JCM Project Design Document Form

A. Project description

A.1. Title of the JCM project

Introduction of 3.4MW Rooftop Solar Power System to Air-conditioning Parts Factories

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

The project involves installation of rooftop solar power systems with the total generating capacity of 3.4MW at air-conditioning parts factories in Rayong Province, Thailand. The project is implemented by SNC Former Public Co., Ltd., (SNC) a Thai company utilizing the crystalline silicon photovoltaic (PV) modules of Sharp Corporation of Japan (ND-AH315, ND-RA260). Sharp's PV modules are well known for high durability, adhering to the company standard which is more stringent than Japan Industrial Standard or International Electrotechnical Commission standards.

The solar power systems are implemented to 6 factories owned by subsidiaries of SNC, or SNC Pyongsan Evolution Company Limited (SPEC), Infinity Parts Co., Ltd., (IPC), Ultimate Parts Company Limited (UMP) and SNC Creativity Anthology Company Limited (SCAN).

All the electricity produced by the project is supplied to 6 factories displacing electricity generation by fossil-fuel based power plants, contributing to greenhouse gas emissions reduction in Thailand.

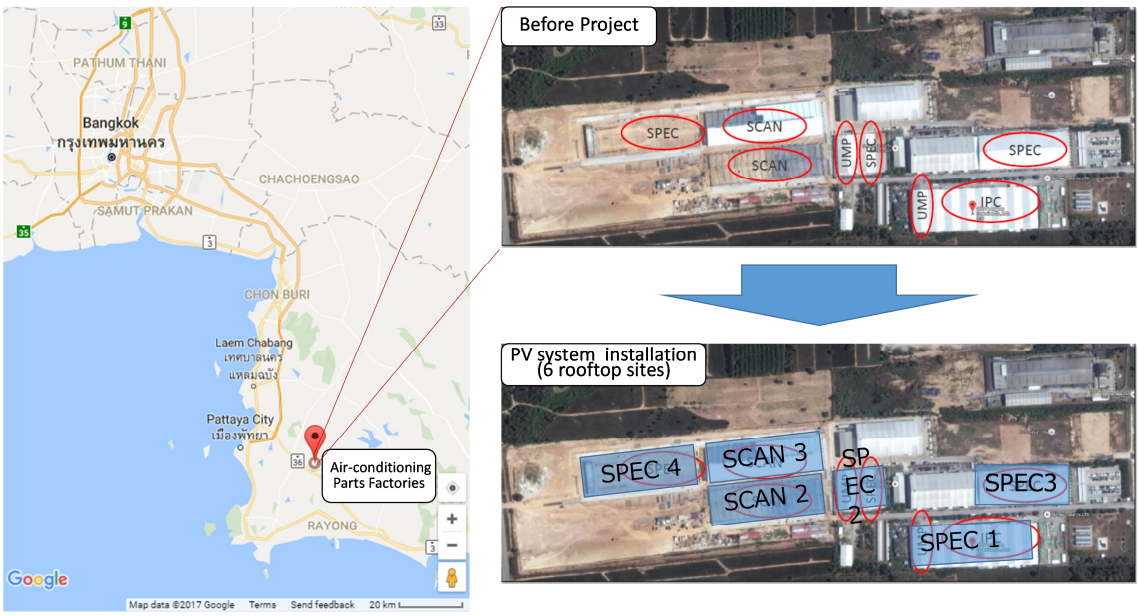

Figure 1: Location and outline of the Project

A.3. Location of project, including coordinates

Country	The Kingdom of Thailand
Region/State/Province etc.:	Rayong Province
City/Town/Community etc:	Moo 2, Tambon Makhamkoo, Amphur Nikhomphatthana,
Latitude, longitude	12°53'05.2"N 101°05'38.7"E

A.4. Name of project participants

The Kingdom of Thailand	SNC Former Public Co., Ltd.
Japan	Sharp Energy Solutions Corporation

A.5. Duration

Starting date of project operation	01/12/2017
Expected operational lifetime of project	10 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.

The technology of advanced and efficient solar power system is introduced in the proposed project by the Japanese project participant. Further, implementation of the proposed project promotes technology transfer of low carbon technologies in Thailand.

B. Application of an approved methodology(ies)

B.1. Selection of methodology(ies)

Selected approved methodology No.	TH_AM001
Version number	ver01.0

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).	The solar PV systems are installed on to the rooftops of factories in Rayong Province.
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	The solar PV systems are connected to the internal power grids of the project sites (each of factories) for displacing grid electricity at the project sites.

	captive electricity at the project site.	
Criterion 3	The PV modules have obtained a certification of design qualifications (IEC61215, IEC 61646 or IEC 62108) and safety qualification (IEC 61730-1 and IEC 61730-2).	The PV modules installed in the project have been certified for IEC 61215, 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.	Electricity meters and pyranometers have been installed at the project sites to monitor output power and irradiance respectively.

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	CO2
Project emissions	
Emission sources	GHG type
Generation of electricity from the solar PV system(s)	N/A

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

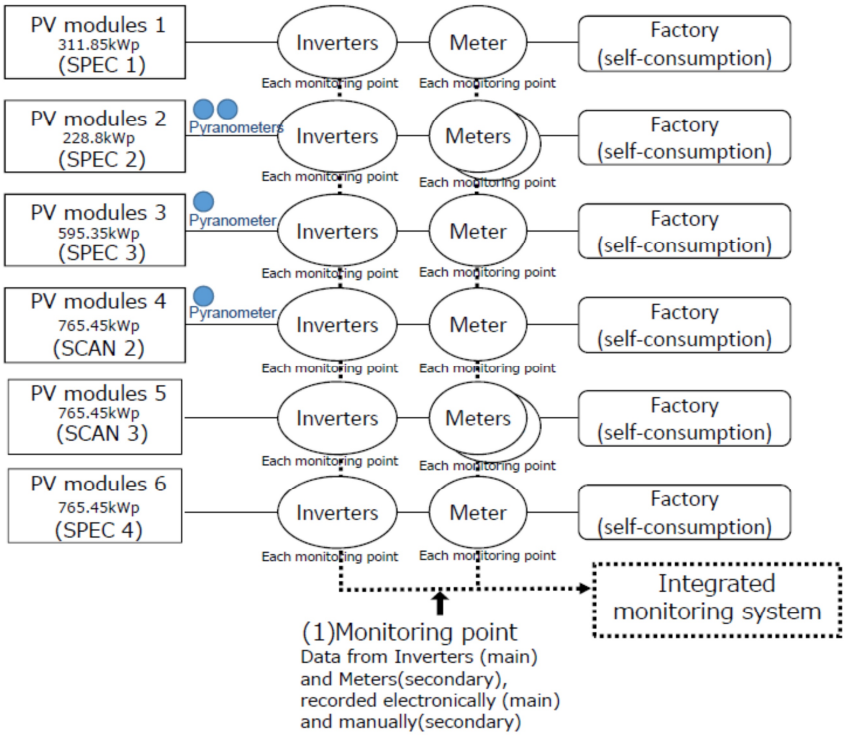

Figure 2: Monitoring point

Note: All the electricity generated by Solar system is consumed by factories (self-consumption). Reading from electricity meters and inverters is recorded manually and electronically.

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	98.3	0	98
2018	1,179.7	0	1,179
2019	1,179.7	0	1,179
2020	1,179.7	0	1,179
2021	1,179.7	0	1,179
2022	1,179.7	0	1,179
2023	1,179.7	0	1,179
2024	1,179.7	0	1,179
2025	1,179.7	0	1,179
2026	1,179.7	0	1,179
2027	1,081.4	0	1,081
2028	-	-	-
2029	-	-	-
2030	-	-	-
Total (tCO_2e)			11,790

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

To solicit comments from local stakeholders, a consultation meeting was planned by the project

participants, and the project participants invited various stakeholders. Details of the local stakeholders consultation meeting is summarized as follows:

Date and Time: 20 November 2017, 13:00-15:00
Venue: SPEC (SNC Pyongsan Evolution Company Limited)
Address: 88/9, 88/8-20 Moo 2 Tambon Makhamkoo, Amphur Nikompattana, Rayong 21180

Following organization from Thailand side were invited to the consultation meeting:
- Thailand JCM Secretariat (TGO)
- SNC Former Public Co., Ltd.
- Local District (Tambon Makhamkoo)
- Local Village (Moo. 2)

At the meeting, the details of the proposed JCM project and the technology to be introduced were explained by representative of Sharp Corporation who is in charge of the technical design of the project. Any queries in relation to JCM application in Thailand was answered by Thai JCM Secretariat. There were no negative comments toward the proposed project expressed during the stakeholders meeting by the attendees. The comments received during the local stakeholders meeting are summarized in the following section.

E.2. Summary of comments received and their consideration

Stakeholders	Comments received	Consideration of comments received
Thailand JCM Secretariat (TGO)	1. We would like to know the time line of project. 2. How is the owner ship structure of this project? 3. What kind of permission is required for this project? 4. How often will they clean the Solar PV modules? 5. Did SNC receive other subsidy? 6. How will they recycle the Solar PV system?	1. Mechanical completion was April 2017. COD (Commercial Operation Date) will be at the end of this year. We will begin generation after the permission from PEA (Local Electricity Company) [No action is needed] 2. SPEC (SNC Pyongsan Evolution Company Limited) owns the Solar PV generation system. Regarding JCM project scheme,

		SNC is the representative of project participants in Thailand. [No action is needed] 3. This project is self-consumption and the required permission is only PEA. [No action is needed] 4. Sharp Thailand will clean the Solar PV modules once in a year. [No action is needed] 5. Yes, 2 out of 6 building accepted the tax exemption of BOI (Board of Investment). [No action is needed] 6. Sharp will introduce the recycling companies. [No action is needed]
Local District (Tambon Makhamkoo)	We will implement a new policy to promote the implementation of solar next year. However, there are some obstacles against installation of solar such as regulation, procedures. JCM is a good opportunity for the government to improve such regulations.	[No action is needed]

F. References

N/A

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

Annex

Revision history of PDD		
Version	Date	Contents revised
1.0	26/03/2018	First edition
2.0	30/03/2018	Updating C.2 (Figure 2: Monitoring point) and E2.(Comments from stake holders)
3.0	24/04/2018	Updating the Name of project participants in Japan