JCM Project Design Document Form

A. Project description

A.1. Title of the JCM project

Introduction of 1MW Rooftop Solar Power Systems to University

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

The proposed JCM project aims to reduce CO_2 emissions in Chile by introducing a total of 1049kW power conditioning systems and 992kW (for rated capacity of module panel) grid-connected solar photovoltaic (PV) modules on the roof top areas of university facilities in San Joaquin, Casa Central Valparaiso, Sede Vina del Mar, and Santiago Vitacura. All of the PV systems are connected to SIC grid. The PV systems are connected to an internal grid of each campus, which are replaced grid electricity mostly derived from fossil-fuel and contribute to greenhouse gas emissions reduction in Chile. Most of electricity generated by the solar PV systems is self-consumed in each campus. If there has excess electricity, it will be supplied to the grid. A remote monitoring system to monitor the performance of the system is also installed.

A.3. Location of project, including coordinates

Country	Chile
Region/State/Province etc.:	①San Joaquin, Santiago ②Valparaiso ③Vina del Mar ④Vitacura, Santiago
City/Town/Community etc:	①Campus Santiago San Joaquin ②Campus Casa Central Valparaiso ③Campus Sede Vina del Mar ④Campus Santiago Vitacura
Latitude, longitude	①33°29'26.4"S 70°37'06.2"W ②33°02'06.1"S 71°35'45.7"W ③33°02'11.0"S 71°29'11.4"W ④33°22'38.1"S 70°34'38.3"W

A.4. Name of project participants

The Republic of Chile	MGM Innova Capital Chile SpA Universidad Técnica Federico Santa María
Japan	Waseda Environmental Institute

	NTT DATA INSTITUTE OF MANAGEMENT CONSULTING,Inc.

A.5. Duration

Starting date of project operation	01/05/2019
Expected operational lifetime of project	17 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 project in order to acquire JCM credits. Implementation of the proposed project also promotes transfer of low carbon technologies in Chile.

B. Application of an approved methodology(ies)

B.1. Selection of methodology(ies)

Selected approved methodology No.	CL_AM001
Version number	Ver1.0

B.2. Explanation of how the project meets eligibility criteria of the approved methodology

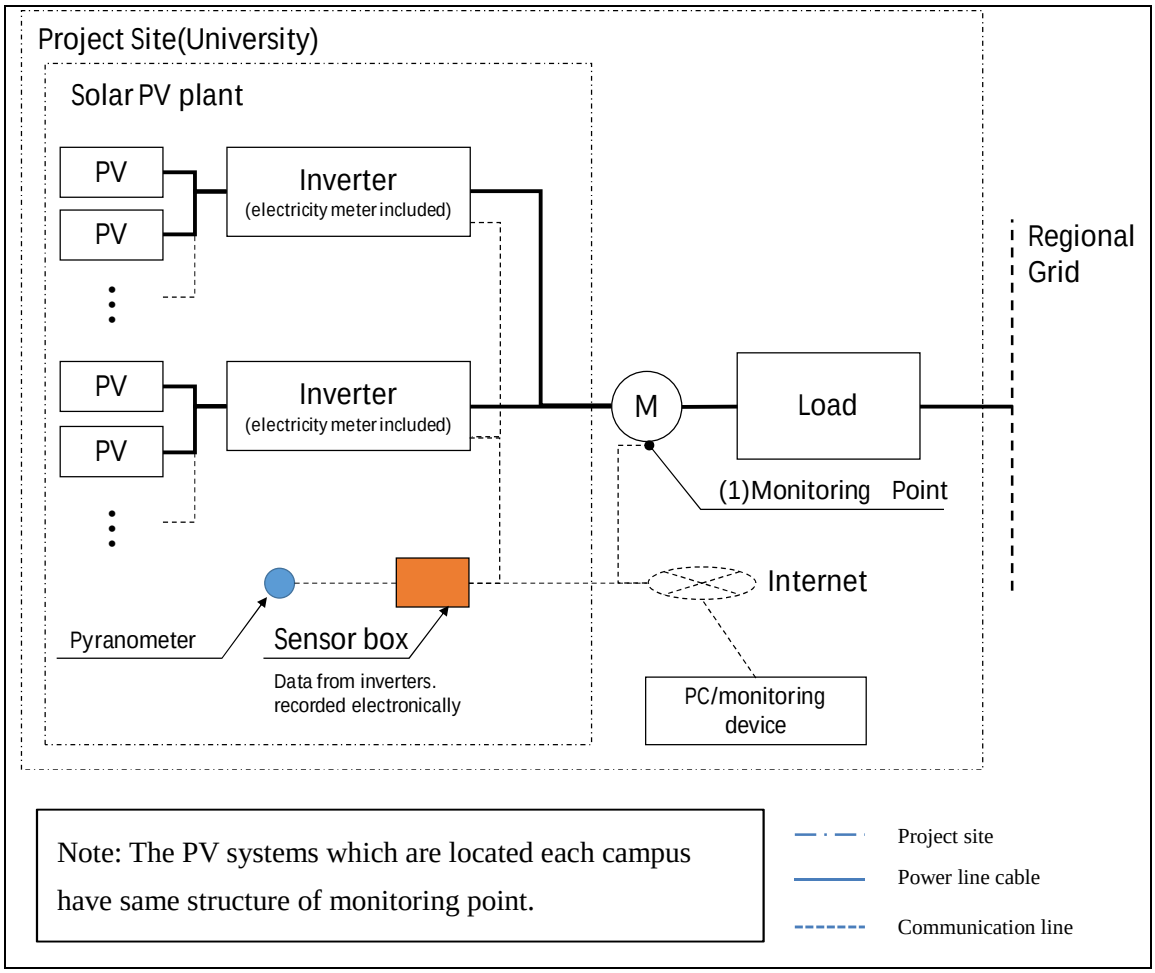
Eligibility criteria	Descriptions specified in the methodology	Project information
Criterion 1	The project newly installs solar PV system(s).	The solar PV system is newly installed in Federico Santa Maria Technical University.
Criterion 2	The PV modules are certified for design qualifications (IEC 61215,IEC 61646 or IEC 62108) and safety qualification (IEC 61730-1 and IEC 61730-2).	The PV module installed in the project has been certified for IEC61215, IEC61730-1,IEC61730-2
Criterion 3	The equipment used for monitoring output power of the solar PV system(s) and irradiance is installed at the project site.	Electricity meter and pyranometer have been installed at the project site 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 regional grid	CO_2
Project emissions	
Emission sources	GHG type
Generation of electricity from the Solar PV system	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)
2018	-	-	-
2019	319.4	0.0	319
2020	517.3	0.0	517
2021	517.3	0.0	517

2022	517.3	0.0	517
2023	517.3	0.0	517
2024	517.3	0.0	517
2025	517.3	0.0	517
2026	517.3	0.0	517
2027	517.3	0.0	517
2028	517.3	0.0	517
2029	517.3	0.0	517
2030	517.3	0.0	517
Total (tCO_2e)			6,006

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 Project participants posted notices regarding the stakeholder's meeting three months prior to the meeting. To complement the process, the project participants also sent out email invitations on 04/10/2018. The stake holder's meeting was held on 21/11/2018 during 13:00-14:00 hours at the meeting room of the Vitacura Campues.

The project participant conducted a face-to-face interview with identified stakeholders (see below). Comments received from the stakeholders are summarized in the following section E.2. below. The project received no negative comments from stakeholders and it was also confirmed that none of the received comments require further actions.

- Venue: Meeting Room, Vitacura Campus, UTFSM, Santiago, Chile
- Date/Time: November 21, 2018, 13:00 - 14:00
- Stakeholders:
  - MGM Innova Capital Chile SpA /MGM Innova Capital LLC (Solar Power Plant Operator)
  - Universidad Técnica Federico Santa Maria (Solar power plant installation site owner)

E.2. Summary of comments received and their consideration

Stakeholders	Comments received	Consideration of comments received
Universidad Técnica Federico Santa Maria	How often will you maintain this solar site? This area is close to the sea. I think we need maintenance more frequently than ordinary places.	Solar Power Plant Operator plans to conduct the suitable maintenance program for this site. The first year will be a test period to decide a maintenance frequency to clean the PV panels of each campus since each site has different geographical background. It requires careful consideration to seagull droppings in Valparaíso. No further action is needed
Universidad Técnica Federico Santa Maria	This project is a great example of education for our students. They can easily learn and understand PV systems and associated electrical facility through this project.	No action is needed
Universidad Técnica Federico Santa Maria	In Vitacura campus, it would be interesting to see that information of the system and generated data will be shared with potential investors for them to consider new projects. Also, it is very useful for students to directly see an example of real solar power generation through the monitoring system.	No action is needed
Universidad Técnica Federico Santa Maria	The university is working on an Energy Management project in all of its campuses, together with support from the Energy Efficiency Agency of	No action is needed

	Chile. We are very interested in being able to have access to the generation of the systems, and also integrate it into the data of the integrated energy management system that we are developing.	

F. References

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

Annex

Revision history of PDD		
Version	Date	Contents revised
01.0	25/12/2018	First edition
02.0	23/01/2019	Second edition
03.0	07/03/2019	Third edition
04.0	22/03/2019	Fourth edition
05.0	13/09/2019 08/10/2019	Fifth edition Initial registration by the Joint Committee