JCM Project Design Document Form

A. Project description

A.1. Title of the JCM project

Introduction of 0.95 MW Rooftop Solar Power System in Cigarette Lighter Factory

A.2. General description of project and applied technologies and/or measures

The proposed JCM project aims to reduce CO_2 emissions by introducing a grid-connected solar photovoltaic (PV) system on top of the Factory Building of Thai Merry Co., Ltd.. The total solar module output is 950.6 kW and overall system output is 733 kW. The solar PV system replaces the grid electricity mostly derived from natural gas. All of the power generated by the solar PV system is self-consumed and not fed into the grid. Installed modules are Toshiba 72 cell polycrystalline PV module. This module achieves high performance even in the high-temperature and high-humidity climate in this project site. PV generated energy is monitored at a remote location.

A.3. Location of project, including coordinates

Country	Kingdom of Thailand
Region/State/Province etc.:	Samut Sakorn Province
City/Town/Community etc:	97 M 11 Petchkasem Rd., Omnoi, Kratuban
Latitude, longitude	13°42'1.21"N 100°18'11.49"E

A.4. Name of project participants

The Kingdom of Thailand	Thai Merry Co., Ltd.
Japan	Finetech Co., Ltd.

A.5. Duration

Starting date of project operation	01/03/2019
Expected operational lifetime of project	17 years

A.6. Contribution from Japan

The proposed project was partially supported by the Ministry of the Environment, Japan (MOEJ) through the Financing Programme for JCM Model projects, which provided financial support of less than half of the initial investment for the projects in order to acquire JCM credits. As for technology transfer, capacity building on operation and monitoring has been provided by Finetech Co., Ltd. through its office in Thailand.

B. Application of an approved methodology(ies)

B.1. Selection of methodology(ies)

Selected approved methodology No.	TH_AM001
Version number	Ver02.0

B.2. Explanation of how the project meets eligibility criteria of the approved methodology

Eligibility criteria	Descriptions specified in the methodology	Project information
Criterion 1	The project installs solar PV system(s).	A solar PV system is installed at the site. The solar PV module employed is Toshiba polycrystalline photovoltaic module TA72P320WB/K.
Criterion 2	The solar PV system is connected to the internal power grid of the project site and/or to the grid for displacing grid electricity and/or captive electricity at the project site.	The solar PV system is connected to the internal power grid of the site and to the grid.
Criterion 3	The PV modules have obtained a certification of design qualifications (IEC 61215, IEC 61646 or IEC 62108) and safety qualification (IEC 61730-1 and IEC 61730-2).	The installed PV module (Toshiba polycrystalline photovoltaic module TA72P320WB/K) has obtained a certification of design qualifications (IEC 61215) and safety qualification (IEC 61730-1 and IEC 61730-2).
Criterion 4	The equipment to monitor output power of the solar PV system and irradiance is installed at the project site.	Data loggers of inverters are installed to measure and record the output power of the solar PV system. A pyranometer is installed at the site to measure irradiance.

C. Calculation of emission reductions

C.1. All emission sources and their associated greenhouse gases relevant to the JCM project

Reference emissions

Emission sources	GHG type
Consumption of grid electricity	CO_2
Project emissions	
Emission sources	GHG type
Generation of electricity from solar PV system(s)	N/A

C.2. Figure of all emission sources and monitoring points relevant to the JCM project

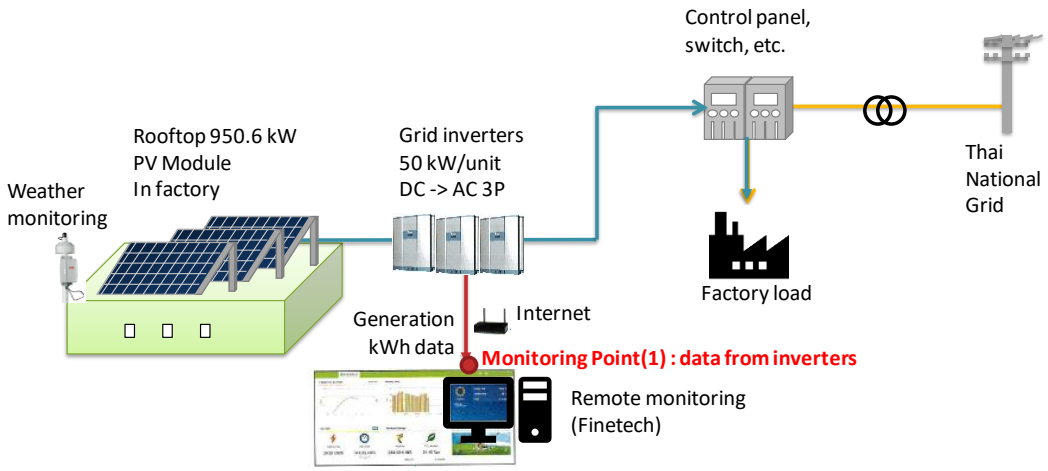

Figure PV Generation System and Monitoring Point

C.3. Estimated emissions reductions in each year

Year	Estimated Reference emissions (tCO_2e)	Estimated Project Emissions (tCO_2e)	Estimated Emission Reductions (tCO_2e)
2013	-	-	-
2014	-	-	-
2015	-	-	-
2016	-	-	-
2017	-	-	-
2018	-	-	-
2019	333.9	0	333
2020	400.9	0	400
2021	400.9	0	400
2022	400.9	0	400
2023	400.9	0	400
2024	400.9	0	400

2025	400.9	0	400
2026	400.9	0	400
2027	400.9	0	400
2028	400.9	0	400
2029	400.9	0	400
2030	400.9	0	400
Total (tCO_2e)			4,733

D. Environmental impact assessment	
Legal requirement of environmental impact assessment for the proposed project	No

E. Local stakeholder consultation

E.1. Solicitation of comments from local stakeholders

Local stakeholder consultation (LSC) meeting was held at 14:00-16:00, 30 November 2018 at the meeting room of Thai Merry Co., Ltd. (TM). Participants from the government (Thailand Greenhouse Gas Management Organization), Managing Director, supervisor, and operators of TM, EPC contractor, and focal point (Finetech Co., Ltd.) were invited to LSC. Comments were collected from participants. The minutes of meeting was distributed and reviewed among the participants.

E.2. Summary of comments received and their consideration

Stakeholders	Comments received	Consideration of comments received
TGO	TGO requested to waste PV panel properly according to a regulation when it needs disposal.	In future when PV panel disposal is necessary, TM will dispose PV panel according to existing regulation at that time.
Managing Director of TM	The factory consumes 3-4 MWh/day of electricity and has wished to install PV system for long time. They thanked JCM scheme to make it realized.	No action is needed.

Supervisor of TM	The Supervisor inquired if the PV generation plan considers degradation of PV panel due to aging.	It was explained that PV panel degradation by aging is considered in the generated energy calculation.
Operator	No comment was given.	No action is needed.
EPC contractor	Generally, inverter needs to be replaced in about 10 years, while PV panel will last 25 years.	Proper maintenance including inverter replacement should be taken.

F. References
N/A

Reference lists to support descriptions in the PDD, if any.

Annex

Revision history of PDD		
Version	Date	Contents revised
02.0	25/10/2021	Second edition Revision to change the description of "Measurement methods and procedures" to clarify the requirement for calibration in the Monitoring Spreadsheet: JCM_TH_AM001_ver02.0
01.0	20/02/2019	First edition