

Ex-Ante Evaluation

Private Sector Investment Finance Division 1
Private Sector Partnership and Finance Department
Japan International Cooperation Agency

1. Name of the Project

(1) Country: Kingdom of Thailand (Thailand)

(2) Project: Project for the Introduction of e-Buses to Bangkok Public Transport in Thailand

(3) Project Site / Target Area: Bangkok Metropolitan Area

Loan Agreement: December 12, 2023

2. Background and Necessity of the Project

(1) Current State and Issues of the urban environment and transportation in Thailand

Bangkok, the capital of Thailand (5.6 million population: JETRO), is experiencing rapid urbanization, and the urban pollution problem, as typified by air pollution, is becoming more serious every year. In addition, since the density of the population is increasing and the rate of individual vehicle ownership is also rising, Bangkok is suffering from chronic traffic congestion. The number of registered vehicles in Bangkok has increased from 5.72 million in 2007 to 9.66 million in 2017 (Source: Department of Land Transport, Ministry of Transport, Thailand), 1.7 times increase in 10 years. The urban transport in Bangkok relies heavily on cars, which are the main cause of urban environmental problems in Bangkok. In the “A Study on Urban Air Pollution Improvement in Asia (October 2017)” conducted by JICA Ogata Sadako Research Institute for Peace and Development in collaboration with the Asian Institute of Technology (Thailand), it was revealed that the annual average concentration of PM2.5 in the Bangkok metropolitan area exceeded the regulated standard in Thailand and the WHO guideline standard, and that transportation and traffic (especially diesel engines) were one of the main causes. In January 2019, the Thai government announced that the PM2.5 levels had reached a dangerous level for human health, and as a result, under government guidance, schools in Bangkok, including Japanese schools, were all closed, and around 600 nearby factories were forced to temporarily suspend operations, which has become one of the major factors hindering sustained growth.

Since the 1990s, with the expansion of Bangkok's urbanized area,

construction of new railway lines and extensions to the subway and elevated railway (skytrain) have been undertaken as new mass transportation methods, but these only cover part of Bangkok, resulting in the situation where the main public transportation system for the suburbs of Bangkok and areas beyond railway stations is bus. However, in Thailand, since there is no legal limit on the age of commercial vehicles other than passenger cars, most of the approximately 3,500 vehicles currently owned by public transport operator Bangkok Mass Transit Authority (BMTA), are outdated diesel-powered vehicles with poor fuel efficiency and high CO2 emissions, and are therefore a contributing factor to the serious air pollution in Bangkok as described above.

Addressing the problem of worsening air pollution, the Thai government approved the “Solving the Dust Pollution Problem” at a cabinet meeting in August 2019. The plan includes a prohibition on open burning by 2022, the improvement of public transport networks to promote the reduction of air pollution from public transport, and the electrification of public transport vehicles. Furthermore, The Ministry of Industry of Thailand has announced a policy to support domestic automobile manufacturers and dealers to produce and sell automobiles that meet strict environmental standards for automobile emissions (Euro 5) by 2021. Moreover, the government has announced its intention to make the bio-circular-green (BCG) economy a national strategic model by 2021, offering preferential investment measures for private sector businesses in the BCG economy, and is encouraging the promotion of electric vehicles. The “Nationally Determined Contribution” (NDC) established by the Thai government based on the Paris Agreement also stipulates that greenhouse gas emissions will be reduced by 20% compared to BAU (business as usual) levels by 2030, and as one specific mitigation measure, it promotes a modal shift in transportation that covers both freight and passenger transport. Through this project, the introduction of electric buses is expected to contribute to the NDC, as it will be a measure to address the above issues.

(2) Japan’s and JICA’s Cooperation Policy and Operations in the the urban environment and transportation in Thailand

Country Development Cooperation Policy for the Kingdom of Thailand (February 2020) stipulates “Sustainable development of economy and coping with maturing society” as Priority Areas, which includes "quality infrastructure development" and "climate change" for development issues. Therefore, this project is in line with the policy, as it supports the operation of environmentally

friendly electric buses in Bangkok, where air pollution is becoming a serious problem. According to JICA Global Agenda on Climate Change, the report mentions the importance of taking mitigation measures in all development projects (especially in the fields of energy, transportation, and forest conservation) in developing countries where greenhouse gas emissions are increasing rapidly, with support for public transportation operators cited as a policy initiative. Therefore, this project is in line with these analyses and policies, and is a climate change action project. At the same time, the project's contribution to the smooth and comfortable travel of all people and the reduction of greenhouse gas emissions through the development of public transport services is also aligned with the objectives of JICA Global Agenda for Transportation and Urban Public Transport Promotion Cluster. From the perspective of urban railway stations, networks and connectivity with other modes of transport, the project is also in line with the approach of the “Project for enhancing capacity of formulation of the Second Mass Rapid Transit Master Plan in Bangkok Metropolitan Region (M-MAP2)”. Under the “Project for Strengthening Institutional Capacity for the Implementation of Bangkok Master Plan on Climate Change 2013-2023” (implementation to be completed in 2022), Bangkok is working to promote its transition to a low-carbon city, while under the “Project for Sustainable Management of PM2.5 Prevention and Reduction Measures” (implementation to begin in 2022), the city is working to promote sustainable management of PM2.5.

As mentioned above, this project aligns with Thailand's development issues and policies, as well as with Japan and JICA's policies and analysis, and is expected to contribute to achieving SDG Goals 7 (Affordable and clean energy), 9 (Industry, innovation and infrastructure), 11 (Sustainable cities and communities), 13 (Climate action), and 17 (Partnerships for the goals).

(3) Other Donors' Activities

This project is co-financed by the Asian Development Bank (ADB) and the Export-Import Bank of Thailand.

3. Project Description

(1) Project Description

① Project Objective

This project aims to reduce air pollutants and CO2 emissions and expand public transportation systems in urban areas through supporting businesses that are responsible for the manufacture of environmentally friendly electric buses, deployment of these buses in public bus services, and operation of

these services in Bangkok, Thailand, thereby contributing to the improvement of the urban environment.

② Project Components

This project is to introduce new electric buses to public bus operators in Bangkok Metropolitan Administration. By providing loans to finance the manufacturing costs of electric buses for Energy Absolute Public Company Limited ("EA"), a company that manufactures, sells, and introduces electric buses, and by supporting the introduction of the buses to public bus operators and the collection of sales proceeds, the project aims to smoothly introduce electric buses to Bangkok Metropolitan Administration, expand the public bus sector, and improve the quality of service.

③ Project Beneficiaries (Target Group)

Residents of Bangkok Metropolitan Area

(2) Schedule

December 2023 - February 2030

(3) Project Implementation Structure

1) Borrower: Energy Absolute Public Company Limited (EA)

2) Executing Agency: EA

(4) Collaboration and Sharing of Roles with Other Donors

1) Japan's Activity: N/A

2) Other Donors' Activity: Co-finance with ADB

(5) Environmental and Social Consideration

① Category: C

② Reason for Categorization: It is judged under the JICA Environmental and Social Considerations Guidelines (promulgated in January 2022) that the adverse impact of the Project on the environment are minimal.

(6) Cross-Sectoral Issues:

Climate Change Mitigation: This project will operate low-emission electric buses and promote their use, thereby contributing to the reduction of air pollutants and greenhouse gas (GHG) emissions.

(7) Gender Category:

■ GI(S) Gender Activity Integration Projects

<Details of Activities/Reason for Categorization>

This project is due to the agreement of the loan recipient in the Common Clauses Agreement to address the gender perspective of the project. Specifically, to strengthen the response to gender-based violence by EA-manufactured electric

buses, a TSB QR will be installed for passenger safety and complaints, signs will be posted on the buses covered by the Project regarding the elimination of harassment and sexual violence and how to report complaints at a rate of 100%, and to strengthen gender equality in the work environment, the company has agreed to the following gender action plans: one lactation room for employees, one networking group for female staff on social media, and at least two employee events to promote gender equality.

(8) Other Important Issues: N/A

4. Targeted Outcomes

(1) Quantitative Effects

1) Outcomes (Operation and Effect Indicators)

Indicator (at the company's business site)	Baseline (Actual value in 2022)	Target (2025) [2 years after the start of operation]
Total number of Energy Absolute's e-buses deployed (units)	0	1,450
CO2 emission reductions (t/year)	-	50,750 t/year

(2) Qualitative Effects

The convenience and comfort of traveling by bus. Comfort for residents living along the bus route area.

5. External Factors and Risk Control

N/A

6. Lessons Learned from Past Projects

The ex-post evaluation of the grant aid project "The Project for Improvement of Transportation Capacity of Public Bus in Vientiane Capital" (Evaluation Year: FY 2016) for Laos found that the smooth operation of public buses and the high quality of air-conditioned buses were highly satisfactory and motivated people to use public bus services more frequently, but also confirmed that further improvements were needed in terms of bus and service quality, such as on-time services, the number of bus routes, and the availability of information on services. In this project, since the quality of the service provided by the operating company is subject to monitoring by the regulatory authorities, it is expected that a certain level of service will be maintained. It was also confirmed that the TSB Group's management policy stipulates a commitment to providing good public bus services.

7 . Evaluation Results

As outlined above, this project aligns with the country's development challenges, development policies, and Japan's cooperation policy. Its necessity is recognized, the project plan is appropriate, and its prospects for achievement are sufficient. Therefore, the significance of support this project through Private Sector Investment Finance is high.

8 . Plan for Future Evaluation

(1) Indicators to be Used

As indicated in Sections 4.

(2) Future Evaluation Schedule

Ex-post evaluation: 2 years after the start of the operation

END