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

Key Project Information

GS ID (s) of Project (s)	GS5928
Title of the project (s) covered by monitoring report	2x50 MW Orange Suvaan Solar Photovoltaic Power Project in Maharashtra, India
Version number of the PDD/VPA-DD (s) applicable to this monitoring report	05
Version number of the monitoring report	02.1
Completion date of the monitoring report	20/10/2021
Date of project design certification	01/08/2018
Date of Last Annual Report	NA
Monitoring period number	03
Duration of this monitoring period	(01/02/2020) to (31/03/2021)
Project Representative	Orange Suvaan Energy Private Limited
Host Country	India
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 17.0
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
SDG7	Renewable Electricity Generated	234,462	MWh

SDG8	Trainings Provided to O&M Staff	28	Nos
	Cost Spent on O&M	1581	Lakh INR
	No of Jobs generated	93	Nos
SDG 13	Emission Reductions	229,232	tCO_2e

Table 2 – Product Vintages

		Amount Achieved		
Start Dates	**End Dates**	**GSVER**	**NA**	**NA**
01/02/2020	31/12/2020	173,991	-	-
01/01/2021	31/03/2021	55,241	-	-

SECTION A. DESCRIPTION OF PROJECT

A.1. General description of project

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The project activity is a 100 MW (50 X 2 phases) solar power project promoted by Orange Suvaan Energy Private Limited. The purpose of the project activity is to generate electrical power through operation of Solar photovoltaic power plant. The total installed capacity of the project activity is 100 MW comprising of poly-crystalline solar PV modules of 265/270 Wp each from a Tier I supplier.

The electricity generated by the project is exported to the Indian electricity grid. The project activity displaces an equivalent amount of electricity which would have otherwise been generated by fossil fuel dominant electricity grid and thereby has resulted in reduction of the associated CO2 emissions. The monitoring of emission reduction and sustainable development indicators have been carried out in accordance to respective registered PDD and Passport.
Currently the project activity has been commissioned and is operational. The below table reflects the relevant dates of the project activity.

	Date
Start date of project	25/10/2016
Commissioning date	16/06/2017
Start of operation	16/06/2017
1st Crediting period	16/06/2017 to 15/06/2024

The present monitoring period is from 01/02/2020 to 31/03/2021 through which emission reduction claimed is 229,232 tCO2e.

The project is GS VER project and not registered under any other GHG program. Also, the GHG emission reductions from the project activity are not included in any emissions trading program or any other mechanism that includes GHG allowance trading.

The project has not sought or received another form of GHG-related environmental credit, including renewable energy certificates, during this monitoring period. Hence there is not double counting involved in this project.

A.2. Location of project

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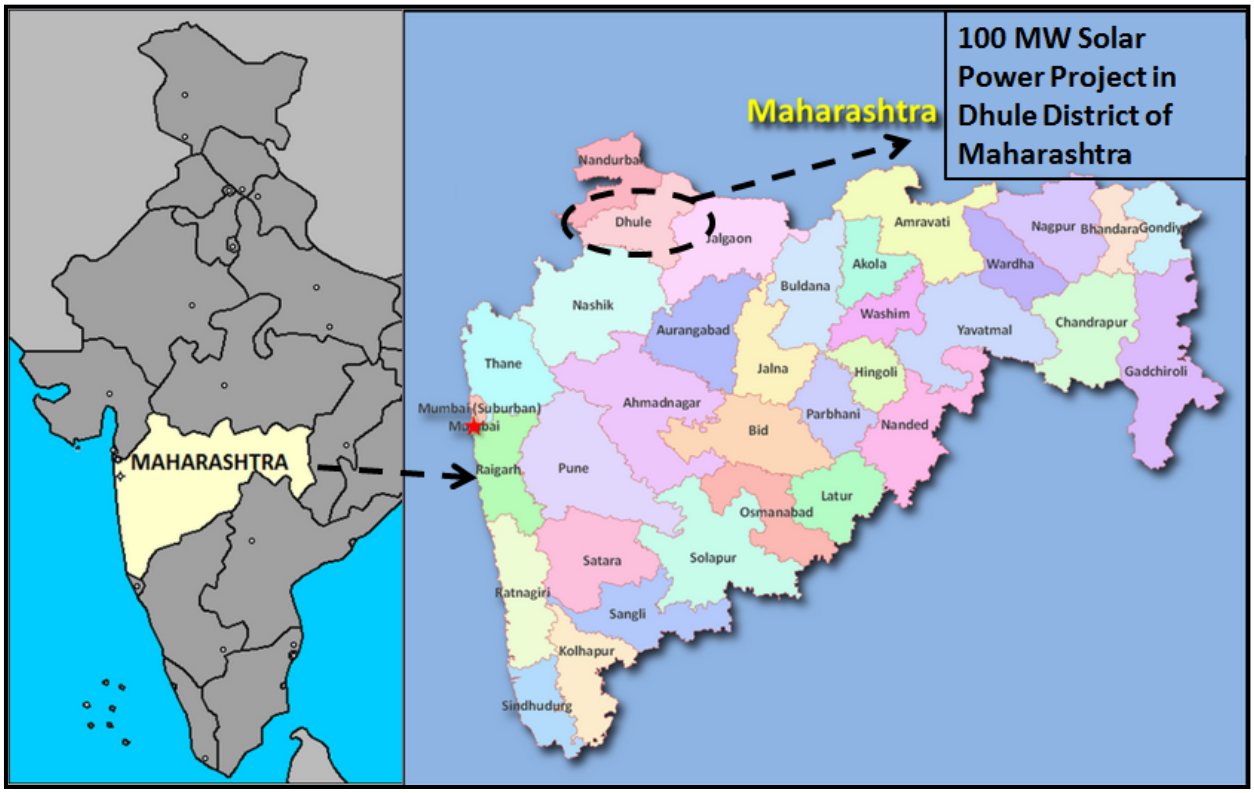
The project activity is located in the Mhasale village of Dhule District in the state of Maharashtra, India. Details of co-ordinates of project are given below:

GPS co-ordinates of the project activity is as below: 21° 06' 28.8"N & 74° 26' 27.6"E

The map shows the region of project's location:



A.3. Reference of applied methodology

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Title: Grid-connected electricity generation from renewable sources

References: Approved Large Scale Consolidated Methodology: ACM0002 "Grid-connected electricity generation from renewable sources" (Version 17.0, EB 89)[1])

ACM0002 draws upon the following tools which have been used in the PDD:

Methodological Tool: Tool for the demonstration and assessment of additionality - Version 07.0.0, EB 70 Annex 8[2].
Methodological Tool: Tool to calculate the emission factor for an electricity system - Version 06.0, EB 97 Annex 7[3]

A.4. Crediting period of project

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Type of Crediting Period: Renewable
Start date of the crediting period: 16/06/2017 (Retroactive crediting start date)

SECTION B. IMPLEMENTATION OF PROJECT

B.1. Description of implemented project

Total installed capacity of 100 MW_{ac}. The solar PV power plant has solar PV modules, inverters, transformers and other protection system and supporting components as under:

Solar PV modules (Make)	**JA Solar**	**JA Solar**
Technology	60-cell multi Crystalline	60-cell multi Crystalline
Model	JAP 6(K) 60 265 4BB	JAP 6(K) 60 270 4BB
Capacity	265 Wp	270 Wp
No. of Modules	208320	306720
Capacity, MW (DC)	55.20MWp	82.81MWp
Total Capacity, MW (DC)	138.00 MWp	
Total Capacity, MW (AC)	100 MW	

Inverters (Make)	**ABB**
Model	PVS800-57
Rated Capacity	1000 KW
No. of Inverters	100
Rated Input Voltage	1000 V DC

[1] https://cdm.unfccc.int/UserManagement/FileStorage/D5YFS9I3VKBT18MQNGX0LPZ6U7AWCO

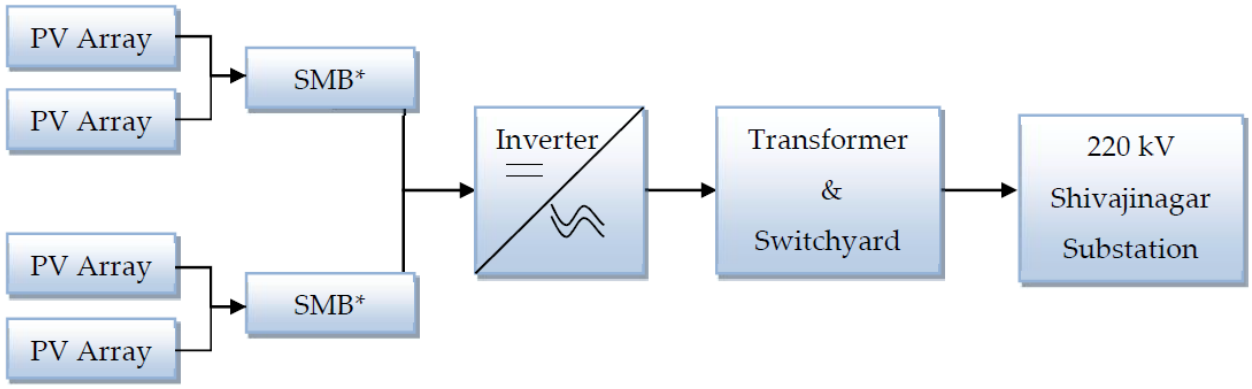
[2] http://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-01-v7.0.0.pdf

[3] https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-07-v6.pdf

Transformers (Make)	**Prolec GE**	**Sudhir Power**	**Sudhir Power**
Model No.	ONAF	ONAN	ONAN
Capacity	50/60 MVA	4 MVA	2 MVA
No. of Transformers	02	24	02
Voltage Ratio	11/132 KV	4 x 380 V/ 11 kV	2x 380 V/ 11 kV

The generated power from the project is evacuated through 132 kV transmission line at 220/132 kV Shivajinagar substation located in district Dhule, Maharashtra. The cost of laying the transmission line from Project site up to the substation would be borne by the project company.

A simplified scheme of Solar PV system is shown in Figure below.



**SBM: String Monitoring Box*

The average lifetime of the project is around 25 years as per the equipment supplier specifications. The plant load factor assessed at project site is 19.25%.

In the absence of the project activity the equivalent amount of electricity sold to grid would have been generated by grid connected power plants, 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 technology and the project do not pose any adverse threat to the environment and contribute positively in reducing GHG emissions by displacing energy generation from fossil fuel powered projects. The proposed project activity is environmentally safe to implement and operate.

B.1.1 Forward Action Requests

>> No Forward Action Requests

B.2. Post-Design Certification changes

>>

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

>> NA

B.2.2. Corrections

>> NA

B.2.3. Changes to start date of crediting period

>> NA

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

>> NA

B.2.5. Changes to project design of approved project

>> NA

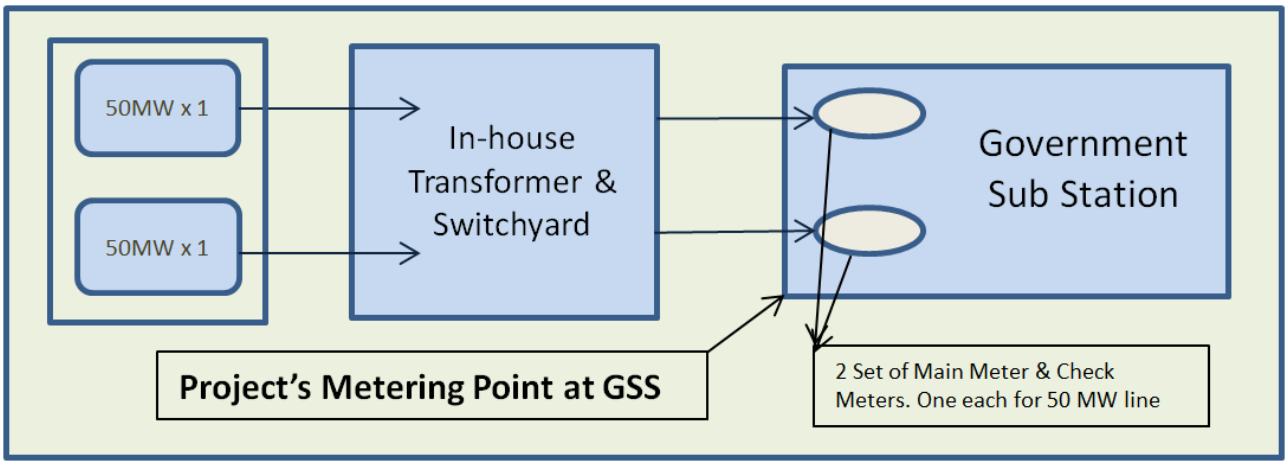
SECTION C. DESCRIPTION OF MONITORING SYSTEM APPLIED BY THE PROJECT

Net electricity supplied is estimated based on the difference between values of "export" and "import" which are monitored through DISCOM energy meter installed at the Government sub-station (evacuation point).

Net Electricity = Export – Import

The monthly export and import of electricity reading are recorded every month by the DISCOM in presence of the PP's representative and it is recorded in the JMR/monthly generation statement. The JMR readings are taken on every 1st day of the calendar month. The net electricity generation has been sourced from the monthly generation statement/JMR. There are two bays and electricity is evacuated to the GSS through two lines and each has a dedicated set of main and check meter.

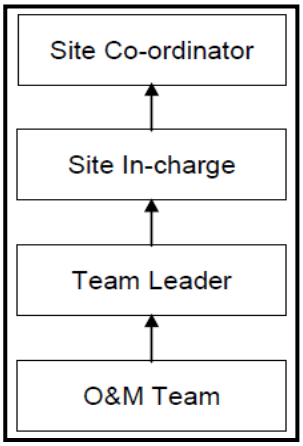
The project's metering arrangement representation:



Note; *There are two bays and electricity is evacuated to the GSS through two lines and each has a dedicated set of main and check meter*

The project proponent has entered into agreement equipment supplier or a third for the operation and maintenance of solar power plant. The equipment suppliers have dedicated and technically well-equipped O&M team for day-to-day Operation and maintenance of each component. Orange's team has taken up in house O&M and it provides a monthly report, which includes generation data, major breakdown events and equipment availability. Project manager is responsible for recording of monthly meter readings of export and import. Monthly power export and import data will be sent regularly to site in charge.

The data for the project is compiled by the O&M Team and subsequently stored by the Site Co-ordinator at head office, the reporting and data flows as per the below mentioned flow chart starting from Site O&M team which monitors day to day operational data and monthly recording. The roles and responsibilities for the project are described as below;



Personal Training:
The training for operating and maintaining the plant is provided to the O&M team whenever there would be necessity or any technological up gradation

Monitoring Process at project site
Joint monthly meter reading is taken from substation meter by representative of DISCOM and O&M team. It must be noted here that the meter readings as mentioned above is calculated as the product of meter multiplication factor and the difference of the current and previous meter readings

Emergency preparedness:
In case Main meter or Check meter is found to be outside the acceptable limits of accuracy or faulty or not functioning properly, it will be repaired, recalibrated or replaced as soon as possible. In the event that the Main meter is not in service as a result of maintenance, repairs or testing, the Check meter will be used for readings. During the monitoring period the main meter and check meter were operating in the

acceptable limits of accuracy and there were no issued identified during the monitoring period.

SECTION D. DATA AND PARAMETERS

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

Data/Parameter	**$EF_{OM, y}$**
Unit	*tCO_2/MWh*
Description	*Operating Margin CO2 emission factor for the Indian Grid in year y*
Source of data	*Central Electricity Authority: "CO2 Emission Database CEA CO2 Baseline database Version 11.0*
Value(s) applied	*0.9941*
Choice of data or measurement methods and procedures	*Calculated in line with "Tool to calculate the emission factor for an electricity system (Version 06)" using data from Central Electricity Authority of India's (CEA) "Baseline Carbon Dioxide Emission Database Version 11.0".* *The value used is calculated ex-ante as generation based weighted average of last three years of the operating margin provided in the CEA database.* *Weighted average* *= ∑i=1 to n (Net generation in operating margin in year i * Simple operating margin in year i)/∑i= 1 to n (Net generation in operating margin of year i)*
Purpose of data	*Calculation of baseline emissions*
Additional comment	*The value is fixed ex-ante*

Data/Parameter	**$EF_{BM, y}$**
Unit	tCO_2/MWh
Description	Build Margin CO_2 emission factor for the Indian Grid in year y
Source of data	CEA's "*Baseline Carbon Dioxide Emission Database Version 11.0* "
Value(s) applied	0.9285
Choice of data or measurement methods and procedures	Calculated in line with "*Tool to calculate the emission factor for an electricity system (Version 07.0.0)*" using data from Central Electricity Authority of India's (CEA) "*Baseline Carbon Dioxide Emission Database Version 11.0*". The value is calculated ex-ante as most recent build margin provided by the CEA.
Purpose of data	*Calculation of baseline emissions*
Additional comment	The value is fixed ex-ante

Data/Parameter	$EF_{grid,CM,y}$
Unit	tCO_2/MWh
Description	Combined Margin CO_2 emission factor for the Indian Grid in year y
Source of data	Central Electricity Authority(CEA) of India Database *Version 11.0*
Value(s) applied	0.9777
Choice of data or measurement methods and procedures	This has been calculated based on Operating Margin (OM) and Build Margin (BM) published by Central Electricity Authority (CEA) of India. Please refer section B.6.1 for details.
Purpose of data	Calculation of baseline emissions
Additional comment	The value is fixed ex-ante

D.2 Data and parameters monitored

SDG 7 & SDG 13:

<table>
<tr><td>Data/parameter:</td><td>EG facility,y</td></tr>
<tr><td>Unit</td><td>MWh</td></tr>
<tr><td>Description</td><td>Quantity of net electricity supplied to the grid during the year y.</td></tr>
<tr><td>Measured/calculated/default</td><td>Measured</td></tr>
<tr><td>Source of data</td><td>Monthly energy generation statement issued by State Electricity Board. These are called JMR (Joint Meter Reading)</td></tr>
<tr><td>Value(s) of monitored parameter</td><td>
<table>
<tr><th>Year</th><th>Period</th><th>EG facility,y (MWh)</th></tr>
<tr><td>2020</td><td>01/02/2020 to 31/12/2020</td><td>177,960</td></tr>
<tr><td>2021</td><td>01/01/2021 to 31/03/2021</td><td>56,501</td></tr>
<tr><td></td><td>Total</td><td>234,462</td></tr>
</table>
</td></tr>
<tr><td>Monitoring equipment</td><td>Energy Meter installed at the government sub-station (GSS). The details of the energy meters are given below:

Line 1:
<table>
<tr><th>Details</th><th>Main Meter</th><th>Check meter</th><th>Standby meter</th></tr>
<tr><td>Meter Number</td><td>2831505</td><td>2831506</td><td>2831507</td></tr>
<tr><td>Make</td><td>Elster</td><td>Elster</td><td>Elster</td></tr>
<tr><td>Accuracy Class</td><td>0.2S</td><td>0.2S</td><td>0.2S</td></tr>
<tr><td>Calibration dates</td><td>08/01/2018
25/01/2019
24/06/2020</td><td>08/01/2018
25/01/2019
24/06/2020</td><td>08/01/2018
25/01/2019
24/06/2020</td></tr>
<tr><td>Calibration due date*</td><td>24/06/2025</td><td>24/06/2025</td><td>24/06/2025</td></tr>
</table>
</td></tr>
</table>

Line 2:

Details	Main Meter	Check meter	Standby meter
Meter Number	2831508	2831509	2831510
Make	Elster	Elster	Elster
Accuracy Class	0.2S	0.2S	0.2S
Calibration dates	08/01/2018 25/01/2019 24/06/2020	08/01/2018 25/01/2019 24/06/2020	08/01/2018 25/01/2019 24/06/2020
Calibration due date*	24/06/2025	24/06/2025	24/06/2025

On 6th November 2020 Main meters for both the lanes are replaced with the check Meters and new meters were installed in place of Check meters and new meter details are given below

Line 1:

Details	Main Meter	Check meter	Standby meter
Meter Number	2831506	2897467	2831505
Make	Elster	Elster	Elster
Accuracy Class	0.2S	0.2S	0.2S
Calibration dates	08/01/2018 25/01/2019 24/06/2020	08/01/2018 25/01/2019 24/06/2020	08/01/2018 25/01/2019 24/06/2020
Calibration due date*	24/06/2025	24/06/2025	24/06/2025

Line 2:

Details	Main Meter	Check meter	Standby meter
Meter Number	2831509	2897648	2831508
Make	Elster	Elster	Elster
Accuracy Class	0.2S	0.2S	0.2S
Calibration dates	08/01/2018 25/01/2019 24/06/2020	08/01/2018 25/01/2019 24/06/2020	08/01/2018 25/01/2019 24/06/2020
Calibration due date*	24/06/2025	24/06/2025	24/06/2025

* As mentioned in the PDD, the calibration frequency requirement is once in 5 years

Measuring/reading/recording frequency:	Measurement: Continuous Recording: Monthly Monitoring Method: recording in JMR (Join Meter Reading) The JMR includes, monthly recording of electricity export & import. Energy meters of accuracy class 0.2S are used at site.
Calculation method (if applicable):	Net electricity supplied will be calculated based on the difference between values of "export" and "import" on the EB

	energy meter at the Government substation (evacuation point). (Net Electricity = Export – Import) The export and import of electricity reading will be sourced from the monthly generation statement/JMR. There are two bays and electricity is evacuated to the GSS through two lines and each has a dedicated set of main and check meter.
QA/QC procedures:	Net electricity supplied to the grid by the project activity has been cross checked with invoices submitted for the sale of power by the project proponent. Calibration of all the meters will be undertaken at least once in 5 years calibration or whenever abnormal difference/inconsistency is observed between main meter and check meter and faulty meters will be duly replaced immediately.
Purpose of data:	Baseline emission calculation & To monitor contribution to SDG 7
Additional comments:	Calibration Agency for all the meters is DISCOM. As per the registered PDD, the calibration dates and frequency is under the control of state utility.

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	NA
Source of data	Plant employment records
Value(s) of monitored parameter	The project created over 80 jobs for over a span of 9 months during construction and during the operational phase is generating employment in rural areas to the extent of 100 people at any given point of time. The PP maintains a healthy number of employees at the site, and also hires locally for unskilled workers; which helps in creating service based jobs in the project region. Below table reflects number of people employed in the project:

Vintage	**Cost Spent on O&M (Lakh**	**Number of Staff**			
		Security (third party)	**Cleaning (third party)**	**O&M (Orange Suvaan)**	**Total**

	<table><tr><td></td><td>**INR)***</td><td></td><td></td><td></td><td></td></tr><tr><td>01/02/2020 to 31/12/2020</td><td>142</td><td>63</td><td>3</td><td>27</td><td>93</td></tr><tr><td>01/01/2021 to 31/03/2021</td><td>1439</td><td>63</td><td>3</td><td>27</td><td>93</td></tr><tr><td>**Total**</td><td>**1581**</td><td>**NA**</td><td>**NA**</td><td>**NA**</td><td>**NA**</td></tr></table>*O&M Cost has been considered from Audited financial statements The EPF challan has been submitted which shows number of staffs appointed by the PP. Also the security service contract and cleaning service contracts are submitted to VVB for verification. The parameter has a positive impact as the project results in direct employment and income generation.
Monitoring equipment	Employment records Training record
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:	-

SDG 8:

Data/parameter:	Quality of employment
Unit	No's
Description	Trainings provided to employees & O&M staffs
Measured/calculated/default	NA
Source of data	Training records, HSE & HR Records
Value(s) of monitored parameter	During the monitoring period about 28 trainings were given to the employees and O&M staffs. <table><tr><th>Year</th><th>Period</th><th>No. of Trainings provided to employees & O&M staffs</th></tr></table>

	<table><tr><td>2020</td><td>01/02/2020 to 31/12/2020</td><td>25</td></tr><tr><td>2021</td><td>01/01/2021 to 31/03/2021</td><td>3</td></tr><tr><td>**Total**</td><td>01/02/2020 to 31/03/2021</td><td>**28**</td></tr></table>The complete list of training is given in the annex. All the training records are submitted to VVB.
Monitoring equipment	No monitoring equipment involved List of training programmes conducted and the number of beneficiaries are recorded
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

Not applicable as GS4GG requirements

D.4. Implementation of sampling plan

>> Not Applicable

SECTION E. CALCULATION OF SDG IMPACTS

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

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
	Net Electricity supplied to grid (MWh)
01/02/2020 to 31/12/2020	0
01/01/2021 to 31/03/2021	0
Total	0

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 . 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)
01/02/2020 to 31/12/2020	0	0	0
01/01/2021 to 31/03/2021	0	0	0
Total	0	0	0

SDG 13 Climate Actions

The monitoring parameter for the SDG 8 is GHG emission reduction. The baseline GHG emission is estimated as below:

The baseline emission is calculated in line with para 44 of AC0002, Version 17, using equation below

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

Where,

BE_y = Baseline emissions in year y (t CO_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 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" (t CO_2/MWh)

AS per para 46 of ACM0002, version 17, 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)

Hence, the baseline emission is estimated as below:

Vintage	$EG_{PJ,y}$ / $EG_{facility,\ y}$ (MWh)	$EF_{grid,CM,y}$ (tCO_2/MWh)	BE_y* (tCO_2)
01/02/2020 to 31/12/2020	177,960	0.9777	173,991

01/01/2021 to 31/03/2021	56,501	0.9777	55,241
Total	**234,462**	**0.9777**	**229,232**

**Rounded down value*

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

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 234,462 MWh electricity during the monitoring period. This can be crosschecked from JMR & Invoices. The year wise project values are given below.

Vintage	Project value
	Net Electricity supplied to grid (MWh)
01/02/2020 to 31/12/2020	177,960
01/01/2021 to 31/03/2021	56,501
Total	**234,462**

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 (Lakh INR)	Number of O&M Staff (Nos)
01/02/2020 to 31/12/2020	25	142	93
01/01/2021 to 31/03/2021	3	1439	93
Total	28	1581	NA

These can be cross checked from the employment records.

SDG 13 Climate Actions

As per the approved consolidated Methodology ACM0002 (Version 17.0, EB 89, and Annex 1) Para 36:

"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, $PE_y = 0$

E.3. Calculation of leakage

As per PDD, no source of leakage emissions identified under proposed project activity. Hence, $LE_y = 0$

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

Net Benefit = Project Value – Baseline Value

SDG	SDG Impact	Baseline estimate	Project estimate	Net benefit
SDG 7	Renewable Electricity Generated (MWh)	**0**	**234,462**	**234,462**
SDG 8	Trainings provided to O&M staff (Nos)	**0**	**28**	**28**
	Cost Spent on O&M (Lakh INR)	**0**	**1581**	**1581**
	Number of Jobs generated (Nos)	**0**	**93**	**93**
SDG 13	Emission Reduction (tCO2e)	**0**	**229,232**	**229,232**

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[4] achieved during this monitoring period
SDG 7	196,349 MWh electricity generation	234,462 MWh electricity generation
SDG 8	04 Training provided to O&M Staff	28 Training provided to O&M Staff
SDG 8	466.6 Lakh INR spent on O&M	1581 Lakh INR spent on O&M

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

SDG 8 25 jobs created	93 jobs created
SDG 13 191,971 tCO_2e emission reduction	229,232 tCO_2e emission reduction

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

SDG Goal	SDG 7	SDG 8			SDG 13
SDG Impact	**Electricity generated (MWh)**	**Trainings provided to O&M staff (Nos)**	**Money spent on O&M (Lakh INR)**	**Jobs Created (Nos)**	**Emission reduction (tCO2)**
Estimation as per PDD (for 1 year)	168,629	03	400	25	164,869
Number of days in the monitoring period	425	425	425	425	425
Estimation for the monitoring period	196,349	04 (Rounded up)	466.6	NA	191,971

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

Increase in value of SDG 7 & SDG 13 is due to higher PLF achieved during the monitoring period. The emission reduction achieved during the monitoring period is 19.4% higher than the estimated emission reduction. This is due to increase in PLF achieved during the monitoring period to the tune of 19.4% from the estimated value. The actual PLF achieved during the monitoring period is 22.9% against the estimated PLF of 19.25% as given in PDD. The high PLF is achieved due use of higher efficient equipments, high grid & plant availablity and majorly frequent cleaning of modules (22 cycles per year) leads to the lower power generation losses and higher plant availability. As per the registered PDD, the equity IRR will reach the benchmark when the PLF increased to 28.16% higher than estimated value (ie, achieving the PLF of 24.67%). Hence, the increase in generation/PLF does not affect the additionality of the project as the actual generation is only 19.25% higher than the estimated value

Regarding the SDG 8, number staffs employed in the project is higher than the estimated value in the GS4GG transition Annex. This is mainly due to conservative estimation considered in the transition document. Since the benefit is increased in the project scenario, no further justification is required.

SECTION F. SAFEGUARDS REPORTING

SGP 4.3.4: Release of Pollutants

<table>
<tr><td>Data/parameter:</td><td>Air quality</td></tr>
<tr><td>Unit</td><td>CO2 emission reduction and reduction in dust generation</td></tr>
<tr><td>Description</td><td>In order to reduce dust emissions during the construction phase, the following dust suppression measures stipulated and implemented:
• Spraying water and covering material trucks' body to minimize dust;
• Reuse of water for sprinkling of unpaved roads.
• Imposition of speed controls for vehicles and unpaved site roads;
• Well-maintained diesel-powered mechanical equipment to avoid black smoke emissions;
• Shut-down of diesel-powered mechanical equipment or trucks inside the worksites when they are not in operation.</td></tr>
<tr><td>Measured/calculated/default</td><td>Calculated</td></tr>
<tr><td>Source of data</td><td>Dust reduction measure: Project logbook, or interview with maintenance staff.

CO2 emission reduction: Central Electricity Authority: "CO2 Emission Database CEA CO2 Baseline database Version 11" published by Central Electricity Authority (CEA), Ministry of Power, Government of India</td></tr>
<tr><td>Value(s) of monitored parameter</td><td>Dust reduction measure: All the mitigation measures proposed are followed during the construction state.
<table><tr><td>Vintage</td><td>CO2 emission Reduction</td><td>Dust reduction Procedure followed</td></tr><tr><td>01/02/2020 to 31/12/2020</td><td>173,991</td><td>NA*</td></tr><tr><td>01/01/2021 to 31/03/2021</td><td>55,241</td><td>NA*</td></tr><tr><td>Total</td><td>229,232</td><td>NA</td></tr></table>* Not applicable during the monitoring period.</td></tr>
<tr><td>Monitoring equipment</td><td>No monitoring equipment used
Dust reduction measure: Project logbook, or interview with maintenance staff.
CO2 emission reduction: Amount of annual net electricity generation will be used to calculate estimated CO_2 emission reductions by project activity</td></tr>
<tr><td>Measuring/reading/recording frequency:</td><td>Once every monitoring period</td></tr>
<tr><td>Calculation method (if applicable):</td><td>Refer Section E</td></tr>
<tr><td>QA/QC procedures:</td><td>In order to reduce dust emissions during the Operation phase, the following dust suppression measures stipulated and implemented:
• Imposition of speed controls for vehicles and unpaved site roads;
• Well-maintained diesel-powered mechanical equipment to avoid black smoke emissions;</td></tr>
<tr><td>Purpose of data:</td><td>To monitor compliance to Safeguarding Principle 4.3.4 (Release of pollutants)</td></tr>
</table>

Additional comments:	-

SGP 3.4.2 Forced Eviction and Displacement

Data/parameter:	Involuntary Resettlement & expropriation
Unit	Resettlement or Grievance
Description	The project activity does not involve in any involuntary resettlement. Further all the land purchased is private land purchased from on mutual consent. The project proponent ensured the following during land purchase: • No land with existing structures was purchased • No land from any marginalized farmers was purchased • There were no settlements in vicinity of the chosen site • All the purchase process followed national and state laws for land purchase. As the purchase of land is a voluntary process it does not involve "The National Rehabilitation and Resettlement Act, 2013[5],
Measured/calculated/default	-
Source of data	Interview with local villagers & Grievance register
Value(s) of monitored parameter	All the mitigation measures are followed during the land purchase. No grievances received during the monitoring period

Vintage	**Grievance received**	**Safeguarding measures followed**
01/02/2020 to 31/12/2020	0	NA*
01/01/2021 to 31/03/2021	0	NA*
Average	0	**NA**

* Not applicable during the monitoring period.

Monitoring equipment	-
Measuring/reading/recording frequency:	Yearly Once
Calculation method (if applicable):	-
QA/QC procedures:	-
Purpose of data:	To monitor Safeguarding Principle 3.4.2 Forced Eviction and Displacement
Additional comments:	-

Safeguarding Principle 3.3 Community Health, Safety and Working Conditions

[5] https://dolr.gov.in/sites/default/files/Right%20to%20Fair%20Compensation%20and%20Transparency%20in%20Land%20Acquisition%2C%20Rehabilitation%20and%20Resettlement%20Act%2C%202013.pdf

<table>
<tr><td>Data/parameter:</td><td>Safety of workers</td></tr>
<tr><td>Unit</td><td>Safety procedures followed:
• Operating staffs are provided with helmet, shoes & gloves
• Conduct safety training to the O&M staffs yearly</td></tr>
<tr><td>Description</td><td>The EHS team is responsible for ascertaining the safety procedures are followed, some being:
- Proper training to all the workers at site
- Safety gear mandatory while Working at heights and inside the site location
- Job card in conformity with safety protocol released before taking up any task by O&M team
- Implementation of Loading & Unloading protocols
- Use of vehicles with PUC & proper maintenance of vehicles
- Control speed of vehicles</td></tr>
<tr><td>Measured/calculated/default</td><td>-</td></tr>
<tr><td>Source of data</td><td>Site Records of helmet, shoes & gloves distributed to staffs & Records of safety training</td></tr>
<tr><td>Value(s) of monitored parameter</td><td>All the safety procedures proposed are followed at the site
<table>
<tr><th>Year</th><th>Period</th><th>Safeguarding measures followed</th></tr>
<tr><td>2020</td><td>01/02/2020 to 31/12/2020</td><td>Yes</td></tr>
<tr><td>2021</td><td>01/01/2021 to 31/03/2021</td><td>Yes</td></tr>
<tr><td>Total</td><td>01/02/2020 to 31/03/2021</td><td>Yes</td></tr>
</table></td></tr>
<tr><td>Monitoring equipment</td><td>-</td></tr>
<tr><td>Measuring/reading/recording frequency:</td><td>Yearly Once</td></tr>
<tr><td>Calculation method (if applicable):</td><td>-</td></tr>
<tr><td>QA/QC procedures:</td><td>-</td></tr>
<tr><td>Purpose of data:</td><td>To monitor Safeguarding Principle 3.3 Community Health, Safety and Working Conditions</td></tr>
<tr><td>Additional comments:</td><td>-</td></tr>
</table>

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.

PP has continuous input/ grievance mechanisms in place where stakeholders can express their grievances over the project. The stakeholders can express their grievance using any of the one methods:

	Method Chosen (include all known details e.g. location of book, phone, number, identity of mediator)	**Justification**

Continuous Input / Grievance Expression Process Book	A Grievances book/form is placed at site and Mhasale Panchayat office to convey grievances regarding the project activity. The address of the panchayat is: Gram Panchayat, Mhasale Village, Dhule District, Maharashtra, India.	This will be most appropriate as the site & Panchayat office is accessible to all the stakeholders and the book will be reviewed quarterly and grievances (if any) will be addressed accordingly.
Telephone access	Mr. Kishore R, (Site In-charge at Mhasale) Ph: +91 8510967977	He is available at the site and is responsible for addressing any concerns on immediately. The review of the grievance will be held at head office to Mr. Pushpinder Hira. Phone number of the contact person is circulated along with the NTS in the stakeholder meeting and is also available in Panchayat office.
	Mr. Pushpinder Hira, (Corporate Office) Ph: +91 8510967977	He is the point of escalation and is available for the ones who may not be able to reach the primary contact person. The review of the grievance will be held at head office by the CEO of the company.
Internet/email access	pushpinderhira@orangerenewable.net vamsi@kosherclimate.com	Email ID of the contact person is circulated along with the NTS in the stakeholder meeting and is also available in Panchayat office. Vamsi Krishna from Kosher Climate assists in the Grievance.
Gold Standard Foundation	info@goldstandard.org +41 (0) 22 788 7080	Email ID of Gold Standard. Any grievances regarding the project shall be directly intimated to Gold Standard. Telephone number of Gold Standard. Any grievances regarding the project shall be directly intimated to Gold Standard.

The grievances received through any of the above method will be recorded in the grievance form and forwarded to site in-charge to take appropriate action. The action taken for the grievance will be recorded in grievance form and will be submitted to Mr. Pushpinder Hira in head office for approval.

No inputs/grievances received from any stakeholder during the monitoring period.

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

No inputs/grievances received from any stakeholder during the monitoring period. Hence, not applicable.

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

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

Annex 1 – List of Training provided during the monitoring period.

Sl. No	Name of the Training	Date of Training	No of Employees Attended in the Training
1	Defensive Drive Training	8-May-20	12
2	Defensive Drive Training	9-May-20	11
3	Defensive Drive Training	12-May-20	11
4	Defensive Drive Training	13-May-20	23
5	Defensive Drive Training	14-May-20	9
6	Defensive Drive Training	15-May-20	11
7	Defensive Drive Training	19-May-20	15
8	Work Resumption after Lockdown	21-May-20	33
9	Work Resumption after Lockdown	22-May-20	24
10	Safety Training	12-Jun-20	15
11	Safety Training	20-Jun-20	46
12	Safety Training	22-Jun-20	23
13	First aid & Firefighting	14-Jul-20	14
14	Covid-19 Awareness Training	8-Aug-20	38
15	Covid-19 Awareness Training	15-Aug-20	25
16	Covid-19 Awareness Training	16-Aug-20	25
17	Awareness of PTW	18-Aug-20	5
18	Basic Electrical Training	19-Aug-20	13
19	Basic Electrical Safety Training	21-Sep-20	11
20	Hand Tools and Power Tools safety	16-Oct-20	16
21	EHS training	3-Nov-20	14
22	Work Permit System training	7-Nov-20	10
23	Basic Electrical Safety Training	10-Dec-20	7
24	Work at height Safety	12-Dec-20	8
25	Electrical Safety Training	12-Dec-20	8
26	Defensive Drive Training	23-Jan-21	20
27	Road Safety & Defence drive training	5-Feb-21	11
28	Road Safety & Defence drive training	16-Feb-21	13