Gold Standard
for the Global Goals

TEMPLATE

MONITORING REPORT

PUBLICATION DATE **14.10.2020**

VERSION **v. 1.1**

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

This document contains the following Sections

Key Project Information

GS ID (s) of Project (s)	GS 7138
Title of the project (s) covered by monitoring report	50 MW Kurnool Solar PV Power Project by M/s Prayatna Developers Pvt. Ltd. at Gani, Kurnool, AP.
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	26/09/2025
Date of project design certification	16/11/2020
Date of Last Annual Report	30/12/2024
Monitoring period number	02
Duration of this monitoring period	01/01/2021 to 15/11/2023 (Both Date included)
Project Representative	Infinite Environmental Solutions 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 20.0
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
7 Affordable and Clean Energy	MWh of renewable energygenerated	296,644	MWh/Annum
8 Decent Work and Economic Growth	Trainings	138[1]	No of Training
	Employees	09 (7 skilled, 2 Unskilled)	No of Employees
	Income (INR)	5,374,642[2]	INR
13 Climate Action (mandatory)	Emission Reduction	279,409	tCO_2e

Table 2 – Product Vintages

[1] As per company training schedule, 48 trainings are conducted per year, hence total 138 trainings are conducted in the current monitoring period.

[2] Minimum wages as mentioned below: 2021mygov_16354155561.pdf
- Unskilled Workers – 437.INR per day or 11362 INR per month
- Skilled Workers – 654 INR per day or 17004 INR per month

For year 2022-mygov_16488104261.pdf

- Unskilled Workers – 443 INR per day or 11518 INR per month
- Skilled Workers – 663 INR per day or 17238 INR per month

For year 2023-mygov_17435868311.pdf

- Unskilled Workers – 541 INR per day or 14066 INR per month
- Skilled Workers – 805 INR per day or 20930 INR per month

		Amount Achieved		
Start Dates	**End Dates**	**SDG 7: Affordable and Clean Energy** **MWh**	**SDG 8: Decent Work and Economic Growth**	**SDG 13: Climate Action** **GS VERs**
01/01/2021	31/12/2021	100,539 MWh/Annum	48 No. of Training 09 No. of Employees (7 skilled, 2 Unskilled) 1,701,024 INR	94,698 tCO_2e
01/01/2022	31/12/2022	101,295 MWh/Annum	48 No. of Training 09 No. of Employees (7 skilled, 2 Unskilled) 1,724,424 INR	95,410 tCO_2e
01/01/2023	15/11/2023	95,067 MWh/Annum	42 No. of Training 09 No. of Employees (7 skilled, 2 Unskilled) 1,949,194 INR	89,301 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 will contribute to climate change mitigation efforts. This project activity is a large-scale solar project. Prayatna Developers Pvt. Ltd. is the project investor for this project activity. The project will replace anthropogenic emissions of greenhouse gases (GHG's) estimated to be approximately 89,549 tCO_2e per annum, thereon displacing 95,073 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.

The project activity involves installation of 05 projects of 10 MW_{AC} each, totaling to 50 MW_{AC} solar power project under Jawaharlal Nehru National Solar Mission (JNNSM) Phase-II, Batch-II, Tranche – I, State Specific Bundling Scheme (under DCR1 Category). The projects are installed in the same project boundary at Village: Gani Sakunala, Disrtict: Kurnool, State: Andhra Pradesh.

The electricity generated from project activity will be sold under the Power Purchase Agreement (PPA), signed with NTPC Ltd. NTPC has been identified by the Government of India (GoI) as the Implementation Agency for setting up of Grid-connected Solar PV Power Projects under State Specific Bundling Scheme under the National Solar Mission of Government of India (GoI) and NTPC Vidyut Vyapar Nigam Limited (NVVN) on behalf of NTPC will purchase Solar Power from Solar Power Developer, and sell it to Discoms. The electricity generated from the project activity will be evacuated through 220 kV Gani sub-station located at Gani-Sakunala Village in Kurnool District for consumption in the Indian Electricity Grid.

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[3] PoA as

[3] https://cdm.unfccc.int/Projects/DB/Applus1597922977.27/view

a result of erroneous inclusion of CPAs. The land for the project activity is leased and a deed is signed between Andhra Pradesh Solar Power Corporation Pvt. Ltd. and Prayatna Developers Pvt. Ltd., dated 20/06/2016, for a period of 25 years.

The details of the project are mentioned in the table:

Capacity in MW	50
Commissioning Date	28/06/2017
Phase-I Installation (30 MW)	28/06/2017
Phase-II Installation (20 MW)	15/07/2017
PPA	21/03/2016
Start Date	13/10/2016
Local Stakeholder Consultation as per CDM	30/09/2016
Project registered under CDM	27/08/2020
SFR Date	23/05/2019
State	Andhra Pradesh
Grid	NTPC Ltd.
Types of Solar PV Modules	Poly-crystalline

A.2. Location of project

Project name: 50 MW Kurnool Solar PV Power Project by M/s Prayatna Developers Pvt. Ltd. at Gani, Kurnool, AP.

GS ID: GS 7138

Project Size: Large Scale

Host Party: India

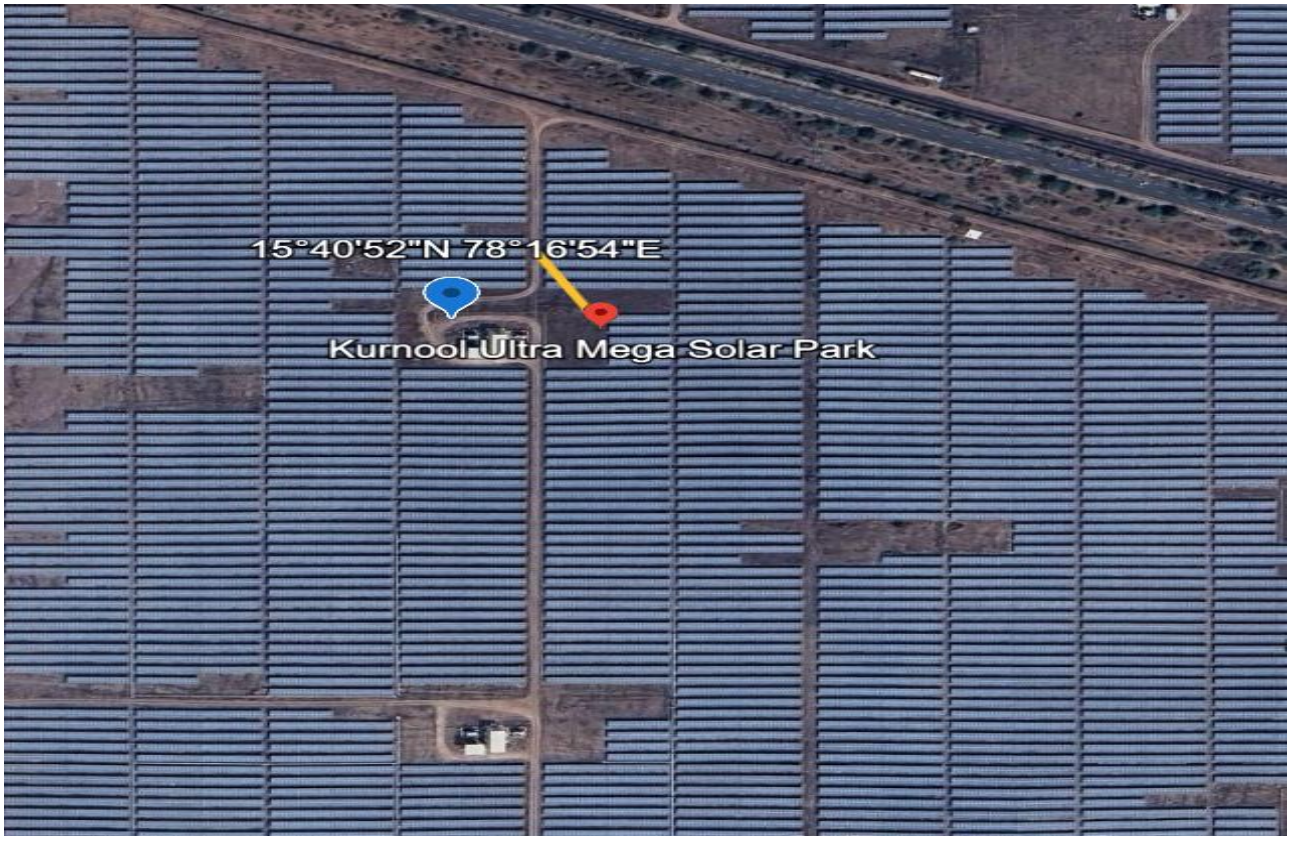
State: Andhra Pradesh

District: Kurnool

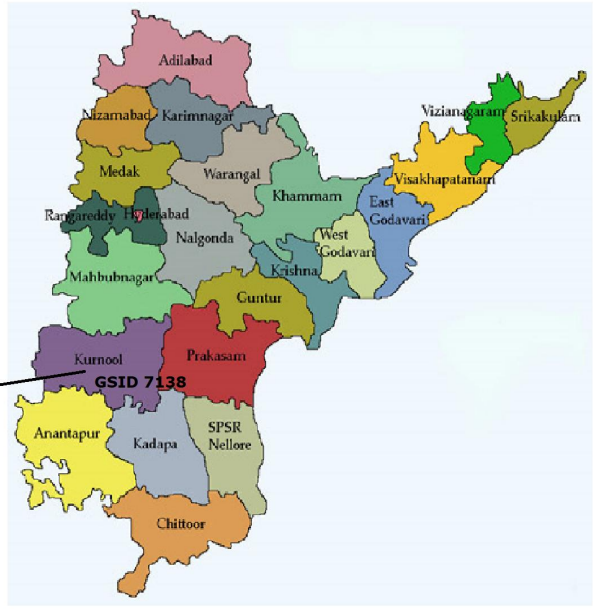
Village: Gani-Sakunala

Physical/Geographical location:

Project Developer	**Latitude**	**Longitude**	**Commissioning date**
Prayatna Developers Pvt. Ltd.	15°39'27.64"N	78°16'10.58"E	28/06/2017


15°40'52"N 78°16'54"E
Kurnool Ultra Mega Solar Park


INDIA
States and Union Territories
AFGHANISTAN
PAKISTAN
CHINA (TIBET)
NEPAL
BHUTAN
BANGLADESH
MYANMAR (BURMA)
SRI LANKA
LADAKH
JAMMU & KASHMIR
HIMACHAL PRADESH
PUNJAB
HARYANA
DELHI
UTTARAKHAND
UTTAR PRADESH
RAJASTHAN
BIHAR
SIKKIM
ARUNACHAL PRADESH
NAGALAND
MANIPUR
MIZORAM
TRIPURA
MEGHALAYA
ASSAM
JHARKHAND
WEST BENGAL
ODISHA
CHHATTISGARH
MADHYA PRADESH
GUJARAT
DAMAN & DIU
DADRA & NAGAR HAVELI
MAHARASHTRA
TELANGANA
ANDHRA PRADESH
KARNATAKA
GOA
PUDUCHERRY
TAMIL NADU
KERALA
LAKSHADWEEP (INDIA)
ANDAMAN & NICOBAR ISLANDS (INDIA)
International Boundary
State/UT Boundary
Country Capital
State/UT Capital
Map not to Scale


Adilabad
Nizamabad
Karimnagar
Medak
Warangal
Khammam
Rangareddy
Hyderabad
Nalgonda
Mahbubnagar
Krishna
Guntur
Kurnool
GSID 7138
Prakasam
Anantapur
Kadapa
SPSR Nellore
Chittoor
Visakhapatanam
East Godavari
West Godavari

A.3. Reference of applied methodology

Title: Grid connected renewable electricity generation.

References: Approved Large Scale Consolidated Methodology: ACM0002 "Grid-connected electricity generation from renewable sources" (Version 20, EB 105) https://cdm.unfccc.int/methodologies/DB/XP2LKUSA61DKUQC0PIWPGWDN8ED5PG

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

- Methodological Tool 7: Tool to calculate the emission factor for an electricitysystem - Version 07.0
- Methodological Tool 1: Tool for the demonstration and assessment of additionality
  - Version 07.0.0, EB 70 Annex 8[4]

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

A.4. Crediting period of project

Type	Renewable
CDM crediting period	27/08/2020 to 26/08/2027[5]
GS design certification date	16/11/2020
Transition date (GSCER TO GSVER)	26/04/2022
GS crediting period	16/11/2018[6] to 15/11/2023
Length of Crediting period	5 years Which will be renewed twice totaling to 15 years (7+5+3)
Current Monitoring Period	01/01/2021 to 15/11/2023 (Both Date included)

This is to declare that "the project developer will not issue both a CER and a Gold Standard VER for the same vintage from a project that is registered with GoldStandard."

SECTION B. IMPLEMENTATION OF PROJECT

B.1. Description of implemented project

The project activity aims to harness Solar energy through installation of 320Wp of Lion series Solar PV modules with total installed capacity of 50 MW. The facility aims at annually producing 1000MWp of silicon ingots / wafers, silicon solar cells and modules. In addition to PV modules, the Group also aims at developing manufacturing facility to produce EVA, back sheet, glass and junction box. The solar PV power plant have solar PV modules, inverters, transformers and other protection system and supporting components.

[5] https://cdm.unfccc.int/Projects/DB/Applus1597922977.27/view

[6] 10.2.1 of GHG Emissions Reduction & Sequestration Product Requirements v.2.1 "The start date of Crediting Period is the date of start of operation (start of planting for A/R Projects) or a maximum of two years (three years for A/R & AGR) prior to the date of Project Design Certification, whichever occurs later."

The solar PV modules have a useful life of 25 years.

The first Purchase Order is considered as the start date for the Project i.e. 13/10/2016 and the Project is commissioned on 28/06/2017.

A. Solar PV modules:

Module Supplier	Module Model	Capacity (p)	Number	Total Capacity (MWp)
Adani	Poly C-Si	290	726	0.21
Adani	Poly C-Si	295	2948	0.87
Adani	Poly C-Si	300	13552	4.07
Adani	Poly C-Si	305	18722	5.71
Adani	Poly C-Si	310	13552	4.20
Adani	Poly C-Si	315	64724	20.39
Adani	Poly C-Si	320	84348	26.99
Adani	Poly C-Si	325	13948	4.53
Waree	Poly C-Si	300	4864	1.46
		Total Capacity in MWp		68.43

B. Invertor

S.No.	Make	
1.	Manufacturer	Huawei
2	Model	SUN2000-43KTL
3	Rated Capacity	43 KW, 52.5 KVA
4	No. of Inverters	1163
5	Rated Input Voltage (Max. Input Voltage)	500 V

C. Transformer

S. No	Make	
1	Manufacturer	T&R
2	Capacity	5MVA
3	No. of Transformers 10	10
4	Voltage Ratio	500/33 KV

D. Metering Equipment Details

S.No.	Make	Sub-Station	Solar Plant End
1	Manufacturer	Secure Make	Secure Make

2	Type	ABT meters	ABT meters
3	Accuracy Level	0.2s	0.2s
4	Total no of meter	3*2=6	2*2 = 4

B.1.1 Forward Action Requests

No FAR raised

B.2. Post-Design Certification changes

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

Not Applicable

B.2.2. Corrections

Not Applicable

B.2.3. Changes to start date of crediting period

Not Applicable

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

Not Applicable

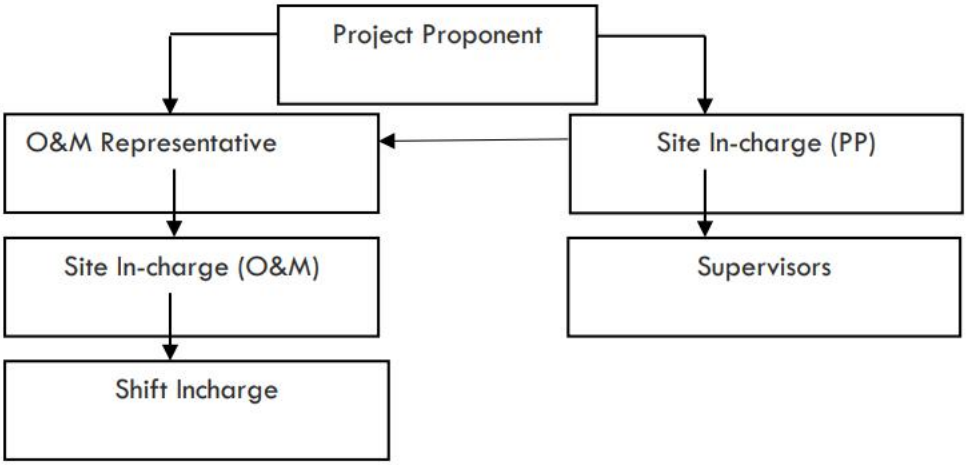
B.2.5. Changes to project design of approved project

Not Applicable

SECTION C. DESCRIPTION OF MONITORING SYSTEM APPLIED BY THE PROJECT

The monitoring plan is developed in accordance with the modalities and procedures for project activities and is proposed for grid-connected solar power project/ unit being implemented in Andhra Pradesh, India. The monitoring plan, 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 monitoring, measurement, reporting and reviewing of the data rests with the project participant.



Responsibilities of Site In charge (PD): Overall functioning and maintenance of the project activity, the Site in charge coordinate with the O&M operator as well as the site supervisors. The site in-charge is responsible for collecting metering data to maintain electricity generation records, managing employee salaries, and maintaining related records for SDG 8. Additionally, he/she is accountable for addressing any grievances raised by stakeholders or employees and for assigning appropriate personnel to resolve them.

Responsibilities of O&M Representative: Co-ordination between Site in charge of the O&M operator as well as the project participant and further report to PD 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.

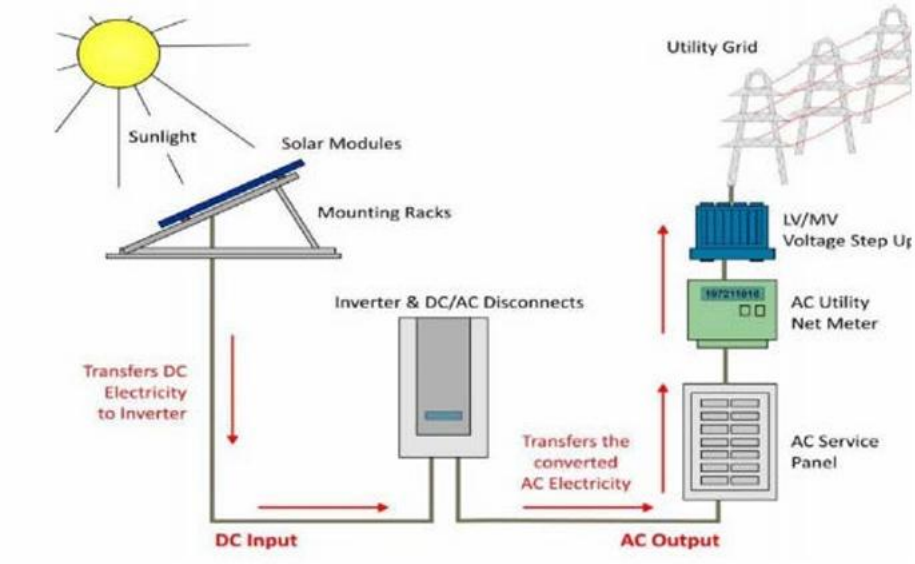
Responsibilities of Shift In-charge: Responsibility for day-to-day data collection and maintains day to day monitored data.

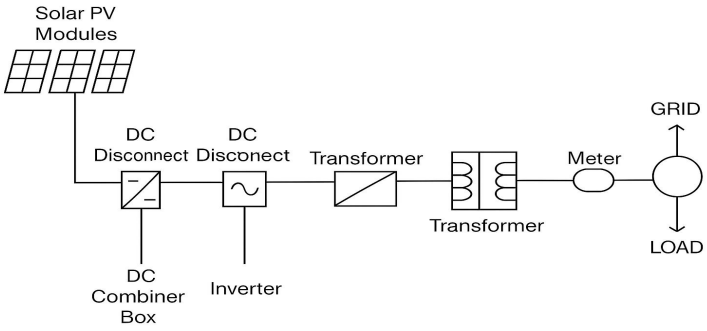
QA/QC procedures:

The energy meters at the feeders are maintained and owned by Andhra Pradesh Southern Power Distribution Corporation Limited (APSPDCL) Kurnool District in Andhra Pradesh Neither the project developer nor the site personnel have any control over it. The records are cross-checked with the records of sold electricity APSPDCL. The meters are calibrated by APSPDCL at-least once in five years.

Data Measurement

The export and import energy will be measured continuously using above mentioned Main & Check meters. Export & Import readings of Main & Check meters shall be taken on monthly basis by authorized officer of APSPCL Kurnool in the presence of PD or representative of PD. The meter reading is taken jointly and signed by the representatives of the APSPCL Kurnool, AP Transco Ghani and project investors. Based on the readings, invoices will be raised by project investors. These invoices are used for cross checking the meter readings taken for the project activity. It is to be noted though PD or PD representative is available during meter reading, the calculations of net electricity supplied to grid is completely under purview of APSPCL Kurnool officer and PD do not have any control on it. Also, accuracy class of meters and calibration frequency is under purview of APSPCL Kurnool officer and PD do not have any control on it. PD got the monthly credit report from where net electricity supplied to grid is obtained and used for emission reduction calculations.





Data collection and archiving

Export & Import readings from the meters will be collected under the supervision of the authorized representatives of PD. The net electricity supplied to grid would be calculated based on export & import readings. Export and Import data would be recorded and stored in electronic &/or Paper format. The records are checked periodically by the Head (Operations) and discussed thoroughly with the O&M Team.

The period of storage of the monitored data will be 2 years after the end of crediting period or till the last issuance of GS CERs 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

Where,

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

B = Total Number of days of the billing period/ month

C = Net Electricity supplied to the grid for that given billing period/ month

The calculated value after apportioning is used for calculation of emission reductions during that period.

The current monitoring period starts from 01/01/2021 to 15/11/2023

Therefore, following the above-mentioned apportioning procedure:

A	Difference of number of days which are not matching for November	15
B	Number of days of November	30
C	Net Electricity supplied to the grid for November	7,710,432 kWh

the net electricity exported to the grid is calculated from: D = (A/B) *C

= (15/30) *7,710,432

= 3,855,216 kWh

There was a minor breakdown during the current monitoring period, and the details have been included in the appendix 1.

Emergency preparedness

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

In the unlikely event of failure of all Main, Check as well as Standby meter installed at Substation, where all the faulty meters are required to be repaired or replaced simultaneously, the export & import readings from Main, Check & Standby Meters installed at the inter-connection point at the project site is used for monitoring of net electricity exported to the grid.

Personnel training

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

SECTION D. DATA AND PARAMETERS

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

Relevant SDG Indicator 13: Take urgent action to combat climate change and its impacts

Data/parameter	$EF_{OM,y}$
Unit	tCO_2e/MWh
Description	Operating Margin Emission Factor of Indian Grid
Source of data	Calculated from CEA database, Version 15, December 2019[7]
Value(s) applied	0.9622

[7] http://cea.nic.in/tpeandce.html

Choice of data or Measurement methods and procedures	Calculated as per "Tool to calculate the emission factor for an electricity system," as 3-year generation weighted average using data for the years 2016-17, 2017-18 & 2018-19. The data are obtained from "CO_2 Baseline Database for Indian Power Sector" version 15.0, published by the Central Electricity Authority, Ministry of Power, Government of India.
Purpose of data	The data is used to calculate baseline emission reductions.
Additional comment	This parameter is fixed ex-ante for the entire crediting period.

Data/parameter	$EF_{BM, y}$
Unit	tCO_2e/MWh
Description	Build Margin Emission Factor of Indian Grid
Source of data	Calculated from CEA database, Version 15, Dec 2019
Value(s) applied	0.8811
Choice of data or Measurement methods and procedures	Calculated as per "Tool to calculate the emission factor for an electricity system,". The data are obtained from "CO_2 Baseline Database for Indian Power Sector" version 15.0, published by the Central Electricity Authority, Ministry of Power, Government of India.
Purpose of data	The data is used to calculate baseline emission reductions.
Additional comment	This parameter is fixed ex-ante for the entire crediting period.

Data/parameter	$EF_{CM, y}$
Unit	tCO_2e/MWh
Description	Combined Margin Emission Factor of Indian Grid
Source of data	Calculated from CEA database, Version 15, Dec 2019
Value(s) applied	0.9419
Choice of data or Measurement methods and procedures	Calculated as per "Tool to calculate the emission factor for an electricity system,". The data is obtained from "CO_2 Baseline Database for Indian Power Sector" version 15.0, published by the Central Electricity Authority, Ministry of Power, Government of India.
Purpose of data	The data is used to calculate baseline emission reductions.
Additional comment	-

D.2 Data and parameters monitored

Relevant SDG Indicator 7.2: By 2030, increase substantially the share ofrenewable energy in the global energy mix

Relevant SDG Indicator	SDG 7.2.1: Affordable and Clean Energy
Data / Parameter	$EG_{PJ,y}$
Unit	MWh
Description	Quantity of net electricity supplied to the grid
Source of data	Generation statement provided by APSPDCL every month.
Value(s) monitored	296,644 MWh
Measurement methods and procedures	Data Type: Measured Monitoring equipment: Energy Meters of accuracy class 0.2s Recording Frequency: Continuous monitoring and Monthly recording from Energy Meters, Summarized Annually. Archiving Policy: Paper &/or Electronic Calibration frequency: Once in 5 years as per CEA guidelines 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 Monthly Meter reading reports provided by APSPDCL Kurnool as per below equation: $EG_{PJ,y} = EG_{Export} - EG_{Import}$ Projects activity comprises of installation of 10 Energy meters at four different substations, 4 Energy meters (1

main meter and 1 check meter) at two 33kV Feeder Line and 6 Energy meters (1 main meter, 1 check meter, 1 stand meter) at two 220kV Feeder Line connected to Pooing Sub Station. For each 25 MW a set of main and check meter is present that monitors the total export and import which is not under the control of PD. The meters are as follows:

		Main meter	Check meter
At 33KV	25 MW	APZ00216	APZ00215
	25 MW	APZ00214	APZ00213

At the government substation (at 220 KV) Where joint meter readings of 3 project proponent (Adani, azure, SBG) is taken thereby totaling to 250 MW

		Main meter	Check meter	Standby meter
At 220 KV	250 MW	16196380	16196381	16196390
		16196408	16196417	16196422

Calibration details are as follows:

S.No.	Make	Sub-Station	Solar Plant End
1	Manufacturer	Secure Make	Secure Make
2	Type	ABT meters	ABT meters
3	Accuracy Level	0.2s	0.2s
4	Total no of meter	3*2=6	2*2 = 4
5	Meter No.	16196380 16196381 16196390 16196408 16196417 16196422	APZ00213 APZ00215 APZ00216 APZ00214

	<table><tr><td>6</td><td>Type</td><td>-</td><td>ABT meters</td></tr><tr><td>7</td><td>Model</td><td>-</td><td>Apex 100</td></tr><tr><td>8</td><td>Last Calibration</td><td>-</td><td>04/04/2022</td></tr><tr><td>9</td><td>Calibration frequency</td><td>-</td><td>Once in 5 years as per CEA guidelines</td></tr><tr><td>10.</td><td>Meter calibration validity date</td><td>-</td><td>03/04/2027</td></tr></table> Cross Checking: Quantity of net electricity supplied to the grid is cross checked from the Invoices/ Monthly Bill raised by the Project Developer to NTPC Limited.
Monitoring frequency	Monthly
QA/QC procedures	Calibration of all the meters will be undertaken once every five year and faulty meters will be duly replaced immediately. The meters are of accuracy class 0.2s. Cross Checking: Quantity of net electricity supplied to the grid and it is cross checked from the Invoices/ Monthly Bill raised by PD to NTPC Limited.
Purpose of data	The Data/Parameter is required to calculate the baseline emission.
Additional comment	Data archived electronically for a period of 2 years beyond the end of crediting period.

Relevant SDG Indicator 8.5: By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value.

Relevant SDG Indicator	SDG 8.5.1: Decent Work and Economic Growth
Data / Parameter	Quality of employment
Unit	Number (Trainings) INR (Salary)
Description	Number of Trainings provided to employees & O&M staff Salary given to the employees of the project.

Source of data	Training Records (HSE & HR) & Employee feedback forms Salary Slip of the project employees.
Value(s) monitored	Some of the trainings & workshops that are given to the respective O&M staffs by Gamesa or PD. • HSE Training Record • Regular Drill Record • Handling of Equipment Training • Soft Skill Training As per the records, 48 trainings are conducted per year. Since our verification period is 2 years 10 months and 15 days, the total number of trainings is 138.
Measurement methods and procedures	• Training Attendance sheets and records. • Salary slips of the employees
Monitoring frequency	Annually
QA/QC procedures	Salary slip can be checked for earnings of employees. The trainings held can be crosschecked with the training documents maintained at site.
Purpose of data	Continuation of regular trainings/workshops for employees &O&M staffs
Additional comment	-

Relevant SDG Indicator	SDG 8.5.1: Decent Work and Economic Growth
Data / Parameter	Quantitative employment
Unit	Number of O&M staffs involved in the project
Description	Total employment generated due to the implementation ofproject activity
Source of data	Plant employment records
Value(s) applied	The total number of O&M staffs employed for the operation &maintenance of the project activity are 09. Total expenses for the O&M during the monitoring period is 5,374,642 INR. The bifurcation is as follows-

Vintage	Unskilled	Skilled
2021	2,72688	14,28,336
2022	2,76432	144,7992
2023	3,37584	16,11,610
Total	5,374,642 INR	

	Minimum wages as mentioned below: 2021 • Unskilled Workers – 437 INR per day or 11,362 INR per month • Skilled Workers – 654 INR per day or 17,004 INR per month For year 2022- • Unskilled Workers – 443 INR per day or 11,518 INR per month • Skilled Workers – 663 INR per day or 17,238 INR per month For year 2023- • Unskilled Workers – 541 INR per day or 14,066 INR per month • Skilled Workers – 805 INR per day or 20,930 INR per month
Measurement methods and procedures	Employment Records
Monitoring frequency	Annually
QA/QC procedures	The number of persons employed are mentioned in the plant register, which can be crossed checked with daily attendance register.
Purpose of data	To monitor the contribution to SDG 8 (Promote sustained, inclusive and sustainable economic growth, full and productiveemployment and decent work for all)
Additional comment	-

Relevant SDG Indicator 13: Take urgent action to combat climate change and itsimpacts

Relevant SDG Indicator	SDG13.2.1: Climate Action
Data / Parameter	Air quality
Unit	tCO_2
Description	Reduction in 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 "CO_2 Baseline Database for Indian Power Sector" version 15.0, published by the Central Electricity Authority, Ministry of Power, Government of India.
Value(s) monitored	279,409 tCO_2e emission reductions for monitoring period: 01/01/2021 to 15/11/2023
Measurement methods and procedures	Calculated from CEA database and Energy Generation
Monitoring frequency	Annually
QA/QC procedures	A check meter is also installed near to the export meter to cross check the electricity exported to the grid. The check meter reading is used in case of failure of export meter
Purpose of data	Calculation of baseline emissions
Additional comment	-

Safeguarding principal 4.3.5: Hazardous and non-hazardous waste

Relevant SDG Indicator	**Safeguarding principal 4.3.5:**
Data / Parameter	Hazardous and Non-hazardous Waste
Unit	-
Description	The manufacture, trade, release, and use of hazardous and non-hazardous chemicals and/or materials
Source of data	Plant Records
Value(s) monitored	0
Measurement methods and procedures	Manual
Monitoring frequency	Once in a Monitoring period
QA/QC procedures	The waste is 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	-

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	-	-
NA	-	-

As per monitoring template guidelines, this section is not applicable for non-Community Service Activities, hence not applicable.

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 & 13: -

As per the approved consolidated Methodology ACM0002 (Version 20.0, EB 105 Annex 3), Emission reductions are calculated as follows:

$ER_y = BE_y - PE_y$

Where:
ER_y= Emission reductions in year *y* (tCO_2e/yr)
BE_y= Baseline emissions in year *y* ($t\ CO_2/yr$)
PE_y= Project emissions in year *y* ($t\ CO_2e/yr$)

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

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

$= 296,644 \times 0.9419$
$= 279,409\ tCO_2e$

Where:

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

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

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

SDG 8: -

Employment opportunities created for 09 persons in total and 138 trainings were conducted during the current monitoring period.

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

The company conducts regular surveys during construction as well as O & M phases in the villages near project locations to check the requirement of facilities by the villages.The following SDGs are impacted every year.

SDG Goal	Methodological choices/approaches for estimating the SDG outcome
SDG 7 –Affordable and Clean Energy: Ensure access to affordable, reliable, sustainable and modern energy for all	**Measurement Method:** - Electricity produced and supplied to the grid is monitored through energy meter. Net electricity is calculated by state electricity board and PD on monthly basis and provided in the share certificate/monthly generation report/JMR (Joint meter reading) or equivalent. The otherparameters used for net electricity supplied to grid are mentioned in monitoring plan. **QA/QC Process:** This parameter is monitored monthly and value of parameter cross checked with invoices.
SDG 8 – Decent Work and Economic Growth: Promote inclusive and sustainable economic growth, employment and decent work for all	**Measurement Method:** - Trainings and employment generation is monitored through training records, staff register or letter from O&M contractor for training and employment details or HSE/HR records. **QA/QC Process:** This parameter is based on records, data and no any QA/QC procedure required. The VVB can confirm this parameter with interview with PD or Site incharge or employees for training and employment generation.

SDG 13 – Climate Action: Take urgent action to combat climate change and its impacts	**Measurement Method:** - The emission reduction parameter is calculated as product of net electricity supplied to grid and grid emission factor. The grid emission factor is ex-ante parameter and determined based on data obtained from "CO_2 Baseline Database for Indian Power Sector" version 15, published by the Central Electricity Authority, Ministry of Power, Government of India. This is in line with "Tool to calculate the emission factor for an electricity system, version 7". The emission reductions are calculated as per registered PDD and as per methodology requirement. **QA/QC Process**: This parameter is calculated, and no any QA/QC procedure required.

E.3. Calculation of leakage

No leakage emissions are applicable.

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

SDG	SDG Impact	Baseline estimate	Project estimate	Net benefit
7	MWh of renewable energy generated	0 MWh	296,644 MWh	296,644 MWh
8	SDG 8: Decent Work and Economic Growth	0	138 Trainings 09 Employees 5,374,642 INR	138 Trainings 09 Employees 5,374,642 INR
13	Emission Reduction	279,409 tCO_2e	0 tCO_2e	279,409 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	95,073 MWh/Year (365 days) 273,237 MWh for the Monitoring period (1,049 days)	296,644 MWh
8	1 training/year 20 employees	138 Trainings 09 Employees 5,374,642 INR
13	89,549 tCO_2e/Year (365 days) 257,361 tCO_2e for the monitoring period (1,049 days)	279,409 tCO_2e

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

It is to be noted here that as per the estimated emission reduction to be achieved from the project activity for the current monitoring period

=89,549 *1,049 (days)/365
=257,361 tCO_2e

whereas actual emission reductions achieved are 296,644 tCO_2e, which is 8.6% higher than the estimated emission reductions.

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

[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.

The actual achieved emission reduction for this monitoring period is 8.6% higher than estimated value in the PDD. The reason for achieved higher PLF is increased solar radiation and is thus nature dependent and not in control of PD. Other parameters for increase in emission reduction in the current monitoring period are due to efficient equipment and frequent module cleaning and is within the sensitivity range which does not breach the PLF achieved during current monitoring period is 23.57% and is within the ±10% of sensitivity range which does not breach the PLF Value of 37.41 % as mentioned in the registered PDD.

Estimated ERs for the current MP as per PDD version 05 dated 18/05/2023 (applicable for CP2):

= 89,549 *1049 (days)/365

= 257,361 tCO_2e

whereas actual emission reductions achieved are 279,409 tCO_2e, which is approximately 8.6 % higher than the estimated emission reductions.

SDG 7:

It is to be noted here that as per the registered PDD estimated electricity generation to be achieved from the project activity for the current monitoring period is

= 95,073 MWh/Year

= 95,073 * 1049(days)/365

= 273,237 MWh

The achieved PLF during current monitoring period is 23.57%

SDG 8:

As per the registered PDD employment to 20 people and 1 training per year was estimated. The total number of employees currently engaged in the project to 09 people and 138 trainings were provided during the current MP which is conservative.

SECTION F. SAFEGUARDS REPORTING

Safeguarding Principle 9.5 Hazardous and Non-hazardous Waste

Data / Parameter	Hazardous and Non-hazardous Waste
Mitigation Measures followed	The waste is disposed to the waste handlers and the firm will comply with all the local laws for monitoring and disposal.
Source of data	Plant Records
Additional comment	All the mitigation measures are implemented at the site. This is confirmed from site HSE log book and O&M team.

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.

No grievance received during the monitoring period.

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

No grievances received in the previous monitoring period, thus no follow up required

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

Not legal contest or dispute that has arisen with the project during the monitoring period.

APPENDIX 1: Breakdown Details

Date	Error Description	Action taken	Duration (Hrs.)
Apr-2021	IGBT SAT Trip	IGBT Stack replaced & started	2:39:00
May-2021	IGBT SAT Trip	Stack Replaced &inv Started	2:01:00
June-2021	IGBT SAT Trip	gate Driver Card Replaced &Started	2:28:00
July-2021	Inverter Fuse Failure	w1ph Stack Replaced &Started	2:22:00
Aug-2021	DC Earth Fault	SCB-7+Cable Isolated &Started	2:33:00
Aug-2021	DC Earth Fault	Rectification in Under progress	4:48:00
Aug-2021	PWR CURTAILMENT	63MW TO 58MW	6:10:00
Aug-2021	PWR CURTAILMENT	63MW TO 58MW	6:52:00
Aug-2021	DC Earth Fault	Rectification in Under progress	11:00:00
Aug-2021	PWR CURTAILMENT	Setpoint given 58MW	7:20:00
Sept-2021	IGBT SAT Trip	V2 ph Stack Replacement &Started	2:42:00
Oct-2021	IGBT SAT Trip	Reset &Started	3:27:00
Oct-2021	IGBT SAT Trip	V2ph	4:07:00
Oct-2021	IGBT SAT Trip	V1 ph STACK Replaced &Started	2:25:00
Oct-2021	IGBT SAT Trip	U1 ph Stack Replaced &Started	3:39:00
Oct-2021	IGBT SAT Trip	Gate Driver Card Replaced &Started	3:11:00
Nov-2021	IGBT SAT Trip	Gate drive card replaced	2:32:00
Nov-2021	IGBT SAT Trip	Gate drive card replaced &Started	2:13:00

Dec-2021	IGBT SAT Trip	Gate drive Card Replaced and Started	3:09:00
Jan-2022	Water Logging Issue	Scb Off Due To Water Logging Issue	11:00:00
Jan-2022	Water Logging Issue	Scb Off Due To Water Logging Issue	11:00:00
Feb-2022	Inverter Fuse Failure	stack replaced and started	2:40:00
Apr-2022	Temp Failure Of Fin For IGBT	Stack replalced and started	2:18:00
Apr-2022	IGBT SAT Trip	Reset&Started	3:20:00
May-2022	IGBT SAT Trip	All parameters checked and started	2:53:00
May-2022	Inverter Fuse Failure	stack replaced and started	5:40:00
June-2022	IGBT SAT Trip	INV running at 600 kw	11:00:00
June-2022	Temp Failure Of Fin For IGBT	U1ph Stack Replaced&Started	2:31:00
June-2022	IGBT SAT Trip	All 3 Stacks replaced and started	2:45:00
July-2022	IGBT SAT Trip	Inv started with 550 kW	3:17:00
July-2022	IGBT SAT Trip	Inv started with 500 kW,due to unavailability of spare	4:00:00
Aug-2022	Current Un Balance	Inv started with 300 kW due to unavailability of spare	2:38:00
Aug-2022	ISU Fault 8185	Inv started with 800 kW due to unavailability of spare	2:07:00
Aug-2022	DC CB Off Failure	DC Breaker Switch Replaced&Inv Started	2:07:00
Sept-2022	IGBT SAT Trip	V1ph IGBT Stack	2:05:00

		Replaced&Inv Started	
Sept-2022	SMPS Card Failure	SMPS Card Replaced&Inv Started	2:05:00
Sept-2022	IGBT SAT Trip	IGBT Stack replaced and Started	2:25:00
Nov-2022	ISU Fault 8185	Inverter running 800 kw	2:45:00
Dec -2022	DC Earth Fault	Reset&Started	1:20:00
Jan-2023	IGBT SAT Trip	due to Unavailability of new Stack, Inv Running@500KW. After Generation Hours Blasted stack repaired and restored with Full load.	1:59:00
Jan-2023	Fan Failure	For checking purpose ISU-2 & 3 interchanged then inverter reset and started. Inverter under observation	1:37:00
Jan-2023	SMPS Card Failure	smps card and feed back card replaced and started	1:52:00
Feb-2023	IGBT SAT Trip	V1ph Gate Driver Card Replaced&Inv Started	3:25:00
March-2023	IGBT SAT Trip	V2 ph Stack Replaced&Inv Started	1:39:00

APPENDIX 2: Training Details[9]

Topic	Duration (years)
Awareness of Incident Reporting & Investigation	2021 to 2023
First Aid Awareness (Basic) & Awareness on Animal/Insect Bite Safety	2021 to 2023
Electrical Safety - Awareness	2021 to 2023
Fire Safety Training-Awareness	2021 to 2023
Awareness on Personal Protective Equipment - PPE	2021 to 2023
Hot work (Welding & Grinding Operation) Safety - Awareness	2021 to 2023
Awareness on Chemical Safety	2021 to 2023
Material Handling (Manual & Mechanical) - Awareness	2021 to 2023
Awareness on Hand and Power Tools Safety	2021 to 2023
Job Safety Analysis (JSA)/RA - Awareness	2021 to 2023
Lockout / Tagout - Awareness	2021 to 2023
Machine Guarding - Awareness	2021 to 2023
Permit to Work - PTW - Awareness	2021 to 2023
Defensive driving/Traffic Safety (Including vehicle inspection) and LSSR Training Awareness	2021 to 2023

[9] The training details mentioned are the records details; however, a total of 138 trainings were conducted during this verification period.

Gensuite - Concern Reporting, Safety Interaction (Surksa Samvaad- SI), I&I, Event Escalation	2021 to 2023
Working at Height, Scaffold and Ladder use & Inspection - Awareness	2021 to 2023
Emergency Response-Awareness	2021 to 2023
Awareness on SAFETY Interaction/ Samwad	2021 to 2023
Contractor SAFETY Management (CSM)	2021 to 2023
SRFA (Safety Field Risk Audit) Awareness and VSR Awareness Training	2021 to 2023
Awareness on IMS standard of Occupational Health & Safety/ Environment	2021 to 2023
RVDTS - Awareness	2021 to 2023
CMP - Awareness	2021 to 2023
Confined Sapce Safety Awareness	2021 to 2023

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