

**JCM Sustainable Development and Safeguards Assessment Report**

<b>Project description</b>	
Title	Energy Supply Project by 0.9MW Rooftop Solar Power System to Metal Recycling and Automotive Parts Factories
Project participant (Thai)	Marubeni Green Power Asset (Thailand) Co., Ltd. Marubeni Green Power Asset 2 (Thailand) Co., Ltd.
Project participant (Japanese)	Marubeni Corporation
Project location	Site (i): Pinthong 4 Industrial, G18, G19 Tambon / Subdistrict Bueng, Amphur /District Sriracha, Chonburi Province 20230, Thailand Site (ii): 148 Moo1 Benchmark Electronics Factory, Tambol Ban Len, Amphoe Bang Pa-in, Phra Nakhon Si Ayutthaya 13160, Thailand
Latitude, longitude	Site (i): N 13° 05' 19" and E 101° 02' 11" Site (ii): N 14° 14' 50" and E 100° 35' 13"
Project status	Status on 25 November 2025 Site (i): operated since 26 August 2024 Site (ii): operated since 21 March 2025

<b>Report description</b>		
Date of report completion	25 November 2025	
Version	1.0	
Corresponding author	Name	Hiroko Ogawa
	Title	-
	Organization	Marubeni Corporation
	Telephone	
	E-mail	

**Note:**

- Related figures, documents, evidence related to the description may be attached as attachment.
- In the case where there is any other relevant issue that needs to be considered, it is be specified in the last row of each area of assessment.

**Certification letter**

25/11/2025

I, the undersigned, hereby certify that Marubeni Corporation is the author of the “Sustainable Development and Safeguards Assessment Report” of the project titled Energy Supply Project by 0.9MW Rooftop Solar Power System to Metal Recycling and Automotive Parts Factories developed by Marubeni Corporation, Marubeni Green Power Asset (Thailand) Co., Ltd., and Marubeni Green Power Asset 2 (Thailand) Co., Ltd. located at (i) Pinthong 4 Industrial, G18, G19 Tambon / Subdistrict Bueng, Amphur /District Sriracha, Chonburi Province 20230, Thailand and (ii) 148 Moo1 Benchmark Electronics Factory, Tambol Ban Len, Amphoe Bang Pa-in, Phra Nakhon Si Ayutthaya 13160, Thailand.

The report was prepared by the team members as follows:

No.	Name	Position	Signature
1	<u>Kazuaki Shibuya</u>	<u>General Manager</u>	
2	<u>Hiroko Ogawa</u>	.....	
3	.....	.....	.....

Signature   
 ( Kazuaki Shibuya )  
 Position General Manager  
 Seal (if any)

## Part 1: General information of the project area before project implementation

*Provide baseline information describing the conditions before project implementation. This data is essential for assessing the project's environmental, social, and economic impacts. Ensure the details are accurate and comprehensive to support a thorough evaluation.*

Area of Assessment	Description
<b>1. Environment and natural resources</b>	
1.1 Air pollution	The project site (i) is located inside an automotive parts factory in Chonburi Province and the project site (ii) is located inside a metal recycling factory in Phra Nakhon Si Ayutthaya Province. There was no significant air pollution in the areas.
1.2 Water pollution	No surface water and ground water pollution problem was found in the areas.
1.3 Soil pollution	No soil pollution was found in the areas.
1.4 Noise pollution	No point sources of noise pollution were found in the areas.
1.5 Odor pollution	No odor was found in the areas.
1.6 Water consumption	Industrial water was consumed within the capacity of water supply in the areas.
1.7 Solid waste/municipal solid waste	Waste from the project sites was properly collected. There was no leftover problem in the areas.
1.8 Hazardous waste/infectious waste/electronic waste	No pollution from hazardous waste/infectious waste/electronic waste was found in the areas.
1.9 Energy (i.e. Wasted Energy, Renewable Energy)	The factories used electricity from power grid.
1.10 Land Use	Land use was not relevant because the project is located on the rooftops of factory buildings.
1.11 Biodiversity	Biodiversity was not relevant because the project is located on the rooftops of factory buildings.
1.12 Wild animal/ Aquatic ecosystem	No wild animal or aquatic ecosystem was found in the areas.
1.13 Other (Please specify...)	-
<b>2. Society</b>	
2.1 Socio-cultural characteristics	Socio cultural characteristics were those of typical central or eastern regions of Thailand. The society

Area of Assessment	Description
	comprises largely of the working class who engage in manufacturing and office work.
2.2 Health and safety	There was no major concern in terms of health and safety in the areas.
2.3 Traditions, cultures and/or valuable places worthy of conservation	The tradition and cultural values of the people in the areas are commonly found in the central or eastern regions of Thailand. There were no distinctive places of high conservation values.
2.4 Race, religion, and ethnic group	Most of the population in the areas were of Thai origin who practice Buddhism.
2.5 Transportation	The primary mode of transportation in the areas was private and corporate vehicles.
2.6 Other (Please specify...)	-
<b>3. Economic</b>	
3.1 Overall local economy (i.e. income, expenditure, etc.)	The local economy in the areas is largely driven by the manufacturing sector.
3.2 Employment/Career	Factory workers, clerical workers.
3.3 Major agricultural activity in the area	No large agricultural activity in the areas was found.
3.4 Major industry in the area	Manufacturing is the most prevalent in both areas.
3.5 Major service sector in the area	Wholesale and retail trade and repair of motor vehicles and motorcycle are the most prevalent in both areas.
3.6 Basic infrastructure (i.e. road, school, etc.)	The basic infrastructure in the areas included transportation (road network), utilities (electricity, water supply, waste management), as well as telecommunications.
3.7 Other (Please specify...)	-

*\*Project Participant explains in detail of provenance and importance of issue consider about before project implement and specify if the project is rightful/environmental law, social, and economy. To have Negative impact assessment (Do-no-net-harm) with supporting documents.*

## Part 2 Sustainable Development Goals

### 2.1 Sustainable Development Contributions Assessment

*Please mark ✓ in □ to identify the contributions of the proposed project to specific SDG. The project is required to contribute to at least two SDGs, in addition to SDG13: Climate Action.*

Project Contributions to SDGs	Indicator (Please specify)	Description of Indicator
<input type="checkbox"/> SDG 1: No Poverty		
<input type="checkbox"/> SDG 2: Zero Hunger		
<input type="checkbox"/> SDG 3: Good Health and Well-being		
<input type="checkbox"/> SDG 4: Quality Education		
<input type="checkbox"/> SDG 5: Gender Equality		
<input type="checkbox"/> SDG 6: Clean Water and Sanitation		
<input checked="" type="checkbox"/> SDG 7: Affordable and Clean Energy	Amount of generated clean energy (Unit: MWh)	Increase share of renewable energy in national energy mix
<input type="checkbox"/> SDG 8: Decent Work and Economic Growth		
<input type="checkbox"/> SDG 9: Industry, Innovation and Infrastructure		
<input type="checkbox"/> SDG 10: Reduced Inequality		
<input type="checkbox"/> SDG 11: Sustainable Cities and Communities		
<input type="checkbox"/> SDG 12: Responsible Consumption and Production		
<input checked="" type="checkbox"/> SDG 13: Climate Action		
<input type="checkbox"/> SDG 14: Life Below Water		
<input type="checkbox"/> SDG 15: Life on Land		

Project Contributions to SDGs	Indicator (Please specify)	Description of Indicator
<input type="checkbox"/> SDG 16: Peace and Justice Strong Institutions		
<input checked="" type="checkbox"/> SDG 17: Partnerships to achieve the Goal	Last progress report submission date	Operational continuity of the JCM project, which mobilizes additional financial resources, disseminates low-carbon technologies, and reduces GHG emissions in Thailand

*\*Project Participant provides the description for each indicator of the selected SDGs and presents currently available datasets along with supporting documents.*

## 2.2 Details on Monitoring Parameters for Demonstrating SDG Contributions

*Provide details on how to monitor the indicators identified in Section 2.1.*

*(Tables can be added based on the number of selected SDGs.)*

SDG Number	7
SDG Target	Affordable and Clean Energy
Variable or Indicator	Amount of generated clean energy (Unit: MWh)
Duration/Frequency	Monthly
Method/Tool	Power meter
Responsible person	General Manager of Marubeni Green Power Asset (Thailand) Co., Ltd. and Marubeni Green Power Asset 2 (Thailand) Co., Ltd.

SDG Number	17
SDG Target	Partnerships to achieve the Goal
Variable or Indicator	Last progress report submission date
Duration/Frequency	Yearly
Method/Tool	-
Responsible person	General Manager of Marubeni Corporation

## Part 3 Do no net harm

### 3.1 'Do no net harm' Risk Assessment and Safeguards

*Specify impacts and mitigation plans to mitigate negative impacts.*

Potential Impact of Project Activity	Severity Level of Impact				Description of Impact	Action Plan to mitigate harmful impacts		
	None	Low	Moderate	High				
<b>1. Impacts on Environment and Natural Resources</b>								
<b>1.1 Physical resources</b>								
Water pollution	✓							
Soil pollution	✓							
Air pollution	✓							
Noise pollution	✓							
Odor pollution	✓							
Soil erosion, coastal/river erosion	✓							
Vulnerability to natural disaster	✓							
Other	✓							
<b>1.2 Waste management</b>								
Increase in solid waste/municipal solid waste	✓							

Potential Impact of Project Activity	Severity Level of Impact				Description of Impact	Action Plan to mitigate harmful impacts
	None	Low	Moderate	High		
Increase in hazardous waste such as waste contaminated with oil, chemicals and used oil etc.	✓					
Increase in infectious waste	✓					
Increase in electronic waste		✓			After the installed solar PV modules reach the end of their useful life, which is expected to be several years after the project period ends, it will become necessary to dispose of them.	Since solar PV modules may contain hazardous substances, we plan to dispose of them appropriately in accordance with Thai regulations at the time of disposal. At the time of disposal, we will try to check disposal methods in Japan and other countries and try to apply the best method including recycling.
Other	✓					
<b>1.3 Biological resources</b>						
Impacts on forest areas and land-use change	✓					
Loss of land and wildlife ecosystem	✓					

Potential Impact of Project Activity	Severity Level of Impact				Description of Impact	Action Plan to mitigate harmful impacts
	None	Low	Moderate	High		
Loss of water resources and aquatic ecosystem	✓					
Foraging	✓					
Food	✓					
Other	✓					
<b>1.4 Human livelihood</b>						
Water drainage or waterway diversion	✓					
Change in water consumption	✓					
Change in land ownership	✓					
Other	✓					
<b>2. Social impacts</b>						
Public security such as increase in crime risks	✓					
Health impacts	✓					
Relocation or temporary/permanent loss of land	✓					
Loss of housing	✓					

Potential Impact of Project Activity	Severity Level of Impact				Description of Impact	Action Plan to mitigate harmful impacts
	None	Low	Moderate	High		
Impact on public utilities such as electricity, telephone service etc.	✓					
Impact on traffic	✓					
Community conflict	✓					
Employment and labor	✓					
Impact on people of certain race, religion and ethnic groups	✓					
Damage to areas of high conservation value, such as religious sites, historic sites, monuments, important places of the community etc.	✓					
Impact on human rights such as education, freedom of thought, religion etc.	✓					
Gender inequality such as in employment opportunities, salary, promotion, benefits, termination of contract etc.	✓					

Potential Impact of Project Activity	Severity Level of Impact				Description of Impact	Action Plan to mitigate harmful impacts
	None	Low	Moderate	High		
Other	✓					
<b>3. Economic impacts</b>						
Increase unemployment /loss of income of people in local communities	✓					
Other	✓					

*\*Criteria for assessing the level of impact severity*

1. *None: The proposed activity has no direct/indirect impacts on the environment, society and economy.*
2. *Low: The proposed activity causes some changes to the existing conditions but has no implication on the quality of the environment, society and economy. The impact is short-lived and temporary, and the extent of the affected area is not large (1km perimeter).*
3. *Moderate: The proposed activity causes some changes to the existing conditions and has implications on values or qualities of the environment, society and economy. The impact is short-lived and temporary. The extent of the affected area is large but confined to the related area (2km perimeter).*
4. *High: The proposed activity causes some changes to the existing conditions and has implications on value or quality of the environment, society, economy, and potentially the ecosystem. The impact is permanent and the extent of the affected area is extensive (3km perimeter).*

### 3.2 Details on Monitoring Parameters for Ensuring No Negative Impacts

*Provide details on how to monitor the impacts identified in Section 3.1.*

*(Tables can be added based on the number of negative impacts identified)*

<b>Category of negative impact</b>	Waste management
<b>Subcategory of negative impact</b>	Increase in electronic waste
<b>Vulnerable group</b>	People and the environment around solar PV module disposal sites
<b>Possible negative impact</b>	Harmful substances leaking from improperly disposed solar PV modules can pollute the surrounding environment and pose health risks to nearby residents.
<b>Parameter/indicator</b>	Number of PV modules properly disposed of
<b>Reference</b>	Relevant Thai regulations, including the Notification of Ministry of Industry / Subject: Management of Waste or Unused Materials, B.E. 2566 (2023)
<b>Duration/frequency</b>	Yearly
<b>Method/Tools</b>	Apply the method in accordance with Thai regulations at the time of disposal. Also try to check to check disposal methods in Japan and other countries and try to apply the best method including recycling.
<b>Responsible person</b>	General Manager of Marubeni Green Power Asset (Thailand) Co., Ltd. and Marubeni Green Power Asset 2 (Thailand) Co., Ltd.
<b>Expected outcome</b>	Solar PV modules containing hazardous materials are disposed of properly, thereby protecting the environment and people around the disposal sites.

<b>Category of negative impact</b>	
<b>Subcategory of negative impact</b>	
<b>Vulnerable group</b>	
<b>Possible negative impact</b>	
<b>Parameter/indicator</b>	
<b>Reference</b>	

<b>Duration/frequency</b>
<b>Method/Tools</b>
<b>Responsible person</b>
<b>Expected outcome</b>