

Ex-Ante Evaluation (for Private Sector Investment Finance (PSIF) Loan)

Private Sector Investment Finance Division 2 Private Sector Partnership and Finance Department Japan International Cooperation Agency

1. Basic Information

- (1) Country: The Republic of Guatemala (“Guatemala”)
- (2) Project: Rural Electrification and Distribution Network Efficiency Project
- (3) Signing Date: May 9, 2024
- (4) Borrower: Distribuidora de Electricidad de Oriente S.A. (“DEORSA”)
Distribuidora de Electricidad de Occidente S.A. (“DEOCSA”)
(Collectively, “Energuate”)

2. Background and Necessity of the Project

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

Income inequality in Guatemala is large, especially in rural areas such as the northern and western regions of the country, which were affected by civil wars that lasted for more than 30 years until 1996, in contrast to the urban areas in the south of the country, including the capital, Guatemala City. The poverty rate in urban areas is 35.0%, while in rural areas it is 71.4% (National System of Development Councils in Guatemala, 2014). The electricity grid connection rate has reached 89.26% for the entire population, but in the northern and western regions, where there are a lot of people in poverty, the rate is around 80% or less, and in the province of Alta Verapaz, for example, the electrification rate is still only around 50% (Ministry of Energy and Mines in Guatemala, 2021).

Half of the country's total power supply is already derived from renewable energy sources, and the government's measures to promote the development of renewable energy sources have led to a remarkable expansion in capacity, with hydroelectric and wind power capacity expanding by 45% and 42% respectively during the five years from 2015 (IRENA, 2021). On the other hand, wood stoves are still used for cooking in homes in non-electrified areas. As a result, wood consumption as an energy source per unit of population in Guatemala is the largest in Central America (Inter-American Development Bank and Ministry of Energy and Mines in Guatemala, 2019), with negative effects on health, greenhouse gas emissions, deforestation, and energy efficiency. According to the Guatemalan government, it is estimated that 60-70% of households that use wood as a heat source for cooking lack proper exhaust ventilation, and 5-20% of the poorest households share a cooking area and a bedroom (Ministry of Energy and Mines in Guatemala, "Energy Policy 2013-27").

In its national development plan ("K'atun 2032"), the Guatemalan government has stated that it will promote rural electrification to reduce poverty and per capita wood consumption by 2 m³/year to mitigate health risks. Furthermore, the government has specifically formulated a

rural electrification plan in 2019 and has called for the achievement of a 99% electricity grid connection rate by 2032. In addition, owing to population growth and lifestyle changes, the country's electricity demand has been growing at an annual rate of 6.6% over the past 30 years (IEA statistics), and there is a risk that the load on the grid will further increase as a result of meeting the growing electricity demand in the future. Therefore, stabilizing the existing power grid is also an important issue.

Since the deregulation of the electricity market in the late 1990s, the country's electricity distribution sector has been controlled by three companies (DECOSA and DEORSA -part of Energuate- and EEGSA), which were previously public corporations under the jurisdiction of the central government. Energuate is a major player in the country's electricity distribution sector, with operations in 20 of the country's 22 provinces and more than 80% of the country's extended electricity distribution network. Based on the above national policy, the company intends to extend its power distribution service to rural areas that are not yet electrified through additional investment in its own power distribution network. In addition, as demand for electricity grows, the company plans to increase investment to reduce power losses and the duration and frequency of power outages, as the load on the grid is expected to increase owing to fluctuations in the output of renewable energy-derived power sources.

(2) Japan's and JICA's Cooperation Policies for the Sector and the Positioning of the Project

The Country Development Cooperation Policy for Guatemala (September 2017) identifies social and economic development in poor areas as a priority area and states that the country will "contribute to correcting the disparity with urban areas" by providing support for "social development targeting basic needs in areas where many poor and indigenous people live". The JICA Country Analysis Paper (April 2021) also states that JICA will consider contributing to climate change risk mitigation through cooperation in the areas of renewable energy promotion and energy conservation for the sustainable development of Guatemala, which is highly vulnerable to natural disasters caused by climate change. In addition, JICA's Global Agenda includes the cooperation policies "Strengthening Electricity Transmission and Distribution Networks", "Promoting the Introduction of Renewable Energy," and "Promoting Energy Conservation" in No. 3 Resources and Energy, and "Co-Benefit-Based Climate Change Measures" in No. 16 Climate Change.

This project is in line with the cooperation policy of Japan and JICA, as it will contribute to mitigating the risk of climate change and correcting regional disparities by increasing grid access and improving the rural electrification rate in the country, where development of renewable energy sources is progressing.

(3) Other Donor's Activities

This project is co-financed with International Finance Corporation (IFC).

3. Project Description

(1) Project Objectives

This project aims to electrify rural areas, reduce power loss, and stabilize the power system

using renewable energy as the main source of power, thereby contributing to improving the quality of life and promoting energy transition in rural areas of Guatemala.

(2) Project Site / Target Area

The whole country of Guatemala

(3) Beneficiaries of the Project

General individuals and corporations in rural Guatemala.

(4) Project Outline

Through loans to Energuate, the project will provide for the installation and renewal of power distribution network facilities in 20 provinces in rural Guatemala.

(5) Total Project Cost: \$198 million

(6) Project Implementation System

Borrower and executing agency: Energuate

(7) Environmental and Social Considerations, Cross-cutting Issues, and Gender Category

- Environmental and Social Considerations

- ① Category: FI

- ② Basis for Categorization: Because the sub-projects cannot be identified prior to JICA's investment approval under the JICA Guidelines for Environmental and Social Considerations (promulgated in January 2022, hereinafter referred to as "JICA E&S Guidelines"), and such subprojects are expected to have environmental impacts.

- ③ Others: Energuate will provide environmental and social considerations for each subproject in accordance with Energuate's Environmental and Social Management System and JICA E&S Guidelines. It has been agreed that sub-projects will not include Category A.

- Cross-cutting Issues: Improvement of power distribution efficiency (reduction of both technical and non-technical losses by upgrading aging distribution equipment and preventing power theft) will be achieved through this project, contributing to climate change mitigation measures (secondary objective).

- Gender Category: Gender Informed [GI]

Reason for classification: Although gender mainstreaming needs were examined during the screening, the project did not result in a plan for gender mainstreaming initiatives that includes specific indicators.

4. Targeted Outcomes

(1) Quantitative Effects:

Indicator	Baseline (2022)	Target Two years after project completion (2027)
Average annual outage hours (hours)	39.18	28.00
Average annual number of power outages (times)	7.28	7.00
Power loss ratio (%)	18.7	16.8
Number of connections (thousands)	2,241	2,752
New connections that are made under the local distribution plan (PER) (cases)	2,533	12,500

(2) Qualitative Effects: Improvement of quality of life in rural areas and promotion of energy transition.

5. Lessons Learned from Past Projects

In the ex-post evaluation of the Electric Frontier Expansion Project (III), a Japanese ODA Loan to Peru (2018), it was learned that in order to consider the appropriate contract format for a project that is considered to be difficult to supervise owing to the large amount of equipment and materials procured and the construction work at multiple sites including remote areas, it is necessary to specifically understand the experience and capabilities of the implementing agency and experience of similar projects.

With regard to this Project, the borrower has already completed about half of the 50-year concession contract in the rural area that has been in place since 1998, and has a track record of stable project operations. The results of interviews with the government and regulatory authorities also confirmed that the performance status of the technical standards etc. to be met as a concessionaire is good.

6. Evaluation Results

As described above, this Project meets Guatemala's development challenges, development policy, and Japan's cooperation policy, is recognized as necessary, has an appropriate project plan, and has a good prospect of being accomplished. The support through a PSIF loan is highly significant.

7. Plan for Future Evaluation

(1) Indicators to Be Used: As described in Section 4.

(2) Schedule for Ex-post Evaluation: Scheduled for 2027.

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