JCM Project Design Document Form

A. Project description

A.1. Title of the JCM project

1.6MW Solar PV Power Plant Project in Jakabaring Sport City

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

The project introduces a 1.6MW solar power plant in Jakabaring Sports City of Palembang, South Sumatra, Indonesia. The project is implemented by Perusahaan Daerah Pertambangan Dan Energi (PDPDE), a company incorporated in Indonesia. The power plant uses 5,348 units of polycrystalline silicon photovoltaic (PV) modules (ND-AH315) with 16.23 % power conversion efficiency supplied by Sharp Energy Solutions Corporation of Japan. The electricity produced by the Project is supplied to Sumatra Grid of Indonesia displacing electricity generation by fossil-fuel based power plants, contributing to greenhouse gas emissions reduction in Indonesia.

A.3. Location of project, including coordinates

Country	Republic of Indonesia
Region/State/Province etc.:	South Sumatra
City/Town/Community etc:	Palembang, Jakabaring Sports City
Latitude, longitude	Latitude: -3.01° Longitude: 104.79°

A.4. Name of project participants

The Republic of Indonesia	Perusahaan Daerah Pertambangan Dan Energi
Japan	Sharp Energy Solutions Corporation

A.5. Duration

Starting date of project operation	1 April 2018
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 projects in order to acquire JCM credits.

Further, implementation of the proposed project promotes technology transfer of low carbon technologies in Indonesia. Through the financing programme by MOEJ, newly solar power plant has been installed. Operation of the solar power plant is monitored during the project operation. Throughout various stages of project implementation including project design, construction, scheduling and installation, Sharp Corporation has provided local operators with required training and know-how transfer. Sharp Corporation also plans to provide training for operation and maintenance prior to the starting date of operation and will continue to do so throughout project operation period.

B. Application of an approved methodology(ies)

B.1. Selection of methodology(ies)

Selected approved methodology No.	ID_AM013
Version number	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 newly installs solar PV system(s).	The project installs 1.6MW newly solar PV systems in Jakabaring Sports City, Palembang, South Sumatra, Indonesia.
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 modules installed in the project have been certified for IEC 61215, IEC 61730-1 and IEC 61730-2).
Criterion 3	The equipment to monitor 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 grid electricity including national/regional and isolated	CO_2

grids and/or captive electricity	
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

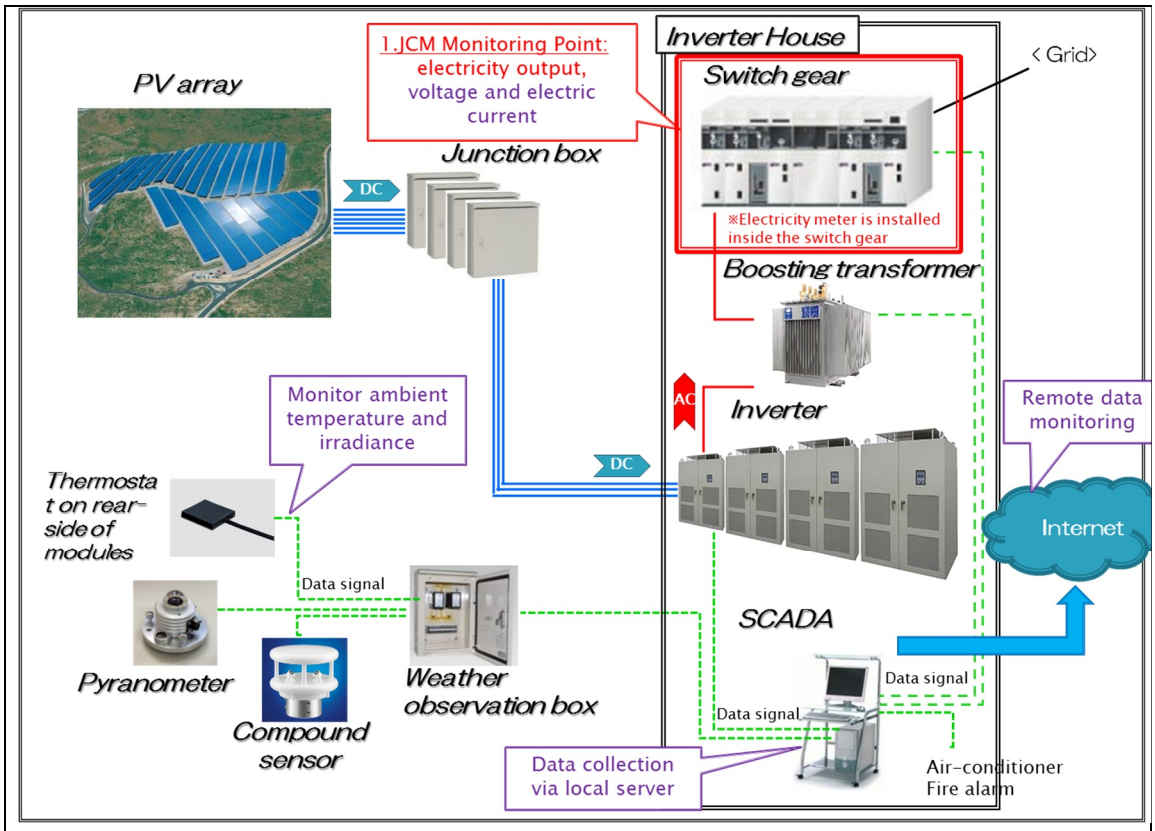

Figure 1: Monitoring Point

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			
2018	689.7	0	689
2019	917.2	0	917
2020	917.2	0	917
2021	917.2	0	917
2022	917.2	0	917
2023	917.2	0	917
2024	917.2	0	917
2025	917.2	0	917
2026	917.2	0	917
2027	917.2	0	917
2028	917.2	0	917
2029	917.2	0	917
2030	917.2	0	917
Total (tCO_2e)			11,693

Note:
The estimated emission reductions in each year are rounded down after the decimal point.

D. Environmental impact assessment	
Legal requirement of environmental impact assessment for the proposed project	Yes. Law No 32 of 2009 on Environmental Management and Palembang City Decree No 03 of 2013 on Environmental License require solar power projects with capacity between 1- 10 MW to submit Environmental Management and Monitoring Measures (UPL-UKL) and obtain an approval from the local authorities in the form of "Environment Letter". The

	proposed project has been issued with "Environment Letter".

E. Local stakeholder consultation

E.1. Solicitation of comments from local stakeholders

The main stakeholders of the proposed JCM project including national government representatives, local authority representatives and those involved in Jakabaring Sports City development have been identified by the project participants with an instruction by Indonesia JCM Secretariat. The stakeholder meeting was held as follows to explain about the Project and solicit their comments.

[Meeting outline]

- Date and Time: 21 November 2017, 09:30-12:00 (Western Indonesian Time)
- Venue: Griya Agung (South Sumatera Governor Palace)
  Jl. Demang Lebar Daun No. 9, Ilir Barat I, Palembang 30137, South Sumatera, Indonesia
- Attendees (Total 31 representing the following organizations):
  -Coordinating Ministry of Economic Affairs
  -Indonesia JCM Secretariat
  -Government of South Sumatera
  -Department of Public Works Bina Marga, South Sumatera Province
  -Department of Energy and Mineral Resources, South Sumatera Province
  -Economic Bureau, South Sumatera Province
  -Legal and Human Rights Bureau, South Sumatera Province
  -Department of Investment and One Stop Integrated Service, South Sumatera Province
  -Local Financial and Asset Management Agency (BPKAD), South Sumatera Province
  -Industrial Research and Standardization (Baristand), Palembang City
  -Training and Development Bureau (BPP), Palembang City
  -Department of Public Works (PUPR), Palembang City
  -State Electricity Company South Sumatera Region
  -PT Jakabaring Sport City (JSC)
  -Special Economic Zone Tanjung Api-Api

[Meeting agenda]

Opening address	**Dr. H. Akhmad Najib, SH, M.Hum.** *Assistant for Government and People Welfare*, Government of South

	Sumatera Province
Opening remarks	**Mr. A. Yaniarsyah Hasan,** *President Director,* PT Perusahaan Daerah Pertambangan dan Energi Sumatera Selatan (PDPDE)
Conception of the project and the technologies utilized	**Ms. Shoko Fukahori,** *Supervisor***,** Energy Division Sharp Corporation
Implementing JCM in Indonesia	**Mr. Dicky Edwin Hindarto,** *Head of Secretariat,* Indonesia JCM Secretariat
MRV (Monitoring, Reporting, and Verification) of the project	**Mr. Ricky Tagar Risnauli,** JCM Consultant, Mitsubishi UFJ Morgan Stanley Securities (MUMSS)
Q and A session	As detailed in the section E.2 below
Closing remark	Sharp and PDPDE

[Conclusion]

In general, the project received positive comments, and many stakeholders showed their appreciation of the JCM scheme and commended the project participants for implementing the solar power project which is in line with the local government's policy of sustainable infrastructure development of the region especially with hosting of the upcoming Asian Games in 2018. The received comments from the local stakeholders, along with the responses/action to the comments, are listed in the following section.

E.2. Summary of comments received and their consideration

Stakeholders	Comments received	Consideration of comments received
Government of South Sumatera Province	This project is important as it is included to meet the requirement of Olympics Council of Asia (OCA) on Environment for the Asian Games next year. It is also important to keep the frequent maintenance of the facilities.	Regular maintenance will be implemented for the project
Department of	This project is not the first but	(No further action required)

Energy and Mineral Resources of South Sumatera	biggest solar power project in South Sumatera. South Sumatera is planning to adopt more of renewable energy, such as geothermal, hydro and Waste to Energy (PLTSa) power plants.	
Department of Housing and Estates of South Sumatera	The construction of solar PV will be a necessary one as Jakabaring complex requires more electricity such as for the housing around the area.	(No further action required)
PT Jakabaring Sport City	PT Jakabaring Sport City as the operator of the complex supports the solar PV project to contribute towards being environmentally friendly and sustainability. This efforts on energy savings and efficiency should be integrated into all events held in Jakabaring. To light up one stadium in an event, it requires about 90,000 Watt.	(No further action required)
State Electricity Company South Sumatera Area (PT PLN WS2JB)	The construction of Jakabaring Solar PV power plant is in line with PLN program to be environmentally friendly and contribute to realize the target of 22.5% renewable energy by 2025. The existence of Jakabaring Solar PV Plant contributes to securing electricity supply for the area and prevent blackout as electricity demand is expected to increase with development activities including Light Rail Transit.	(No further action required)
Coordinating Ministry of Economic Affairs	Coordinating Ministry of Economic Affairs would like to thank South Sumatera Government and PDPDE for the efforts and support to complete the Solar PV power project on time. Hopefully Jakabaring Sport City can become a role model for sports complex with green energy in the future (Jakabaring itself is the 1st in Indonesia to install Solar PV).	(No further action required)

F. References

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

Annex

Revision history of PDD		
Version	Date	Contents revised
01.0	26/02/2018	First draft
01.1	28/02/2018	Second draft. Added the monitoring number in Figure 2.
02.0	15/10/2018	Updated the PDD using the latest form.