Gold Standard for the Global Goals

TEMPLATE

MONITORING REPORT

PUBLICATION DATE **14.10.2020**

VERSION **v. 1.1**

RELATED SUPPORT **- TEMPLATE GUIDE Monitoring Report v. 1.1**

This document contains the following Sections

Key Project Information

GS ID (s) of Project (s)	GS7553
Title of the project (s) covered by monitoring report	42 MWp Bundled Solar Photovoltaic Power project in Indonesia
Version number of the PDD/VPA-DD (s) applicable to this monitoring report	Version 03
Version number of the monitoring report	2
Completion date of the monitoring report	06/10/2022
Date of project design certification	22/12/2020
Date of Last Annual Report	NA
Monitoring period number	02
Duration of this monitoring period	01/01/2021 to 30/06/2022
Project Representative	Kosher Climate India Private Limited
Host Country	Indonesia
Activity Requirements applied	☐ Community Services Activities ☒ Renewable Energy Activities ☐ Land Use and Forestry Activities/Risks & Capacities ☐ N/A
Methodology (ies) applied and version number	ACM0002 "Grid-connected electricity generation from renewable sources" (Version 20.0)
Product Requirements applied	☒ GHG Emissions Reduction & Sequestration ☐ Renewable Energy Label ☐ N/A

Table 1 - Sustainable Development Contributions Achieved

Sustainable Development Goals Targeted	SDG Impact	Amount Achieved	Units/ Products
SDG 3	Community development Activities	18	Nos
SDG 7	Renewable Electricity Generated	92,850	MWh

SDG 8	Trainings provided to O&M staff	63	Nos
	Cost Spent on O&M	4.044	Million USD
	Number of Jobs generated	69	Nos
SDG 13	Emission Reduction	84,614	tCO_2e

Table 2 – Product Vintages

		Amount Achieved		
Start Dates	**End Dates**	**GS VER**	**NA**	**NA**
01/01/2021	31/12/2022	56,349	-	-
01/01/2022	30/06/2022	28,265	-	-

SECTION A. DESCRIPTION OF PROJECT

A.1. General description of project

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The project is a bundled project which involves installation of 4 solar project in Indonesia. The details of the four projects are given below:

No	Developer	Capacity	Location	Commissioning date	Grid Connected
1	PT Infrastruktur Terbarukan Adhiguna (ITA)	7 MWp/ 5.4 MWac	Cemporonan sub-village, Pringgabaya Utara village, Pringgabaya district, Lombok Timur regency, Nusa Tenggara Barat province, Indonesia	22-Jul-19	Lombok (in West Nusa Tenggara)
2	PT Infrastruktur Terbarukan Buana (ITB)	7 MWp/ 5.4MWac	Geres Baret sub-village, Geres village, Labuhan Haji district, Lombok Timur regency, Nusa Tenggara Barat province, Indonesia	2-July-19	
3	PT Infrastruktur Terbarukan Cemerlang (ITC)	7 MWp/ 5.4 MWac	Sengkol 1 sub-village, Sengkol village, Pujut district, Lombok Tengah regency, Nusa Tenggara Barat province, Indonesia	2-July-19	
4	PT Infrastruktur Terbarukan Lestari (ITL)	21 MW/ 15.3 MWac	Wineru Village, Likupang Timur District, Minahasa Utara Regency, Sulawesi Utara Province, Indonesia	05-Sep-2019	Sulutgo (in north Sulawesi and Gorontalo)

The purpose of the project activity is to generate electrical power through operation of solar power plants with the cumulative capacity of 42 MWp/32.6 MWac.

ITA, ITB & ITC projects are commissioned on 2nd July 2019 and ITL project was commissioned on 5th September 2019. The project proponent has chosen the 1st crediting period from 02/07/2019 to 01/07/2024

The project activity generates clean electricity with utilization of solar energy. The electricity generated by the project is exported to the Lombok & Sulutgo regional Grid of Indonesia as mentioned in the above table. In baseline scenario, the equivalent amount of electricity was generated from grid connected power plants. The project activity displaces an equivalent amount of electricity that would have otherwise been generated by fossil fuel dominant electricity grid and thereby has resulted in reduction of the associated CO2 emissions.
Among the 4 projects, ITL is also registered under International REC (I-REC) mechanism (Device ID: LIKUSP01[1]) and the I-REC credits are issued during the following period in the monitoring period

- From 01/01/2021 to 31/01/2021

However, PP did not claim GS VER for the period REC is claimed to avoid double counting.

The monitoring of SDG indicators has been carried out in accordance to the registered PDD. The present monitoring period is from 01/01/2021 to 30/06/2022 through which emission reduction claimed is 84,614 tCO_2e.

A.2. Location of project

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Project	Capacity	Region/Province	City/Town/Community	Geographical Location

[1] https://evident.services/device-register/LIKUSP01

ITA	7 MWp	Nusa Tenggara Barat Province	Camporonan sub-village, Pringgabaya Utara village, Pringgabaya district, Lombok Timur regency	8.519° S 116.634° E
ITB	7 MWp	Nusa Tenggara Barat Province	Geres Baret sub-village, Geres village, Labuhan Haji district, Lombok Timur regency	8.658° S 116.574° E
ITC	7 MWp	Nusa Tenggara Barat Province	Sengkol 1 sub-village, Sengkol village, Pujut district, Lombok Tengah regency	8.794° S 116.294° E
ITL	21 MWp	Sulawesi Utara Province	Wineru Village, Likupang Timur District, Minahasa Utara Regency	1.658° N 125.096° E

A.3. Reference of applied methodology

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Title: Consolidated baseline and monitoring methodology for "Grid-connected electricity generation from renewable sources"

References: Approved consolidated baseline methodology ACM0002 "Grid-connected electricity generation from renewable sources" (Version 20.0[2])

A.4. Crediting period of project

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Type of Crediting Period: Renewable
Start date of the crediting period: 02/07/2019 (Retroactive crediting start date)
Length of the current crediting period: 5 years

[2] https://cdm.unfccc.int/methodologies/DB/XP2LKUSA61DKUQC0PIWPGWDN8ED5PG

SECTION B. IMPLEMENTATION OF PROJECT

B.1. Description of implemented project

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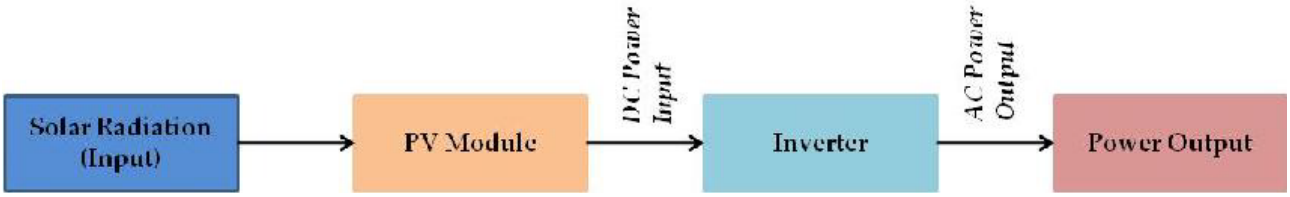
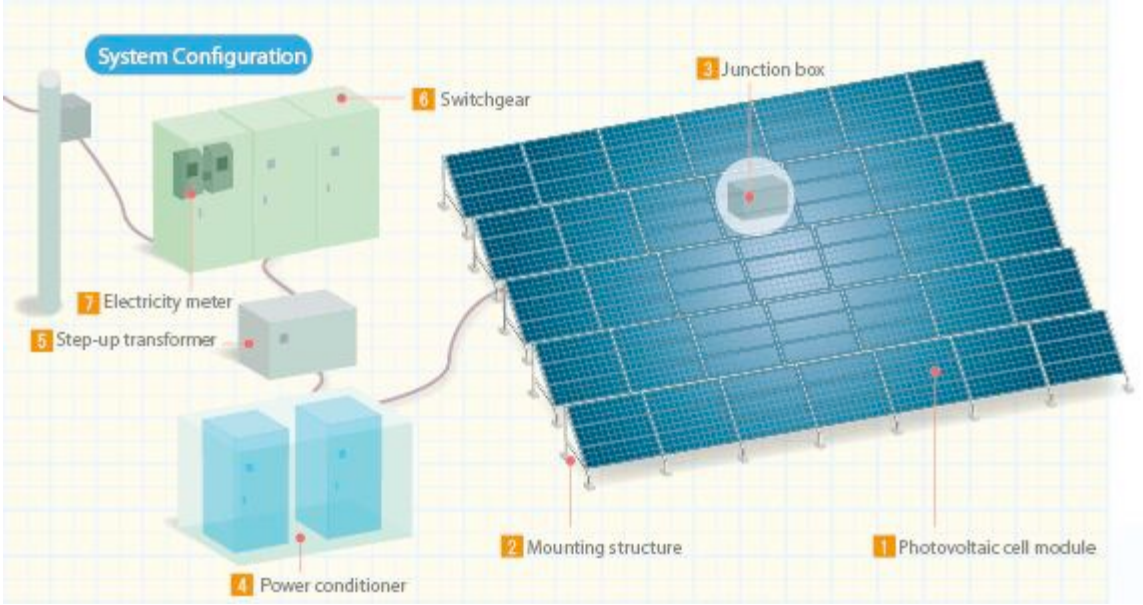
Photovoltaic (PV) is a method of generating electrical power by directly converting sunlight into electricity. This conversion is facilitated by special semiconductor material which exhibit photoelectric effect. PV modules which are made up of the semiconductor material are used for power generation. The semiconductor materials used for the modules could be monocrystalline silicon, polycrystalline silicon, amorphous silicon, cadmium telluride and copper indium selenide/sulphide. Currently all the panels erected at the project activity uses polycrystalline modules. The project activity is the installation of an environmentally safe and sound technology since there are no GHG emissions associated with the electricity generation.

The technical specifications as below.



The Project would generate electricity by converting solar radiations into electricity using photo – electric properties of silicon semiconductors. Grid connected solar PV project employs two-step process for converting solar radiations into AC power to be fed into the grid. The process flow of power generation process in a PV plant is as depicted below.



A grid connected PV project typically has solar modules, inverters, unit control switchboard, energy meter and transformer as main components.

The solar PV power plant has solar PV modules, inverters, transformers and other protection system and supporting components as under:

Project	**ITA**	**ITB**	**ITC**	**ITL**
Solar PV modules				
Solar PV modules (Make)	Trina Solar	Trina Solar	Trina Solar	Trina Solar
Technology	Polycrystalline	Polycrystalline	Polycrystalline	Polycrystalline
Capacity	325 Wp	325 Wp	325 Wp	325 Wp
No. Of Modules	21,560	21,560	21,560	64,720
Capacity, MW (DC)	7.007 MWp	7.007 MWp	7.007 MWp	21.034 MWp
Inverter				
Input voltage of inverter	550 - 885 V	550 - 885 V	550 - 885 V	550 - 885 V
Rated output voltage of	380 V	380 V	380 V	380 V
Inverter output (min)	680 kWac	680 kWac	680 kWac	680 kWac
Number of Inverter	8	8	8	24
Total AC Capacity	5.44 MW	5.44 MW	5.44 MW	16.32 MW
Inverter Transformer				
Capacity	1.360 kVA	1.360 kVA	1.360 kVA	1.360 kVA
Input Voltage range	100 -380 V	100 -380 V	100 -380 V	100 -380 V
Output Voltage	20k V	20k V	20k V	20k V
Number of transformers	4	4	4	4
Power Transformer				
Capacity	NA	NA	NA	20 MVA
Input/ Output Voltage	NA	NA	NA	20 kV/66kV
Number of transformers	NA	NA	NA	1
Grid Connection				
Interconnection Voltage	20 kV	20 kV	20 kV	66 kV

Transmission line	3 km	6 km	2.1 km	0.2 km
Substation	150/20kV Pringgabaya	150/20kV Selong	150/20kV Sengkol	66/20kV Likupang
Total Capacity, MW (DC)	42 MWp			
Total Capacity, MW (AC)	32.6 MWac			

The average lifetime of the project is around 25 years as per the equipment supplier specifications. The plant load factor assessed at project sites as below:

Project	**ITA**	**ITB**	**ITC**	**ITL**
PLF (DC)	17.17%	18.02%	17.97%	17.70%
Generation	10,526 MWh	11,047 MWh	11,018 MWh	32561 MWh

The total annual net generation is estimated to be 65,152 MWh
In the absence of the project activity the equivalent amount of electricity sold to grid would have been generated by grid connected power plants from the respective grid, which is predominantly based on fossil fuels, hence baseline scenario of the project activity is the grid-based electricity system, which is also the pre-project scenario.

The project is registered on 22/12/2020 under Gold Standard. There are no changes from the project design that was envisaged at Design Certified PDD

Among the 4 projects, ITL is also registered under International REC (I-REC) mechanism (Device ID: LIKUSP01[3]) and the I-REC credits are issued during the following period

- From 01/01/2021 to 31/01/2021

PP do not claim GS VER for the above-mentioned period to avoid double counting.

B.1.1 Forward Action Requests
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[3] https://evident.services/device-register/LIKUSP01

This is the second verification of the project. The following FAR has been raised during the 1st performance review:

Forward Action Requests	Response
The VVB shall conduct site visit and confirm physical implementation of the project activity and technical features of the project equipment and monitoring meters.	VVB to check the same
The VVB shall conduct interviews with local stakeholders to confirm the grievances and community development activities.	VVB to check the same.
The verifying VVB shall check the double counting of credits and confirm that the credits are not being claimed for the same GHG emission reduction under any other market mechanisms (Carbon and Renewable Energy Certificate).	Among the 4 projects, the ITL project is also registered under International REC (I-REC) mechanism (Device ID: LIKUSP01[4]) and the I-REC credits are issued during the following period • From 01/01/2021 to 31/01/2021 The electricity generation for the above period is not considered for the GS VER calculation to avoid double counting. The project is not registered under any other market mechanism.

B.2. Post-Design Certification changes

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B.2.1. Temporary deviations from the approved Monitoring & Reporting Plan, methodology or standardized baseline

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[4] https://evident.services/device-register/LIKUSP01

No temporary deviation is applied

B.2.2. Corrections

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Not applicable

B.2.3. Changes to start date of crediting period

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Not applicable

B.2.4. Permanent changes from the Design Certified monitoring plan, applied methodology or applied standardized baseline

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Not applicable

B.2.5. Changes to project design of approved project

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Not applicable

SECTION C. DESCRIPTION OF MONITORING SYSTEM APPLIED BY THE PROJECT

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PP has dedicated O&M team in site for the operation and maintenance of solar power plants. The O&M team is technically well-equipped and it will take care of day-to-day Operation and maintenance of power plant. O&M team will provide a monthly report, which includes generation data, major breakdown events and machine availability.

All the four project activities have entered a power purchase agreement with PLN for a period of 30 years. The electricity is fed to the Lombok & Sulutgo regional Grid of Indonesia. Monitoring consists of metering the net electricity supplied to the grid ($EG_{facility,y}$). This parameter is based on the Monthly energy generation statement issued by PLN (BA-I or JMR).

Metering

The project activity includes metering at the respective substation managed by PLN & PP. The electricity generated is supplied to grid. The electricity exported & imported from each line are measured by Energy meters (main meter) installed at each project in the respective substation. The reading is recorded and the difference from last month reading gives the number of units imported/exported.

In each line, a check meter is installed which reading will be considered for billing when the main meter is found to be malfunctioning.

All the meters used in the project activity will be calibrated on an at least once in 5 years.

Recording

The energy meter reading (both export & import) will be recorded by PLN & PP. The difference between current reading and previous month reading will be determined. Based on the energy meter reading, a Monthly energy generation statement will be issued by PLN (BA-I or JMR). The PP will then raise monthly electricity sales invoices to PLN based on the BA-I reading.

Quality Check:

The monitored data will be reported by the PP to the GS consultant on a monthly basis for the calculation and estimation of emission reductions. This data will be checked against invoices raised.

Data storage and Archiving

In accordance with the methodology all the data collected during the crediting period will be archived electronically and kept for at least two years after the end of crediting period.

SECTION D. DATA AND PARAMETERS

D.1. Data and parameters fixed ex ante or at renewal of crediting period

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Data/Parameter	**$EF_{Lombok,CM,y}$**
Unit	tCO_2/MWh
Description	Combined margin CO_2 emission factor for the Lombok grid in the year y
Source of data	Data published By Directorate General of Electricity (Ministry of Energy and Mineral Resources or DNA Indonesia) https://gatrik.esdm.go.id//frontend/download_index/?kode_category=emisi_pl
Value(s) applied	0.93
Choice of data or measurement methods and procedures	This has been calculated based on Operating Margin (OM) and Build Margin (BM). Since the ITA, ITB & ITC projects are connected to the Lombok power grid, the combined margin emission factor of the Lombok power grid has been considered. The data is published during the year 2018 Which is the latest data available during validation.
Purpose of data	Calculation of baseline emissions
Additional comment	The value is fixed ex-ante

Data/Parameter	**$EF_{Sulutgo,CM,y}$**

Unit	tCO_2/MWh
Description	Combined margin CO_2 emission factor for the Sulutgo grid in the year y
Source of data	Data published By Directorate General of Electricity (Ministry of Energy and Mineral Resources or DNA Indonesia) https://gatrik.esdm.go.id//frontend/download_index/?kode_category=emisi_pl
Value(s) applied	0.94
Choice of data or measurement methods and procedures	This has been calculated based on Operating Margin (OM) and Build Margin (BM). Since the ITL project is connected to the Sulutgo power grid, the combined margin emission factor of the Lombok power grid has been considered. The data is published during the year 2018. Which is the latest data available during validation.
Purpose of data	Calculation of baseline emissions
Additional comment	The value is fixed ex-ante

D.2 Data and parameters monitored

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SDG 7 & 13:

Data/parameter:	**$EG_{facility,y}$**
Unit	MWh
Description	Quantity of net electricity supplied to the grid during the year y.
Measured/calculated/default	Measured
Source of data	Monthly energy generation statement issued by PLN. These are called JMR (Joint Meter Reading) or BA-I
Value(s) of monitored parameter	<table><tr><th>Year</th><th>ITA</th><th>ITB</th><th>ITC</th><th>ITL</th><th>Total</th></tr><tr><td>Year 2021</td><td>11,096</td><td>11,514</td><td>10,471</td><td>27,220 *</td><td>60,301</td></tr><tr><td>Year 2022</td><td>5,265</td><td>5,424</td><td>5,396</td><td>14,157</td><td>30,242</td></tr></table> *excluding Jan 2021 (which is claimed under I-REC)
Monitoring equipment	Monitoring equipment: Energy meters

<table>
<tr><td></td><td>Metering Location: Substation
Accuracy of Energy meters: 0.2
Monitoring Method: recording export & import in “generation statement”
This statement includes, monthly recording of electricity export & import.</td></tr>
<tr><td>Measuring/reading/recording frequency:</td><td>Measurement: Continuous
Recording: Monthly</td></tr>
<tr><td>Calculation method (if applicable):</td><td>Net electricity supplied will be calculated based on the difference between values of “export” and “import” on the energy meter at the sub-station (evacuation point).
(Net Electricity = Export – Import)
The net electricity will be calculated by PLN and provided in the monthly generation statement. Hence, the net electricity reading will be directly sourced from the monthly generation statement.</td></tr>
<tr><td>QA/QC procedures:</td><td>Net electricity supplied to the grid by the project activity has been cross checked with invoices. The energy meters are calibrated as per the minimum calibration frequency mentioned in the PDD. The calibration details are mentioned below:

<table>
<tr><th>Project</th><th>Meter Number</th><th>Accuracy class</th><th>Calibration date</th><th>Validity</th></tr>
<tr><td>ITA</td><td>217083977</td><td>0.2</td><td>02/03/2018</td><td>01/03/2023</td></tr>
<tr><td></td><td></td><td></td><td>16/11/2021</td><td>15/11/2026</td></tr>
<tr><td>ITB</td><td>218247076</td><td>0.2</td><td>02/03/2018</td><td>01/03/2023</td></tr>
<tr><td></td><td></td><td></td><td>16/11/2021</td><td>15/11/2026</td></tr>
<tr><td>ITC</td><td>218247075</td><td>0.2</td><td>02/03/2018</td><td>01/03/2023</td></tr>
<tr><td></td><td></td><td></td><td>16/11/2021</td><td>15/11/2026</td></tr>
<tr><td>ITL</td><td>MW-1807A438-02</td><td>0.2</td><td>12/12/2018</td><td>11/12/2023</td></tr>
<tr><td></td><td></td><td></td><td>29/06/2021</td><td>28/06/2026</td></tr>
</table>
As per the table above, the calibration is valid for the entire monitoring period.</td></tr>
<tr><td>Purpose of data:</td><td>Baseline emission calculation</td></tr>
</table>

Additional comments:	The project is also registered under International REC (I-REC) mechanism (Device ID: LIKUSP01) and the I-REC credits are issued during the following period • From 01/01/2021 to 31/01/2021 The electricity generation for the above period is not considered for the GS VER calculation to avoid double counting

SDG 3:

Data/parameter:	**Good Health & Well being**
Unit	Nos
Description	Community Development Activities
Measured/calculated/default	Measured
Source of data	CSR records and photographic evidence
Value(s) of monitored parameter	Period: 01/01/2021 to 21/12/2021 — Number of community development activities: 11 Period: 01/01/2022 to 30/06/2022 — Number of community development activities: 7
Monitoring equipment	NA
Measuring/reading/recording frequency:	Yearly once
Calculation method (if applicable):	-
QA/QC procedures:	The data crosschecked annually with the CSR records by the consultant
Purpose of data:	To monitor the contribution to SDG 3 (Ensure healthy lives and promote well-being for all at all ages)
Additional comments:	-

SDG 8:

Data/parameter:	Quality of employment
Unit	Nos
Description	Trainings provided to employees & O&M staffs
Measured/calculated/default	Measured
Source of data	HR records

Value(s) of monitored parameter	<table><tr><td>Period</td><td>Number of Training provided</td></tr><tr><td>01/01/2021 to 21/12/2021</td><td>59</td></tr><tr><td>01/01/2022 to 30/06/2022</td><td>4</td></tr></table>
Monitoring equipment	NA
Measuring/reading/recording frequency:	Yearly once
Calculation method (if applicable):	-
QA/QC procedures:	The data crosschecked annually with the CSR records by the consultant
Purpose of data:	To monitor the contribution to SDG 8 (Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all)
Additional comments:	-

SDG 8

Data/parameter:	Quantitative employment and income generation
Unit	• Number of O&M staffs involved in the project • Cost spent for O&M
Description	• Total employment generated due to the implementation of project activity and • The amount spent for O&M activities due to the project.
Measured/calculated/default	Measured
Source of data	Plant employment records
Value(s) of monitored parameter	<table><tr><td>Period</td><td>Number of staffs</td><td>Cost Spent in O&M (Mn USD)</td></tr><tr><td>01/01/2021 to 21/12/2021</td><td>69</td><td>2.696</td></tr><tr><td>01/01/2022 to 30/06/2022</td><td>69</td><td>1.348</td></tr></table>
Monitoring equipment	NA
Measuring/reading/recording frequency:	Yearly once
Calculation method (if applicable):	-

QA/QC procedures:	-
Purpose of data:	To monitor the contribution to SDG 8 (Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all)
Additional comments:	-

D.3. Comparison of monitored parameters with last monitoring period

Data/Parameter	Value obtained in this monitoring period	Value obtained last monitoring period
$EG_{facility,y}$	92,850 MWh	94,230 MWh
Good Health & Well Being	18 Community development activities	53 Community development activities
Quality of Employment	63 Training provided to O&M staff	125 Training provided to O&M staff
	69 employments provided	79 employments provided
	4.044 Mn USD spent on O&M	0.893 Mn USD spent on O&M

D.4. Implementation of sampling plan

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Not applicable

SECTION E. CALCULATION OF SDG IMPACTS

E.1. Calculation of baseline value or estimation of baseline situation of each SDG Impact

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SDG 3 Good Health and Well-Being:

The monitoring parameter for the SDG 3 is the community development activities like Health Camps, Knowledge and information dissemination regarding natural disasters. Since baseline and pre-project scenario are same, in the baseline condition no community development activities would have undertaken in the project location. Hence, the baseline value is zero.

Vintage	Baseline Value
	Number of community development activities
01/01/2021 to 31/12/2021	0
01/01/2022 to 30/06/2022	0
Total	0

SDG 7 Affordable and Clean Energy:

The monitoring parameter for the SDG 7 is Quantity of net electricity supplied to the grid during the year y. Since baseline and pre-project scenario are same, in the baseline condition no renewable electricity will be supplied to grid from the project location. Hence, the baseline value is zero.

Vintage	Baseline Value
	Quantity of net electricity supplied to the grid (MWh)
01/01/2021 to 31/12/2021	0
01/01/2022 to 30/06/2022	0
Total	0

SDG 8: Decent Work and Economic Growth

The monitoring parameter for the SDG 8 are Number of trainings provided to employees & O&M staff, Cost spent for O&M and Number of O&M staffs involved in the project. Since baseline and pre-project scenario are same, in the baseline condition these values are zero.

Vintage	Baseline Value		
	Number of training (Nos)	Cost Spent on O&M (Lakh INR)	Number of O&M Staff (Nos)
01/01/2021 to 31/12/2021	0	0	0
01/01/2022 to 30/06/2022	0	0	0
Total	0	0	0

SDG 13 Climate Actions

The monitoring parameter for the SDG 13 is GHG emission reduction. The baseline GHG emission is estimated as below:

The baseline emission is calculated in line with para 39 of AC0002, Version 20, using equation below

$$BE_y = EG_{PJ,y} . EF_{grid,CM.y}$$

Where,

BE_y = Baseline emissions in year y (tCO_2/yr)

$EG_{PJ,y}$ = Quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the CDM project activity in year y (MWh/yr).

$EF_{grid,CM,y}$ = Combined margin CO_2 emission factor for grid connected power generation in year y calculated using the latest version of the "Tool to calculate the emission factor for an electricity system" (tCO_2/MWh)

AS per para 41 of ACM0002, version 20, when the project activity is installation of Greenfield power plant, then:

$$EG_{PJ,y} = EG_{facility,y}$$

Where,

$EG_{facility,y}$ = Quantity of net electricity generation supplied by the project plant/unit to the grid in year y (MWh/yr)

The Electricity export & import are monitored is monitored continuously and reported monthly in the JMR/BA I. The monthly reported export & import values as per JMR/ BA I and net generation calculation are given below:

Year	Net Generation (MWh)	Grid Emission Factor (tCO2/MWh)	Baseline emission (tCO2)
ITA			
Year 2021	11,096	0.93	10,319
Year 2022	5,265	0.93	4,896
ITB			
Year 2021	11,514	0.93	10,707
Year 2022	5,424	0.93	5,044
ITC			
Year 2021	10,471	0.93	9,737
Year 2022	5,396	0.93	5,018
ITL			
Year 2021	27,220	0.94	25,586
Year 2022	14,157	0.94	13,307
Total	**90,543**		**84,614**

E.2. Calculation of project value or estimation of project situation of each SDG Impact

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SDG 3 Good Health and Well-Being:

The monitoring parameter for the SDG 3 is community development activities like Health Camps, Knowledge and information dissemination regarding natural disasters. There are 4 community development activities undertaken by PP during the monitoring period. The CSR records are submitted to DOE.

Vintage	Project Value
	Number of community development activities
01/01/2021 to 31/12/2021	11
01/01/2022 to 30/06/2022	7
Total	**18**

SDG 7 Affordable and Clean Energy:

The monitoring parameter for the SDG 7 is Quantity of net electricity supplied to the grid during the year y. In the project situation, the project supplied 92,850 MWh electricity during the monitoring period. This can be crosschecked from JMR/BA I & Invoices.

Vintage	Project Value
	Quantity of net electricity supplied to the grid (MWh)
01/01/2021 to 31/12/2021	62,608
01/01/2022 to 30/06/2022	30,242
Total	92,850

SDG 8: Decent Work and Economic Growth

The monitoring parameter for the SDG 8 are Number of training provided to employees & O&M staff, Cost spent for O&M & Number of O&M staffs involved in the project. During the project scenario, the following is achieved:

Vintage	Project Value		
	Number of training (Nos)	Cost Spent on O&M (Mn USD)	Number of O&M Staff (Nos)
01/01/2021 to 31/12/2021	59	2.696	69
01/01/2022 to 30/06/2022	4	1.348	69
Total	**63**	**4.044**	**69**

These can be crosschecked from the training records, O&M contract & employment records.

SDG 13 Climate Actions

As per the approved consolidated Methodology ACM0002 (Version 20.0,) para 31:

"For most renewable energy power generation project activities, $PE_y = 0$. However, some project activities may involve project emissions that can be significant. These emissions shall be accounted as project emissions by using the following equation:

$$PE_y = PE_{FF,y} + PE_{GP,y} + PE_{HP,y}$$

Where:

PE_y = *Project emissions in year y (t CO_2e/yr)*

$PE_{FF,y}$ = *Project emissions from fossil fuel consumption in year y (t CO_2/yr)*

$PE_{GP,y}$ = *Project emissions from the operation of dry, flash steam or binary geothermal power plants in year y (t CO_2e/yr)*

$PE_{HP,y}$ = *Project emissions from water reservoirs of hydro power plants in year y (t CO_2e/yr)"*

As the project activity is the installation of a new grid-connected Solar power plant/ unit and does not involve any project emissions from fossil fuel, operation of dry, flash steam or binary geothermal power plants, and from water reservoirs of hydro power plants. Therefore $PE_{FF,y}$, $PE_{GP,y}$, $PE_{HP,y}$ are equal to zero and thus, $PE_y = 0$

Vintage	Project Emission (tCO2e)

01/01/2021 to 31/12/2021	0
01/01/2022 to 30/06/2022	0
Total	**0**

E.3. Calculation of leakage

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As per PDD, no source of leakage emissions identified under proposed project activity.

Hence, LEy= 0

Vintage	Leakage (tCO2e)
01/01/2021 to 31/12/2021	0
01/01/2022 to 30/06/2022	0
Total	**0**

E.4. Calculation of net benefits or direct calculation for each SDG Impact

SDG	SDG Impact	Baseline estimate	Project estimate	Net benefit
SDG 3	Local development Activities (Nos)	0	18	18
SDG 7	Renewable Electricity Generated (MWh)	0	92,850	92,850
SDG 8	Trainings provided to O&M staff (Nos)	0	63	63
	Cost Spent on O&M (Million USD)	0	4.044	4.044
	Number of Jobs generated	0	69	69
SDG 13	Emission Reduction (tCO2e)	84,614	0	84,614

E.5. Comparison of actual SDG Impacts with estimates in approved PDD

SDG	Values estimated in ex ante calculation of approved PDD for this monitoring period	Actual values[5] achieved during this monitoring period
3	4 local development activities	18 local development activities

[5] Whenever emission reductions are capped, both the original and capped values used for calculations must be transparently reported. Use brackets to denote original values.

7	96,491 MWh electricity generation	92,850 MWh electricity generation
8	3 Training provided to O&M Staff	69 Training provided to O&M Staff
8	0.7 million USD spent on O&M	4.044 million USD spent on O&M
8	80 jobs created	63 jobs created
13	90,217 tCO_2e emission reduction	84,614 tCO_2e emission reduction

E.5.1. Explanation of calculation of value estimated ex ante calculation of approved PDD for this monitoring period

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The estimated value is based on the estimated value provided for 1 year in the PDD and the actual number of operating days in the monitoring period. The calculation is provided below.

SDG Goal	SDG 3	SDG 7	SDG 8			SDG 13
SDG Impact	Local development activities (Nos)	Electricity generated (MWh)	Trainings provided to O&M staff (Nos)	Money spent on O&M (Mn USD)	Jobs Created (Nos)	Emission reduction (tCO2)
Estimation as per PDD (for 1 year)	3	64,504	2	0.5	80	60,310
Number of days in the monitoring period	546	546	546	546	546	546
Estimation for the monitoring period	4	96,491	3	0.7	80	90,217

E.6. Remarks on increase in achieved SDG Impacts from estimated value in approved PDD

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For SDG 13, the actual emission reduction for the monitoring period is lower than the estimated emission reduction as per PDD. This is due to the higher emission factor applicable for the year 2020.

The net benefit of SDG 3 (number of community development activities) and SDG 8 (Number of Training provided) is higher than the estimated value in the PDD. This is mainly due to conservative estimation considered in the PDD.

For other SDGs, the actual monitored parameters values are less than the estimated value. Hence no further justification is required.

SECTION F. SAFEGUARDS REPORTING

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Safeguarding Principle 8.2: Erosion and/or Water Body Instability &

Safeguarding Principle 9.5 (Hazardous and Non-hazardous Waste)

Data/parameter:	Mitigation Measure for Soil Erosion & contamination
Mitigation Measures followed	**General soil erosion and sediment control measures would include:** • Keep open areas of excavation to a minimum and construction activities restricted to dry months to avoid heavy rainfalls; • Using existing roads and lanes used by land owner. • Stockpiles of materials placed away from drainage lines and formed with sediment control structures placed immediately down slope; • Construction debris and excavated material were cleared up at regular intervals • Excavated material stock piled and used for backfilling of foundations, platforms etc. • Minimization of traffic in construction zones and use of a dedicated parking area, i.e site compound; • Re-vegetation taken up as necessary after construction, in order to reduce the risk of soil erosion. **Specific mitigation measures followed in the operational phase of the project:** • Proper drainage controls such as culverts, cut-off trenches shall be used to ensure proper management of surface water runoff to prevent erosion. • Waste oil generated shall be stored separately in containers in a secured location in the maintenance room. The storage location and the containers are properly marked. • The waste / used waste oil from the transformers to be disposed of to a authorized vendor. • A hazardous waste inventory is maintained as per the provisions of appropriate rules. The possibility of soil erosion due to the project operation is negligible to none. Hence, does not involve many mitigation measures.
Source	Interview with maintenance staff.
Additional comments:	-

Safeguarding Principle 9.5 Hazardous and Non-hazardous Waste

Data/parameter:	Mitigation measure for Landscape visual impact
Mitigation measures followed	As per ESIA report, the following management measures shall be followed: • Provision of proper temporary storage for hazardous waste • Waste segregation • Waste disposal by an appointed/accredited waste disposer company
Source	Interview with maintenance staff.
Additional comments:	-

Safeguarding Principle 9.1 Landscape Modification and Soil

Data/parameter:	Mitigation measure for Landscape visual impact
Mitigation Measures Followed	As per ESIA report, the following management measures shall be followed: • Detailed ESIA study conducted to understand if any of the location needs to be altered. • Locals were consulted wherever the solar power plant location or access road was in vicinity to a settlement. • Drainage facilities are constructed in the plant in order to reduce the risk of soil erosion.
Source of data	Project Grievance register, or interview with local villagers
Additional comments:	-

SECTION G. STAKEHOLDER INPUTS AND LEGAL DISPUTES

G.1. List all Inputs and Grievances which have been received via the Continuous Input and Grievance Mechanism together with their respective responses/mitigations.

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No grievances received during the monitoring period.

G.2. Report on any stakeholder mitigations that were agreed to be monitored.

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Not applicable

G.3. Provide details of any legal contest that has arisen with the project during the monitoring period

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No legal contest or dispute arisen with the project during the monitoring period.

Revision History

Version	Date	Remarks
1.1	14 October 2020	Hyperlinked section summary to enable quick access to key sections Improved clarity on Key Project Information Section for POA monitoring Forward action request section Improved Clarity on SDG contribution/SDG Impact term used throughout Clarity on safeguard reporting Clarity on design changes Leakage section added for VER/CER projects Addition of Comparison of monitored parameters with last monitoring period Provision of an accompanying Guide to help the user understand detailed rules and requirements
1.0	10 July 2017	Initial adoption