JCM Project Design Document Form

A. Project description

A.1. Title of the JCM project

Introduction of 2.1MW Rooftop Solar Power System in Woodworking Factories

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

The proposed project aims to reduce greenhouse gas (GHG) emissions by introducing a total of approximately 2.1 MW rooftop solar power systems to two woodworking factories operated by PT. AST Indonesia. The factories are located in the KITW Industrial Park on the outskirts of Semarang, Indonesia, approximately 0.6MW is installed in the newly constructed factory (hereafter “Factory 2”) that was built in March 2021, and approximately 1.5MW is installed in the existing factory that has been in operation since 2000 (hereafter “Factory 1”).

These facilities are owned and managed by PT. AST Indonesia, and the electricity generated by these facilities is all consumed internally by the woodworking machinery operating within the factory, replacing some of the electricity supplied from the external power grid. In addition, if the electricity consumed within the factory is less than the amount of electricity generated by the solar panels on the roof, a system is adopted that stops the solar panels on the roof, and no electricity is exported to the external power grid.

This project will install solar modules and inverters, which are solar power generation equipment, as well as a power generation monitoring system that is necessary for calculating GHG reduction amounts.

The proposed project is expected to reduce a total of 15,655 tCO2 by the end of 2034. The actual emission reductions may vary depending on the actual operation of the factories and the sun radiation of the respective project locations.

A.3. Location of project, including coordinates

Country	Republic of Indonesia
Region/State/Province etc.:	Central Java province
City/Town/Community etc:	Semarang City
Latitude, longitude	Latitude : 6°58'14"S Longitude : 110°19'47"E

A.4. Name of project participants

The Republic of Indonesia	PT. AST Indonesia
Japan	Sumitomo Forestry Co., LTD.

A.5. Duration

Starting date of project operation	1 Mar 2024
Expected operational lifetime of project	11 years

A.6. Contribution from Japan

The project has been selected as one of the JCM model projects by the Ministry of the Environment, Japan (MOEJ). As a result, the initial investment cost of the proposed project has been partially financed by Japanese government (up to 50% of the initial investment cost). Further, implementation of the proposed project promotes technology transfer of low carbon power generation technologies within Indonesia. Through the MOEJ program, know-hows on operation and monitoring of solar power generation are transferred to the project sites.

B. Application of an approved methodology(ies)

B.1. Selection of methodology(ies)

Selected approved methodology No.	ID_AM013
Version number	Ver01.0

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 proposed project installed new solar PV systems at the location stated in A.3.
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 all locations (Sharp Solar NU-JD445 for 1st factory and 2nd factory) are certified for design qualifications IEC 61215 and safety qualifications 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.	Power meters (SmartLogger3000A) are installed at the project site to monitor output power of the solar PV systems. Pyranometers (Kipp & Zonen CMP3) are installed at the project site to monitor 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 including national/regional and isolated grids and/or captive electricity	CO_2
Project emissions	
Emission sources	GHG type
Generation of electricity from the solar PV systems	N/A

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

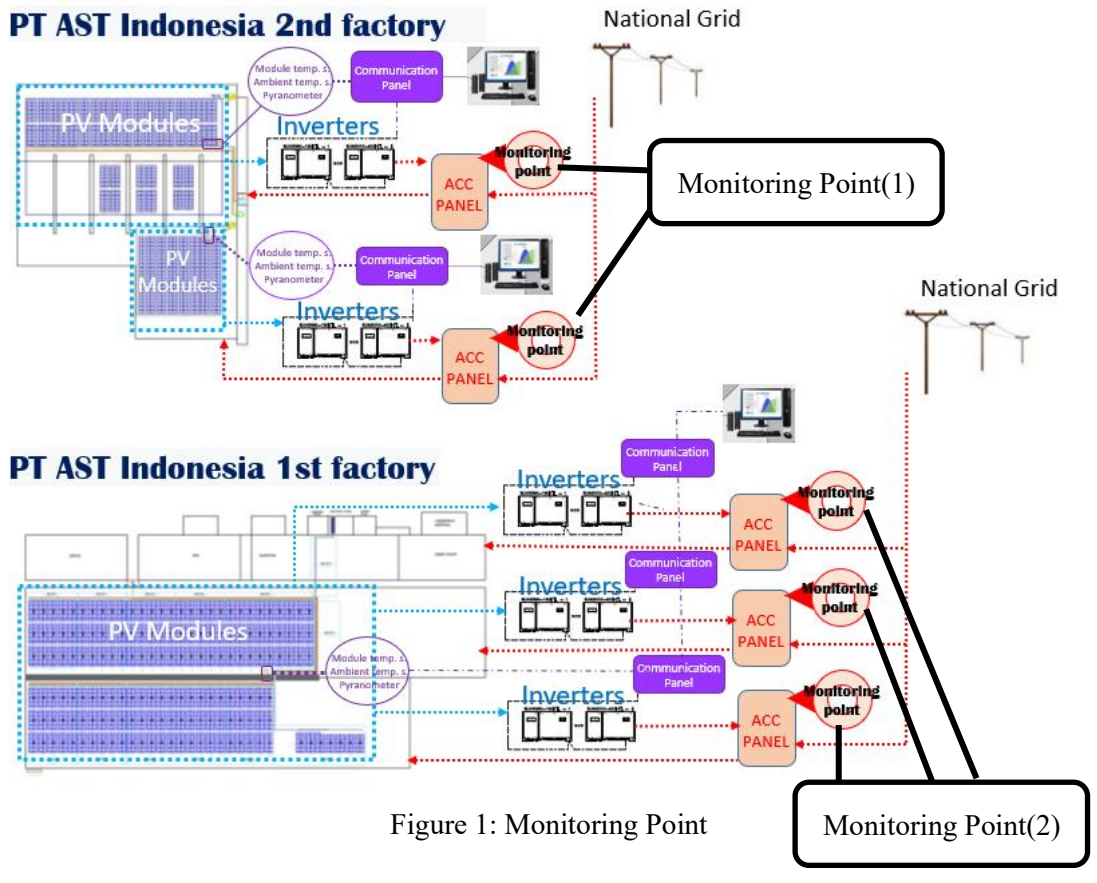

Figure 1: Monitoring Point

C.3. Estimated emissions reductions in each year

Year	Estimated Reference emissions (tCO_2e)	Estimated Project Emissions (tCO_2e)	Estimated Emission Reductions (tCO_2e)
2024	1,365	0	1,365
2025	1,565	0	1,565
2026	1,565	0	1,565
2027	1,565	0	1,565
2028	1,565	0	1,565
2029	1,565	0	1,565
2030	1,565	0	1,565
2031	1,565	0	1,565
2032	1,565	0	1,565
2033	1,565	0	1,565
2034	1,565	0	1,565
2035	200	0	200
Total (tCO_2e)			17,215

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	No

E. Local stakeholder consultation

E.1. Solicitation of comments from local stakeholders

Local stakeholder consultation has been conducted onsite and online, on 20th September 2024. The list of attendees to the meeting has been determined through the consultation with the Indonesia JCM secretariat.
The overview and participants of the meeting are as follows.

Date and Time: 20th September 2024, 9:00-10:20 (Indonesian Western Standard Time)
Place: PT. AST Indonesia meeting room at KITW Technopark/ Teleconference
Agenda:
1. Opening remarks

2. Introduction of participants
3. Overview of the project
4. Concepts of JCM and MRV methodology for the project
5. Q&A and comments from the LSC participants

Participants:

[Local stakeholders]

1. Indonesia JCM Secretariat / Coordinating Ministry for Economic Affairs of Indonesia
2. PT. Kawasan Industri Wijayakusuma
3. PLN UID Jawa Tengah & DIY
4. ESDM Prov. Jawa Tengah
5. Dinas Lingkungan Hidup Kota Semarang
6. Disperindag Provinsi Jateng
7. Kadin Kota Semarang

[Project participants]

1. Sumitomo Forestry Co., Ltd.
2. PT.AST Indonesia
3. PT Indonesia Comnet Plus

Satisfactory responses to the comment received during the consultation meeting was provided at the time of the meeting. There is no further action required as for the consideration of comment received. A summary of the comments received, and consideration of those comments are listed in Section E.2. below.

E.2. Summary of comments received and their consideration

Stakeholders	Comments received	Consideration of comments received
PT. Kawasan Industri Wijayakusuma	The implementation of zero-emission activities like this project is great, and I would like to support other factories to be able to do the same. Can Indonesian companies also use the JCM Financing programme?	To use the JCM Financing programme, the applicant must be a Japanese company based in Japan. It is possible to apply for the subsidy if a consortium is formed between a Japanese company and an Indonesian

		company. However, it is necessary to check whether the JCM can be used because there is a possibility that it cannot be used due to the contract rules with PLN. (No further action is needed)
Semarang Department of Environment	We would like to implement similar initiatives in the other factories, so could you hold a briefing session on the JCM?	The JCM Indonesia Secretariat will also be happy to cooperate. (No further action is needed)
	If we would like to hold a JCM briefing session, should we contact the Japan JCM secretariat? Also, if we hold a briefing session, we would like PT. AST to explain the content of the JCM initiative.	The Indonesia JCM Secretariat will provide support. (No further action is needed)
ESDM Prov. Jawa Tengah	Please keep the data on the amount of energy generated by the solar PV, as it may be needed at some point. If you need a licence, please get it as soon as possible.	PT. AST Indonesia will be responsible for data storage and licence management. (No further action is needed)
PLN UID Jawa Tengah & DIY	According to PLN regulations, there is a limit to the capacity of solar PV that can be introduced, and this figure is reviewed in July and January. If you are applying for a permit, please do so by July or January.	
Indonesia JCM Secretariat	I just want to ask for (the total amount of demand), the designed capacity and installed capacity (due to PLN regulation), if the PP could include them in the PDD.	The rooftop solar power generation project at PT. AST Indonesia was approved as a JCM subsidy project in August 2021. At the time of application, the electricity demand was approximately 23 MWh per month on average at the first factory (actual value for 2020) and 15 MWh

		per month on average at the second factory (planned value). At the time, the solar power generation design capacity was 2.0 MW for the first factory and 1.3 MW for the second factory, for a total of 3.3 MW. The installation of solar power generation facilities began in August 2023 at the second plant with a capacity of 0.2 MW. On September 8, 2023, a notification was issued by the main distribution department of PT PLN (Persero) that oversees Central Java and the Special Region of Yogyakarta, the maximum installed capacity of inverters (Plant 1: 1,300 kW, Plant 2: 560 kW) was issued by the main distribution department, and accordingly, installation work was carried out by PT. Indonesia Comnet Plus from November 2023. (No further action is needed)

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	Xx/xx/2024	First edition