramayu Coal Fired Power Plant Project (E/S)*	1,727	–	0.01	40	10	General untied
(2) Geothermal Development Acceleration Program (Tulehu Geothermal Power Plant Project (E/S))*	5,104	0.3	0.01	40	10	General untied
(3) Upper Citarum Basin Flood Management Sector Loan	3,311	1.4	0.01	25	7	General untied

\* Qualifies for the terms of a Climate Change ODA Loan.

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## 2. Project Summaries

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### (1) Indramayu Coal Fired Power Plant Project (E/S)

#### (a) Background and Necessity

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.

Under the second "Crash Program" established in January 2010, approximately 10,000 megawatts of power development was planned with the aim of increasing power supply, diversifying power sources and introducing renewable energy including geothermal.

This project is also the Fast Track Project under MPA, and contributes to stable power supply in Jabodetabek and West Java Province, the load center in the country.

The power plant will apply ultra super critical steam condition which has high-efficiency (it operates at temperatures and pressures above the critical point of water and requires less coal per megawatt-hour, leading to lower emissions). Clean Coal Technology (CCT) will also be introduced to the power plant which enables to minimize harmful emissions and the effect on environment. Accordingly, this project is in line with the energy mix policy in Indonesia.

#### (b) Objective and Summary

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 1,000 megawatts 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 improving the investment climate and the mitigating effects on climate change through the high efficient energy utilization.

The scope of this loan are engineering services including basic design, and the funds will be allocated to consulting services (including basic design work, tender assistance and construction supervision) for the project.

#### (c) Executing Agency

PT PLN (Persero)

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Phone: +62-21-725-1234, fax: +62-21-722-2328

#### (d) Planned Implementation Schedule

(i) Completion of project: March 2019 – when the facilities are put into service

(ii) Consulting services: December 2012 (the proposal submission deadline has already passed)

### (2) Geothermal Development Acceleration Program (Tulehu Geothermal Power Plant Project (E/S))

#### (a) Background and Necessity

The Government of Indonesia is promoting renewable energy to meet the increasing power demand and to mitigate climate change. The Government of Indonesia targets their energy mix that new and renewable energy will account for 17 percent in 2025, including 5 percent (9,500 megawatts) of geothermal energy. Since Indonesia has one of the highest potential of geothermal resources in the world, the second "Crash Program", expects geothermal power plants will cover half of its development plan.

Maluku Province, the target area of the project, is one of the poorest regions in the country. In recent years, its economic growth has been remarkable, particularly in service industries, such as hotels and restaurants. Therefore, further increase in power consumption is expected. The Ambon system, which covers Ambon city, the capital of Maluku, provides approximately 56 percent of the power supply in the province, and all of its power supply is covered by aging diesel power plants which has a high unit cost of production and heavy environmental burden. To maintain stable power supply, construction of new power plants which can substitute the existing diesel power plants is an urgent issue for the system.

In the geothermal development area where state-owned companies has its development right, state-owned oil company, PT Pertamina, has handled steam power development, including explanatory well drilling, and state-owned electricity company, PT PLN (Persero) has handled power plant construction. In recent years, however, there has been an increase in the number of projects packaging both steam power development and power plant construction. Therefore, it is expected that the number of projects by PT PLN (Persero) that covers not only power plant construction but steam power development will increase, which was not handled by PT PLN (Persero) in the past.

#### (b) Objective and Summary

This project will construct a 20-megawatt geothermal power plant in Tulehu to connect to the Ambon system in Ambon Island, in Central Maluku District, Maluku Province, and support explanatory well drilling at potential development sites. This will improve the stability of the power supply of the Ambon and other power systems, thus contributing to the betterment of the living standards, economic growth, and improving the investment climate in the regions. This also enhances the renewable energy development, thus contributing to mitigation of climate change.

This loan is the first Loan Agreement to be signed among the projects listed the Geothermal Development Acceleration Program, for which the Exchange of Notes was signed in August 2011.

This loan covers detailed design review and other engineering services (E/S) for the project, and the funds will be allocated to consulting services (including detailed design review, tender assistance, construction supervision, geothermal resource evaluation, etc.) for the project, and for exploratory well drilling at Tulehu project site and other potential development sites.

#### (c) Executing Agency

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#### (d) Planned Implementation Schedule

(i) Completion of project: November 2018 – with completion of the loan process

(ii) Issuing letters of invitation for consulting services (including construction supervision): March 2013

(iii) Tender announcement of initial procurement package for International Competitive Bidding on project construction: International Competitive Bidding is not applied under this loan, but Local Competitive Bidding will be applied for procurement of exploratory well drilling.

### (3) Upper Citarum Basin Flood Management Sector Loan

#### (a) Background and Necessity

The Citarum River is the longest river in West Java, the most populous province in Indonesia. Since the Citarum River Basin is one of the most important rivers, besides the Solo

and Brantas River Basins, in contributing to socio-economic development, including irrigation and power uses, in the Special Capital Region of Jakarta, JICA continuously supports various projects in such rivers. Due to continuous effort of the Government of Indonesia and JICA's cooperation towards flood management, flooding along the Citarum main river has been reduced, however, countermeasures for flood management along the upper tributaries is still not sufficient. The area affected by floods has worsened, increasing from 0.7 square kilometers in 2005 to 15.2 square kilometers in 2006, 17.0 square kilometers in 2007, and 22.4 square kilometers in 2010. The flood damage in densely populated areas along the river tributaries of the Citarum River Basin is critical, therefore countermeasures for flood control is urgently required.

**(b) Objective and Summary**

The Project is to create a favorable environment and to promote socio-economic activities in the Upper Citarum Basin by meaning of materializing the mitigation of flood damages by flood management. Ultimately, the structural measures like river improvement works as well as the non-structural measures will enhance the productive activities in the targeted areas and will contribute to economic growth and improvement in the standard of living.

The Project is consisted of the civil works such as river improvement and sediment control as well as consulting services including tender assistance, construction supervision, and technical assistance such as strengthening institutional capacity for BBWSC and Early Warning System, enhancement of operation and maintenance, and enforcement of capacity development for community against flood disaster.

**(c) Executing Agency**

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**(d) Planned Implementation Schedule**

- (i) Completion of project: January 2018 – when the facilities are put into service, non-structural measures and sediment control are completed.
- (ii) Issuing letters of invitation for consulting services (including construction supervision): March 2013
- (iii) Tender announcement of initial procurement package for international competitive bidding on civil works: International Competitive Bidding (ICB) is not applied, but the procurement for contractors is expected to be through Local Competitive Bidding (LCB).