

## Ex-ante Evaluation

<b>1. Name of the Project</b>
Country: The Independent State of Samoa Project: Power Sector Expansion Project (Loan Agreement: December 10, 2007; Loan Amount: 4,598 million yen; Borrower: The Government of the Independent State of Samoa)
<b>2. Necessity and Relevance of JBIC's Assistance</b>
<p>The total capacity of the electric power facilities in Samoa is 37.2 MW, of which about 90% is produced on Upolu Island, where Apia, the capital, is located, and 10% on Savai'i Island. About two-thirds of Samoa's electricity are produced by diesel power; the rest by hydro power. However, Samoa is actually able to produce only two-thirds of its capacity, or about 24 MW, due to, among other things, aged deterioration, power system losses of the transmission/distribution lines, and frequent inspection of the facilities. Additionally, accompanying the steady growth of the Samoan economy, the peak power demand has been increasing at an annual rate of 4% or more in recent years. In fact, by 2008, on Upolu Island, the peak power demand is expected to exceed the power supply. Thus the situation calls for immediate action. Moreover, in response to the recent steep rise in the price of crude oil, in Samoa, which relies heavily on diesel power generation, electricity tariffs are set at around 30 yen per kWh, which is high even by international standards. Under these circumstances, the challenge for Samoa is to find an effective way of utilizing inexpensive renewable energy sources such as hydro power that can be supplied domestically in Samoa. At the same time, there is an urgent need to improve the deteriorating power generation facilities and transmission/distribution lines and to put in place a system for setting electricity tariffs that properly reflect the price of crude oil and other energy sources through establishing a regulatory agency that will ensure independence in the way electricity rates are set.</p> <p>The first priority of Samoa's National Development Plan (2005–2007) is to achieve economic growth through enhancement of the private sector. Utilization of hydro power and establishment of highly efficient power plants are considered as priority issues for Samoa's power sector.</p> <p>In the Assistance Plan (2007–2009), which was announced during the Fourth Pacific Island Summit, held in Okinawa in 2006, sets forth five priority issues, including "economic growth" and "sustainable development." Additionally, in its Medium-Term Strategy for Overseas Economic Cooperation Operations (April 2005), JBIC sets forth "foundation for sustainable growth" as one of its priority areas, and, while avoiding negative impact on the social and economic front, aims to provide assistance for developing economic and social infrastructure including energy and support for promoting sustainable growth. Furthermore, in the Enhanced Sustainable Development for Asia (ESDA) that the government of Japan announced at the Annual Meeting of the Asian</p>

Development Bank (ADB) in May 2007, “improvement of investment climate” and “energy conservation, etc.” are regarded as priority areas.

Providing support for this project, which aims to reduce power system loss through utilization of renewable energy, construction of efficient diesel power plants and improvement of transmission/distribution lines, is consistent with Japan’s Assistance Plan, which the Japanese government announced during the Pacific Island Summit, ESDA and JBIC’s Medium-Term Strategy for Overseas Economic Cooperation Operations. Consequently, it is highly necessary and relevant that JBIC should support the project with ODA loans.

### **3. Project Objectives**

The objective of this project is to provide a sustainable and reliable power supply through construction and rehabilitation of power plants as well as development and rehabilitation of transmission/distribution lines in Samoa, and thereby contribute to the development of Samoa’s private sector and economic growth.

### **4. Project Description**

#### (1) Target Area

Upolu Island and Savai’i Island

#### (2) Project Outline

This project, which is a sector loan, is designed to support the implementation of the Samoa Electric Power Corporation (EPC)’s Investment Plan (2008–2015), which includes construction and rehabilitation of power plants as well as development and rehabilitation of transmission/distribution lines. Additionally, on the basis of the Accelerated Co-Financing Scheme (ACFA) that JBIC concluded with ADB under the ESDA, the project will be co-financed with ADB, and cooperate (by providing grants) with the Australian Agency for International Development (AusAID).

- (a) Construction and rehabilitation of power generation facilities: Construction of the Upolu diesel power station, refurbishment of Alaoa hydropower station, Tanugamanono diesel power station noise and emission control program, construction of the Vaitai hydroelectric power plant.
- (b) Development and rehabilitation of transmission/distribution lines
- (c) Installation of prepayment meters
- (d) Introduction of System Control and Data Acquisition (SCADA)
- (e) Consulting services (including the recruitment of the project manager [PM])

#### (3) Total Project Cost / Loan Amount

12,100 million yen (yen loan amount: 4,598 million yen; amount provided by ADB: 5,082 million yen [of which grants account for 1,862 million yen]; amount provided by AusAID: 968 million yen [grant])

(4) Schedule

January 2008–June 2016 (102 months). The definition of project completion is “when the implementation of EPC’s Investment Plan (2008–2015) is completed.”

(5) Implementation Structure

- (a) Borrower: The Government of the Independent State of Samoa
- (b) Executing Agency: Electric Power Corporation
- (c) Operation and Maintenance System: Same as (b)

(6) Environmental and Social Consideration

(a) Environmental Effect / Land Acquisition and Resident Relocation

(i) Category: B

(ii) Reasons for Categorization

This project is not likely to have significant adverse impact on the environment due to the fact that the project does not fall under the category of large scale hydroelectric power generation sector under the “Japan Bank for International Cooperation Guidelines for Confirmation of Environmental and Social Considerations” (established in April 2002), as well as the fact that project characteristics are not likely to exert impact and the project is not located in a sensitive area under the said Guidelines. Thus this project is classified as Category B.

(iii) Environmental Permit

The Initial Environmental Examination (IEE) report related to the project was prepared in July 2007 and approved by the Planning and Urban Management Agency (PUMA). Separate IEE reports are scheduled to be prepared for individual subprojects.

(iv) Anti-Pollution Measures

Since the project involves rehabilitation of existing transmission/distribution lines and the power generating facilities involved are small in scale, no significant adverse impact is foreseen. However, with regard to anti-pollution measures to be taken in the course of construction and after the transmission/distribution lines and power generation facilities are placed in service, the Executing Agency will implement the measures concerning waste, noise and other causes of pollution formulated in the IEE on the basis of instructions issued by the Environmental and Social Unit (ESU) of the Executing Agency.

(v) Natural Environment

The project site is not located in or around sensitive areas, such as national parks, and so adverse impact on the natural environment is assumed to be minimal.

(vi) Social Environment

For subprojects included in the project that require land acquisition, land will be

acquired in accordance with Samoa's domestic procedures. Resident relocation is not expected.

(vii) Other/Monitoring

The Executing Agency will, pursuant to the environmental guidelines established by JBIC and ADB, ascertain the environmental and social impact of each subproject with the assistance of the consultant that will be hired under the project. In addition, ADB will, through the progress report to be submitted quarterly, monitor the items that are scheduled to be agreed upon between ADB and the Executing Agency prior to the implementation of each subproject.

Both the progress reports and monitoring reports to be submitted to ADB will be shared by JBIC. Thus follow up monitoring of the project will be possible at JBIC. Under this project, loans will not be provided for the subprojects classified as Category A.

(b) Promotion of Poverty Reduction

None

(c) Promotion of Social Development (e.g. Gender Perspective, Measure for Infectious Diseases including AIDS, Participatory Development, Consideration for the Handicapped, etc.)

This project intends to require the Executing Agency to tackle the issues of health and safety including programs (1) to spread information targeting construction workers provided by the contractor concerning the risk of sexually transmitted diseases (including HIV/AIDS); and (2) to spread education and information targeting local residents (particularly women) provided by pertinent organizations. Additionally, the contractor is expected to take steps to prevent gender disparities from emerging, for example, in the employment of local residents for construction work of the facilities, in the operation and maintenance of the facilities, and in the payment of wages.

(7) Other Important Issues

This project is the first ODA loan extended to the Independent State of Samoa.

**5. Outcome Targets**

(1) Evaluation Indicators (Operation and Effect Indicator)

Indicator	Baseline (2008 actual )	Target (ADB's target year)
Average annual outage hours per user	Measuring scheduled in the 4th quarter of 2008	20% reduction (2015)
Average annual outage frequency per user	Measuring scheduled in the 4th quarter of 2008	20% reduction (2015)
Reduction of technical systemic loss	Measuring scheduled in the 4th quarter of 2008	20% reduction (2012)

Installation rate of prepaid type meters	5% of all contractants (2007 actual)	7% of all contractants (2012)
<p>(2) Number of Beneficiaries: About 175,000 (95% of total population)</p> <p>(3) Financial Internal Rate of Return (FIRR): 7.0% (Upolu Island); 12.1% (Savai'i Island)</p> <p>(a) Cost: Project cost, operation and maintenance expenses, systemic loss, cost of purchasing electricity from independent operators</p> <p>(b) Benefit: Revenue from selling electricity</p> <p>(c) Project Life: 20 years</p>		
<b>6. External Risk Factors</b>		
None		
<b>7. Lessons Learned from Findings of Similar Projects Undertaken in the Past</b>		
<p>Some of the power sector projects that ADB implemented in the past have experienced cost overruns due to schedule delays. Based on this lesson, this project adopts a sector loan approach, which enables it to deal flexibly even in cases where the price of materials and equipment rises each time a subproject is implemented.</p> <p>Moreover, given the urgency of the project, the draft of the bidding document will be prepared before project implementation so that it will be possible to start construction right after the launch of the project. At the same time, the ODA loan may be disbursed retroactively in the case funding is needed prior to the loan agreement date.</p> <p>Furthermore, implementation of the project according to the plan of the Executing Agency will be promoted by adopting a grant incentive scheme that utilizes the grant portion of ADF.<sup>1</sup></p>		
<b>8. Plan for Future Evaluation</b>		
<p>(1) Indicators for Future Evaluation</p> <p>(a) Average annual outage hours per user (hours)</p> <p>(b) Average annual outage frequency per user (times)</p> <p>(c) Reduction of technical systemic loss (%)</p> <p>(d) Installation rate of prepaid type meters (%)</p> <p>(e) Financial Internal Rate of Return (FIRR) (%)</p> <p>(2) Timing of Next Evaluation</p> <p>After project completion (ADB's target year)</p>		

<sup>1</sup> The ADF Grant, which is onlent from the government of Samoa to EPC under the same conditions as the loan, is structured so that EPC will, up to a 10-million dollar ceiling, be exempt from repayment if the project is completed within the budget and on schedule.