JCM Sustainable Development and Safeguards Assessment Report

Project description	
Title	Introduction of 8.1MW Rooftop Solar Power System in Motorcycle Factory and Fiber Factory
Project participant (Thai)	Kansai Energy Solutions (Thailand) Co., Ltd.
Project participant (Japanese)	The Kansai Electric Power Company, Incorporated
Project location	Site (i): 119/10 Moo 4, Tambon Pluak Daeng, Amphur Pluak Daeng, Rayong 21140, Thailand Site (ii): 1/1 Moo 3, Tambon Klong Nueng, Amphur Klong Luang, Pathumthani 12120, Thailand
Latitude, longitude	Site (i): N 12° 59’ 54” and E 101° 10’ 41” Site (ii): N 14° 01’ 19” and E 100° 36’ 54”
Project status	Site (i): operated since 01 July 2022 Site (ii): operated since 01 October 2022

Report description		
Date of report completion	04 December 2025	
Version	1.0	
Corresponding author	Name	Hideshi Hiramatsu
	Title	Deputy Manager
	Organization	The Kansai Electric Power Company, Incorporated
	Telephone	[redacted]
	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

04/12/2025

I, the undersigned, hereby certify that The Kansai Electric Power Company, Incorporated is the author of the "Sustainable Development and Safeguards Assessment Report" of the project titled Introduction of 8.1MW Rooftop Solar Power System in Motorcycle Factory and Fiber Factory developed by The Kansai Electric Power Company, Incorporated and Kansai Energy Solutions (Thailand) Co., Ltd. located at (i) 119/10 Moo 4, Tambon Pluak Daeng, Amphur Pluak Daeng, Rayong 21140, Thailand and (ii) 1/1 Moo 3, Tambon Klong Nueng, Amphur Klong Luang, Pathumthani 12120, Thailand.

The report was prepared by the team members as follows:

No.	Name	Position	Signature
1	Ryo Takahashi	Manager	[redacted]
2	Hideshi Hiramatsu	Deputy Manager	
3			

Signature [redacted]

(Ryo Takahashi)

Position 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
1. Environment and natural resources	
1.1 Air pollution	The project site (i) is located inside a motorcycle factory in Rayong and the project site (ii) is located inside a fiber factory in Pathumthani. 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…)	-
2. Society	
2.1 Socio-cultural characteristics	Socio cultural characteristics were those of typical central or eastern regions of Thailand. The society comprises largely of the working class who engage in

Area of Assessment	Description
	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…)	-
3. Economic	
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
☐ SDG 1: No Poverty		
☐ SDG 2: Zero Hunger		
☐ SDG 3: Good Health and Well-being		
☐ SDG 4: Quality Education		
☐ SDG 5: Gender Equality		
☐ SDG 6: Clean Water and Sanitation		
☑ SDG 7: Affordable and Clean Energy	Amount of generated clean energy (Unit: MWh)	Increase share of renewable energy in national energy mix
☐ SDG 8: Decent Work and Economic Growth		
☐ SDG 9: Industry, Innovation and Infrastructure		
☐ SDG 10: Reduced Inequality		
☐ SDG 11: Sustainable Cities and Communities		
☐ SDG 12: Responsible Consumption and Production		
■ SDG 13: Climate Action		
☐ SDG 14: Life Below Water		
☐ SDG 15: Life on Land		

Project Contributions to SDGs	Indicator (Please specify)	Description of Indicator
☐ SDG 16: Peace and Justice Strong Institutions		
☑ 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	Senior General Manager of Kansai Energy Solutions (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	Manager of the Kansai Electric Power Company, Incorporated

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		
1. Impacts on Environment and Natural Resources						
1.1 Physical resources						
Water pollution	✓					
Soil pollution	✓					
Air pollution	✓					
Noise pollution	✓					
Odor pollution	✓					
Soil erosion, coastal/river erosion	✓					
Vulnerability to natural disaster	✓					
Other	✓					
1.2 Waste management						
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.	The PPA contract has a duration of 17 years. After the contract ends, the off-taker will choose one of the following options: (1) transfer of the equipment, (2) removal by our company, or (3) extension of the PPA. The option has not yet been decided. If the equipment is transferred, responsibility for management including end-of-life disposal will shift to the off-taker. While we will not conduct the disposal, we can provide general information and advice on appropriate disposal methods upon request. If our company removes the equipment or continues to own it through a PPA extension, we will carry out the

Potential Impact of Project Activity	Severity Level of Impact				Description of Impact	Action Plan to mitigate harmful impacts
	None	Low	Moderate	High		
						disposal in accordance with the relevant Thai regulations at that time and prioritize recycling when authorized facilities are available.
Other	✓					
1.3 Biological resources						
Impacts on forest areas and land-use change	✓					
Loss of land and wildlife ecosystem	✓					
Loss of water resources and aquatic ecosystem	✓					
Foraging	✓					
Food	✓					
Other	✓					
1.4 Human livelihood						
Water drainage or waterway diversion	✓					
Change in water consumption	✓					

Potential Impact of Project Activity	Severity Level of Impact				Description of Impact	Action Plan to mitigate harmful impacts
	None	Low	Moderate	High		
Change in land ownership	✓					
Other	✓					
2. Social impacts						
Public security such as increase in crime risks	✓					
Health impacts	✓					
Relocation or temporary/permanent loss of land	✓					
Loss of housing	✓					
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,	✓					

Potential Impact of Project Activity	Severity Level of Impact				Description of Impact	Action Plan to mitigate harmful impacts
	None	Low	Moderate	High		
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.	✓					
Other	✓					
3. Economic impacts						
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 id 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)

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

Category of negative impact	
Subcategory of negative impact	
Vulnerable group	
Possible negative impact	
Parameter/indicator	
Reference	
Duration/frequency	
Method/Tools	
Responsible person	
Expected outcome	