JCM Project Design Document Form

A. Project description

A.1. Title of the JCM project

Introduction of Solar PV Systems on Rooftops of Factory and Office Building

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 total of 994.56kW grid-connected solar photovoltaic (PV) systems at two sites: 798.72kW on top of the A-14 Factory Building of Siam Steel International Public Company Limited (hereinafter "Site A"), and 195.84kW on top of the Head Quarters of the same company (hereinafter "Site B"). The solar PV systems replace the grid electricity mostly derived from natural gas. All of the power generated by the solar PV systems is self-consumed and not fed into the grid. A remote monitoring system to monitor the performance of the system is also installed at each site.

A.3. Location of project, including coordinates

Country	Kingdom of Thailand
Region/State/Province etc.:	Samutprakarn
City/Town/Community etc:	51 Moo 2, Poochao Rd., Bangyaprak, Phrapradaeng
Latitude, longitude	Site A: N 13° 38' 47" and E 100° 32' 55" Site B: N 13° 39' 01" and E 100° 33' 01"

A.4. Name of project participants

The Kingdom of Thailand	Siam Steel International Public Company Limited
Japan	Pacific Consultants Co., Ltd. (PCKK)

A.5. Duration

Starting date of project operation	Site A: 27/06/2016 Site B: 20/06/2016
Expected operational lifetime of project	Site A: 10 years Site B: 10 years

A.6. Contribution from Japan

The proposed project was partially supported by the Ministry of the Environment, Japan 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 PCKK in conjunction with a Thai-based Japanese company.

B. Application of an approved methodology(ies)

B.1. Selection of methodology(ies)

Selected approved methodology No.	TH_AM001
Version number	Ver1.0

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).	Two solar PV systems are installed at both Site A and B. The solar PV module employed is Panasonic HIT photovoltaic module VBHN240SJ25. The inverter employed is Huawei String Inverter SUN2000-20KTL.
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 of each site is connected to the internal power grid of each 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 (Panasonic HIT photovoltaic module VBHN240SJ25) 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.	For each site, two electricity meters are installed to measure output power of the solar PV system. A pyranometer is installed at each site to measure irradiance.

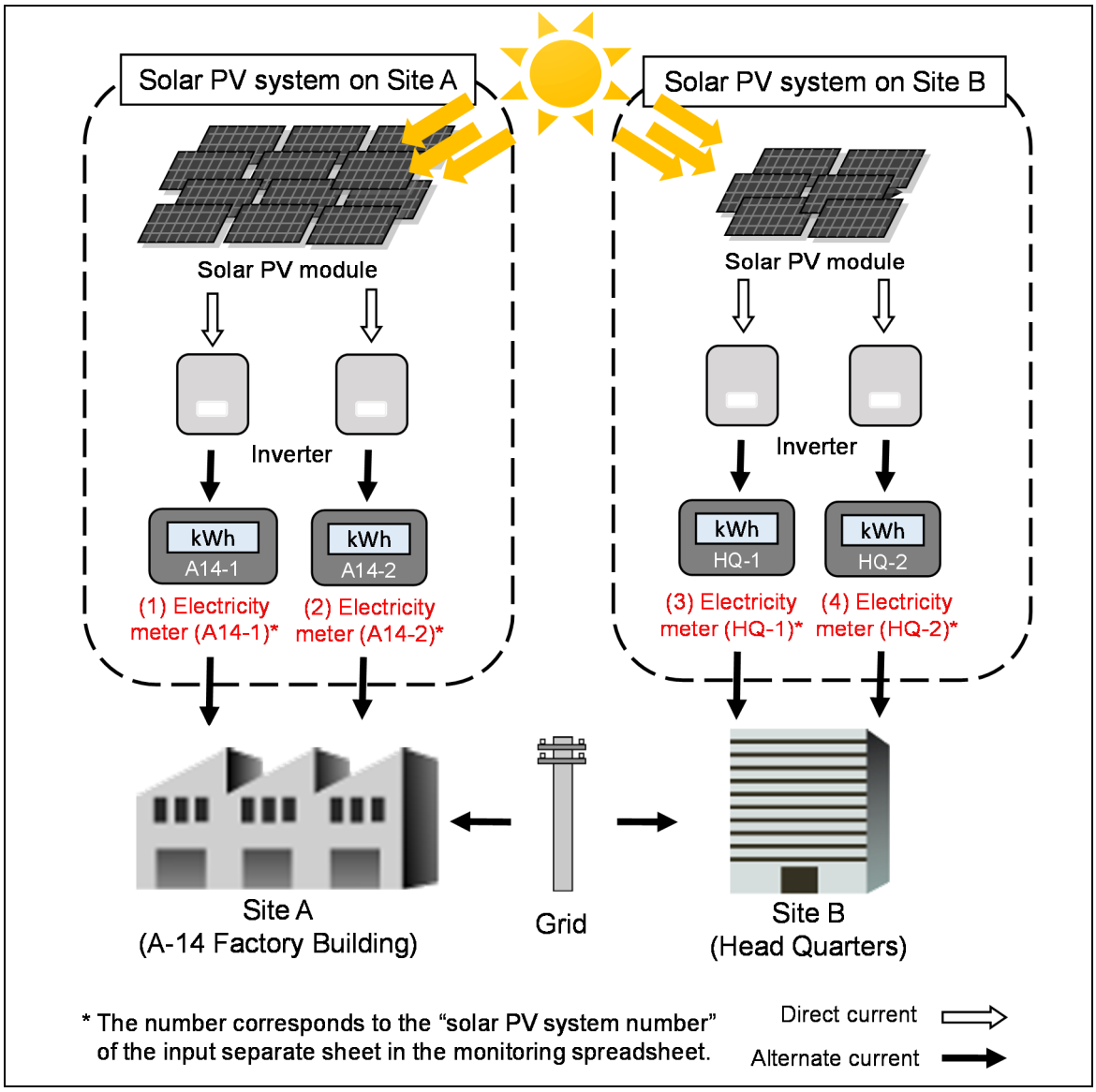
C. Calculation of emission reductions

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 systems	N/A

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



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	236	0	236
2017	491	0	491
2018	491	0	491
2019	491	0	491
2020	491	0	491
Total (tCO_{2e})	2,200	0	2,200

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

The main stakeholders of the project are people working at the project sites. In order to collect comments from these stakeholders, the project participants held a stakeholder meeting.

Date and time	Venue	Participants
11 July 2016 13:30-15:00	Meeting room of Siam Steel International Public Company Limited	Manager and engineer of Siam Steel International Public Company Limited, and Engineer of EPC company

E.2. Summary of comments received and their consideration

Stakeholders	Comments received	Consideration of comments received
An employee of Siam Steel International Public Company Limited	For monitoring, is the total kWh the only item to be recorded? Does the monthly power generation also need to be recorded?	PCKK explained that only the cumulative total kWh needs to be read and recorded at the beginning of each month. Once the total kWh is entered into the spreadsheet, the monthly power generation can be easily calculated. The questioner had no further question.
An employee of Siam Steel	Why is it necessary to read the kWh meter on site? Is the remote	The kWh meter is not connected to the remote monitoring system.

International Public Company Limited	monitoring system not sufficient?	Therefore, the reader must go to the kWh meter and read the meter every month. The question was cleared.
An employee of Siam Steel International Public Company Limited	How often do the kWh meters need to be calibrated? Every year? Where can they be calibrated?	Normally, the testing interval should follow the national regulation or the rules set by the utility company. PCKK promised follow-up. After follow-up, it became clear that the testing interval should follow the Monitoring Plan Sheet prepared by referring to the applied methodology under the JCM.

F. References
N/A

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

Annex
Annex 1: Estimated emissions reductions in each year for each site

Revision history of PDD		
Version	Date	Contents revised
01.0	26/01/2017	First edition
02.0	13/07/2017	Second edition

JCM Project Design Document

Introduction of Solar PV Systems on Rooftops of Factory and Office Building

Annex 1: Estimated emissions reductions in each year for each site

1. Estimated emissions reductions in each year for each site

Estimated emissions reductions in each year for Site A and Site B are shown below.

Table 1. Estimated emissions reductions in each year (Site A)

Year	Estimated Reference emissions (tCO_{2e})	Estimated Project Emissions (tCO_{2e})	Estimated Emission Reductions (tCO_{2e})
2013	-	-	-
2014	-	-	-
2015	-	-	-
2016	188	0	188
2017	393	0	393
2018	393	0	393
2019	393	0	393
2020	393	0	393
Total (tCO_{2e})	1,760	0	1,760

Table 2. Estimated emissions reductions in each year (Site B)

Year	Estimated Reference emissions (tCO_{2e})	Estimated Project Emissions (tCO_{2e})	Estimated Emission Reductions (tCO_{2e})
2013	-	-	-
2014	-	-	-
2015	-	-	-
2016	48	0	48
2017	98	0	98
2018	98	0	98
2019	98	0	98
2020	98	0	98
Total (tCO_{2e})	440	0	440