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)	GS5699[1]
Title of the project (s) covered by monitoring report	30 MW Solar PV Project by Nirosha Solar Power Private Limited
Version number of the PDD/VPA-DD (s) applicable to this monitoring report	04
Version number of the monitoring report	07~~6~~
Completion date of the monitoring report	2~~2~~3/1~~1~~0/2025
Date of project design certification	16/01/2018
Date of Last Annual Report	30/12/2024
Monitoring period number	04
Duration of this monitoring period	20/09/2021 – 30/06/2024 (inclusive of both dates)
Project Representative	EKI Energy Services 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 20
Product Requirements applied	☒ GHG Emissions Reduction & Sequestration ☐ Renewable Energy Label ☐ N/A

[1] https://assurance-platform.goldstandard.org/project-documents/GS5699

Table 1 - Sustainable Development Contributions Achieved

Sustainable Development Goals Targeted	SDG Impact	Amount Achieved	Units/ Products
SDG 7: Affordable and Clean Energy: Ensure access to affordable, reliable, sustainable and modern energy for all	MWh of renewable energy generated	142,701.68 MWh	MWh
SDG 8: Decent Work and Economic Growth: Promote inclusive and sustainable economic growth, employment and decent work for all	Number of trainings and hiring through project	Employment opportunities provided to 20 people and 69 trainings conducted	Number
SDG 13: Take urgent action to combat climate change and its impacts	Emission reductions	133,367 tCO_2e	VERs

Table 2 – Product Vintages

		Amount Achieved
Start Dates	End Dates	VERs (SDG 13)
20/09/2021	31/12/2021	12,791
01/01/2022	31/12/2022	49,424
01/01/2023	31/12/2023	47,459
01/01/2024	30/06/2024	23,693

SECTION A. DESCRIPTION OF PROJECT

A.1. General description of project

>> The main purpose of this project activity is to generate clean form of electricity through renewable solar energy source. Nirosha Solar Power Private Limited is the promoter of the proposed project activity. The project activity involves installation of 30 MW (AC) solar power project at Village: Bendo, District: Mahoba, Uttar Pradesh. The project replaces anthropogenic emissions of greenhouse gases (GHG's), thereon displacing certain amount of electricity from the generation-mix of power plants connected to the Indian grid, which is mainly dominated by thermal/fossil fuel-based power plant. The project activity is connected to 132/33 KV Panwari substation.

The project is not registered under any other GHG mechanism or registry. It is exclusively registered under Gold Standard[2] only. Additionally, the project has not been rejected by any other GHG program. To prevent double counting of emission reductions and ensure environmental integrity, an undertaking is being submitted to the VVB confirming that the project is not registered under any other mechanism and that there is no risk of double accounting.

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

Project Promoters' Name	Capacity in MW	Commissioning Date	Connection with Grid	State	Usage of Electricity
Nirosha Solar Power Private Limited	30 MW (AC)	20/09/2016	Indian Grid	Uttar Pradesh	Sale to Grid

The major Milestone of Project activity is as below:

1.	DPR Date	14/07/2014
2.	start date of the project activity (earliest date when the EPC contracts for solar modules)	05/07/2016
3.	Stakeholder meeting (Date of invitation)	03/03/2016
4.	Stakeholder meeting (Date of meeting)	13/03/2016
5.	Project got commissioned on	20/09/2016
6.	First Time submission	15/03/2017
7.	GS Design Certification	16/01/2018
8.	Crediting Period Renewal approved on	17/08/2022

Scenario existing prior to the implementation of project activity:

[2] https://assurance-platform.goldstandard.org/project-documents/GS5699

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.

Reduction of GHGs emissions due to the project activity:

The GHG emission reductions achieved from current monitoring period is 133,367 tCO_2e.

Sustainable development indicators: The National CDM Authority (NCDMA), which is the Designated National Authority (DNA) for the Government of India (GOI) under the Ministry of Environment Forest and Climate Change (MoEFCC), has mentioned four indicators for the sustainable development in the interim approval guidelines for Clean Development Mechanism (CDM) projects from India. Thus, the project's contribution towards sustainable development has been addressed based on the following sustainable development aspects:

Social well-being

The project activity provided / provides job opportunity to local people during erection, commissioning and maintenance of the solar project. Frequency of visiting villages and nearby areas by skilled, technical and industrialist increase due to installation /site visit/operation and maintenance work related to solar plant. This directly and indirectly positively effects the economy of villages and nearby area.

Environmental well-being

Solar power is one of the cleanest renewable energy powers and does not involve any fossil fuel. There are no GHG emissions. The impact on land, water, air and soil is negligible. Thus, the project activity contributes to environmental well-being without causing any negative impact on the surrounding environment.

Economic well-being

The project activity generates permanent and temporary employment opportunity within the vicinity of the project. The electricity supply in the nearby area improves which directly and indirectly improves the economy and life style of the area.

Technological well-being

The project activity is step forward in harnessing the untapped solar potential and further diffusion of the solar technology in the region. The project activity promotes and demonstrates the success of solar projects in the region which further motivate more investors to invest in solar power projects. Hence, the project activity leads to technological well-being.

A.2. Location of project

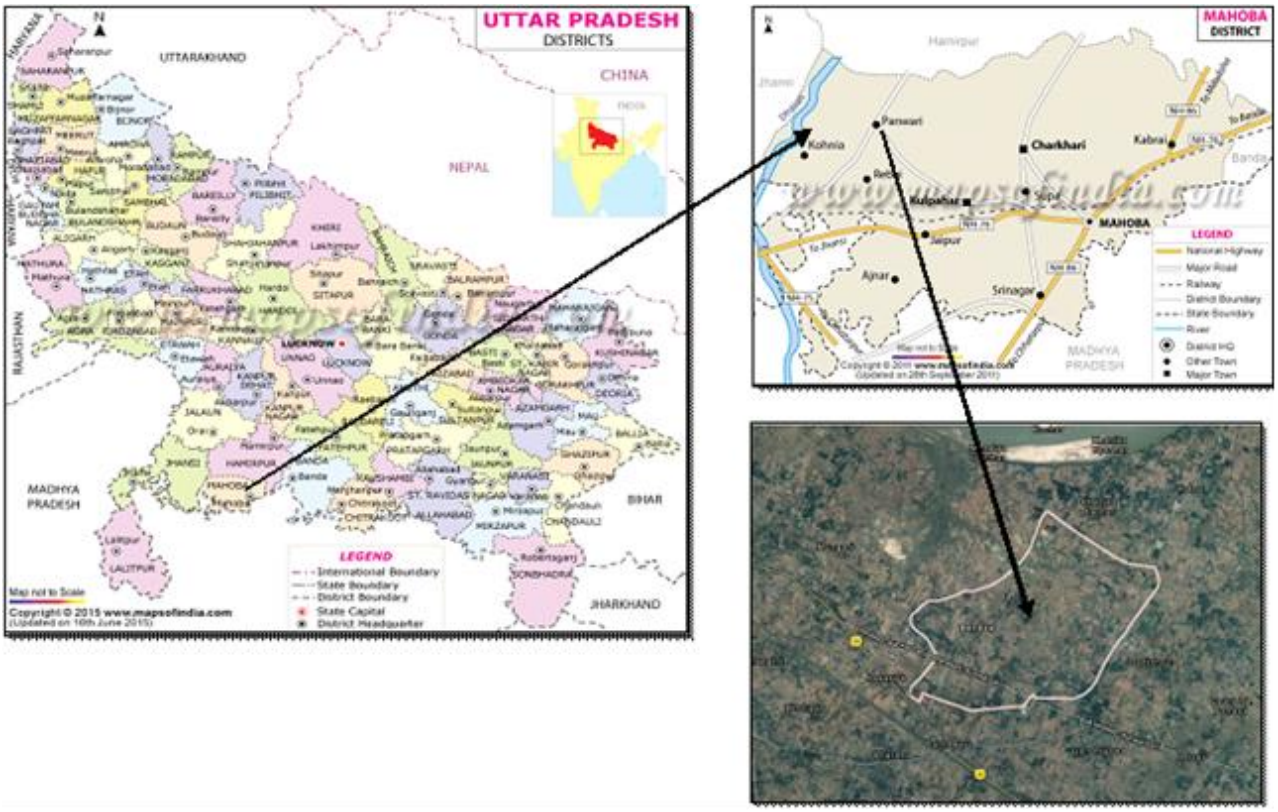
>>

Host Country : India
State : Uttar Pradesh
District : Mahoba
Village : Bendo

Location details of the Project are mentioned below:

Project Promoters' Name	Latitude	Longitude
Nirosha Solar Power Private Limited	25.42 N	79.44 E

The location of the project activity has been highlighted in the map shown below:



A.3. Reference of applied methodology

>> **Title:** Grid-connected electricity generation from renewable sources
Reference: The project activity meets the eligibility criteria of large-scale project as it is more than 15 MW
Methodology: ACM0002: Grid-connected electricity generation from renewable sources - Version 20.0[3]
Type I: Energy industries (renewable / non-renewable sources)
Category: Approved Consolidated Methodology (ACM0002)

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

- Tool to calculate the emission factor for an electricity system[4]- Version 07.0 (EB 100, Annex 04)
- Tool for the demonstration and assessment of additionality[5]- Version 07.0.0 (EB 70, Annex 08)

A.4. Crediting period of project

>>

Project Start date	:	05/07/2016
Start Date of 1st Crediting Period	:	20/09/2016
Length of 1st Crediting Period	:	20/09/2016 to 19/09/2021
Length of 2nd Crediting Period	:	20/09/2021 to 19/09/2026
Duration of 2nd Crediting Period	:	5 Years
Total length of Crediting Period	:	15 years
Type of Crediting Period	:	Renewable

The total crediting period of the project is 15 years. The project is currently in its second crediting period (20/09/2021 to 19/09/2026) and as of the current monitoring period, 10 years of crediting have elapsed.

[3] https://cdm.unfccc.int/methodologies/DB/XP2LKUSA61DKUQC0PIWPGWDN8ED5PG
[4] http://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-07-v7.0.pdf
[5] http://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-01-v7.0.0.pdf

SECTION B. IMPLEMENTATION OF PROJECT

B.1. Description of implemented project

>> The main purpose of this project activity is to generate clean form of electricity through renewable solar energy source. Nirosha Solar Power Private Limited is the promoter of the proposed project activity. The project activity involves installation of 30 MW (AC) solar power project at Village: Bendo, District: Mahoba, Uttar Pradesh. The project replaces anthropogenic emissions of greenhouse gases (GHG's) thereon displacing certain amount of electricity from the generation-mix of power plants connected to the Indian grid, which is mainly dominated by thermal/fossil fuel-based power plant.

There have been no changes from the project design as envisaged in the Design Certified Project Design Document. The project continues to operate using the same technology, specifications, and implementation approach as outlined and approved in the Design Certified PDD. All key parameters, including capacity, technology type, equipment specifications, and operational processes, remain unchanged, and the project is being implemented in accordance with the original design.

Technical details of the project activity:

Technical detail of the equipment	Remark
Technology	Polycrystalline modules on Seasonal Tilt at 25 degree and 5 degrees.
Solar photovoltaic module	Module Capacity: 260 Wp & 265 Wp Module make: Suntech
No. of modules	132,384
Total Number of Inverters	38 Units
Details of Inverters	680 KW, Schneider Electric
Power transformer	1 No. of 25/31.5 MVA, 11/132 KV Make: Schneider Electric
Inverter Transformer	1. 1 No. of 4 MVA Transformer; 380/11000 V, Make: Sudhir 2. 8 Nos. of 2.8 MVA Transformers; 380/11000 V, Make: Sudhir
Auxiliary Transformer	1 No. of 100 KVA Transformer; 415/11000 V
Technical & Operational Lifetime	25 years

Energy Meter Details:

Meter Sl. No.	Meter Sl. No.	Meter Make	Date of Calibration	Due date for Calibration
Main Meter	15625430	L&T	31/08/2020	30/08/2025
Check Meter	15199969	L&T	31/08/2020	30/08/2025

Check Meter[6]	UP-7870Z	SECURE	27/11/2023	26/11/2028

The project activity was commissioned on 20/09/2016 and is running satisfactorily for current monitoring period.

Technology Transfer

No technology transfer from other countries is involved in the project.

The project activity is a Voluntary initiative by the PP and is contributing to the SDG goals set forth by GS as detailed below in current monitoring period:

1- SDG 7– Ensure access to affordable, reliable and modern energy for all- 142,701.68 MWh

2- SDG 8– Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all- 69 training and employment to 20 persons provided.

3- SDG 13- Take urgent action to combat climate change and its impact- 133,367 tCO_2e.

B.1.1 Forward Action Requests

>>

FAR from Design Renewal Review (Crediting Period renewal Duration: 20/09/2021 to 19/09/2026):

FAR # 1: The VVB shall interview the stakeholders and confirmed on SDG benefits and confirm on grievances (if any).

Response: The VVB interviewed relevant stakeholders to verify the Sustainable Development Goal (SDG) benefits as reported in the Monitoring Report. Additionally, the VVB confirmed whether any grievances had been raised and assessed the effectiveness of the grievance resolution process implemented by the Project Developer.

FAR from previous Performance Review (Monitoring Period Duration: 01/07/2020 to 19/09/2021):

FAR # 1: The provided grievance template doesn't look credible (there is no date, sign, or seal). PD shall implement an effective grievance mechanism including monitoring of

[6] Check Meter is changed during reported monitoring period. The details of main meter and check meter are provided in section Annex-1: Calibration Meter Details~~Annex-1: Calibration Meter Details~~.

grievances. VVB shall check the grievance mechanism implemented by the PD during the next verification.

Response: The grievance mechanism had been strengthened to ensure its effectiveness. A revised grievance template was implemented 10/03/2022 [7] , incorporating necessary details such as date, signature, and seal to enhance credibility. The PD had also established a systematic approach for monitoring grievances. During the verification, the VVB assessed the effectiveness of the implemented grievance mechanism to ensure compliance with the required standards.

B.2. Post-Design Certification changes

>> Not Applicable during the current monitoring period. There are no post-design certification changes for this project.

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

>> Not Applicable during the current monitoring period. There are no temporary deviations in the monitoring & reporting plan, methodology or standardized baseline of the project.

B.2.2. Corrections

>> Not Applicable during the current monitoring period. There are no corrections.

B.2.3. Changes to start date of crediting period

>> Not Applicable during the current monitoring period. There is no change in start date of crediting period.

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

[7] A site visit was conducted on 10/02/2022 during the previous verification period (01/07/2020 to 19/09/2021, both days inclusive). The Project Developer took the observation raised by the Verifier seriously and implemented an appropriate grievance mechanism approximately one month after the site visit.

>> Not Applicable during the current monitoring period. There are no permanent changes from the design certified monitoring plan, applied methodology or applied standardized baseline of this project.

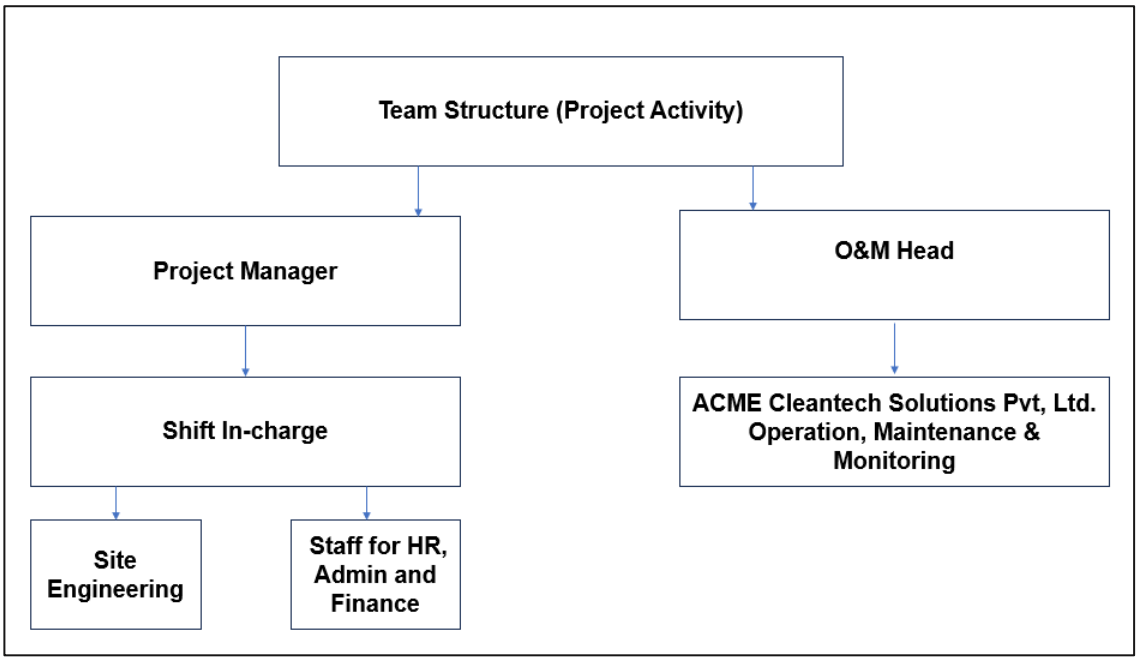
B.2.5. Changes to project design of approved project

>> Not Applicable during the current monitoring period. There are no changes to project design of the approved project.

SECTION C. DESCRIPTION OF MONITORING SYSTEM APPLIED BY THE PROJECT

>> The monitoring plan is developed in accordance with the modalities and procedures for current GS project activities and is proposed for grid-connected solar power project being implemented. The monitoring plan, which is implemented by the project participant describes about the monitoring organization, 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. PP proposed the following structure for data monitoring, collection, data archiving and calibration of equipment for this project activity. The team comprises of the following members:



PP has assigned the responsibility of operation and maintenance to ACME Cleantech Solutions Pvt. Ltd.

Responsibilities:

Project Manager

- Supervising overall project operations and performance.
- Reviewing monthly and annual generation reports.
- Coordinating with O&M Head, Shift In-charge, and other teams.
- Addressing project-related queries and grievances.

O&M Head

- Overseeing operation and maintenance activities of the project.
- Ensuring implementation of corrective measures for any discrepancies.
- Reviewing periodic monitoring reports.
- Coordinating with the auditor and registry for timely submissions.

Shift In-charge

- Monitoring daily project operations.
- Preparing shift-wise generation and performance records.
- Reporting discrepancies in data or operations to the O&M Head.
- Ensuring calibration of equipment as and when required.

Site In-charge

- Supervising site-level technical activities.
- Ensuring smooth functioning of site engineering and maintenance teams.
- Reviewing site logbooks and generation data.
- Addressing technical issues at site promptly.

HR / Admin / Finance

- Managing staff, contracts, and administrative support.
- Handling financial transactions, records, and payments.
- Supporting audit requirements with documentation.
- Ensuring compliance with company policies and reporting standards.

ACME Cleantech Solutions Pvt. Ltd.

- Responsible for overall operation, maintenance, and monitoring of the project.
- Maintaining daily power generation statistics and log sheets.
- Supporting internal audits and verification processes.
- Ensuring closure of non-conformities identified during audits.

Data Measurement

The 132 kV substation for the 30 MW Solar Power Plant of Nirosha Power Pvt. Ltd. is located at Panwari, District Mahoba, Uttar Pradesh. Power evacuation from the plant is facilitated through the 132/33 kV Panwari Substation, owned and operated by Uttar Pradesh Power Transmission Corporation Ltd. (UPPTCL). Metering is carried out at the 132 kV level through main and check energy meters installed on the outgoing feeder connecting the plant to the Panwari 132/33 kV substation. The metering system complies with regulations set by the Uttar Pradesh Electricity Regulatory Commission (UPERC) and is accredited for energy accounting by the State Load Despatch Centre (SLDC), Uttar Pradesh. Export and import energy are measured continuously using the above-mentioned main and check meters located at the substation. An authorized officer of the State Electricity Board (SEB), in the presence of the Project Proponent (PP), takes monthly meter readings. Invoices are raised based on the Meter Reading Statement issued to Nirosha Solar Power Private Limited. These invoices are used to cross-check the meter readings taken for the respective project activity.

Data collection and archiving:

Readings from meters is collected in the presence of the plant in-charge. Export and Import data are recorded and stored in logs as well as in electronic form on a daily basis. The records are checked periodically by the Plant Manager and discussed thoroughly with the plant supervisor. The period of storage of the monitored data is for 2 years after the end of crediting period or till the last issuance of VERs for the project activity whichever occurs later.

Emergency preparedness:

The project activity does not encompass any unidentified processes that could cause significant unaccounted emissions. Detailed site operations manuals are maintained onsite to effectively guide routine operations. Electricity export is continuously

monitored through main and check energy meters. If the main meter, responsible for recording the net electricity exported by the project, is found to be faulty or operating outside accuracy limits, it will be promptly repaired or replaced. During this period, data from the check meter will be used to ensure uninterrupted and accurate energy measurement.

Similarly, should the check meter malfunction, it will also be repaired or replaced without delay to uphold the integrity of energy measurement. These procedures guarantee reliable energy accounting and enable swift corrective actions to minimize any operational disruptions.

Apportioning Procedure:

In case the dates of a particular monitoring period do not match with the dates of the billing cycle, the net electricity exported to the grid would be calculated from:

Apportioning the net electricity exported to grid, as recorded in the consolidated Share Certificate / JMR Report / Credit Notes certified by the respective state discom, based on the number of days in the monitoring period and the number of days for which Share Certificate / JMR Report / Credit Notes was prepared.
Net electricity exported to grid = (A/B) x C

Where,

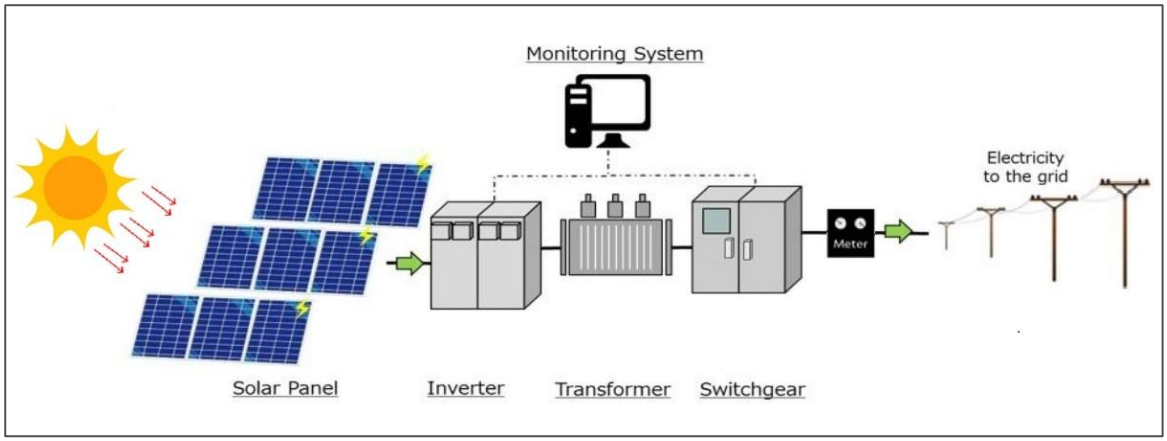
- A = Number of days matching in billing period and monitoring period
- B = Total number of days the billing period/month
- C = Net electricity supplied to the grid for the given billing period/month

Calculation of net electricity exported to the grid is done by both the approaches and conservative value among the two is used for calculation of emission reductions during that period.

Personnel training:

In order to ensure a proper functioning of the project activity and a properly monitoring of emission reductions, the staff (GS team) are 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.

Single Line Diagram of the project activity



SECTION D. DATA AND PARAMETERS

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

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SDG13 (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, March 2021[8]
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 three years 2017-18, 2018-19 and 2019-20. The data is obtained from "CO_2 Baseline Database for Indian Power Sector" version 16, 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.

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, March 2021[9]
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 7.0" as per the latest data available for the most recent year 2019-20. The data is obtained from "CO_2 Baseline Database for Indian Power Sector" version 16, 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.

[8] https://cea.nic.in/wp-content/uploads/baseline/2021/06/User_Guide_ver_16_2021-1.pdf
[9] https://cea.nic.in/wp-content/uploads/baseline/2021/06/User_Guide_ver_16_2021-1.pdf

Data/parameter	**$EF_{grid,CM,y}$**
Unit	tCO_2/MWh
Description	Combined Margin CO_2 emission factor in year y
Source of data	Calculated from CEA database, Version 16, March 2021[10]
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 CO_2 emission factor in year y (tCO_2/MWh) $EF_{grid,OM,y}$= Operating margin CO_2 emission factor in year y (tCO_2/MWh) W_{OM} = Weighting of operating margin emissions factor (%) = 75% W_{BM}= 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

>> **SDG 7 (Indicators 7.2.1)**

Data / Parameter	**$EG_{facility,y}$**
Unit	MWh
Description	Quantity of net electricity generation supplied by the project plant/unit in year y in MWh
Source of data	Monthly joint meter reading reports
Value(s) applied	142,701.68 MWh

Vintage Year	Duration (Both Days Included)	Generation Values
2021	20/09/2021 - 31/12/2021	13,686.13
2022	01/01/2022 - 31/12/2022	52,883.19

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

2023	01/01/2023 - 31/12/2023		50,780.49
2024	01/01/2024 - 30/06/2024		25,351.87
Total	20/09/2021 - 30/06/2024		142,701.68

Measurement methods and procedures

Data Type: Measured
Monitoring equipment: Energy Meters are used for monitoring
Recording Frequency: Continuous monitoring and Monthly recording from Energy Meters, Summarized Annually
Archiving Policy: Paper & Electronic Calibration **Frequency:** Once in five years.
Accuracy class: 0.2 s

Energy Meter Details:

Meter Sl. No.	Meter Sl. No.	Meter Make	Calibration Date	Calibration Due date
Main Meter	15625430	L&T	31/08/2020	30/08/2025
Check Meter	15199969	L&T	31/08/2020	30/08/2025
Check Meter[11]	UP-7870Z	SECURE	27/11/2023	26/11/2028

Electricity exported/imported to the grid is in kWh. However, for the calculation purpose electricity exported is converted in MWh.

The Net electricity supplied to the grid by the project activity will be calculated as a difference of electricity exported to the grid, electricity imported from the grid obtained from joint meter reading certificates/credit notes issued by Uttar Pradesh Power Corporation Ltd. (UPPCL)as per below equation:

$$EG_{facility,y} = EG_{Export} - EG_{Import}$$

The joint reading at metering point is carried out once in a month in presence of O&M officials and state electricity board personnel. The calculations/measurement of net electricity supplied to grid is under purview of state

[11] Check Meter is changed during reported monitoring period. The details of main meter and check meter are provided in section Annex-1: Calibration Meter Details~~Annex-1: Calibration Meter Details~~.

	electricity board and the PP/Project activity Instance owner has no role on it. PP/Project activity Instance owner will get value of net electricity supplied to grid and hence this parameter is mentioned as a part of monitoring plan. **Cross Checking:** Quantity of net electricity supplied to the grid will be cross checked from the invoices raised by the PP to the Uttar Pradesh Power Corporation Ltd. (UPPCL)
Monitoring frequency	Continuous measurement & monthly recording
QA/QC procedures	The meters are approved, tested & sealed by the State Utility. The meters are under the custody of the State Utility. Calibration details are provided in Annex-1: Calibration Meter Details~~Annex-1: Calibration Meter Details~~, and the meters are calibrated at a frequency of once every five years [12] . The monthly electricity supplied/exported by the project activity in the JMR report is cross checked with the monthly invoices of sale. In the absence or delay in the meter calibration appropriate Guidelines will be applied appropriately to confirm the conservativeness of metering. The accuracy class of meters, calibration frequency of meters is totally under purview of state electricity board and PP do not have any control on it. Thus deviation against the accuracy class, calibration frequency, metering arrangement etc is acceptable for future period.
Purpose of data	To Monitor the SDG 7 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 VERs for this project activity, whichever occurs later.

SDG 13 (Indicators 13.2.1)

Data / Parameter	**ER_y**
Unit	tCO_2e
Description	Emission reductions achieved per year
Source of data	During the current verification, the Emission Reduction (ER) sheet is being prepared using data from the Joint Meter Readings (JMR) and corresponding invoices.
Value(s) applied	133,367

[12] http://www.cbip.org/MIR/1%20DATA/CEA%201.pdf

	<table><tr><th>Vintage Year</th><th>Duration (Both Days Included)</th><th>Generation Values</th></tr><tr><td>2021</td><td>20/09/2021 - 31/12/2021</td><td>12,791</td></tr><tr><td>2022</td><td>01/01/2022 - 31/12/2022</td><td>49,424</td></tr><tr><td>2023</td><td>01/01/2023 - 31/12/2023</td><td>47,459</td></tr><tr><td>2024</td><td>01/01/2024 - 30/06/2024</td><td>23,693</td></tr><tr><td>Total</td><td>20/09/2021 - 30/06/2024</td><td>133,367</td></tr></table>
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 VERs for this project activity, whichever occurs later.

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 or The training records for all the employees/Letter from O&M contractor for employment generation/ DOE interview with employees, local stakeholders etc.
Value(s) applied	20 (10 Skilled Men + 10 Unskilled (08 Men + 02 Women) <table><tr><th>Vintage Year</th><th>Duration (Both Days Included)</th><th>Values</th></tr><tr><td>2021</td><td>20/09/2021 - 31/12/2021</td><td>20</td></tr><tr><td>2022</td><td>01/01/2022 - 31/12/2022</td><td>20</td></tr><tr><td>2023</td><td>01/01/2023 - 31/12/2023</td><td>20</td></tr><tr><td>2024</td><td>01/01/2024 - 30/06/2024</td><td>20</td></tr></table>

	Total	20/09/2021 - 30/06/2024	20
Measurement methods and procedures	The total number of persons working in the plant would be checked from the daily attendance sheet available at site. This parameter also monitors number of men/women employed by the project activity. The project activity ensures that "equal pay for work of equal value" for both men and women and there is no any discrimination against women[13]. "The employment covers number of men and number of women employed by the project activity. The job is of type temporary/permanent or skilled/unskilled, etc. The actual breakup of the type of employment provided shall be provided at the time of verification. Also it is ensued that peoples will get equal payment for equal work. The payment will be based on work and no any gender inequality for payment for work of equal value". The average hourly earnings of a person is calculated by considering 8 hours per day working as per Indian standards and is depicted below. For e.g, a person is getting a monthly salary of INR 18,566; then his hourly earnings will be calculated as follows: Hourly Income = 18,566/(30*8) = INR 77.36. ~~The~~ The project owner confirms that the average hourly income for skilled workers is INR 77.36 and for unskilled workers is INR 50.00. These wage rates were reviewed against the notification issued by the Chief Labour Commissioner (Central)[14] for B Category cities, which prescribes minimum hourly wages of INR 61.75 for skilled workers and INR 44.62 for unskilled workers, and are fully compliant with the required standards.~~hourly wages can be checked from the notification from the order~~		

[13] Both men and women are included under SDG-8, and equal pay for equal work is ensured. Gender-wise employment records for the monitoring period, including details of women employed at the site, have been shared with VVB.

[14] https://clc.gov.in/clc/min-wages

	~~published by the Chief Labour Commissioner (Central)[15]. As per the notification from Chief Labour Commissioner, for semi-skilled workers working in B Category of cities, the daily wage is 357, and accordingly the average hourly earnings comes out to be INR 44.62.~~ Thus, it can be justified that, PP is providing the employees/workers with salary/wages higher than the minimum wages as determined by the minimum wages order published by Chief Labour Commissioner (Central). The same can be checked from the salary slips provided.
Monitoring frequency	Monthly monitoring and annual compilation
QA/QC procedures	The number of persons employed would be mentioned in the plant register, which can be crossed checked with attendance register. Average hourly earnings of the employees/workers can be checked and calculated from the salary slips.
Purpose of data	To Monitor the SDG 8 Indicator
Additional comment	-

SDG 8 (Indicators 8.6.1)

Data / Parameter	Quality of Employment
Unit	Number
Description	Number of trainings provided per year
Source of data	Plant records or the training records for all the employees / DOE interview with employees, etc.
Value(s) applied	69

Vintage Year	Duration (Both Days Included)	Values
2021	20/09/2021 - 31/12/2021	02
2022	01/01/2022 - 31/12/2022	20
2023	01/01/2023 - 31/12/2023	39
2024	01/01/2024 - 30/06/2024	08

[15] ~~https://clc.gov.in/clc/min-wages~~

	Total	20/09/2021 - 30/06/2024	69	
Measurement methods and procedures	Together with the technology supplier, the Project organize training for the staff on the technology and the monitoring of the plant operation, and the emergency and safety procedures.			
Monitoring frequency	Annual			
QA/QC procedures	The training records for all the employees. Details are being mentioned in Annex-2: Training Details~~Annex-2: Training Details~~.			
Purpose of data	To Monitor the SDG 8 Indicator			
Additional comment	-			

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

>> Not Applicable (as this is non-Community Service Activities)

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

For the current monitoring period, the clean energy generation contributed by the project activity is 142,701.68 MWh.

SDG 8: Decent Work and Economic Growth

The project leads to employment opportunities which would not have been possible in the baseline scenario. During the current monitoring period, the project activity provided employment to 20 persons (10 Skilled + 10 Unskilled (08 Men + 02 Women).

Also, project activity improves the quality of employment by giving training to employee. During the current monitoring period, 69 trainings has been conducted.

SDG 13: Climate Action

As per ACM0002 V20.0 para 39, the emission reductions contributed by the project activity (ER_y) is calculated as follows:

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

As the project activity is a Greenfield power plant thus the Paragraph 41 of approved Methodology ACM0002 Version 20.0 is applicable;

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

Where:

BE_y	=	Baseline emissions in year y (t CO_2)
$EG_{PJ,y}$	=	Quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the CDM project activity in year y (MWh/yr)
$EG_{facility,y}$	=	Quantity of net electricity generation supplied by the project plant/unit to the grid in year y (MWh/yr)
$EF_{grid,CM,y}$	=	Combined margin CO_2 emission factor for grid connected power generation in year y

Combined margin emission factor = 0.9346 tCO_2e/MWh

Vintage Wise bifurcation:

20/09/21 to 31/12/21	=	13,686.13 MWh	X	0.9346 tCO_2e/MWh	=	12,791 tCO_2e
01/01/22 to 31/12/22	=	52,883.19 MWh	X	0.9346 tCO_2e/MWh	=	49,424 tCO_2e
01/01/23 to 31/12/23	=	50,780.49 MWh	X	0.9346 tCO_2e/MWh	=	47,459 tCO_2e
01/01/24 to 30/06/24	=	25,351.87 MWh	X	0.9346 tCO_2e/MWh	=	23,693 tCO_2e
20/09/21 to 30/06/24[16]	=	142,701.68 MWh	X	0.9346 tCO_2e/MWh	=	133,367 tCO_2e

BE_y = 142,701.68 MWh x 0.9346 tCO_2/MWh
= 133,367 tCO_2e (Round down value)

As per Para 54 of methodology ACM002,

$ER_y = BE_y - PE_y$

Project Emissions (PE_y): 0 (According to paragraph 31 of the approved Methodology ACM002 V20, project emissions for most renewable energy power generation activities are considered zero, resulting in $PE_y = 0$)

Where:

ER_y = Emission reductions in year y (t CO_2e)
BE_y = Baseline emissions in year y (t CO_2e)
PE_y = Project emissions in year y (t CO_2e)

Therefore, ER_y = 133,367 – 0
= 133,367 tCO_2e

[16] Current monitoring Period Duration.

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

>> As per the consolidated methodology ACM0002 v20, no project emission through the renewable project electricity generation.

E.3. Calculation of leakage

>>Not Applicable

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

SDG	SDG Impact	Baseline estimate	Project estimate	Net benefit
7	Affordable and Clean Energy	-	142,701.68 MWh	142,701.68 MWh
8	Decent Work and Economic Growth	-	No. of Employee working at site: 20 No. of trainings conducted: 69	No. of Employee working at site: 20 No. of trainings conducted: 69
13	Climate Action	133,367 tCO_2e	-	133,367 tCO_2e

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[17] achieved during this monitoring period
7	140,948.00 MWh	142,701.68 MWh
8	1 training/annum and employment to 10 persons	No. of Employee working at site: 20 (10 Skilled Men + 08 Unskilled Men + 02 Unskilled Women)

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

		No. of trainings conducted: 69
13	131,730 tCO_2e	133,367 tCO_2e

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

>>

SDG 7: Affordable and Clean Energy

The annual estimated power generation for the project activity is 47,371.00 MWh, thus considering number of days covered during present monitoring period to be 1015, the estimated power generation will be 140,948.00 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.

SDG 13: Climate Action

The annual estimated emission reduction for the project activity is 44,273 tCO_2e, thus considering number of days covered during present monitoring period to be 1015, the estimated emission reduction contributing towards SDG 13 will be 131,730 tCO_2e.

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

>> SDG 7 and SDG 13:

A total of 1.24 % higher generation and emission reduction achieved with respect to estimated values due to higher shine hours. Despite the higher emission reductions observed during the current monitoring period the additionality of the project remains unaffected. The Plant Load Factor (PLF) remains within the sensitivity analysis limits defined in the registered PDD and does not exceed the breaching benchmark values. Further the vintage-wise PLF variation remains within acceptable limits, thereby justifying the observed increase in emission reductions.

Vintage Year	Days	Vintage Wise Generation (In MWh)	Observed PLF (%)	PLF at the time of Validation (%)	PLF Variations (%)	PLF Additionality Breaching Values as per sensitivity	Additionality breached due to increased PLF (%)

						analysis (%)	
2021	103	13,686.13	18.45%	18.30%	0.85%	20.78%	No
2022	365	52,883.19	20.12%	18.30%	9.96%	20.78%	No
2023	365	50,780.49	19.32%	18.30%	5.59%	20.78%	No
2024	182	25,351.87	19.35%	18.30%	5.72%	20.78%	No
Total	1015	142,701.68	19.53%	18.30%	6.70%	20.78%	No

SDG 8: Number of training and employment figure is slightly higher, which is conservative.

SECTION F. SAFEGUARDS REPORTING

>> Summary of Monitoring Related to Safeguarding Principles:

- The project activity is running well and generating electricity as expected. Small issues like inverter downtime were quickly fixed, and maintenance has been improved to avoid future problems.
- Key indicators such as power generation, energy exported to the grid, and equipment performance were checked through the SCADA system and stayed within normal limits.
- All points that needed regular review, such as maintenance and worker safety, were checked and found to be satisfactory.
- No complaints or grievances were received during this period. A proper system is in place to handle any future complaints.

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.

>> As a part of continuous feedback from stakeholders, the grievances register is placed at site and is being continuously monitored and if any comments are received, they are addressed through the grievance cell. During the current monitoring period, there were no comments/feedbacks received in the grievance register.

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

>>Not Applicable – No Mitigation Measures Were Required or Committed for Monitoring. During the stakeholder consultation process and throughout project implementation, no specific mitigation measures were proposed or agreed upon that required ongoing monitoring. Furthermore, no negative feedback, complaints, or grievances were recorded during the monitoring period.

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

>> Not Applicable as No legal contests or disputes have arisen in connection with the project during the current monitoring period. The project has been in full compliance with all applicable local, regional, and national laws and regulations. There have been no litigations, court proceedings, or legal challenges involving the project activities, its stakeholders, or its implementation.

Annex-1: Calibration Meter Details

Main Meter:

Meter Sl. No.	Meter Make	Accuracy Class	Date of Calibration	Due date for Calibration
15625430 (Main Meter)	Larson and Toubro Limited	0.2 s	31/08/2020	30/08/2025

Check Meter:

Meter Sl. No.	Meter Make	Accuracy Class	Date of Calibration	Due date for Calibration
15199969 (Check Meter)	Larson and Toubro Limited	0.2 s	31/08/2020	30/08/2025

Meter Change date: 27/11/2023

Meter Sl. No.	Meter Make	Accuracy Class	Date of Calibration	Due date for Calibration
UP-7870Z (Check Meter)	SECURE APEX 150	0.2 s	27/11/2023	26/11/2028

Annex-2: Training Details

Sr. No.	Location	Date	Training Session Title
1	Online	06/10/2021	General Safety Awareness
2	Online	15/12/2021	General Safety Awareness
3	Main Control Room (MCR)	18/01/2022	Waste Management & Fire Safety
4	MCR	10/02/2022	Unsafe Acts
5	Online	23/03/2022	Fire Triangle Awareness (Safety)
6	MCR	19/04/2022	Fire Extinguisher Usage
7	MCR	15/05/2022	General Work - Permit to Work (PTW)

8	MCR	01/06/2022	Working at Height
9	MCR	11/06/2022	Electrical Safety
10	MCR	16/06/2022	Human & Animal Safety
11	MCR	20/06/2022	Basic First Aid
12	MCR	29/06/2022	Lockout Tagout (LOTO) Awareness
13	MCR	08/07/2022	Safety Committee Meeting
14	Online	14/07/2022	General Safety Awareness
15	MCR	08/08/2022	Fire Extinguisher Usage
16	MCR	18/08/2022	Waste Management & Fire Safety
17	MCR	14/09/2022	Road Safety
18	MCR	15/09/2022	Safety Induction
19	MCR	18/09/2022	Fire Safety Training
20	MCR	29/09/2022	Dangerous Goods Regulations (DGR) Training
21	MCR	28/11/2022	Safety Committee Meeting
22	Online	22/12/2022	General Safety Awareness
23	MCR	04/04-2023	General Safety
24	MCR	07/04/2023	Near Miss Reporting
25	MCR	14/04/2023	National Fire Service Week Awareness
26	MCR	15/04/2023	Snake Bite & First Aid Response
27	MCR	22/04/2023	Types of Permits to Work (PTW)
28	MCR	04/05/2023	Unsafe Acts
29	MCR	11/05/2023	Earth Pit Testing
30	MCR	13/05/2023	Human & Animal Safety
31	MCR	19/05/2023	JCR Filter Cleaning Procedure
32	MCR	05/06/2023	World Environment Day Awareness
33	MCR	06/06/2023	Internal Maintenance Procedures
34	MCR	08/06/2023	Fire Safety Training
35	MCR	19/06/2023	Fire Extinguisher Usage
36	MCR	29/06/2023	MIS Format Discussion
37	MCR	13/07/2023	First Aid (EHS)
38	MCR	14/07/2023	Fire Extinguisher Usage
39	MCR	20/07/2023	Road Safety
40	MCR	29/07/2023	General Work - Permit to Work (PTW)
41	MCR	04/08/2023	Switchyard Training
42	MCR	14/08/2023	Fire Extinguisher Usage
43	MCR	23/08/2023	Rainwater Harvesting Discussion
44	MCR	25/08/2023	Grass Cutting Safety & Management
45	MCR	29/08/2023	SOP for Tilting Work
46	MCR	01/09/2023	PPR Compliance
47	MCR	07/09/2023	Fire Extinguisher Usage
48	MCR	19/09/2023	Vendor Compliance Requirements
49	MCR	24/09/2023	Use of VFD Driver
50	MCR	02/10/2023	Emergency Mock Drill

51	MCR	07/10/2023	Road Safety
52	MCR	09/10/2023	EHS Review Training
53	MCR	17/10/2023	Inverter Preventive Maintenance
54	MCR	30/10/2023	IDT & ICOG Maintenance
55	MCR	02/11/2023	Importance of Electrical PTW
56	MCR	09/11/2023	ICR Training - Preventive Measures
57	MCR	16/11/2023	SCB Preventive Maintenance
58	MCR	29/11/2023	Investor Preventive Maintenance
59	MCR	07/12/2023	Importance of IS, HIRA, SOP & LOTO
60	MCR	12/12/2023	Importance of First Aid and its use
61	MCR	20/12/2023	EHS Review Meeting
62	MCR	06/01/2024	EHS Site Meeting
63	MCR	17/01/2024	Road Safety
64	MCR	23/01/2024	Kaizen Activity at Site
65	MCR	25/01/2024	Earth Pit Maintenance
66	MCR	03/02/2024	SCB Operation & Maintenance
67	MCR	08/02/2024	Annual Equipment Training (MCR & ICR)
68	MCR	04/03/2024	Inverter & ITD Training
69	MCR	19/03/2024	PV Vegetation Control

Annex-3: Breakdown Details

Date	Total Down Time duration	Reason of Down	Corrective Action Taken by Site Team
05/06/2023	12:31	String FUSE BLOWN	We checked and found SCB 7 Y-1 B/D due to string fuse blown we replaced and restart again.
08/07/2023	13:19	Open Circuit Voltage Not Showing	We checked and found SCB 2 Y-3 B/D due to 25 Modules Diodes failure through sky lightning last night.
09/07/2023	13:21	Open Circuit Voltage Not Showing	We checked and found SCB 2 Y-3 B/D due to 25 Modules Diodes failure through sky lightning. We bypass 25 Modules and start half string.
11/07/2023	12:06	Open Circuit Voltage Not Showing	We checked and found SCB 2 Y-3 B/D due to 25 Modules Diodes failure through sky lightning. We bypass 25 Modules and start half string.
12/07/2023	12:06	Open Circuit Voltage Not Showing	We checked and found SCB 2 Y-3 B/D due to 25 Modules Diodes failure through sky lightning. We bypass 25 Modules and start half string.

13/07/2023	13:12	Open Circuit Voltage Not Showing	We checked and found SCB 2 Y-3 B/D due to 25 Modules Diodes failure through sky lightning. We bypass 25 Modules and start half string.
14/07/2023	13:11	Open Circuit Voltage Not Showing	We checked and found SCB 2 Y-3 B/D due to 25 Modules Diodes failure through sky lightning. We bypass 25 Modules and start half string.
15/07/2023	13:11	Open Circuit Voltage Not Showing	We checked and found SCB 2 Y-3 B/D due to 25 Modules Diodes failure through sky lightning. We bypass 25 Modules and start half string.
16/07/2023	13:13	Open Circuit Voltage Not Showing	We checked and found SCB 2 Y-3 B/D due to 25 Modules Diodes failure through sky lightning. We bypass 25 Modules and start half string.
18/07/2023	13:33	Open Circuit Voltage Not Showing	We checked and found SCB 2 Y-3 B/D due to 25 Modules Diodes failure through sky lightning. We bypass 25 Modules and start half string.
19/07/2023	13:32	Open Circuit Voltage Not Showing	We checked and found SCB 2 Y-3 B/D due to 25 Modules Diodes failure through sky lightning. We bypass 25 Modules and start half string.
20/07/2023	13:29	Open Circuit Voltage Not Showing	We checked and found SCB 2 Y-3 B/D due to 25 Modules Diodes failure through sky lightning. We bypass 25 Modules and start half string.
21/07/2023	13:31	Open Circuit Voltage Not Showing	We checked and found SCB 2 Y-3 B/D due to 25 Modules Diodes failure through sky lightning. We bypass 25 Modules and start half string.
22/07/2023	13:31	Open Circuit Voltage Not Showing	We checked and found SCB 2 Y-3 B/D due to 25 Modules Diodes failure through sky lightning. We bypass 25 Modules and start half string.
23/07/2023	13:31	Open Circuit Voltage Not Showing	We checked and found SCB 2 Y-3 B/D due to 25 Modules Diodes failure through sky lightning. We bypass 25 Modules and start half string.
24/07/2023	13:29	Open Circuit Voltage Not Showing	We checked and found SCB 2 Y-3 B/D due to 25 Modules Diodes failure through sky lightning. We bypass 25 Modules and start half string.
25/07/2023	13:10	Open Circuit Voltage Not Showing	We checked and found SCB 2 Y-3 B/D due to 25 Modules Diodes failure through sky lightning. We bypass 25 Modules and start half string.
26/07/2023	13:10	Open Circuit Voltage Not Showing	We checked and found SCB 2 Y-3 B/D due to 25 Modules Diodes failure through sky lightning. We bypass 25 Modules and start half string.

27/07/2023	13:19	Open Circuit Voltage Not Showing	We checked and found SCB 2 Y-3 B/D due to 25 Modules Diodes failure through sky lightning. We bypass 25 Modules and start half string.
08/08/2023	13:10	String to SCB cable fault	Checked and found SCB1 Y-1, Y-2, Y-3, and Y-4 B/D due to string cable, MC4 connectors, and Y connector burnt. Replaced all components and restarted.
18/08/2023	12:55	String FUSE BLOWN	We checked and found SCB1 Y-1 B/D due 30amp dc fuse blown. We replaced and restart again.
Total	276:30		

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