Ex Ante Evaluation (for PSIF Loan)

Private Sector Investment Finance Division 2,
Private Sector Partnership and Finance Department, JICA

１．Name of the Project

（１） Country: The Arab Republic of Egypt (“Egypt” or “the Country”)

（２） Project: Ras Ghareb 200 MW Wind Farm Project

（３） Project Site / Target Area: Around Ras Ghareb District, Red Sea Governorate

（４） Loan Agreement: December 7, 2024

２．Background and Necessity of the Project

（１） Current State and Issues of the Power Sector and the Priority of the Project in Egypt

Egypt achieved an average annual economic growth rate of 4.66% over the five-year period from fiscal year 2019 to fiscal year 2023 (IMF Database, October 2023), with peak electricity demand growing at an average annual rate of 1.8% (EEHC Annual Report 2021/2022). Against this backdrop of steady economic growth driving electricity demand, the Egyptian government has focused on power generation development, primarily thermal power plants, since experiencing a major blackout in 2014 to alleviate supply-demand constraints. As a result, power generation capacity has advanced, reaching 59,442 MW in FY2022/23 against peak electricity demand of 34,200 MW. However, examining Egypt's power generation mix (capacity) for FY2022/23 reveals that thermal power accounts for approximately 90%, hydropower about 5%, and renewable energy roughly 5%. Fossil fuel-based thermal power dominates at nearly 90%. From the perspectives of reducing environmental impact, utilizing abundant solar resources, and ensuring stable power supply, diversifying the power generation mix—including expanding renewable energy—has become an urgent priority.

The Egyptian government announced its policy to reduce dependence on fossil fuels and introduce renewable energy sources to diversify its power supply in the “Energizing Egypt 2015”. Furthermore, based on the “Sustainable Development Strategy: Vision 2030 Egypt” issued by the Egyptian government in February 2016, the Ministry of Electricity and Renewable Energy published the “Integrated Sustainable Energy Strategy to 2035 (ISES2035)” in 2016. This strategy focuses on energy stability, sustainability, governance, and

competitiveness, The strategy outlines specific energy policy objectives: phasing out subsidies to reduce electricity sales prices by 2020 (still ongoing as of now), improving energy efficiency, promoting private sector participation, and diversifying the power supply through the expansion of renewable energy. Regarding renewable energy, which holds significant potential, particularly in solar and wind power, the strategy sets targets: a 20% share in the power mix by 2020 (later extended to 2022) and 42% by 2030. For wind power, a plan was announced to develop 6,000 MW by 2022 through collaboration between the Egyptian government (New and Renewable Energy Authority) and private developers. Based on these policies, as of 2020/21, wind power capacity stands at 1,635 MW completed, 250 MW under construction, and 2,800 MW under development, steadily advancing wind power plant deployment in line with ISES2035. Furthermore, under the “Egypt National Climate Change Strategy 2050” announced in May 2022, the NWFE (Nexus of Water, Food, and Energy) program was launched. This program prioritizes the three sectors of energy, food, and water, aiming to achieve sustainable and low-carbon economic growth.

Based on the Paris Agreement, a new international framework for reducing greenhouse gas emissions and other measures after 2020, countries have formulated their Nationally Determined Contributions (NDCs). Egypt's NDC sets renewable energy development as a target, and this project aligns with the NDC.

By constructing wind power plants, this project promotes power source diversification through the proliferation of renewable energy, aligning with the Egyptian government's policy.

（２）Japanese government’s and JICA’s Cooperation Policy and Operations in the Power Sector

Japan's Country Development Cooperation Policy for the Arab Republic of Egypt (September 2020) identifies “Promoting Sustainable Economic Growth” as a priority area, and outlines cooperation on development challenges such as “Social and Economic Infrastructure Development.” This project aligns with these policies. Furthermore, the JICA Country Analysis Paper for the Arab Republic of Egypt (March 2016) also analyzes that electricity is a priority area for promoting sustainable economic growth. JICA supports the introduction of renewable energy in Egypt through its cooperation program “Electric Power Infrastructure Development Support and Energy Conservation Promotion Program.” This project is consistent with these JICA’s policies. In addtion, regarding resource and energy challenges in the JICA Global Agenda, it is

outlined that to promote “low-carbon and decarbonized energy use,” an environment will be established to introduce new and renewable energy and promote energy conservation utilizing private capital. This project aligns with this agenda as well.

To date, JICA has implemented the Gulf of El Zeyt Wind Power Project in 2010 and the Hurghada Photovoltaic Power Project in 2016 under ODA loan projects. In 2021, it has supported the promotion of renewable energy and energy efficiency for green growth through a Development Policy Loan for power sector reform. In terms of technical cooperation projects, JICA has been implementing the Project for Capacity Development on Energy Efficiency and Conservation since 2020, supporting the strengthening of policy formulation and implementation capabilities necessary for promoting energy efficiency. Furthermore, in 2022, JICA implemented the Kom Ombo Solar Power Project, which contributes to climate change measures and the diversification of power supply sources, as part of Private Sector Investment Finance projects. In 2024, it launched Project for Capacity Development for Energy Efficiency and Conservation (Phase 2) as a technical cooperation project. In this way, JICA has been providing support to Egypt in the field of renewable energy.

The 2015 Japan-Egypt Summit confirmed cooperation in the power sector, and the 2016 joint statement announced the “Japan-Egypt Joint Initiative on Cooperation in the Power Sector.” This project aligns with these policies. Furthermore, the TICAD8 Tunis Declaration adopted in August 2022 emphasized the importance of achieving a structural transition to reduce greenhouse gas emissions while meeting Africa's massive energy demand by utilizing renewable energy resources. It also highlighted the need to accelerate private investment in a fair and equitable transition to alternative energy sources against the backdrop of significant increases in oil and gas prices. Furthermore, it called for collaboration with international development finance institutions and others for COP27 in November 2022 and beyond. This project is also consistent with these policies.

Furthermore, this project qualifies as a climate change mitigation and adaptation infrastructure initiative supported by the Facility for Accelerating Climate Change Resilient and Sustainable Society (ACCESS). ACCESS is part of the measures announced by the Government of Japan at the May 2023 G7 side event on the Partnership for Global Infrastructure Investment (PGII) to contribute to sustainable development. This project contributes to the

aforementioned commitment by the Government of Japan.

３．Project Description

（１） Project Description

① Project Objective

The project aims to promote sustainable economic growth and contribute to the reduction of greenhouse gas emissions through increasing the renewable electricity supply in the Arab Republic of Egypt by constructing and operating a 200MW wind power plant.

② Project Components

This project involves the construction and operation of a 200MW wind farm, transmission lines and substation facilities.

③ Project Beneficiaries (Target Group)

Citizens of Egypt

（２）Estimated Project Cost

194.8 million USD (JICA loan: 60.7 million USD)

（３）Schedule

The construction started in September 2025 and will be completed in July 2027.

（４）Project Implementation Structure

１）Borrower: Masdar IPH Wind S.A.E

２）Guarantor: NA

３）Executing Agency: Masdar IPH Wind S.A.E

（５）Collaboration and Sharing of Roles with Other Donors: Co-financed with the European Bank for Reconstruction and Development (EBRD), PROPARCO, and the Green Climate Fund (GCF)

（６）Environmental and Social Consideration

① Category: B

② Reason for Categorization: The project is not located in a sensitive area, nor has sensitive characteristics, nor falls into sensitive sectors under the JICA Guidelines for Environmental and Social Considerations (January, 2022), and its potential adverse impacts on the environment are not likely to be significant.

③ Environmental Permit: Under Egyptian domestic law, the implementation of an Environmental and Social Impact Assessment (ESIA) is mandatory. The ESIA report was prepared in August 2023 and

approved by the Egyptian Ministry of Environmental Affairs in June 2024.

④ Anti-Pollution Measures: Measures will be implemented to ensure compliance with domestic and international environmental standards regarding impacts on air quality, water quality, noise, waste, and other factors arising during construction and operation. These measures include regular watering, proper use of construction equipment, and appropriate disposal of wastewater and waste in coordination with the city of Ras Ghareb.

⑤ Natural Environment: Approximately 12 kilometers east of this project site lies an Important Bird Area (IBA) that warrants careful consideration for the nation or region. However, overlap with migratory bird flight paths, including seasonal variations, is limited. Consequently, while no significant adverse impacts are anticipated, countermeasures—such as implementing operational plans aimed at reducing collision risks for migratory birds—are planned.

⑥ Social Environment: The project site is government-owned land in Egypt that has not been used for any purpose, including agriculture, to date. There will be no involuntary resettlement of residents associated with this project.

⑦ Other/Monitoring: During construction, the EPC contractor monitors air quality, noise, waste, etc. During operation, the O&M contractor monitors waste, etc.

（７）Cross-Sectoral Issues: This project is expected to contribute to climate change mitigation by the promotion of renewable energy and reduction of Greenhouse Gases (GHGs) through the construction and operation of the wind power plant.

（８）Gender Category: [Not Applicable]

<Reason for classification>: Although a social and gender survey was conducted during the due diligence process, it did not lead to the establishment of initiatives or indicators that contribute to gender equality and women's empowerment.

（９）Other Important Issues: NA

４. Targeted Outcomes

（１）Quantitative Effects

１）Outcome (Operation and Effect Indicators)

Indicator	Baseline	Target (2029) 【2 year after COD】
Power output at the transmission end (MWh / year)	-	814,500 MWh
Maximum Output (MW)	-	200 MW
GHG Emission Reduction(t/year (CO2 equivalent))	-	405,621 t CO2/year

* All target values are for the entire project.

２）Impact

（２）Qualitative Effects

Promoting private investment in the wind power generation sector within Egypt, diversifying power sources, and creating employment opportunities in the region

５. External Factors and Risk Control

N/A

６. Lessons Learned from Past Projects

The Ex-Post Evaluation Report for the Zafarana Wind Power Project (Evaluation Year: 2012), a yen loan project for the Arab Republic of Egypt, pointed out that delays in construction cost payments by the implementing agency significantly extended the project period and hindered its smooth implementation. This ex-post evaluation refers to payments made by Egyptian government agencies during public procurement under yen loan projects. Although the relevant Egyptian government-related agency in this project differs from the aforementioned implementing agency, any delays in payments from that government-related agency to the borrower would also impact the preservation of the JICA's claims. Through our due diligence process, it was confirmed with EETC that there has never been a single instance of delayed payment of electricity sales fees to IPP operators. Furthermore, it was confirmed that if EETC were to delay payment, the Egyptian government would assume the payment obligation under the guarantee agreement between EETC and the Egyptian government, mitigating the aforementioned risk.

７. Evaluation Results

The Project is consistent with the Country's development issues and policies, as well as Japan and JICA's assistance policies and analyses. It will contribute to achieving SDGs: Goal 7 (sustainable energy), Goal 13 (climate action) and Goal 17 (partnership). Therefore, it is highly necessary for JICA to provide assistance

through the Project.

８. Plan for Future Evaluation

（１）Indicators to be Used

As indicated in Section 4.

（２）Future Evaluation Schedule

Ex post evaluation: approximately two years after the Project completion

END

Annex: Project Site

Annex

Project Site

Reference source: the Borrower