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)	GS 7726
Title of the project (s) covered by monitoring report	300 MW Solar PV Plant at Bhadla, 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	11/12/2024
Date of project design certification	27/09/2021
Date of Last Annual Report	21/11/2023
Monitoring period number	03
Duration of this monitoring period	01/11/2022 to 30/09/2023 (Including both the days)
Project Representative	Clean Solar Power (Bhadla) 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
Product Requirements applied	☒ GHG Emissions Reduction & Sequestration ☐ Renewable Energy Label ☐ N/A

Table 1 - Sustainable Development Contributions Achieved

Sustainable Development Goals Targeted	SDG Impact	Amount Achieved	Units/ Products
SDG 7: Affordable and Clean Energy	MWh of renewable energy generated	700,290.44	MWh
SDG 8: Decent Work and Economic Growth	Trainings Employees	06 training 42 Employment	Trainings Employees
SDG 13: Climate Action	Emission Reduction	654,490	VERs

Table 2 – Product Vintages

		Amount Achieved		
Start Dates	**End Dates**	**SDG 7**	**SDG 8**	**SDG 13**
01/11/2022	31/12/2022	113,250.18 MWh	07 people were employed and 03 training conducted	105,843 tCO_2e
01/01/2023	30/09/2023	587,040.27 MWh	35 people were employed and 03 training conducted	548,647 tCO_2e

SECTION A. DESCRIPTION OF PROJECT

A.1. General description of project

The main purpose of the project activity is to generate electrical energy through sustainable means using solar power resources, the generated green electricity is contributing to climate change mitigation efforts. This project activity is a large-scale solar project. Clean Solar Power (Bhadla) Pvt. Ltd. is the project investors for this project activity. The project is replacing anthropogenic emissions of greenhouse gases (GHG's) estimated to be approximately 693,327 tCO_2e per annum, thereon displacing 741,845 MWh/year amount of electricity from the generation-mix of power plants connected to the Indian electricity grid, which is mainly dominated by thermal/ fossil fuel-based power plant[1].

The project activity is the installation of a new grid-connected renewable power plant/unit and this is not a CPA that has been excluded from a registered CDM PoA as a result of erroneous inclusion of CPAs.

The details of the project are mentioned in the table:

1	Power Purchase Agreement	27/04/2018
2	Start Date (EPC contract)	19/02/2019
3	Stakeholder feedback Round	26/07/2020

Project Investors' Name	Commissioning dates	Capacity in MW	District	State
Clean Solar Power (Bhadla) Pvt. Ltd. (R1)	15/02/2020	100 MW	Jodhpur	Rajasthan
Clean Solar Power (Bhadla) Pvt. Ltd. (R2)	28/02/2020	100 MW	Jodhpur	Rajasthan
Clean Solar Power (Bhadla) Pvt. Ltd. (R3)	10/12/2019	100 MW	Jodhpur	Rajasthan

Scenario existing prior to the implementation of the project activity:

[1] https://cea.nic.in/wp-content/uploads/baseline/2021/06/User_Guide_ver_16_2021-1.pdf (please refer page no. 3 for more details)

As the project activity is the installation of a new grid-connected renewable power plant/unit. The scenario existing prior to the implementation of project activity 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 07: Tool to calculate the emission factor for an electricity system" (Version 7.0, EB 100 annex 4).

Baseline Scenario

Baseline scenario and Scenario existing prior to the implementation of the project activity are both same.

Sustainable Development

The project's contribution towards sustainable development has been addressed based on the following sustainable development aspects:

- Social well being

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

- 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 leads to the promotion 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.

During the current monitoring period 01/11/2022 to 30/09/2023 (Inclusive of both the dates) the project resulted in emission reductions of 654,490 tCO_2e. The project has been fully implemented and underwent continued operation other than scheduled maintenance and breakdowns during the current monitoring period.

Project developer hereby confirms that-

- There is no double counting of credits for thus monitoring period. The project is neither registered under the REC mechanism of India and same can be cross-checked at https://www.recregistryindia.nic.in
- No VERs are claimed for the same vintage with any compliance (Clean development mechanism or voluntary market-based mechanisms other than the GS4GG.
- GHG emissions reductions from the project activity are not accounted for within the relevant system of the host country/regional or voluntary mechanism.
- No risk of double counting concerning national climate policies for the project, also with reference to the existing NDC target of the host country (India).
- PD has not or will not issue emission reductions (ER) for the same vintage from this project under any other carbon market mechanism.
- project activity is not registered with any other compliance or voluntary market-based mechanism. PD cannot claim VERs for the same vintage in another standard other than GS and there is no double counting with national climate policies or programs.

GHG emissions reductions from the project activity are not accounted for within the relevant system of the host country/ regulator or any voluntary mechanism.

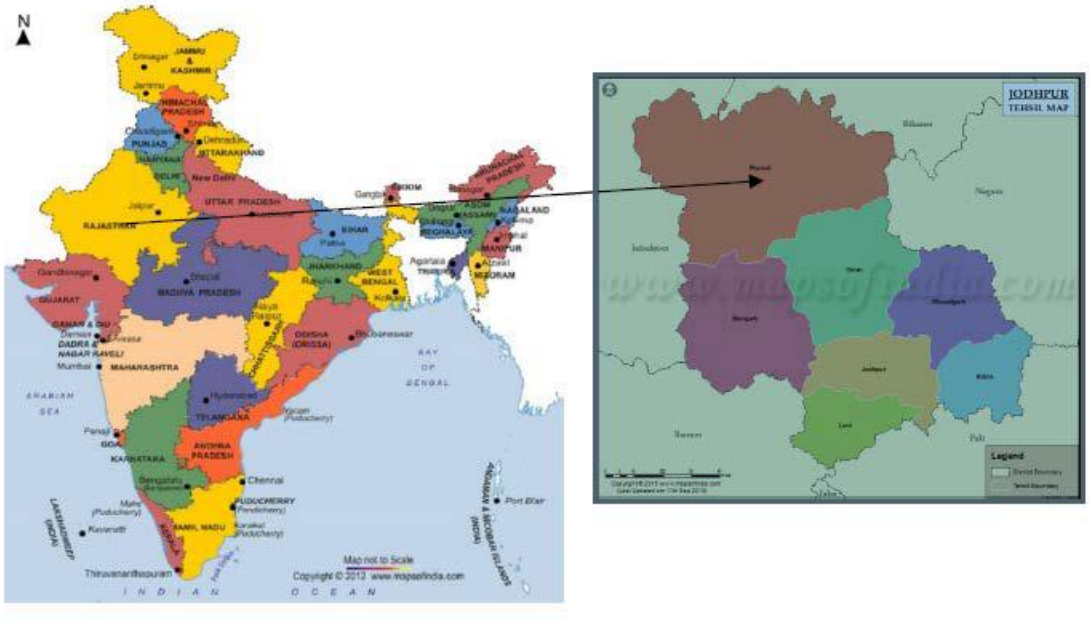
A.2. Location of project

>>

The project activity is located at R1, R2 and R3 plot- Bhadla phase III Solar Park, Village – Bhadla, Tehsil: Phalodi at Jodhpur district in Rajasthan.

Project Investors' Name	Commissioning Date	Capacity in MW	UTM Coordinates	Village/ Tehsil/ District	State

Clean Solar Power (Bhadla) Pvt. Ltd. (R1)	15/02/2020	100 MW	27° 28' 20.7336'' (N) 72° 0' 13.572'' (E)	Bhadla/ Phalodi/ Jodhpur	Rajasthan
Clean Solar Power (Bhadla) Pvt. Ltd. (R2)	28/02/2020	100 MW		Bhadla/ Phalodi/ Jodhpur	Rajasthan
Clean Solar Power (Bhadla) Pvt. Ltd. (R3)	10/12/2019	100 MW		Bhadla/ Phalodi/ Jodhpur	Rajasthan



A.3. Reference of applied methodology

Title : Grid-connected electricity generation from renewable sources.

References : Approved Large Scale Consolidated Methodology: ACM0002 "Grid-connected electricity generation from renewable sources" Version 20.0[2].

Tools 01: Tool for the demonstration and assessment of additionality 7.0[3]

[2] https://cdm.unfccc.int/methodologies/DB/XP2LKUSA61DKUQC0PIWPGWDN8ED5PG
[3] https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-01-v7.0.0.pdf

Tool07: Tool to calculate the emission factor for an electricity system 7.0[4]

A.4. Crediting period of project

Start date of crediting period: 10/12/2019 – 09/12/2024

Total Length of crediting period : 5 Years

Type of crediting period : Renewable

SECTION B. IMPLEMENTATION OF PROJECT

B.1. Description of implemented project

The project activity involves installation of 300 MW grid connected solar photovoltaic power plant. The PV system mainly consists of PV modules, module mounting structures, inverters, regulators, monitoring devices etc.

Item	Description
Plant Capacity	300 MW
Solar PV Module	433 MWp
Module Type	Polycrystalline
Capacity of each Module proposed	335 Wp/325 Wp/315Wp
Inverter Capacity	2500 kWac
Solar Inverter	Central

Electrical Characteristic are as below:

- 3-phase alternating current
- Nominal frequency is 50 Hz
- Final Voltage at Delivery Point is 400/220/132/66kV

The project activity is operating at a plant load factor of 28.37 % exporting 741,845 MWh of electrical energy to the Indian grid throughout its entire life span of 25 years. The remaining technical lifetime of the electricity generating equipment 20 years 04 months. The plant load factor (PLF) as per the registered Project Design Document (PDD) was 28.37%, while the PLF achieved during the current monitoring period is 29.12%.

[4] https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-07-v7.0.pdf

This is resulting in average annual reduction of 693,327 tCO_2e per annum from the project activity. The project activity does not involve any technology transfer.

Sr. No	Project ID	Project location	Capacity (MW)	Commissioning Date
1	R1 Plot	Village –Bhadal, Tehsil- Phalodi, Dist-Jodhpur	100 MW	15/02/2020
2	R2 Plot	Village –Bhadal, Tehsil- Phalodi, Dist-Jodhpur	100 MW	28/02/2020
3	R3 Plot	Village –Bhadal, Tehsil- Phalodi, Dist-Jodhpur	100 MW	10/12/2019

Single line diagrams:

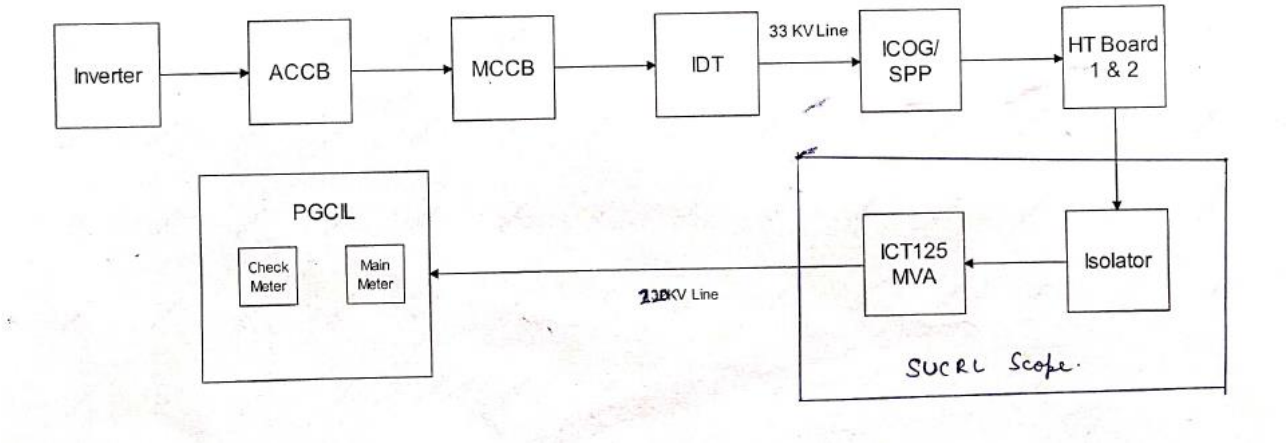


Figure 1 Single line diagram of plot R1

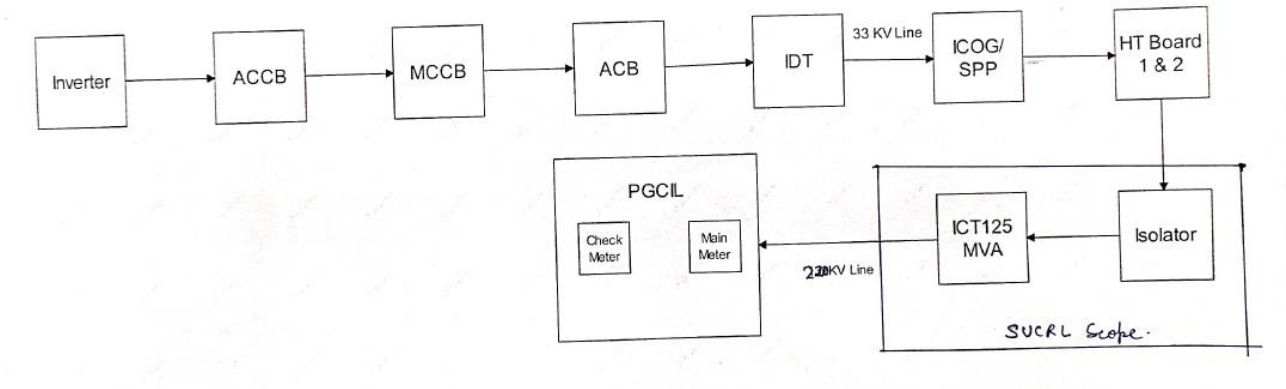


Figure 2 Single line diagram of plot R2 and R3

The installation details of the equipment's at the project site are remained the same during this monitoring period and there is no exchange of equipment's. Also, there are no events / situations leading to changes in project activity that occurred during the monitoring period.

B.1.1 Forward Action Requests

FAR 1: At the time of verification, VVB shall check the rainwater drains and confirm its functionality.

Response- During 1st verification, the verifying VVB has confirmed that rainwater drains are provided which was confirmed during the current assessment too.

FAR-2 At the time of verification, VVB shall check that salaries paid to the local, unskilled workers is as per local standards.

Response- This FAR is also closed during the 1st verification and for the current assessment, assessment team checked and confirmed from the salary slips from local, unskilled workers that they are being paid salary which is as per the local standards.

FAR-3 Site visit shall be performed at the time of 1st verification for this project activity. Verifying VVB shall confirm the location of the project activity in line with geocoordinates.

Response- Since physical site visit was conducted for the 1st verification, this FAR is already closed.

B.2. Post-Design Certification changes

>>

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

>> There are no deviations/delays regarding the implementation status from registered PDD, Monitoring and Reporting Plan, applied methodology or applied standardized baseline.

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

>> 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

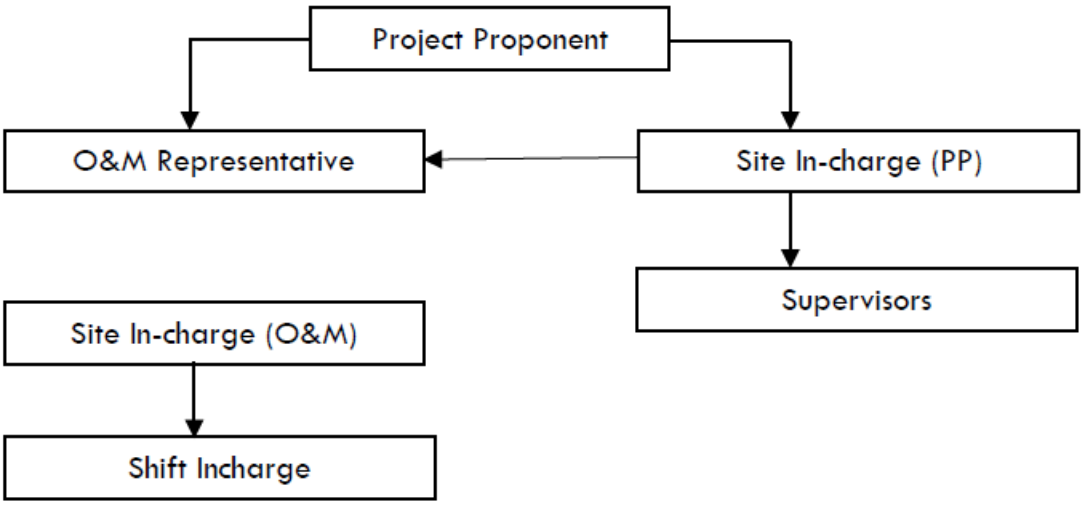
>> Not Applicable during the current monitoring period. There are no changes to project design of the approved project.

SECTION C. DESCRIPTION OF MONITORING SYSTEM APPLIED BY THE PROJECT

The monitoring plan is developed in accordance with the modalities and procedures for CDM project activities and is proposed for grid-connected solar power project/ unit being implemented in Rajasthan, India. 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.

The monitoring team is composed the following staff:



Responsibilities of Site Incharge (PP): Overall functioning and maintenance of the project activity, the Site incharge is coordinating with the O&M operator as well as the site supervisors.

The DSA statement issued by NRPC (Northern Regional Power Committee) contains the information of the Scheduled Power, Actual Power and the Deviation between actual &

scheduled power. The scheduled power being feed into the grid can be cross-checked from the monthly Invoices raised by the PP. For ER calculations, the values of Actual power will be considered.

In any case where values have slightest of variation in different records the most conservative value will be taken in the project monitoring report.

Responsibilities of O&M Representative: Co-ordination between Site incharge of the O&M operator as well as the project participant and further report to PP head office.

Responsibilities of Site In-charge (O&M Operator): Responsibility for maintaining the data records, ensures completeness of data, and reliability of data (calibration of equipment) as well as data recording for all the parameters.

Responsibilities of Shift In-charge: Responsibility for day to day data collection and maintains day to day monitored data.

Data archiving policy: All monitored data is archived electronically for a period of two years after the end of the crediting period or the last issuance of GS VERs, whichever occurs later.

Data Measurement: The scheduled generation is published on REA website and invoice is raised on the scheduled generation. But for emission reduction calculation actual generation is referred provided by Northern Regional Power Committee as Deviation Settlement Account. The link for DSA is mentioned below-

http://164.100.60.165/archives/ar_comm2021-2022.html

The DSA is uploaded on weekly basis and given in LU and will be converted into MWh

Data collection and archiving

Export & Import readings from main and check meters is collected under the supervision of the O&M Team or authorized representatives of PP. The net electricity supplied to grid is be calculated based on export & import readings. The period of storage of the monitored data is 2 years after the end of crediting period or till the last issuance of GS VERs for the project activity whichever occurs later.

Mismatch in Monitoring Period and the Billing Period

In case the dates of a particular monitoring period do not match with the dates of the billing period, the net electricity exported to the grid is calculated from: D = (A/B)*C

A = Difference of number of days which are not matching of billing period and monitoring period.

B = Number of days of the billing period/ month which was not matched with the monitoring period.

C = Net Electricity supplied to the grid for that given billing period/ month. The calculated value after apportioning would be used for calculation of emission reductions during that period.

Emergency preparedness

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

In the unlikely event of failure of both Main meter &/or Check meter installed at sub-station, where both the faulty meters are required to repair or replaced simultaneously, the meters shall be replaced immediately by the spare meter kept available at the site.

Personnel training

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

Single line diagrams:

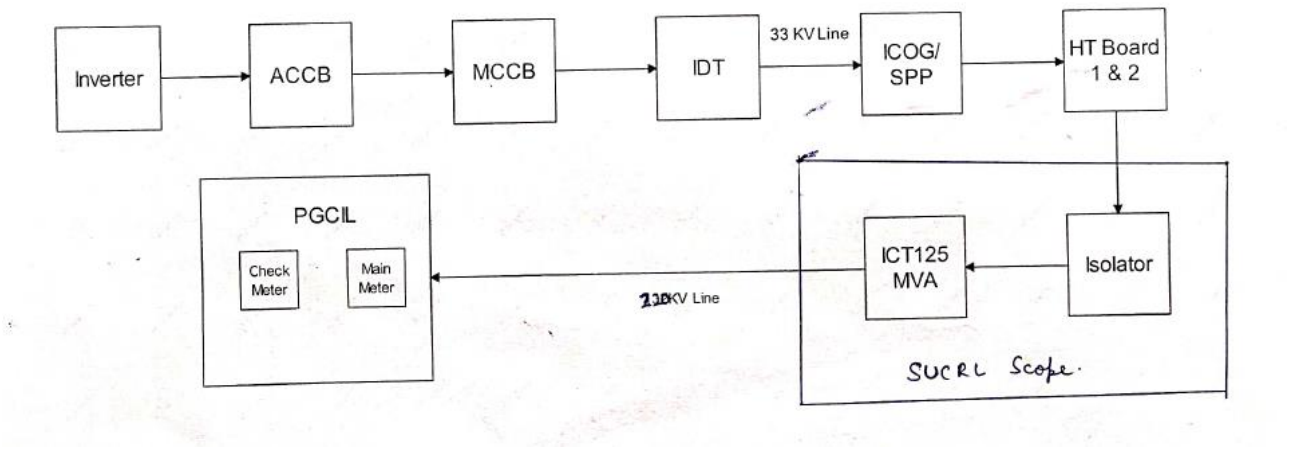


Figure 3 Single line diagram of plot R1

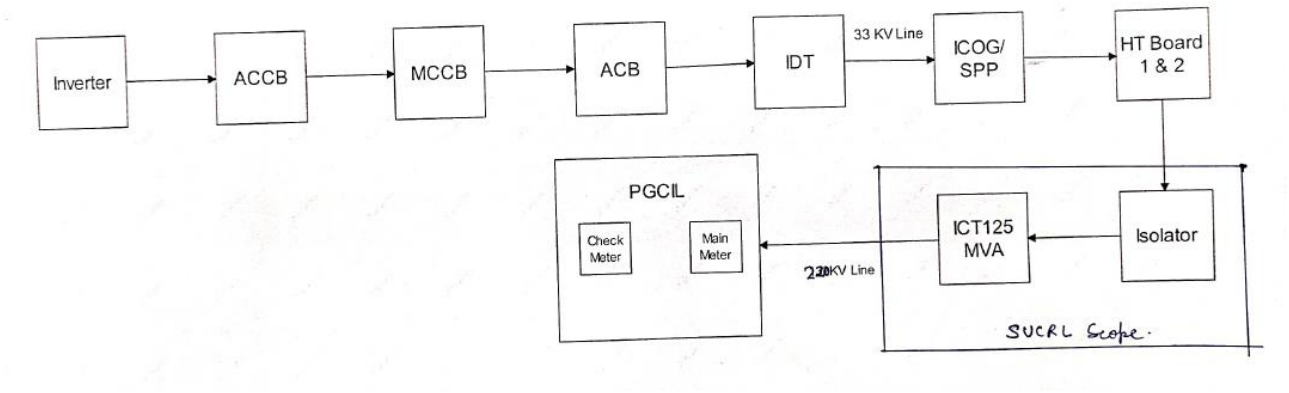


Figure 4 Single line diagram of plot R2 and R3

SECTION D. DATA AND PARAMETERS

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

SDG 13 (Indicators 13.2.1)

Data/parameter	**$EF_{OM,y}$**
Unit	tCO_2/MWh
Description	Operating Margin CO_2 emission factor in year y
Source of data	Calculated from CEA database, version 16[5]
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 07.0.0" as 3-year generation weighted average using data for the years 2017-18, 2018-19 and 2019-20. The data are 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.

Data/parameter	**$EF_{BM,y}$**
Unit	tCO_2/MWh

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

Description	Build Margin CO_2 emission factor in year y
Source of data	Calculated from CEA database, version 16[6]
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 07.0" as 3-year generation weighted average using data for the years 2019-20. The data are 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.

Data/parameter	$\mathbf{EF_{CM,y}}$
Unit	tCO_2/MWh
Description	Combined Margin CO_2 emission factor in year y
Source of data	Calculated from CEA database, Version 16
Value(s) applied	0.9346 (Indian grid)
Choice of data or Measurement methods and procedures	The combined margin emissions factor is calculated as follows: $\mathbf{EF_{grid,CM,y} = EF_{grid,OM,y} * W_{OM} + EF_{grid,BM,y} * W_{BM}}$ 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.

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

D.2 Data and parameters monitored

SDG 7: Affordable and Clean Energy (Indicators 7.2.1: Renewable energy share in the total final energy consumption)

Data / Parameter	**$EG_{Facility,y}$**
Unit	MWh
Description	Total Net electricity exported to grid
Source of data	REA data from Northern Regional Power Committee or Credit notes from the state electricity utility or Generation statement in SLDC data.
Value(s) applied	<table><tr><td>Period</td><td>Value (MWh)</td></tr><tr><td>01/11/2022 to 31/12/2022</td><td>113,250.18</td></tr><tr><td>01/01/2023 to 30/09/2023</td><td>587,040.27</td></tr><tr><td>**Total**</td><td>**700,290.44**</td></tr></table>
Measurement methods and procedures	Monitoring: Electrical Energy Meters which are electronic tri-vector meters of accuracy class 0.2 (Main & Check meters) Data type: Measured & Calculated Archiving: Paper & Electronic Recording Frequency: Daily Responsibility: The O&M site-in-charge shall be responsible for the regular recording of data.
Monitoring frequency	Continuous measurement and monthly recording
QA/QC procedures	The meters are calibrated once in every 5 years by an independent testing laboratory and the data will be cross checked with sales record. Meter details are mentioned in Appendix1: meter calibration details.
Purpose of data	The Data/Parameter is required to calculate the baseline emission
Additional comment	The data is kept for two years after the end of the crediting period or the last issuance of CERs for this project activity, whichever occurs later.

SDG 13: Climate Action (Indicators 13.2.2: Total greenhouse gas emissions per year)

Data / Parameter	**ER_y**
Unit	tCO_2e/ year
Description	CO_2 emission reduction due to implementation of project activity.
Source of data	Calculated as per "Tool to calculate the emission factor for an electricity system,". The data are obtained from "CO2 Baseline Database for Indian Power Sector" version 16.0, published by the Central Electricity Authority, Ministry of Power, Government of India.

Value(s) applied	<table><tr><th>Period</th><th>Emission Reduction (tCO_2e)</th></tr><tr><td>01/11/2022 to 31/12/2022</td><td>105,843</td></tr><tr><td>01/01/2023 to 30/09/2023</td><td>548,647</td></tr><tr><td>**Total**</td><td>**654,490**</td></tr></table>
Measurement methods and procedures	Calculated from CEA database and Energy Generation
Monitoring frequency	The energy meters are calibrated once in every 5 years by an independent testing laboratory. The calibration of the meters done once in five year as per CEA notification[7].
QA/QC procedures	Quantity of net electricity supplied to the grid will be cross checked from the Invoices/Monthly Bill raised by the Project Participants.
Purpose of data	Calculation of baseline emissions
Additional comment	The data is archived for crediting period+2 years

SDG 8: Decent Work and Economic Growth (Indicators 8.5.1: Average hourly earnings of female and male employees, by occupation, age and persons with disabilities)- Principle 2: Gender Equality

Data / Parameter	Quantitative employment
Unit	Number (employees)
Description	Number of project employees with Number of male/female, permanent/temporary, local/non local.
Source of data	Employee Records, Letter from O&M contractor for employment generation Or VVB interview with employees

[7] https://www.aegcl.co.in/Metering_Regulations_Of_CEA_17_03_2006.pdf

Value(s) applied

Total 42 people are employed. Further, below is the breakup of employment generated during monitoring period.

Year	Male	Female	Total
2022	07	0	07
2023	30	05	35
Total	37	05	42

Year	Local	Non-local	Total
2022	05	02	07
2023	28	07	35
Total	33	09	42

Year	Permanent	Temporary	Total
2022	06	01	07
2023	33	02	35
Total	39	03	42

Year	Skilled	Unskilled	Total
2022	05	02	07
2023	32	03	35
Total	37	05	42

Measurement methods and procedures

The total number of persons working in the plant calculated based on the daily log available at site.
This parameter also monitor number of men/women employed by the project activity.
The job is of type temporary/permanent or skilled/unskilled and local/non-local.
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."
people 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 14,501; then his hourly earnings will be calculated as follows: Hourly Income = 14,501/(30*8) = INR 60.42.
The minimum wages can be checked from State government published Minimum Wages (Final) Notification 2019: https://labour.rajasthan.gov.in/notification.aspx
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 come 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 updated/ latest

	minimum wages order published by Chief Labour Commissioner (Central). The same can be checked from the salary slips provided.
Monitoring frequency	Annually
QA/QC procedures	The number of persons employed would be mentioned in the plant register, which can be crossed checked with daily attendance register. Salary slip can be checked for earnings of employees
Purpose of data	Continuation of regular trainings/workshops for employees & O&M staff
Additional comment	-

SDG 8 (Indicators 8.6.1 - Proportion of youth (aged 15–24 years) not in education, employment or training) Principle 6.1: Labor Rights

<table>
<tr><td>Data / Parameter</td><td>Quality of Employment</td></tr>
<tr><td>Unit</td><td>Numbers</td></tr>
<tr><td>Description</td><td>Number of Trainings provided to employees</td></tr>
<tr><td>Source of data</td><td>Plant records or the training records for all the employees/ VVB interview with employees, etc.</td></tr>
<tr><td>Value(s) applied</td><td>06 trainings are conducted during current monitoring period. Below is the schedule of trainings conducted during the current monitoring period.
<table>
<tr><th>Sr. no.</th><th>Topic</th><th>Date</th><th>No. of participants</th></tr>
<tr><td colspan="4">R1</td></tr>
<tr><td>1</td><td>First -Aid or Emergency preparedness plan at site</td><td>21/11/2022</td><td>06</td></tr>
<tr><td>2</td><td>Height work training</td><td>14/02/2023</td><td>10</td></tr>
<tr><td colspan="4">R2</td></tr>
<tr><td>1</td><td>Safe material Handling</td><td>03/12/2022</td><td>07</td></tr>
<tr><td>2</td><td>First -aid</td><td>30/08/2023</td><td>25</td></tr>
<tr><td colspan="4">R3</td></tr>
<tr><td>1</td><td>First-aid, CPR, emergency preparation</td><td>22/11/2022</td><td>31</td></tr>
<tr><td>2</td><td>Height work training</td><td>14/02/2023</td><td>31</td></tr>
</table></td></tr>
<tr><td>Measurement methods and procedures</td><td>The technology supplier and the Project developer organize training for the staff on the technology, the monitoring of the plant operation, and the emergency and safety procedures.</td></tr>
<tr><td>Monitoring frequency</td><td>Annually</td></tr>
<tr><td>QA/QC procedures</td><td>The training records for all the employees</td></tr>
</table>

Purpose of data	To Monitor the SDG 8 Indicator
Additional comment	-

Safeguarding principle: 4.3.5-Principle 9.5: Hazardous and non-hazardous waste

Data / Parameter	Hazardous Waste and non-hazardous waste
Unit	-
Description	The manufacture, trade, release, and use of hazardous chemicals and/or materials
Source of data	Plant records
Value(s) applied	0
Measurement methods and procedures	Manual
Monitoring frequency	Annually
QA/QC procedures	The waste will be disposed to the waste handlers and the firm will comply with all the local laws for monitoring and disposal.
Purpose of data	Analysis of safeguarding principle
Additional comment	The data is archived for crediting period+2 years

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

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

This section is Not Applicable since no community service activities are involved in this project activity.

D.4. Implementation of sampling plan

Sampling plan not required for this monitoring period.

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
Annual Estimated Net Electricity supplied= 741,845 MWh

SDG 8: Decent Work and Economic Growth

Annual estimated value= 01 training /annum and employments to 36 persons.

SDG 13: Climate Action

Baseline Emissions for the amount of electricity supplied by project activity, BE_y is calculated as

$$\mathbf{BE_y = EG_{PJ,y} * EF_{grid,CM,y}} \qquad \textbf{Equation 11}$$

Where,

BE_y	=	Baseline emissions in year y (t CO_2/yr)
$EG_{PJ,y}$	=	Quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the CDM project activity in year y (MWh/yr)
$EF_{grid,CM,y}$	=	Combined margin CO_2 emission factor for grid connected power generation in year y calculated using the latest version of the "Tool to calculate the emission factor for an electricity system" (t CO_2/MWh)

As per para 44 of methodology ACM0002 (Version 20.0), if project activity is the installation of a Greenfield power plant, then

$$\mathbf{EG_{PJ,y} = EG_{facility,y}} \qquad \textbf{Equation 12}$$

Where

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

Hence,
$$\mathbf{BE_y = EG_{facility,y} * EF_{grid,CM,y}}$$

Vintage	Net Generation (MWh)	Grid Emission Factor (tCO_2e/MWh)	Baseline Emission (tCO_2e)	Project Emission (tCO_2e)	Emission reduction (tCO_2e)
	$EG_{facility,y}$	**$EF_{grid,CM,y}$**	**BE_y**	**PE_y**	**ER_y**
01/11/2022 to 31/12/2022	113,250.18	0.9346	105,843	0	105,843
01/01/2023 to 30/09/2023	587,040.27	0.9346	548,647	0	548,647
Total	**700,290.44**		**654,490**	**0**	**654,490**

E.2. Calculation of project value or estimation of project 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 700,290.43 MWh.

Vintage	Quantity of net electricity supplied to the grid (MWh)
01/11/2022 to 31/12/2022	113,250.18
01/01/2023 to 30/09/2023	587,040.27
Total	**700,290.44**

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 42.

Also project activity improves the quality of employment by giving training to employee. During the current monitoring period, 06 trainings has been conducted.

SDG 13: Climate Action

As per the ACM0002 ver-20.0, Project Emission for most renewable energy power generation project activities, $PE_y = 0$. However, some project activities may involve project emissions that can be significant. These emissions shall be accounted for as project emissions by using the following equation:

$$PE_y = PE_{FF,y} + PE_{GP,y} + PE_{HP,y} \quad \text{Equation 4}$$

Where

PE_y	=	Project emissions in year y (tCO_2e/yr)
$PE_{FF,y}$	=	Project emissions from fossil fuel consumption in year y (tCO_2e/yr)
$PE_{GP,y}$	=	Project emissions from the operation of geothermal power plants due to the release of non-condensable gases in year y (tCO_2e/yr)
$PE_{HP,y}$	=	Project emissions from water reservoirs of hydro power plants in year y (tCO_2e/yr)

The project activity involves the generation of electricity from the installation of solar projects. Hence, as per ACM0002, Version 20.0, there is no project emission for solar projects. Therefore, project emissions are zero.

Vintage	Project Emissions (tCO_2e)
01/11/2022 to 31/12/2022	0
01/01/2023 to 30/09/2023	0
Total	**0**

E.3. Calculation of leakage

No leakage emissions are considered in the project activity. The main emissions potentially giving rise to leakage in the context of electric sector projects are emissions arising due to activities such as power plant construction and upstream emissions from fossil fuel use (e.g., extraction, processing, transport). Since the emissions sources are small, it is neglected.

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	-	700,290.44 MWh	700,290.44 MWh
8	Decent Work and Economic Growth	-	No. of Employment opportunities created: 42 No. of trainings conducted: 06	No. of Employment opportunities created: 42 No. of trainings conducted: 06
13	Climate Action	654,490 tCO_2e	0 tCO_2e	654,490 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[8] achieved during this monitoring period
7	678,838.99 MWh	700,290.44 MWh
8	1 training /annum and employments to 36 persons	No. of Employment opportunities created: 42 No. of trainings conducted: 06
13	634,442 tCO_2e	654,490 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

Estimated Power generation according to PDD = 741,845 MWh
Total number of days in this monitoring period = 334 days

The ex-ante estimated Power generation for the current monitoring period has been calculated by factorizing the annualized projected power generation value for the equivalent days of the current monitoring period.

= (741,845 * 334) / 365 = 678,838.99 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 has estimated to provide the employment to 36 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.

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

SDG 13: Climate Action

Estimated Emission Reduction according to PDD = 693,327 tCO_2e per annum
Total number of days in this monitoring period = 334 days

The ex-ante estimated ER for the current monitoring period has been calculated by factorizing the annualized projected ER value for the equivalent days of the current monitoring period.

= (693,327 * 334) / 365 = 634,442 tCO_2e

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

During the present monitoring period, actual emission reductions achieved are 654,490 tCO_2e whereas estimated emission reductions for current monitoring period is 634,442 tCO_2e.

The actual achieved emission reduction for this monitoring period is 3.16 % higher than estimated value in the PDD. The PLF chosen is for the lifetime of the project activity and generation in some years may significantly vary: this is due to the higher number of sunshine hours during the monitoring period. The PLF considered during the project registration was 28.37% and the actual PLF achieved during the current monitoring period is 29.12%. As per the registered PDD, the results of sensitivity analysis show that even with a variation of +10% PLF (31.21%), Equity IRR (7.76%) is significantly lower than the benchmark (15.09%) and breaching point of the PLF is 42.20% of the PLF value from the considered PLF.

Based on the above, it can be confirmed that there is no impact on the additionality of the project activity despite increase of PLF and emission reduction achieved during monitoring period.

The generation of electricity depends upon many other climatic conditions, and the availability of sunlight is not within the control of the project participant.

SECTION F. SAFEGUARDS REPORTING

SDG 7: Ensure access to affordable, reliable, sustainable and modern energy for all	Method: The Net electricity supplied to the grid by the project activity calculated as a difference of electricity exported to the grid, electricity imported from the grid obtained from Monthly Meter reading reports provided by SEB as per below equation: $EG_{facility,y} = EG_{Export} - EG_{Import}$ Frequency: Monthly QA/QC procedures: Quantity of net electricity supplied to the grid is being cross checked from the Invoices/ Monthly Bill raised by the Project Participant. Purpose: To measure the electricity produced and supplied to the grid.
SDG 8: Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all	Method: Ongoing data collection and storage under HR Records. Frequency: Annual QA/QC procedures: Transparent data collection, analysis and reporting. Purpose: To identify and record the no. of trainings provided to the employees as well as employment generated due to project activity. Quantitative employment, income generation and trainings provided to employees & O&M staff for this monitoring period.
SDG 13: Take urgent action to combat climate change and its impacts	Method: Using processes and equations provided under "Tool to calculate the emission factor for an electricity system", 7 and referencing data from CEA database v14. Frequency: Every monitoring period QA/QC procedures: Transparent data collection, analysis, calculation and reporting. Purpose: To calculate emissions avoided due to the project activity

As per the safeguarding Principles Assessment in Section D.1. of the GS4GG PDD, there is three safeguarding principles (Principle 2: Gender Equality, Principle 6.1: Labor Rights, and Principle 9.5: Hazardous and non-hazardous waste) which is included in the monitoring plan (Refer section D.2 above). Also, there are no any impact (positive/negative/slightly) for any mitigation measures, being applicable to any of the safeguarding principles.

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

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

Not Applicable

Appendix 1: Meter calibration details

Accuracy class: 0.2s (Main & check meter)

Meter	Meter number	Make	Calibration date	Calibration due date
Main meter	2106286	G Tech	23/06/2021	22/06/2026
Main meter	E8272938	KYORITSU	23/06/2021	22/06/2026
Main meter	19090774	Amprobe	23/06/2021	22/06/2026
Check meter	NA	Fluke	23/06/2021	22/06/2026
Check meter	R190000453	AIT501	23/06/2021	22/06/2026
Check meter	R190014149	AET23	23/06/2021	22/06/2026

The energy meters are calibrated once in five years. Thus, during the current monitoring period, the calibration is valid and there is no delay in calibration.

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