JCM Project Design Document Form

A. Project description

A.1. Title of the JCM project

Solar Power on Rooftop of School Building Project

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

The proposed JCM project aims to reduce CO2 emissions by introducing an 186.72kW grid-connected solar photovoltaic (PV) system on the roof top of school buildings owned by Villa Educational Services Private Limited. The power from the solar PV system replaces the grid electricity. The power generated by the solar PV system is firstly self-consumed. When there is surplus power, it is exported to the gird 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. In terms of billing, the electricity sent to the grid offsets the electricity consumed from the grid.

A.3. Location of project, including coordinates

Country	Republic of Maldives
Region/State/Province etc.:	Male City
City/Town/Community etc:	Rah'debau Hingun, Male
Latitude, longitude	N 4° 10' 10.3" and E 73° 30' 32.5"

A.4. Name of project participants

The Republic of Maldives	Villa Educational Services Private Ltd.
Japan	Pacific Consultants Co., Ltd.

A.5. Duration

Starting date of project operation	2 September 2017
Expected operational lifetime of project	10 years

A.6. Contribution from developed countries

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 project in order to acquire JCM credits. As for technology transfer, capacity building on operation and monitoring has been provided

by Pacific Consultants Co., Ltd. (PCKK) in conjunction with the EPC company.

B. Application of an approved methodology(ies)

B.1. Selection of methodology(ies)

Selected approved methodology No.	MV_AM001
Version number	Ver 01.0

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. The solar PV module employed is Trinasolar multicrystalline solar module TSM-PD05. The inverter employed is SMA Sunny Tripower 10000TL, 15000TL, and 20000TL.
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 for displacing grid electricity.
Criterion 3	The PV modules have obtained a certification of design qualifications (IEC 61215, IEC 61646 or IEC 62108), safety qualification (IEC 61730-1 and IEC 61730-2), and have fulfilled the requirements of IEC 61701.	The installed PV module Trinasolar multicrystalline solar module TSM-PD05 has obtained a certification of design qualifications (IEC 61215) and safety qualification (IEC 61730-1 and IEC 61730-2). It has fulfilled the requirements of IEC 61701.
Criterion 4	The equipment to monitor output power of the solar PV system and irradiance is installed at the project site.	An electricity meter is installed to measure the output power of the solar PV system. A pyranometer is installed at the site to measure irradiance.

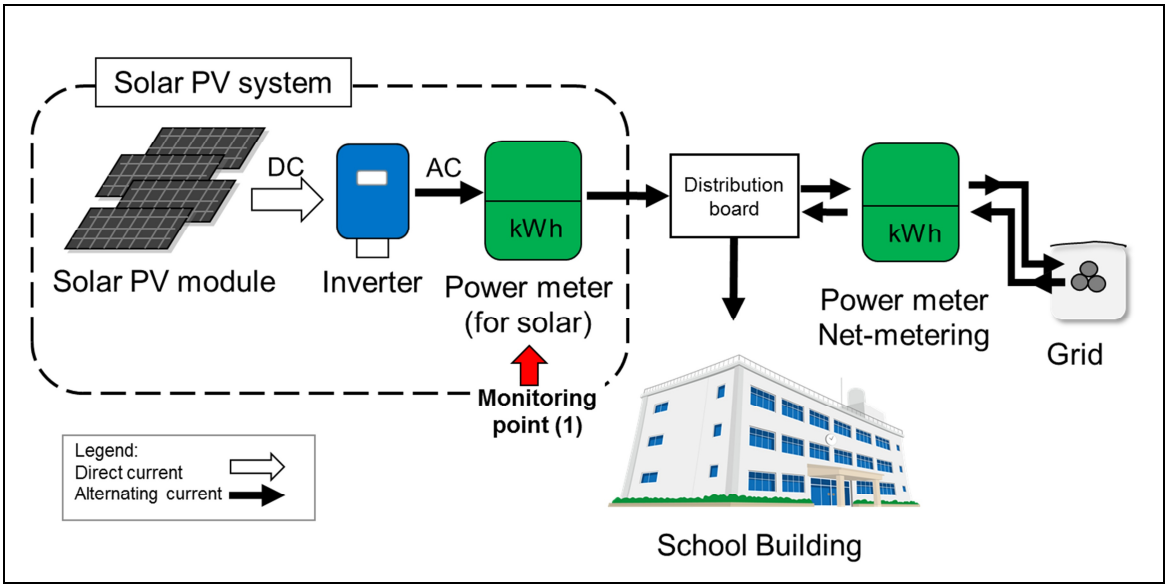
C. Calculation of emission reductions

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 and/or captive 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



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	49.8	0	49
2018	156.2	0	156
2019	156.2	0	156
2020	156.2	0	156
Total (tCO_{2e})	518.4	0	517

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 the employees of Villa College. In order to collect comments from these stakeholders, the project participants held a stakeholder meeting.

Date and time	Venue	Participants
27 September 2017 10:00-12:00	Hall of Villa College	Representatives of employees from each section of the school, a representative of the Ministry of Environment and Energy, a representative of the Environmental Protection Agency, and a representative of the EPC company.

E.2. Summary of comments received and their consideration

Stakeholders	Comments received	Consideration of comments received
Several participants	Were the students informed on the project?	One of the representatives of the school responded that the students will be informed at the time of official inauguration event.
Several participants	Should the dust coming from the cement factory adjacent to the school deteriorate the performance of the solar PV system?	Many participants suggested that cleaning of the modules by water would be necessary. The participants agreed that it would be better to take actions to consult with the cement factory to mitigate possible effects from the dust.

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	26/02/2018	First edition