JCM Project Design Document Form

A. Project description

A.1. Title of the JCM project

Palau / Introduction of 1MW Solar Power System on Supermarket Rooftop

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

The proposed JCM project aims to reduce carbon dioxide (CO_2) emissions by introducing 1.3MW grid-connected solar photovoltaic (PV) system on top of the supermarket building of Surangel & Sons Company in Airai State. The solar PV system replace the grid and captive electricity mostly derived from diesel. The power generated by the solar PV system is basically self-consumed. In case that 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.:	Airai State
City/Town/Community etc:	Along Main Street
Latitude, longitude	N 7°21’49”, E 134°30’37”

A.4. Name of project participants

The Republic of Palau	Surangel & Sons Company
Japan	Sharp Energy Solutions Corporation

A.5. Duration

Starting date of project operation	1/3/2022
Expected operational lifetime of project	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. The technology of advanced and efficient solar power system is introduced in the proposed

project by the Japanese project participant. Further, the proposed project is contributed to acquisition of skills of local engineers through education and guidance related to installation and operation of solar power system.

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-JB395. The inverter employed is SMA Sunny Highpower PEAK3 125-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 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-JB395) 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 site to measure irradiance. An electricity meter is installed at the project site to measure output power of the solar PV system.

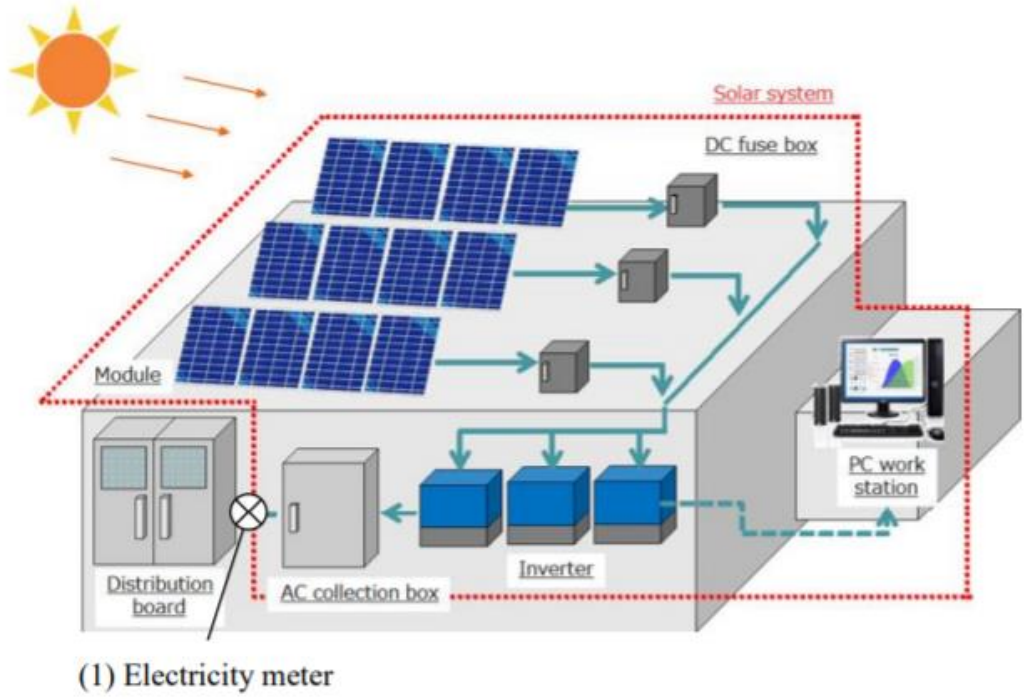
C. Calculation of emission reductions

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



C.3. Estimated emissions reductions in each year

Year	Estimated Reference emissions (tCO_{2e})	Estimated Project Emissions (tCO_{2e})	Estimated Emission Reductions (tCO_{2e})
2022	730.2	0.0	730
2023	871.0	0.0	871
2024	871.0	0.0	871
2025	871.0	0.0	871
2026	871.0	0.0	871
2027	871.0	0.0	871
2028	871.0	0.0	871
2029	871.0	0.0	871
2030	871.0	0.0	871
Total (tCO_{2e})			7,698

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 sent out invitation letters to the consultation meeting to various stakeholders. Details of the local stakeholders' consultation meeting is summarized as follows:

<Meeting outline>

- Date and Time: Oct. 28, 2021 13:30 – 14:30 (JST)
- Venue: Online Meeting (Zoom)

<Meeting agenda>

#	*Time*	*Program*	*Remarks*
1	13:30 - 13:40	Opening remarks	Surangel & Sons Company (Introduction) Palau Energy Administration (Brief Opening Remarks)
2	13:40 – 13:45	Explanation of JCM	Nippon Koei Co., LTd.
3	13:45 – 13:55	Overview of the project	Surangel & Sons Company
4	13:55 – 14:05	Explanation of technology (PV) introduced in this project	Supplier (Sharp Energy Solutions Corporation)
5	14:05 – 14:20	Question and answers	All
6	14:20 - 14:30	Closing remarks	Surangel & Sons Company Sharp Energy Solutions Corporation

<Meeting summary>

In order to share the information of Joint Crediting Mechanism (JCM) model project on Supermarket Rooftop in Palau and collect the comments/opinions from the persons concerned, the local stakeholder consultation (LSC) was conducted in accordance with above agenda.

E.2. Summary of comments received and their consideration

Stakeholders	Comments received	Consideration of comments received
PPUC	How can PPUC providing national utility do endeavor as a national government?	Sharp answered that conventional utility such as PPUC will be cared ESG and SDGs, mega trend of these days, and policy of PPUC should be shifted more eco-friendly.
Surangel & Sons Company	How long is the lifespan of the solar panels? And does PPUC have to replace the panels on a rooftop after 25 years?	Sharp guarantees PV module output performance for 25 years, however its lifetime may be actually longer than guaranteed period. The PV module can keep utilize after 25 years; however, power output performance will decrease to 70 to 80%. Therefore Surangel & Sons Company can choose to keep using or replace depending on decreasing in output performance.

F. References

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

Annex

Revision history of PDD		
Version	Date	Contents revised
01.0	XX/XX/2021	First Edition