JCM Project Design Document Form

A. Project description

A.1. Title of the JCM project

Introduction of 0.4MW Rooftop Solar Power System in Supermarket and Hotel

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

The proposed JCM project aims to reduce CO2 emissions by introducing a total of 427.46kW grid-connected solar photovoltaic (PV) systems at two sites: 351.48kW on top of the supermarket building of Western Caroline Trading Company (hereinafter "Site A"), and 75.98kW on top of West Plaza Hotel at Lebuu Street (hereinafter "Site B"). The solar PV systems replace the grid and captive electricity mostly derived from diesel. The power generated by the solar PV system is basically self-consumed. When there is surplus power, it is exported to the grid utilizing the net-metering scheme*. A remote monitoring system to monitor the performance of the system is also installed. * This scheme allows end users to send surplus electricity generated by renewable energy to the grid. The electricity sent to the grid offsets the electricity consumed from the grid.

A.3. Location of project, including coordinates

Country	Republic of Palau
Region/State/Province etc.:	Koror State
City/Town/Community etc:	Site A: Main Street, Medalaii Site B: Lebuu Street
Latitude, longitude	Site A: N 7°20'32.8" and E 134°28'40.7" Site B: N 7°20'36.4" and E 134°28'45.9"

A.4. Name of project participants

The Republic of Palau	Western Caroline Trading Company (WCTC)
Japan	Sharp Energy Solutions Corporation

A.5. Duration

Starting date of project operation	Site A: 30/06/2020 Site B: 30/06/2020
Expected operational lifetime of project	Site A: 10 years Site B: 10 years

A.6. Contribution from Japan and Palau

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.

B. Application of an approved methodology(ies)

B.1. Selection of methodology(ies)

Selected approved methodology No.	PW_AM001
Version number	Ver. 1.0

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 each project site. The solar PV module employed is Sharp NU-AD290. The inverter employed is SMA Sunny Tripower 30000TL-US.
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 project site is connected to the internal power grid of the project 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 (Sharp NU-AD290) 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.	A pyranometers are installed at the project sites to measure irradiance. An electricity meter is installed at each project site to measure output power of the solar PV system.

C. Calculation of emission reductions

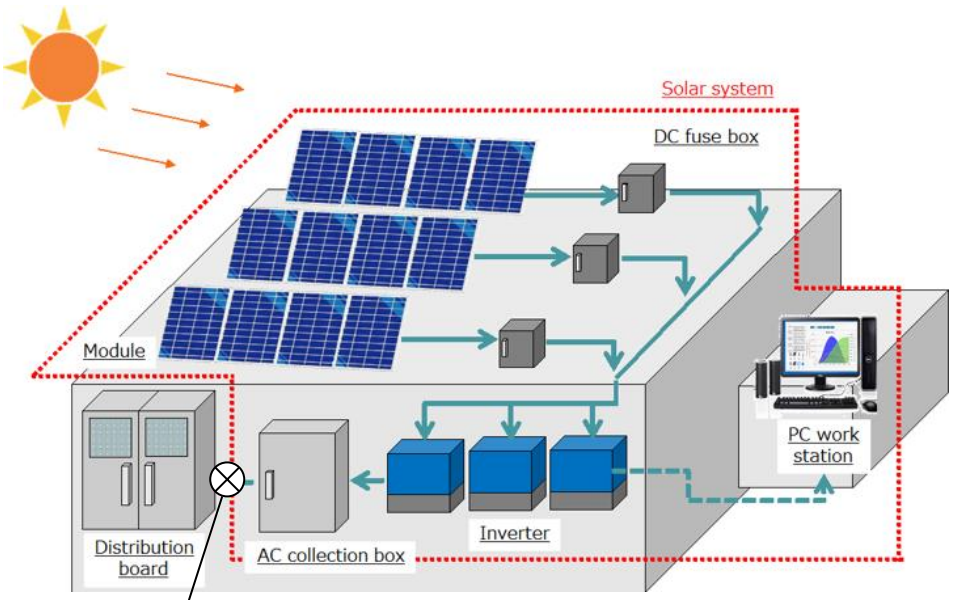
C.1. All emission sources and their associated greenhouse gases relevant to the JCM project

Reference emissions	
Emission sources	GHG type
Consumption of grid electricity and captive electricity	CO_2
Project emissions	

Emission sources	GHG type
Generation of electricity from solar PV systems	N/A

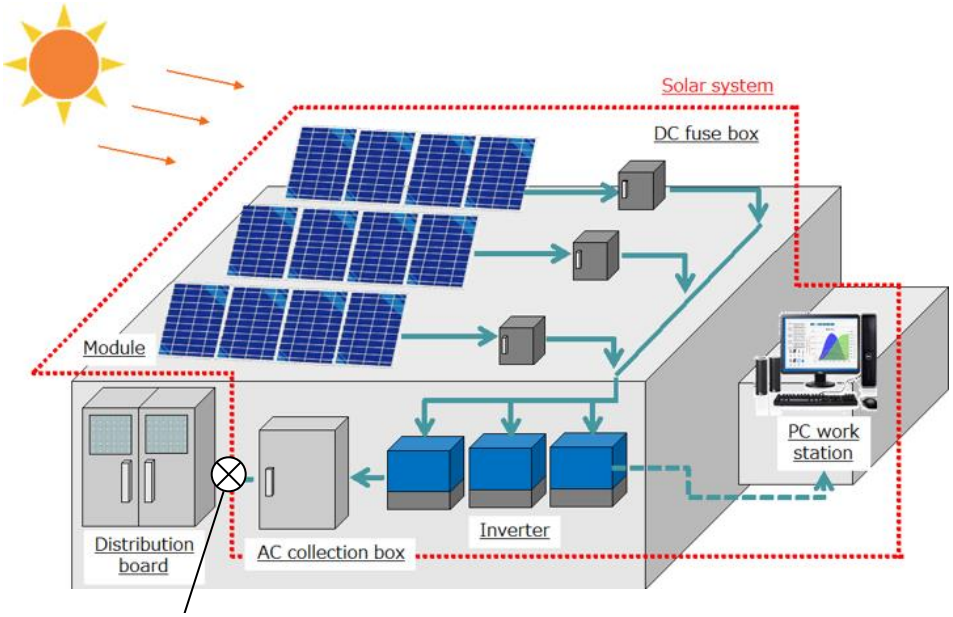
C.2. Figure of all emission sources and monitoring points relevant to the JCM project

<Site A>



(1) Electricity meter

<Site B>



(1) Electricity meter

C.3. Estimated emissions reductions in each year

Year	Estimated Reference emissions (tCO_{2e})	Estimated Project Emissions (tCO_{2e})	Estimated Emission Reductions (tCO_{2e})
2014	-	-	-
2015	-	-	-
2016	-	-	-
2017	-	-	-
2018	-	-	-
2019	-	-	-
2020	138	0	138
2021	285	0	285
2022	285	0	285
2023	285	0	285
2024	285	0	285
2025	285	0	285
2026	285	0	285
2027	285	0	285
2028	285	0	285
2029	285	0	285
2030	147	0	147
Total (tCO_{2e})			2,850

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

In order to collect comments from local stakeholders, the project participants requested face-to-face interviews as a local stakeholder consultation (LSC). Prior to hold the LSC, the project participants prepared a list of candidate participants to the LSC. The list was fixed by reflecting comments from Palauan side. Based on the fixed list, candidate participants were contacted

mainly by e-mail regarding the LSC. The outline of the LSC is shown in the table below.

Date and time	Venue	Participants
11 November 2019 13:30-15:00	Meeting room of WCTC	11 people from Ministry of Public Infrastructure, Industries & Commerce, Ministry of State, Office of Climate Change, Palau Public Utilities Company, Island Engineering and Design, Koror State of Government, WCTC, Sharp Energy Solutions Corporation

E.2. Summary of comments received and their consideration

Stakeholders	Comments received	Consideration of comments received
Koror State Government	Is 0.533 tCO2/MWh of Emission Factor derived from PPUC's actual data?	The secretariat of LSC answered that "It is derived from the world's most efficient diesel generator which is adapted in the applied JCM methodology."
WCTC	Can we learn the maintenance methods online?	Sharp Energy Solutions Corporation answered that "We will guarantee and look after the installed equipment which we provide. The maintenance portion is more locally handled, by monitoring through the SMA Sunny Portal, and replacement of equipment by the EPC contractor."
WCTC	We want Sharp Energy Solutions Corporation to provide more support for the system because it is difficult for us to catch our local EPC company.	Sharp Energy Solutions Corporation answered that "We will provide as much support as possible to the part where we are involved, or general questions related to solar power systems. Queries of local nature would have to be handled locally by the EPC contractor."

F. References
N/A

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

Annex
N/A

Revision history of PDD		
Version	Date	Contents revised
01.0	27/01/2020	First edition
02.0	02/03/2020	Second edition
03.0	13/03/2020	Third edition
04.0	19/03/2020 11/07/2021	Fourth edition Initial registration by the Joint Committee through electronic decision