

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

0 - Description of project

0 - Implementation of project

0 - Description of monitoring system applied by the project

0 - Data and parameters

0 - Calculation of SDG Impacts

0 - Safeguards Reporting

0 - Stakeholder inputs and legal disputes

KEY PROJECT INFORMATION

GS ID (s) of Project (s)	<u>GS 7760</u> ¹
Title of the project (s) covered by monitoring report	Clean Electricity Generation by Solar Power Project in Rajasthan
Version number of the PDD/VPA-DD (s) applicable to this monitoring report	05
Version number of the monitoring report	05
Completion date of the monitoring report	21/05/2025
Date of project design certification	29/09/2021
Date of Last Annual Report	08/12/2023
Monitoring period number	03 rd
Duration of this monitoring period	01/10/2022 to 31/03/2024 (Inclusive both start and end dates)
Project Representative	Azure Power Forty Three India Pvt. Ltd.
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 20.0 ²
Product Requirements applied	☒ GHG Emissions Reduction & Sequestration ☐ Renewable Energy Label ☐ N/A

¹ <https://registry.goldstandard.org/projects/details/2605>

² <https://cdm.unfccc.int/UserManagement/FileStorage/AG07ZJQ3EXD42LT5YV9HR16M8KINPO>

Table 1 - Sustainable Development Contributions Achieved

Sustainable Development Goals Targeted	SDG Impact	Amount Achieved	Units/ Products
SDG 7: Affordable and Clean Energy	MWh of renewable energy generated	2,159,757	MWh
SDG 8: Decent Work and Economic Growth	Number of Trainings	33	Training
	Number of Employees	198 ³	Employees
	Income Generation	The income to all the workers is made better than the minimum wage requirements ⁴ : 290 INR/day (unskilled), 323 INR/day (semiskilled), 436 INR/day (skilled) and 674 INR/day (highly skilled).	INR
SDG 13: Climate Action	Emission Reductions	(2,018,509) ⁵	tCO2e

Table 2 – Product Vintages

		Amount Achieved		
Start Dates	End Dates	SDG 7	SDG 8	SDG 13
01/10/2022	31/12/2022	352,312	Training: 00 Number of Employees:198	329,271

³ The total no. of employee are 198 of which 193 are male and 5 are female. The breakdown of employment types includes 88 skilled (S),110 unskilled (US),) workers.

⁴ <https://labour.rajasthan.gov.in/notification.aspx>

⁵ #Actual ER Claimed for Current Monitoring Period 1,876,194 tCO2e. The calculation has been clearly detailed in the Excel sheet.

01/01/2023	31/12/2023	1,472,575	Training: 28 Number of Employees:198	1,376,269
01/01/2024	31/03/2024	334,870	Training: 05 Number of Employees:198	312,969
Total		2,159,757		(2,018,509)⁶

SECTION A. DESCRIPTION OF PROJECT

A.1. General description of project

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The main purpose of this project activity is to generate clean form of electricity through renewable solar energy source. Azure Power Forty Three Pvt. Ltd. is the promoter of the project activity. The project is a renewable project activity which involves installation of 600 MW solar power project in Rajasthan. The project will replace average anthropogenic emissions of greenhouse gases (GHG's) estimated to be 1,136,050 tCO₂e per year, thereon displacing 1,215,546 MWh/year amount of electricity⁷ from the generation-mix of power plants connected to the Indian grid, which is mainly dominated by thermal/fossil fuel-based power plant.

The net electricity delivered to the grid by the project activity under current monitoring period is 2,159,757 MWh and the total GHG emission reductions achieved during current monitoring period are (2,018,509) tCO₂e.

The details of the project and the state of installation are mentioned in the table: -

Name of the SPVs	Capacity in MW	Connection with Grid	State	Usage of Electricity
Azure Power Forty Three Pvt. Ltd	600 MW	Indian Grid	Rajasthan	Sale to grid

⁶ #Actual ER Claimed for Current Monitoring Period 1,876,194 tCO₂e .The calculation has been clearly detailed in the Excel sheet.

⁷ For total capacity 600 MW

The project activity is promoted by Azure Power Forty Three Pvt. Ltd. Thus, Azure Power Forty Three Pvt. Ltd is acting as PD for the project activity.

The commissioning details of the project activity is given below: -

Name of the SPVs	Capacity	State	Commissioning date
Azure Power Forty Three Pvt.Ltd.	150 MW	Rajasthan	15/12/2020
	100 MW		30/01/2021
	50 MW		08/02/2021
	50 MW		25/06/2021
	50 MW		08/08/2021
	100 MW		22/09/2021
	100 MW		31/12/2021

Sectoral Scope : 01 –Energy industries (renewable / non-renewable sources)

Methodology : ACM0002: Grid-Connected electricity generation from Renewable sources- Version 20.0⁸

Project Type : I. Renewable energy projects

Tools referred with above methodology are:

- Tool to calculate the emission factor for an electricity system -Version 07.0⁹(EB 100, Annex 04)
- Methodological Tool- Tool for the demonstration and assessment of additionality- Version 07.0.0¹⁰
- Methodological Tool- Investment analysis- Version 09.0.0¹¹ (EB 101, Annex 11)

⁸ <https://cdm.unfccc.int/UserManagement/FileStorage/AG07ZJQ3EXD42LT5YV9HR16M8KINPO>

⁹ <https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-07-v7.0.pdf>

¹⁰ <https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-01-v7.0.0.pdf>

¹¹ <https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-27-v13.pdf>

Scenario existing prior to the implementation of project activity:

The scenario existing prior to the implementation of the project activity, is electricity delivered to the grid by the project activity that would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources, as reflected in the combined margin (CM) calculations described in the "Tool to calculate the emission factor for an electricity system".

Baseline Scenario:

As per the applicable methodology, a Greenfield power plant is defined as "a new renewable energy power plant that is constructed and operated at a site where no renewable energy power plant was operated prior to the implementation of the project activity".

As the project activity falls under the definition of a Greenfield power plant, the baseline scenario as per paragraph 22 of Section 5.2.1 of applied methodology is the following: If the project activity is the installation of a Greenfield power plant, the baseline scenario is electricity delivered to the grid by the project activity would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources, as reflected in the combined margin (CM) calculations described in the "Tool to calculate the emission factor for an electricity system".

Hence, pre-project scenario and baseline scenario are the same.

Contribution to sustainable development:

Ministry of Environment, Forests and Climate Change, GoI, has stipulated economic, social, environment and technological well-being as the four indicators of sustainable development. The project contributes to sustainable development using the following ways.

- **Social well-being:** The project would help in generating employment opportunities during the construction and operation phases. The project activity will lead to development in infrastructure in the region like development of roads and also may promote business with improved power generation.
- **Economic well-being:** The project is a clean technology investment in the region, which would not have been taken place in the absence of the carbon credit benefits the project activity will also help to reduce the demand supply gap

in the state. The project activity will generate power using zero emissions Solar-based power generation which helps to reduce GHG emissions and specific pollutants like SO_x, NO_x, and SPM associated with the conventional thermal power generation facilities.

- **Technological well-being:** The successful operation of project activity would lead to promotion of Solar based power generation and would encourage other entrepreneurs to participate in similar projects.
- **Environmental well-being:** Solar being a renewable source of energy, it reduces the dependence on fossil fuels and conserves natural resources which are on the verge of depletion. Due to its zero emission the Project activity also helps in avoiding significant amount of GHG emissions.

A.2. Location of project

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Host Country	: India
Region/State/Province etc.	: Rajasthan
Village	: Jamsar
District	: Bikaner
State	: Rajasthan

Physical/geographical location:

The project is located in the state of Rajasthan in India

Name of the PD	Village	District	Latitude	Longitude
Azure Power Forty Three Pvt. Ltd	Jamsar	Bikaner	28°18'48 "N	73°25'40 "E

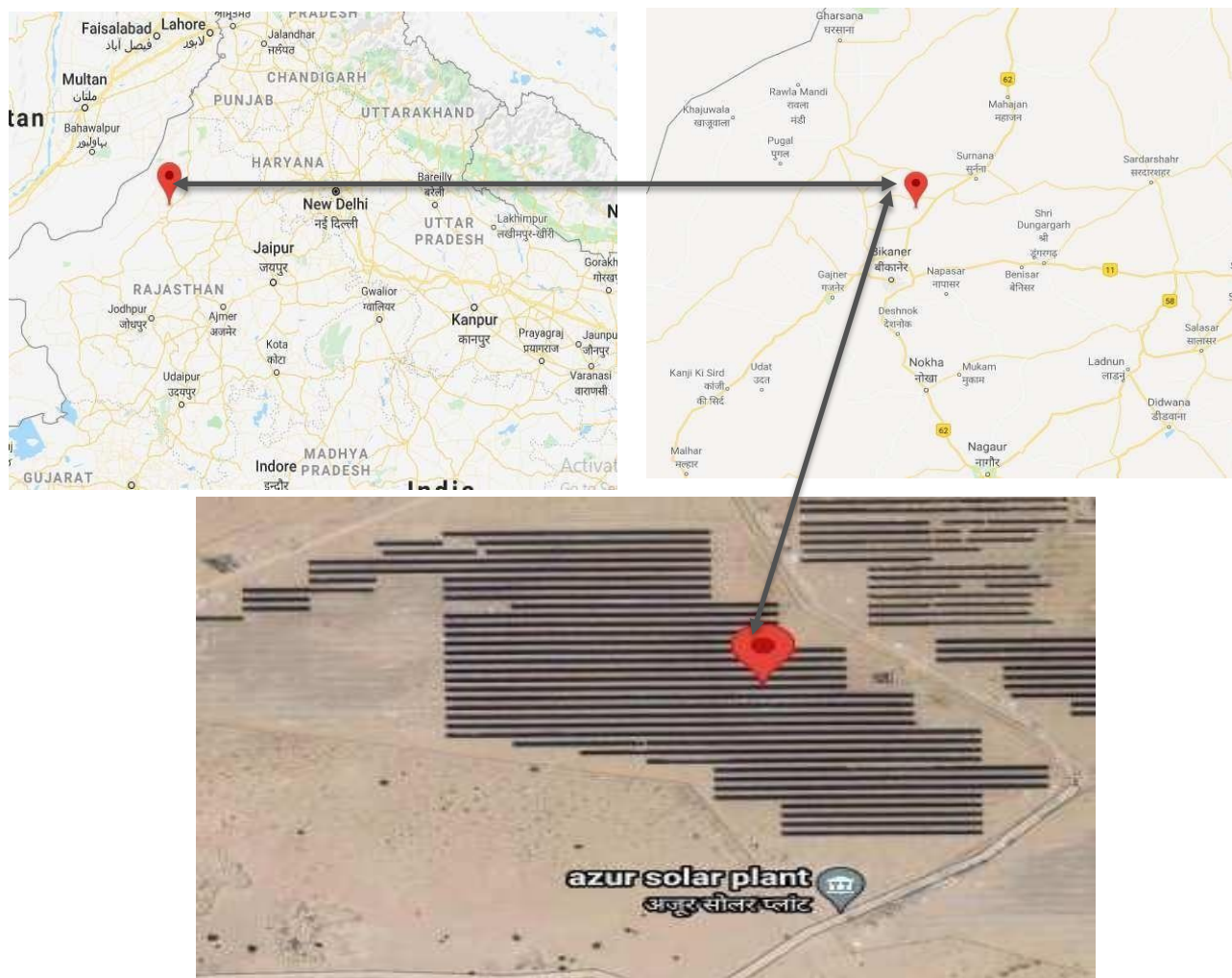


Figure 1. Location of Solar Project activity

A.3. Reference of applied methodology

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Title	:	Grid-connected electricity generation from renewable sources
Reference	:	The project activity meets the eligibility criteria of large-scale project activities as it is more than 15 MW
Methodology	:	ACM0002: Grid-connected electricity generation from renewable sources - Version 20.0. ¹²
Type I	:	Energy industries (renewable / non-renewable sources)
Category	:	Approved Consolidated Methodology (ACM0002)

¹² <https://cdm.unfccc.int/UserManagement/FileStorage/AG07ZJQ3EXD42LT5YV9HR16M8KINPO>

Tools referred with above methodology and applicable for project activity are:

- Tool to calculate the emission factor for an electricity system – Version 07.0¹³(EB 100, Annex 04)
- Tool for the demonstration and assessment of additionality- Version 07.0.0¹⁴(EB 70, Annex 08)
- Methodological Tool- Investment analysis - Version 13.0.0 ¹⁵(EB 101, Annex 11)

A.4. Crediting period of project

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15/12/2020 to 14/12/2025 (Inclusive of both dates) (renewable twice, total up to 15 Years)

SECTION B. IMPLEMENTATION OF PROJECT

B.1. Description of implemented project

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The project activity aims to harness solar energy through installation of Solar PV with total installed capacity of 600 MW. Project activity has been commissioned phase wise with the 150 MW capacity on 15/12/2020, 100 MW capacity on 30/01/2021, 50 MW capacity on 08/02/2021, 50 MW capacity on 25/06/2021, 50 MW capacity on 08/08/2021, 100 MW capacity on 29/09/2021 and 100 MW was commissioned on 31/12/2021.

The start date of operation of the project activity is taken as 30/01/2020 (as per the Purchase Order) whereas the commissioning date for the project activity is considered as per the GS guideline (Earliest date of commissioned among all) i.e., 15/12/2020.

The details of equipment installed at Azure Power Forty-Three Pvt. Ltd. are as follows:

¹³ <https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-07-v7.0.pdf>

¹⁴ <https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-01-v7.0.0.pdf>

¹⁵ <https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-27-v13.pdf>

Equipment	Technical Specifications		
	P1 (RSS)		
PV Module	Make:	Jinko	
	Rating and Quantity :	Rating	Quantity (Number)
		460 Wp	86589
	PV Technology:	Bifacial	
	Make:	Waree	
	Rating and Quantity :	Rating	Quantity
		335 Wp	14940
	PV Technology:	Poly Crystalline	
	Make:	Risen	
	Rating:	Rating	Quantity
		410Wp	148988
		415Wp	85481
		440Wp	14644
		445Wp	98504
		450Wp	46480
		495Wp	15680
		500Wp	28728
		505Wp	102088
	PV Technology:	Monocrystalline	
	Make:	Risen	
	Rating and Quantity :	Rating	Quantity
		445 Wp	560
	PV Technology:		
	Make:	JA Solar	
	Rating:	Rating	Quantity
		410Wp	75110
		415Wp	110345
		455Wp	85260
		460Wp	86268
	PV Technology:	Crystalline silicon	
Make:	First Solar		
Rating:	Rating	Quantity	
	460 Wp	486	
PV Technology:	Bifacial		
	P2 (PSS)		
Make:	Jinko		
Rating:	Rating	Quantity	
	385Wp	264992	
	390Wp	278208	
	405Wp	554092	
	410Wp	33768	
PV Technology:	Crystalline		

	PV System Mounting Structure: Seasonal Tilt	Jan/ Feb/ March: 30° April/May/June/ July/Aug: 5° Sept/Oct/Nov/Dec: 30°
	Number Of modules:	(PSS+RSS) = 2,131,211 Nos

	P1 (RSS)	
Inverter	Make:	Sungrow
	Type:	String
	Rating:	200, kW
	Number of Inverters	1500
	P2 (PSS)	
	Make:	Sungrow
	Type:	Central
	Rating:	3125 kW
	Number of Inverters:.	96 Nos
	Total Number of Inverters:.	PSS+RSS=(1500+96)=1596
	P1(RSS)	
Transformer	Power Transformer	
	Make	Siemens
	Rating	150 MVA,400 kv/33 kv
	No.	2
	Auxiliary Transformer	
	Make	Telwane
	Rating	160 KVA, 33kv/433V
	No.	2
	IDT	
	Make	Schneider
	Rating	33kv/800V- IDT- 10.4 MVA
	No.	30
	Total	2+2+30 = 34
	P2(PSS)	
	Power Transformer	
	Make	Siemens
	Rating	150 MVA,400 kv/33 kv
	No.	2
	Auxiliary Transformer	
	Make	Telwane
	Rating	160 KVA, 33kv/433V
	No.	2
	IDT	
	Make	Toshiba
	Rating	33kv/600V- IDT- 12.5 MVA
	No.	24
	Total	2+2+24=28
	Total transformer at P1 & P2	(30+28) =62

B.1.1 Forward Action Requests

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FARs from Last Performance Review:

FAR#1: PP shall contact with GS to revise the crediting period information available in the GS registry link of the project.

Response: PD wants to clarify that; the project portal has been updated and correct crediting period as 15/12/2020 to 14/12/2025 is getting displayed in the project portal. Providing the screenshot to the VVB.

This present verification is the third monitoring and verification period. Hence no FAR is applicable for the current monitoring period.

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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B.2.2. Corrections

Correction 1

The geo-coordinates previously referred to were sourced from GS-PDD Version 05, which listed them as 28°18'56.5"N, 73°25'32.7"E. These coordinates were within a range of 200-300 meters of the project location. However, for improved accuracy and better clarity, the geo-coordinates have been revised to 28°18'48"N, 73°25'40"E under section A.2, based on actual on-ground conditions.

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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

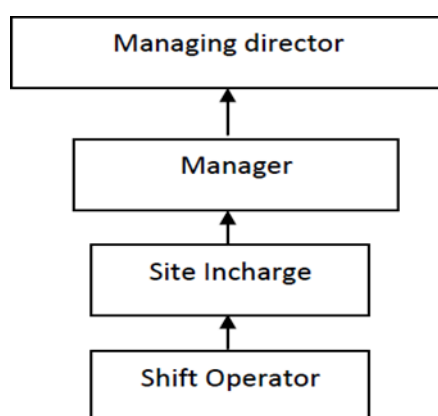
SECTION C. DESCRIPTION OF MONITORING SYSTEM APPLIED BY THE PROJECT

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The monitoring plan is developed in accordance with the modalities and procedures for GS project activities and is for grid-connected solar power project being implemented in Rajasthan, India. The monitoring plan, which is implemented by the project participant describes about the monitoring organisation, parameters to be monitored, monitoring practices, quality assurance, quality control procedures, data storage and archiving.

The authority and responsibility for registration, monitoring, measurement, reporting and reviewing of the data rests with the project participant. PD is following the below structure for data monitoring, collection, data archiving and calibration of equipment's for this project activity.

The team comprises of the following members:



Designation	Responsibilities
Managing director	- Held complete control over monitoring aspects pertaining to the project. - Reviewed Monitoring report - Training of the staff performed. - Emission reduction calculation has

Manager	• Entire power plant operation & maintenance • Periodic checking of recorded & stored data.
Site In-charge	• Day to day Operation • Storage of data • Data Recording
Shift operator	• Data collection

Data measurement:

The export and import energy are measured continuously using meters. Separate energy meters are installed for P-1 and P-2. Separate readings for these meters have already been provided in the ER sheet. Further, the electricity is supplied to two different DISCOMS from P-2 therefore, the REA has two values for P-2 however there is no separate meter for these 2 readings, the apportioning of these values is in the purview of NRPC and PD has no control over it. Based on the readings, invoices are raised by project investors. These invoices can be used for cross checking the meter readings taken for the project activity, the calculations of net electricity supplied to grid is completely under purview of NRPC and PD do not have any control on it. Also, accuracy class of meters and calibration frequency is under purview of state electricity board officer and PD do not have any control on it. PD got the monthly generation report from where net electricity supplied to grid is obtained and used for emission reduction calculations.

Data collection and archiving:

The ABT meters based on REA are used for data collection. The data had been taken as per Scheduled given by NRLDC (Northern Regional Load Despatch Centre). The records are checked periodically by the Plant Manager and discussed thoroughly with the plant supervisor. The period of storage of the monitored data will be 2 years after the end of crediting period or till the last issuance of GS VERs for the project activity whichever occurs later.

Apportioning:

In case of common metering arrangement, the apportioning is done by NRPC and PD is getting break up sheet where the energy supplied by project activity to grid is mentioned. The same break up sheet will be used for invoice purpose. This apportioning process is under control of NRPC and PD do not have any control on it.

In case of mismatch of date between the start date of the billing cycle and the start date of monitoring period the data will be apportioned in line to the daily generation values for the said mismatch period.

Emergency preparedness:

The project activity does not result in any unidentified activity that can result in substantial emissions from the project activity. No need for emergency preparedness in data monitoring is visualized.

Personnel training:

In order to ensure a proper functioning of the project activity and a properly monitoring of emission reductions, the staff is trained. The plant helpers are trained in equipment operation, data recording, reports writing, operation and maintenance and emergency procedures in compliance with the monitoring plan.

In case of mismatch between billing (REA) period cycle and monitoring period cycle, the daily generation electricity data is used to calculate the electricity for specific period.

In case common metering arrangement at substation, apportioning is followed by state electricity board and PD is getting the value of export/import or net electricity export and this value is considered for emission reduction calculations.

Training and maintenance requirements:

Each and every site personnel are provided with proper training to meet the requirements of the operations and maintenance. This ultimately leads to creativity in problem solving.

SECTION D. DATA AND PARAMETERS

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

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SDG 13 (INDICATORS 13.2.1)

Data/parameter	$EF_{grid,OM,y}$
Unit	tCO ₂ /MWh

Description	Operating Margin CO ₂ emission factor in year y
Source of data	Calculated from CEA database, Version 16.0, March 2021 ¹⁶
Value(s) applied	0.9568
Choice of data or Measurement methods and procedures	Calculated as per "Tool to calculate the emission factor for an electricity system, version 07" as per the latest data available for the most recent year 2017-18, 2018-19 and 2019-20. The data is obtained from "CO ₂ Baseline Database for Indian Power Sector" version 16.0, published by the Central Electricity Authority, Ministry of Power, Government of India.
Purpose of data	For the calculation of the Baseline Emission
Additional comment	This parameter is fixed ex-ante for the entire crediting period.

SDG 13 (INDICATORS 13.2.1)

Data/parameter	EF _{grid,BM,y}
Unit	tCO ₂ /MWh
Description	Build Margin CO ₂ emission factor in year y
Source of data	Calculated from CEA database, Version 16.0, March 2021 ¹⁷
Value(s) applied	0.8682
Choice of data or Measurement methods and procedures	Calculated as per "Tool to calculate the emission factor for an electricity system, version 07" as per the latest data available for the most recent year 2017-18, 2018-19 and 2019-20. The data is obtained from "CO ₂ Baseline Database for Indian Power Sector" version 16.0, published by the Central Electricity Authority, Ministry of Power, Government of India.
Purpose of data	For the calculation of the Baseline Emission
Additional comment	This parameter is fixed ex-ante for the entire crediting period.

SDG 13 (INDICATORS 13.2.1)

Data/parameter	EF _{grid,CM,y}
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¹⁶ https://cea.nic.in/wp-content/uploads/baseline/2021/06/User_Guide_ver_16_2021-1.pdf

¹⁷ https://cea.nic.in/wp-content/uploads/baseline/2021/06/User_Guide_ver_16_2021-1.pdf

Unit	tCO ₂ /MWh
Description	Combined Margin CO ₂ emission factor in year y
Source of data	Calculated from CEA database, Version 16.0, March 2021 ¹⁸
Value(s) applied	0.9346
Choice of data or Measurement methods and procedures	The combined margin emissions factor is calculated as follows: $EF_{grid,CM,y} = EF_{grid,OM,y} * W_{OM} + EF_{grid,BM,y} * W_{BM}$ Where: $EF_{grid,BM,y}$ = Build margin CO₂ emission factor in year y (tCO₂/MWh) $EF_{grid,OM,y}$ = Operating margin CO₂ emission factor in year y (tCO₂/MWh) WOM = Weighting of operating margin emissions factor (%) = 75% WBM = Weighting of build margin emissions factor (%) = 25%
Purpose of data	For the calculation of the Baseline Emission
Additional comment	This parameter is fixed ex-ante for the entire crediting period.

D.2 Data and parameters monitored

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SDG 7 (INDICATORS 7.2.1)

Data / Parameter	EGPJ, y
Unit	MWh
Description	Quantity of net electricity generation supplied by the project plant/unit in year y in MWh
Source of data	Monthly REA by NRPC
Value(s) applied	2,159,757
Measurement methods and procedures	The electricity exported / supplied by the project activity is measured through meters (ABT Meters) having accuracy class of 0.2s. It is difference of export and import of project activity.

¹⁸ https://cea.nic.in/wp-content/uploads/baseline/2021/06/User_Guide_ver_16_2021-1.pdf

Monitoring frequency	Meter details are provided below: -				
	Meter	Sr. No.	Make	Calibration	Valid up to
	Meter at RSS (P1)	NP3331A	Secure	23/10/2020	22/10/2025
	Meter at PSS (P2)	NS1185A	Secure	25/02/2020	24/02/2025
	Consolidated Meters installed at PGCIL Substation, Bikaner 765/400KV				
	Main meter	NS1175A	Secure	25/02/2020	24/02/2025
	Check meter	NS1176A	Secure	25/02/2020	24/02/2025
	Continuous measurement & monthly recording				
QA/QC procedures	The frequency of calibration is once in 5 years ¹⁹ . The monthly electricity supplied by the project activity in the REA report is cross checked with invoices. In the absence or delay in the meter calibration appropriate Guidelines are applied appropriately to confirm the conservativeness of metering.				

SDG 8 (INDICATORS 8.5.1)

Data / Parameter	Number of employment generation
Unit	Number
Description	Number of people employed directly due to the project activity.
Source of data	Plant records for all the employees/Letter from O&M contractor for employment generation.
Value(s) applied	198

¹⁹ http://www.aegcl.co.in/Metering_Regulations_Of_CEA_17_03_2006.pdf

Measurement methods and procedures	PD has provided salary slips and employment agreements of persons directly getting employment opportunity from the project activity. Further the average hourly earnings of a person are higher than the local level. For e.g., a person is getting a monthly salary of INR 62,000 then his average hourly earnings will be as follows: $= 62,000 / (30 \times 8) = \text{INR } 258/\text{hour}.$ This is higher than the average wage per hour in India (Average hourly earnings of highly skilled workers for Zone C is INR 26.85). The Project thus provides employment opportunities and pays salaries and welfares and also helps to increase the income and living standards of the employees.
Monitoring frequency	Monthly monitoring and annual compilation
QA/QC procedures	The number of persons employed are mentioned in the plant register, which can be crossed checked with attendance register.
Purpose of data	To Monitor the SDG 8 Indicator
Additional comment	This parameter also monitors the income generation of the staff and company policy benefits like health insurance/social security etc.

SDG 8 (INDICATORS 8.6.1)

Data / Parameter	Quality of Employment
Unit	Number
Description	Number of trainings provided
Source of data	Plant records or the trainings records for all the employees/Letter from O&M contractor for employment generation.
Value(s) applied	33
Measurement methods and procedures	Together with the technology supplier, the Project Developer also organizes training for the staff on the technology and the monitoring of the plant operation, and the emergency and safety procedures.
Monitoring frequency	Monthly monitoring and annual compilation
QA/QC procedures	The number of persons trained are mentioned in the plant register, which can be crossed checked with attendance register.
Purpose of data	To Monitor the SDG 8 Indicator
Additional comment	-

SDG 13 (INDICATORS 13.2.1)

Data / Parameter	ERy
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Unit	tCO ₂ e
Description	Emission reductions achieved during this monitoring period
Source of data	As per ER sheet.
Value(s) applied	(2,018,509) ²⁰
Measurement methods and procedures	The baseline emissions are the product of electrical energy baseline EG _{PJ,y} expressed in MWh of electricity produced by the renewable generating unit multiplied by an emission factor.
Monitoring frequency	As per monitoring period
QA/QC procedures	Not Applicable
Purpose of data	To Monitor the SDG 13 Indicator
Additional comment	Data will be archived in paper & electronic form for two years after the end of crediting period or of the last issuance of GS-VERs for this project activity, whichever occurs later.

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

>>

This section is not applicable as the project is not a Community Service activity.

Data/Parameter	Value obtained in this monitoring period	Value obtained last monitoring period
NA	NA	NA

D.4. Implementation of sampling plan

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Sampling is not required. Hence 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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²⁰ #Actual ER Claimed for Current Monitoring Period 1,876,194 tCO₂e .The calculation has been clearly detailed in the Excel sheet.

This is a project of renewable solar energy generation supplying electricity to the grid. The baseline emissions depend of the quantity of electricity being supplied to the grid and the emission factor of the grid.

SDG 13 – Climate Action

Baseline Emission (BE_y)

The baseline emissions are the product of electrical energy baseline EG_{PJ,y} expressed in MWh of electricity produced by the renewable generating unit multiplied by an emission factor.

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

Where,

$$EG_{PJ,y} = \text{Total quantity of net electricity delivered to the recipient} \\ = 2,159,757 \text{ MWh}$$

$$\text{Facility } EF_{grid,CM,y} = \text{Baseline emission factor} \\ = 0.9346 \text{ tCO}_2/\text{MWh}$$

$$BE_y = EG_{PJ,y} * EF_{grid,CM,y} \\ = 2,159,757 * 0.9346 \\ = (2,018,509) \text{ tCO}_2/\text{year}$$

$$\text{Since } ER_y = BE_y$$

$$\text{Therefore, } ER_y = (2,018,509)^{21} \text{ tCO}_2/\text{year}$$

SDG 7: Affordable and Clean Energy:

The project is generating affordable and clean energy which would not have been possible in the baseline scenario. So, Baseline value for SDG 7 is 0 MWh.

SDG 8: Decent Work and Economic Growth

The project leads to employment opportunities which would not have been possible in the baseline scenario. The project provides employment to 198 people across the project sites. Also, project activity improves the quality of employment by giving

²¹ #Actual ER Claimed for Current Monitoring Period 1,876,194 tCO₂e .The calculation has been clearly detailed in the Excel sheet.

training to employee. 33 trainings conducted by the project activity during the current monitoring period.

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

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SDG 13 – Climate Action:

The project estimate for SDG 13 is 0 tCO₂/year.

Hence, E_{Ry} = 0 tCO₂/year

SDG 7 – Affordable and Clean Energy:

During current monitoring period, this project has generated 2,159,757 MWh of affordable and clean energy.

SDG 8: Decent Work and Economic Growth

The project provides employment to 198 people across the project sites. Also, project activity improves the quality of employment by giving training to employee. 33 trainings conducted by the project activity during the current monitoring period.

E.3. Calculation of leakage

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As per the consolidated methodology ACM0002 v.20.0²², no leakage emission through the renewable project electricity generation.

Leakage (LE_y) = 0

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

SDG	SDG Impact	Baseline estimate	Project estimate	Net benefit
SDG 13	Emission Reduction	2,018,509 tCO ₂ e	0 tCO ₂ e	(2,018,509) ²³ tCO ₂ e
SDG 8	Decent Work and Economic Growth	0 Trainings 0 Employees	33 Trainings 198 Employees	33 Trainings 198 Employees

²² <https://cdm.unfccc.int/UserManagement/FileStorage/AG07ZJQ3EXD42LT5YV9HR16M8KINPO>

²³ #Actual ER Claimed for Current Monitoring Period 1,876,194 tCO₂e .

SDG 7	MWh of renewable energy generated	0 MWh	2,159,757 MWh	2,159,757 MWh
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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 ²⁴ achieved during this monitoring period
7	1,215,546 /Year (365 days) 1,824,984(548 days)	2,159,757 MWh
8	1 training/year 10 number of employees per year	33 Trainings 198 Employees
13	1,136,050 tCO ₂ /Year (365 days) 1,705,631 tCO ₂ for the monitoring period (548 days)	(2,018,509) ²⁵ tCO ₂

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

>>

SDG 13: Climate Action

As per the registered PDD, for 600 MW, the annual estimated emission reductions for the crediting period are 1,136,050 tCO₂e. Therefore, the amount of estimated ex ante for this monitoring period is identified as explained below.

The total number of days in this monitoring period is 548 days. Hence, the amount of estimated ex- ante for this monitoring period= $(1,136,050 \times 548 / 365) = 1,705,631$ tCO₂e.

²⁴ Whenever emission reductions are capped, both the original and capped values used for calculations must be transparently reported. Use brackets to denote original values.

²⁵ #Actual ER Claimed for Current Monitoring Period 1,876,194 tCO₂e. The calculation has been clearly detailed in the Excel sheet.

SDG 7: Affordable and Clean Energy

The annual estimated power generation from the project activity of 600 MW is 1,215,546.76 MWh, thus considering number of days covered during present monitoring period is to be 548 days, the estimated power generation will be 1,824,984 MWh.

SDG 8: Decent Work and Economic Growth

The project leads to employment opportunities which would not have been possible in the baseline scenario. The project will provide employment to at least 10 persons. Also, project activity improves the quality of employment by giving `training to employee. Thus, minimum 1 training per year will be conducted by the project activity.

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

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SDG 13:

As per the total capacity which 600 MW, 18.34 % higher generation and emission reduction achieved with respect to estimated values. Hence, as per the observation there is increase in SDG Impacts from estimated value in approved PDD.

Note: #ASSESSMENT APPROACH FOR REPORTING HIGHER EX-POST EMISSION REDUCTIONS para 2.1.4 the emission reductions are capped to the upper bound of the sensitivity analysis range (+10%) for the monitoring period (annual emission reductions values) in which the higher ex-post emission reduction.

#Actual ER Claimed for Current Monitoring Period **1,876,194 ²⁶tCO₂e.**

SDG 7: The actual net electricity generation achieved is approximately 18.23 % higher than the estimated generation as per the registered PDD. The higher generation observed is attributed to more sunshine hours and irradiance.

SDG 8:

²⁶ The calculation has been clearly detailed in the Excel sheet.

Number of training and employment figure is slightly higher which is conservative.

SECTION F. SAFEGUARDS REPORTING

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Assessment Questions/ Requirements	Justification of Relevance (Yes/potentially/no)	How Project will achieve Requirements through design, management or risk mitigation.	Mitigation Measures added to the Monitoring Plan (if required)
Principle 1. Human Rights			
1. The Project Developer and the Project shall respect internationally proclaimed human rights and shall not be complicit in violence or human rights abuses of any kind as defined in the Universal Declaration of Human Rights. 2. The Project shall not discriminate with regards to participation and inclusion	No	The Project is not in conflict with the economic livelihood of the local community. The Project does not cause any human rights abuse and respects internationally proclaimed human rights issue. Further, the Project meets the local labor law requirements thus does not cause any human rights abuse. The India has ratified the United Nations Human Rights Rules and regulations. The India ratified the same as per web link³⁶ given below: The project adheres to the host country's commitment to: Universal Declaration of Human Rights (UDHR) International Covenant on Economic, Social and Cultural Rights, India Accession 10/04/79. International Covenant on Civil and	Not Applicable

		Political Rights India Accession 10.04.79.	
Principle 2. Gender Equality			
1. The Project shall not directly or indirectly lead to/contribute to adverse impacts on gender equality and/or the situation of women. 2. Projects shall apply the principles of non-discrimination, equal treatment, and equal pay for equal work	No	The Project promotes gender equality and the empowerment of women. The Project does not cause any discrimination against women. The project Proponent does not indulge in discrimination on basis of gender, race, religion, sexual orientation.	Not Applicable
3. The Project shall refer to the country's national gender strategy or equivalent national commitment to aid in assessing gender risks (Where required) Summary of opinions and recommendations of an Expert Stakeholder(s)		The project abides by the Factories Act that prohibits any form of discrimination and is in accordance with the Convention on the Elimination of All Forms of Discrimination against Women (CEDAW), India ratified it on 09/07/1993 with certain reservations 39 And International Convention on the Elimination of All Forms of Racial Discrimination; India ratified the convention on 03/12/1968 with certain reservation. There is no any possibility that the Project might reduce or put at risk women's access to or control of resources, entitlements and benefits. The Project cannot adversely affect men and women in marginalized or vulnerable communities. Project has taken into account gender roles and the abilities of women or men to participate in the decisions/designs of the project's activities. Project has taken into account	Not Applicable

		gender roles and the abilities of women or men to benefit from the Project's activities. The Project design does not contribute to an increase in women's workload that adds to their care responsibilities or that prevents them from engaging in other activities. Project does not reproduce or further deepen discrimination against women based on gender, for instance, regarding their full participation in design and implementation or access to opportunities and benefits. Project does not limit women's ability to use, develop and protect natural resources, taking into account different roles and priorities of women and men in accessing and managing environmental goods and services. The Project would not expose women and girls to further risks or hazards. The Project shall not directly or indirectly lead to/contribute to adverse impacts on gender equality and/or the situation of women for Sexual harassment and/ or any forms of violence against women –address the multiple risks of gender- based violence, including sexual exploitation or human trafficking. Slavery, imprisonment, physical and mental drudgery, punishment or coercion of women and girls. • Restriction of women's rights or access to resources (natural or economic). • Recognize women's	
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		ownership rights regardless of marital status – adopt project measures where possible to support to women’s access to inherit and own land, homes, and other assets or natural resources. Projects applies the principles of non- discrimination, equal treatment, and equal pay for equal work. The equitable participation of men and women is followed in the identified tasks/activities. The project activity ensures the participation of women or men in Project activities and they are getting benefits based on pregnancy, maternity/paternity leave, or marital status. These conditions do not limit the access of women or men, as the case maybe, to Project participation and benefits. The project activity follows country’s national gender strategy or equivalent national commitment to aid in assessing gender risks.	
Principle 3. Community Health, Safety and Working Conditions			
The Project shall avoid community exposure to increased health risks and shall not adversely affect the health of the workers and the community. Does the Project Area include sites, structures, or objects with historical, cultural, artistic, traditional or religious values or intangible forms of culture?	No	The project is renewable energy technology (Solar PV based power generation Technology) and does not have exposure to increased health risks and shall not adversely affect the health of the workers and the community. Necessary health and safety measures will be taken during construction and operation phase, as well as throughout the operational lifetime of the project activity, also staffs will be trained to be able to work with high	Not Applicable

		voltages and occupational health and safety. No cultural heritage is observed on the project site, thus no harm observed. Compliance with India's commitment to International Covenant on Economic, Social and Cultural Rights 10.04.79 will ensure no damage to critical cultural heritage. The explanation regarding this is provided by project owner.	
Principle 4.1 Sites of Cultural and Historical Heritage			
Does the Project Area include sites, structures, or objects with historical, cultural, artistic, traditional or religious values or intangible forms of culture?	No	No cultural heritage is observed on the project site, thus no harm observed. Compliance with India's commitment to International Covenant on Economic, Social and Cultural Rights 10.04.79 will ensure no damage to critical cultural heritage. The explanation regarding this is provided by project owner.	Not applicable
Principle 4.2 Forced Eviction and Displacement			
Does the Project require or cause the physical or economic relocation of peoples (temporary or permanent, full or partial)?	No	The project has received the necessary approvals from the local authorities and does not lead to any resettlement. India (the Ministry of Rural development have the "The National Rehabilitation and Resettlement Policy, 2013 https://dolr.gov.in/sites/default/files/Right%20to%20Fair%20Compensation%20and%20Transparency%20in%20Land%20Acquisition%2C%20Rehabilitation%20and%20Resettlement%20Act%2C%202013.pdf	Not applicable

		The project activity does not have any major impact on land use patterns. In accordance with Article 1 of the International Covenant on economic, Social and Cultural Rights the program does not complicit in involuntary resettlement. No Expropriation has been conducted on any land involved in project activity. Land used for this project activity is taken on the basis of sub- lease. The land is taken on lease on mutual consent between land owner and PD for a period of 50 years.	
Principle 4.3 Land Tenure and Other Rights			
Does the Project require any change, or have any uncertainties related to land tenure arrangements and/or access rights, usage rights or land ownership?	No	The project has received the necessary approvals from the local authorities and does not lead to any resettlement. There are no any uncertainties with regards land tenure, access rights, usage rights or land ownership. Thus, land tenure and other rights are with PD.	Not applicable
Principle 5. Corruption			

The Project shall not involve, be complicit in or inadvertently contribute to or reinforce corruption or corrupt Projects	No	The project is renewable energy technology (Solar PV based power generation Technology) and does not contribute to or reinforce corruption of any kind. Indulgence in corruption is an illegal activity in the host country and the local labor compliance takes into account of the same. The project abides by the United Nations Convention Against Corruption. India ratification 09.05.11	Not applicable
Principle 6.1 Labour Rights			
1. The Project Developer shall ensure that all employment is in compliance with national labour occupational health and safety laws and with the principles and standards embodied in the ILO fundamental conventions 2. Workers shall be able to establish and join labour organizations 3. Working agreements with all individual workers shall be documented and implemented and include: a) Working hours	No	Forced labor is an illegal activity in the host country and the local labor compliance takes into account of the same. Further, India is a party to ILO and forced labour is illegal in India. The project does not employ any form of forced or compulsory labour. Employees can quit their Services at any time. The project complies with the Factories Act in India that prohibits forced or compulsory labour. The project activity does not involve any child labour.	Not applicable

(must not exceed 48 hours per week on a regular basis), AND b) Duties and tasks, AND Remuneration (must include provision for payment of overtime), AND d) Modalities on health insurance, AND e) Modalities on termination of the contract with provision for voluntary resignation by employee, AND f) Provision for annual leave of not less than 10 days per year, not including sick and casual leave.			
4. No child labour is allowed (Exceptions for children working on their families' property requires an Expert Stakeholder opinion) 5. The Project Developer shall ensure the use of appropriate equipment, training of workers, documentation and reporting of accidents and incidents, and			

emergency preparedness and response measures.			
Principle 6.2 Negative Economic Consequences			
Does the project cause Negative economic consequences during and after project implementation?	No	No potential risks to the local economy. The financial sustainability of the Projects implemented, also including those that will occur beyond the Project Certification period.	Not Applicable
Principle 7.1 Emissions			
Will the Project increase greenhouse gas emissions over the Baseline Scenario?	No	The project is renewable energy technology (Solar PV based power generation Technology) and does not lead any increase in greenhouse gas emissions over the Baseline Scenario.	Not Applicable
Principle 7.2 Energy Supply			
Will the Project use energy from a local grid or power supply (i.e., not connected to a national or regional grid) or fuel resource (such as wood, biomass) that provides for other local users?	No	The project activity supplies energy to national grid and project activity displaces equivalent quantity of electricity which would have been generated by fossil fuel dominated grid connected power plants.	Not Applicable
Principle 8.1 Impact on Natural Water Patterns/Flows			
Will the Project affect the natural or pre-existing pattern of	No	The project is renewable energy technology (Solar PV based power generation Technology)	Not Applicable

watercourses, ground-water and/or the watershed(s) such as high seasonal flow variability, flooding potential, lack of aquatic connectivity or water scarcity?		and does not affect the natural or pre-existing pattern of watercourses, ground-water and/or the watershed(s).	
Principle 8.2 Erosion and/or Water Body Instability			
Could the Project directly or indirectly cause additional erosion and/or water body instability or disrupt the natural pattern of erosion?	No	The project is renewable energy technology (Solar PV based power generation Technology) and does not affect Erosion and/or water body stability.	Not applicable
Principle 9.1 Landscape Modification and Soil			
Does the Project involve the use of land and soil for production of crops or other products?	No	The project proponent has implemented Environment Health Safety and Social guideline which takes into account the same. The project activity involves barren land and does not involve use of land and soil for production of crops or other products. The project does not involve any landscape modification or soil. Hence there is no any impact of this principle.	Not applicable
Principle 9.2 Vulnerability to Natural Disaster			

Will the Project be susceptible to or lead to increased vulnerability to wind, earthquakes, subsidence, landslides, erosion, flooding, drought or other extreme climatic conditions?	No	The project is renewable energy technology (Solar PV based power generation Technology). The Project will not be susceptible to or lead to increased vulnerability to wind, earthquakes, subsidence, landslides, erosion, flooding, drought or other extreme climatic conditions. Thus this section is Not Applicable.	Not Applicable.
Principle 9.3 Genetic Resources			
Could the Project be negatively impacted by or involve genetically modified organisms or GMOs (e.g., contamination, collection and/or harvesting, commercial development, or take place in facilities or farms that include GMOs in their processes and production)?	No	The project is renewable energy technology (Solar PV based power generation Technology). The Project not be negatively impacted by the use of genetically modified organisms or GMOs. Thus, this section is Not Applicable.	Not Applicable.
Principle 9.4 Release of pollutants			
Could the Project potentially result in the release of pollutants to the environment?	No	The project has received environmental clearance from the State Pollution control Board. Further the EHSS guidelines takes into account the same. The project does not lead to release of any hazardous substances that pose threat to the environment. Rather it aims at reducing the air	Not Applicable.

		pollution that is prevalent due to use of fossil fuel power plants. The project promotes environmental protection through the use of clean technology. The project abides by the stipulations of the Indian Environment Protection Act 1986	
Principle 9.5 Hazardous and Non-hazardous Waste			
Will the Project involve the manufacture, trade, release, and/ or use of hazardous and non-hazardous chemicals and/or materials?	No	The project is renewable energy technology (Solar PV based power generation Technology). The project does not involve generation of Hazardous and Non-hazardous Waste. Standard procedure is followed at site during operation and maintenance.	Not Applicable
Principle 9.6 Pesticides & Fertilizers			
Will the Project involve the application of pesticides and/or fertilizers?	No	The project is renewable energy technology (Solar PV based power generation Technology) power generation. There are no any involvement of pesticides and/or fertilizers. Thus, this principle is Not Applicable.	Not Applicable
Principle 9.7 Harvesting of Forests			
Will the Project involve the harvesting of forests?	No	The project is renewable energy technology (Solar PV based power generation Technology) power generation. The project activity does not involve any harvesting of forests. Thus, this principle is Not	Not Applicable

		Applicable.	
Principle 9.8 Food			
Does the Project modify the quantity or nutritional quality of food available such as through crop regime alteration or export or economic incentives?	No	The project is renewable energy technology (Solar PV based power generation Technology) power generation. The Project does not modify the quantity or nutritional quality of food available. Thus, this principle is Not Applicable	Not Applicable
Principle 9.9 Animal husbandry			
Will the Project Involve animal husbandry?	No	The project is renewable energy technology (Solar PV based power generation Technology) power generation. The Project does not involve animal husbandry. Thus, Not Applicable.	Not Applicable
Principle 9.10 High Conservation Value Areas and Critical Habitats			
Does the Project physically affect or alter largely intact or High Conservation Value (HCV) ecosystems, critical habitats, landscapes, key biodiversity areas or sites identified?	No	No cultural heritage is observed on the project site, thus no harm observed. Compliance with India's commitment to International Covenant on Economic, Social and Cultural Rights 10.04.79 will ensure no damage to critical cultural heritage.	Not Applicable
Principle 9.11 Endangered Species			
Are there any endangered species identified as potentially being present within the Project boundary	No	There are no any endangered species identified at project site and also no species have the route through area.	Not Applicable

(including those that may route through the area)? AND/OR Does the Project potentially impact other areas where endangered species may be present through transboundary affects?		The project activity does not impact other endangered species through transboundary affects.	
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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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As a part of continuous feedback from stakeholders, the grievance register is being placed at site and is being continuously monitored and addressed through the grievances cell on regular basis and maintained in a register at site office. Additionally, Azure provides a grievance box for submitting letters and has an app called Azure Shield, where stakeholders can also file complaints online.

During the monitoring period no grievances have been received.

The grievances if any are recorded as per the table below:

S. No.	Date of Complaint	Topic	Date of resolution	Remark from PD
-	-	-	-	-

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

>>

There has been no stakeholder mitigation that were agreed to be monitored in this verification period.

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

>>

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

Appendix – 01: Breakdown Details

P1			
Month	Equipment affected	Reason for Outage	Total Breakdown Hrs.
Oct-22	Inverter	Low System Insulation Resistance Fault, Excessive leakage current, System Fault, INV connected to same ACCB as burnt INV, Inverter burnt, Low System Insulation Resistance Fault, Inverter Internal Failure, PV String Reverse,	86.20
Nov-22	Inverter	Low System Insulation Resistance Fault, System Fault, Excessive leakage current, Inverter Internal Failure.	154.80
Dec-22	Inverter, LT Panel	Grid Overvoltage, Low System Insulation Resistance Fault, System Fault, Grounding Cable Fault, PV String Reverse, Excessive leakage current, INV burnt, Inverter Failure,	253.70
Jan-23	Inverter	Inverter Burnt on same ACCB, Low System Insulation Resistance Fault, System Fault, Shutdown, Standby, Inverter Burnt ,	60.40

Feb-23	Inverter	Inverter tripped as connected to same accb as burnt inverter, Low System Insulation Resistance Fault, Inverter Burnt, System Fault	47.08
Mar-23	Inverter	Low System Insulation Resistance Fault, Inverter Tripped as Connected same ACCB, Inverter Burnt, System Fault, Standby, Excessive Leakage Current, System Fault 40, 1605, 1608, 1609, 1610, LSI, Shutdown on Excessive leakage current, Shutdown on System Fault, Inverter Internal Failure,	1377.65
Apr-23	Inverter, ICOG, LT Panel	Starting Up, Initial Standby, Shutdown, LSI, System Fault, LSI (PV Reverse) Internal Failure, Grid Power Outage, WTI trip on LV-1, Low System Insulation Resistance Fault, Tripped manually due to high WTI on LV-1, Shutdown on PV String Reverse,	887.80
May-23	Inverter	INV Connected to the same ACCB as the burnt INV, System Fault 1601 – 1608, PRV Operated, Excessive Leakage Current, Starting Up, Low System Insulation Resistance Fault, Shutdown on PV String Reverse, Grid Power Outage	337.95
Jun-23	Inverter, LT Panel,	Low System Insulation Resistance Fault, Tripped under no fault, Starting Up, Inverter Burnt; System Fault 19, 20, 40, Excessive Leakage Current,	776.98
Jul-23	Inverter	System Fault , Excessive Leakage Current, INV Connected to the same	2105.28

		ACCB, Grid voltage fault, Inverter Burnt, System Fault, Inverter failure	
Aug-23	Inverter, LT	System Fault, Excessive Leakage Current, LT Tripped due to AC breaker fault, Inverter internal failure, Inverter stopped due to Firmware Failed, Low System Insulation Resistance Fault	104.10
Sep-23	Inverter, LT	Inverter Burnt, Low System Insulation Resistance Fault, PPC false Command, LT Charged LT Tripped, System Fault, starting UP	662.88
Oct-23	Inverter, DC Cable	Low System Insulation Resistance Fault, Ground fault due to string Failure, PPc Fault starting UP, Flash over String cable failure	441.75
Nov-23	Inverter, DC Cable	Low System Insulation Resistance Fault PPc Fault starting UP, String cable failure	673.40
Dec-23	Inverter, DC Cable and other	MPPT Fault, Low System Insulation Resistance starting UP, String cable failure, Standby, LT tripped	687.73
Jan-24	Inverter, DC cable, AC cable, IDT	AC Power Cable Failure, capacitor Failure, Ground fault dur to string cable, Corrective maintenance, Low System Insulation Resistance, Replacement, Raw, Shutdown for testing, PPC Fault, System fault	572.70
Feb-24	Inverter, AC cable DC cable	AC Power Cable failure Low System Insulation Resistance, Replacement, PPC Fault, Inverter burn, string cable failure, delay in Inverter start	713.68
Mar-24	Inverter, DC cable ICOG	Cable failure Earth, Low System Insulation Resistance fault, PLC card,	871.82

		Replacement String cable fault	
Total			10815.92

P2			
Month	Equipment affected	Reason for Outage	Total Breakdown Hrs.
Oct-22	Inverter	FAN fault, FAN fault, Key Stop, Current, GFDI, INS fault, AC Switching breaking fault, AC switching breaking fault, PDP Pro	20.8
Nov-22	Inverter, ICOG	AC switching breaking fault, GFDI, PDP Pro, Tripped on Buccholz, AC Spd fault, I Leakage	18.05
Dec-22	Inverter, SCB	AC switching breaking fault, PDP Pro, Display Hold, INS fault, Limit reset, GFDI, Branch Fuse Fault,	220.31
Jan-23	Inverter, SCB, ICOG	GFDI, Limit reset, Branch Fuse Fault, Manual Trip, PDP Pro,	68.08
Feb-23	Inverter, SCB,	GFDI, Limit reset, Branch Fuse Fault, AC Spd fault, PDP Pro, AC Swith Breaking,	27.74
Mar-23	Inverter, ICOG, SCB, String,	Differential Fault, PDP Pro, Fan Fault issue, GFDI, Limit reset, Branch Fuse Fault, AC switching breaking fault, String Theft,	199.02
Apr-23	Inverter, String, ICOG	Differential Fault, Fan Fault issue, GFDI, Limit reset, AC switching breaking fault, String Theft, AC Spd fault, Differential, PRV and Buchholz, AC Fuse fault	330.83
May-23	Inverter, String, ICOG	Differential Fault, Fan Fault issue, GFDI, Limit reset, AC switching breaking fault, String Theft, AC Spd fault, Differential, PRV and Buchholz, AC Fuse fault, LV REF, Under Voltage, Key stop, AC Current Unbalance,	1857.16

Jun-23	Inverter, String, ICOG	Differential Fault, GFDI, String Theft, Differential, PRV and Buchholz, LV, , PDP Pro, AC Switch Disconnection, IDT Tripped	2210.52
Jul-23	Inverter, SCB, String	String Theft, GFDI, String Theft, Fan Fault, AC Switch Disconnection, Limit Reset, Key stop, String Short, PDP Pro,	784.04
Aug-23	Inverter, SCB, String	GFDI, String Short, AC Overcurrent, AC Switch Disconnection, AC Overcurrent, Limit Reset	53.54
Sep-23	Inverter, SCB, String	Limit Reset, PDP Pro & AC Switch Disconnection, Branch Fuse fault, Key stop, I LEAKAGE PRO, Tripped on INS, Reverse branch over current, Key stop, PDP Pro & AC Switch Disconnection, Fan Fault, GFDI	101.47
Oct-23	Inverter, Module, DC cable	AC Breaker Coil Failure, SPD Fail, Module Physical Damage, Standby, GFDI Pro Fault, MC4 Connector Damage,	506.67
Nov-23	Inverter, Module, DC cable	Module Physical Damage, Ventilation Fan Failure, Ground Fuse Failure, GFDI Pro Fault, MC4 Connector Damage, Current Imbalance, Standby	3003.35
Dec-23	Inverter, Module, DC cable, SCB,	Current Imbalance, GFDI Pro Fault, Module Physical Damage, AC switch fault, Ventilation Fan Failure, MC4 Connector Damage, INS Fault,	601.15
Jan-24	Inverter, Module, DC Cable, SCB,	Current Imbalance, GFDI Pro Fault, Module Physical Damage, AC switch fault, Ventilation Fan Failure, MC4 Connector Damage, INS Fault, PDP Procard Failure	960.00

Feb-24	Inverter, Module, SCB, DC cable,	Current Imbalance, GFDI Pro Fault, Module Physical Damage, AC switch fault, Ventilation Fan Failure, MC4 Connector Damage, INS Fault, PDP Procard Failure, Hardware fit, DC Fuse Failure, MC4 Connector Damage, Key stop, Mism lac fault,	595.87
Mar-24	Inverter, Module, DC cable,	Current Unbalance, GFDI Pro Fault, Key stop, Module Physical Damage, PDP Procard Failure, Key stop, MC4 Connector Damage, Inverter Burn, HRC Fuse Failure Current Unbalance, AC switch fault, hardware flt fault, Ventilation Fan Failure	835.57
Total			12394.33
Total²⁷			P1
			10815.92
			P2
			12394.33
			23210.25

²⁷ The breakdown hour reflects the cumulative breakdown caused by various equipment failures. However, it doesn't necessarily mean the plant was entirely inactive during those breakdowns. Equipment is promptly replaced upon fault detection, ensuring minimal disruption to operations.

Appendix – 02: Trainings details

S.No.	Date	Topic of Training	Trainer	Trainee (Number)	Duration (HH:MM)
1.	06/03/2023	PPE Awareness Training	Rohit Singh	17	01:00
2.	08/03/2023	Fire Extinguisher Training	Rohit Kumar Singh	21	01:00
3.	10/03/2023	Safety Induction	Ravi Ram Reddy	2	00:30
4.	11/03/2023	Shutdown & Isolation Procedure ACCB	Sumit Ranjan	11	01:00
5.	18/03/2023	POSH Training	Avanti & Pallavi	26	01:30
6.	22/03/2023	Troubleshooting and Maintenance of Inverter	Alok Kumar	7	01:30
7.	23/03/2023	Electrical Safety	Mahaveer singh	10	01:15
8.	23/03/2023	Switch yard Equipment Basic Training	Ravi Ram Reddy	15	01:15
9.	06/04/2023	Fire Fighting Mock drill	Alok Kumar	10	01:00
10.	17/04/2023	Covid- 19 Precautions	Gaje Singh	16	00:20
11.	17/04/2023	Fire Safety	Gaje Singh	15	01:45
12.	17/04/2023	Soiling Station	Sagar Mishra	15	01:00
13.	01/05/2023	Airtel MPIS Service Request Creation	Alik Kumar	02	00:45
14.	10/05/2023	Security alert	Chatra Ram	40	01:00
15.	15/05/2023	MRI Dump to PC through M Cab Software	Alok Kumar	02	03:00
16.	25/05/2023	Biodiversity Training	Sudhir Tiwari	10	01:00
17.	02/06/2023	Different Pie of module & specification	Alok Kumar	12	01:00
18.	25/06/2023	Snake Biting Training	Chatra Ram	79	01:00
19.	26/06/2023	SPT Metering -Q1 FY23-24	Sudhir Tiwari	13	01:00
20.	26/06/2023	Safety Committee Meeting Q1 FY23-24	Sudhir Tiwari	12	01:00
21.	13/07/2023	Device setting in Strong inverter	Alok Kumar	07	00:50

22.	13/07/2023	PLC Network ID Setting In String Inverter	Alok kumar	07	00:30
23.	14/07/2023	Snake Bite awareness Training	Kuldeep kumar	16	01:15
24.	15/07/2023	Fire Extinguisher	Chatra Ram	31	01:00
25.	23/08/2023	Electrical safety Awareness & Electrical Shock mock drill	Rohit singh	18	01:00
26.	08/09/2023	Defensive Driving Training	Virendra Bharadwaj	17	01:00
27.	23/09/2023	Electrical Safety	Sudhir Tiwari	11	01:00
28.	28/09/2023	Preventive Maintenance	Alik kumar	12	01:00
29.	25/01/2024	Electrical Safety	Chatra Ram	60	01:00
30.	30/01/2024	Fire Safety, No smoking In Plant and Cleanness	Rohit kumar singh	40	00:45
31.	06/02/2024	General rules awareness	Sudhir Tiwari	09	00:30
32.	19/03/2024	Inverter Cleaning & Maintenance	Sunder Pal	06	00:50
33.	19/03/2024	String Inverter and Panel Replacement	Sunder Pal	04	01:15

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