



**Verified Carbon
Standard**

BUNDLED SOLAR POWER PROJECT BY SOLARARISE INDIA PROJECTS PVT. LTD.



Document Prepared by SolarArise India Projects Private Limited

Project Title	Bundled Solar Power Project by SolarArise India Projects Pvt. Ltd.
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CONTENTS

1	PROJECT DETAILS.....	4
1.1	Summary Description of the Implementation Status of the Project	4
1.2	Sectoral Scope and Project Type	5
1.3	Project Proponent	5
1.4	Other Entities Involved in the Project	6
1.5	Project Start Date	6
1.6	Project Crediting Period	6
1.7	Project Location	6
1.8	Title and Reference of Methodology	8
1.9	Participation under other GHG Programs.....	8
1.10	Other Forms of Credit and Supply Chain (Scope 3) Emissions	9
1.11	Sustainable Development Contributions	9
2	SAFEGUARDS	14
2.1	No Net Harm	14
2.2	Local Stakeholder Consultation	14
2.3	AFOLU-Specific Safeguards	14
3	IMPLEMENTATION STATUS	15
3.1	Implementation Status of the Project Activity	15
3.2	Deviations	17
3.3	Grouped Projects	17
4	DATA AND PARAMETERS.....	17
4.1	Data and Parameters Available at Validation	17
4.2	Data and Parameters Monitored.....	18
4.3	Monitoring Plan.....	20
5	QUANTIFICATION OF GHG EMISSION REDUCTIONS AND REMOVALS	21
5.1	Baseline Emissions	21
5.2	Project Emissions	22
5.3	Leakage.....	22
5.4	Net GHG Emission Reductions and Removals.....	23
	APPENDIX 1: METER CALIBRATION DETAILS.....	24

APPENDIX II: SUPPORTING EVIDENCE FOR SDG..... 26

1 PROJECT DETAILS

1.1 Summary Description of the Implementation Status of the Project

The main purpose of this project activity is to generate clean form of electricity through renewable solar energy source. The project is a bundled project activity which involves installation of 120 MW solar project in different states of India through SPVs.

Over the 10 years of first crediting period, the project will replace anthropogenic emissions of greenhouse gases (GHG's) estimated to be approximately 244,968 tCO_{2e} per year, thereon displacing 253,776 MWh/year 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 details of the SPVs for the project and their location of installation are mentioned in the table below: -

Name of Investor	Capacity (MW)	COD	Connection with Grid	State	Usage
Talettutayi Solar Projects Pvt Ltd	10 MW	23/06/2016	Indian Grid	Telangana	Sale to State DISCOM
NV Vogt Solar One Pvt Ltd ¹ (Talettutayi Solar Projects Six Pvt Ltd)	10 MW	23/06/2016	Indian Grid	Telangana	Sale to State DISCOM
Talettutayi Solar Projects Four Pvt Ltd	50 MW	10/08/2017	Indian Grid	Maharashtra	Sale to SECI
Talettutayi Solar Projects One Pvt Ltd	30 MW	05/01/2018	Indian Grid	Karnataka	Sale to SECI
Talettutayi Solar Projects Two Pvt Ltd	20MW	07/08/2019	Indian Grid	Karnataka	Sale to State DISCOM

These are the SPVs of SolarArise India Projects Pvt. Ltd. and the project is promoted by SolarArise India Projects Pvt. Ltd.

Audit Type	Period	Program	VVB Name	Number of years
Verification	23-June-2016 to 25-April-2018	VCS	LGAI Technological Centre, S.A. (Applus + Certification)	~22 Months
Verification	26-April-2018 to 25-August-2020	VCS	4K Earth Science Pvt. Ltd.	~28 Months
Verification	26-August-2020 to 31-August-2021	VCS	TUV SOD South Asia Pvt. Ltd.	~1 year
Verification	01-September-2021 to 31-March-2022	VCS	LGAI Technological Centre, S.A. (Applus + Certification)	~6 Months
Total				~ 68 Months

Total emission reductions achieved in this monitoring period:

During the Current Monitoring Period from 01/04/2022 to 30/09/2022 (First and last date included), the project activity has supplied 107,123 MWh of electricity, and thus contributing to the GHG reductions 103,405 tCO_{2e}.

1.2 Sectoral Scope and Project Type

The project activity falls under the following sectoral scope and project type:

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

Project Type : I - Renewable Energy Projects

Project Category: Grid-connected electricity generation from renewable sources ACM0002-Version 18.1²

1.3 Project Proponent

Organization name	SolarArise India Projects Pvt. Ltd.
Contact person	Mr. Rakesh Patel

Title	Sr Manager – Business Development
Address	Unit No. 1004, 10th Floor BPTP Park Centra, Sector – 30, NH – 8, Gurugram – 122001
Telephone	0124 – 4204108
Email	rakesh.patel@solar-arise.com

1.4 Other Entities Involved in the Project

Not Applicable

1.5 Project Start Date

Start date of the project activity is the earliest date of interconnection with the grid i.e., 23/06/2016. This is the date of commissioning of 10 MW Solar PV Project activity in Talettutayi Solar Projects Pvt. Ltd. and 10 MW Solar PV Project activity by NV Vogt Solar One Pvt. Ltd (Talettutayi Solar Projects Six Pvt. Ltd.)

The details of the commissioning dates of the individual project activity are mentioned in the section 1.1 of this report.

1.6 Project Crediting Period

Crediting Period Start date: 23/06/2016; Crediting Period End date: 22/06/2026

The project activity adopts renewable crediting period of 10 years period which can be renewed for maximum 2 times.

1.7 Project Location

The details of the project locations are mentioned in the table below:

Name of Investor	Capacity (MW)	Location				
		State	District	Tehsil/Taluka	Village	Lat/Long
Talettutayi Solar Projects Pvt Ltd	10 MW	Telangana	Mahabubnagar	Gadwal	Palwai	16.153°N, 77.763° E
Talettutayi Solar Projects Six Pvt Ltd (previously	10 MW	Telangana	Mahabubnagar	Gadwal	Palwai	16.266°N, 77.784° E

known as NV Vogt Solar One Pvt Ltd)							
Talettutayi Solar Projects Four Pvt Ltd	50 MW	Maharashtra	Beed	Telgaon	Chatgaon	18.966°N, 76.218°E	
Talettutayi Solar Projects One Pvt Ltd	30 MW	Karnataka	Koppal	Yelburga	Chikkoppa and Mudhol	15.649N, 75.983E	
Talettutayi Solar Projects Two Pvt Ltd	20MW	Karnataka	Koppal	Koppal	Kerahalli	15.371N, 76.306E	

The project locations have been shown in the maps below.





1.8 Title and Reference of 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 18.1³.

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 system¹ - Version 07.0 (EB 100, Annex 04).
- Methodological Tool- Tool for the demonstration and assessment of additionality² - Version 07.0.0 (EB 70, Annex 08).

1.9 Participation under other GHG Programs

The project has neither been registered, nor seeking registration under any other GHG programs. The project is seeking registration only in VCS program.

The undertaking from PP has been submitted accepting there is no double accounting for current monitoring period and the project activity is not a participant of any other GHG program other than VCS.

³<https://cdm.unfccc.int/methodologies/DB/5725LCHYPYM411V8OD9SFYVAMFFWNP>

⁴ <http://cdm.unfccc.int/methodologies/PAMethodologies/tools/am-tool-07-v7.0.pdf>

1.10 Other Forms of Credit and Supply Chain (Scope 3) Emissions

The Project has no intend to generate any other form of GHG-related environmental credit for GHG emission reductions or removals claimed under the VCS Program.

However, it can be crosschecked that PP is not claiming REC benefits, the same can be verified with the REC accreditation body of India³.

Supply Chain (Scope 3) Emissions: Not Applicable.

1.11 Sustainable Development Contributions

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

- **Social well-being:**
 - Contribution to the development of an otherwise underdeveloped area.
 - Generation of employment opportunities for local people during various phases of the project activity.
- **Economic well-being:**
 - Since the project uses renewable solar power resources for power generation it does not lead to any emissions in the environment.
 - Avoiding further depletion of the already over-exploited, limited non-renewable sources like coal, oil, etc.
- **Technological well-being:**
 - The technology selected for the power project would use well established Solar PV power generation and the project activity would promote the use of such technology.

- **Environmental well-being:**
 - Solar being a renewable source of energy, it reduces the dependence on fossil fuels and conserves natural resources which are on the verge of depletion. Due to its zero emission the Project activity also helps in avoiding significant amount of GHG emissions and specific pollutants like SO_x, NO_x, and SPM associated with the conventional thermal power generation facilities.

Table 1: Sustainable Development Contributions

Row number	SDG Target	SDG Indicator	Net Impact on SDG Indicator	Current Project Contributions	Contributions Over Project Lifetime
<i>Sequential row number</i>	<i>SDG Target number</i>	<i>Number and text of SDG indicator or, if no official SDG indicator is applicable, user-defined indicator</i>	<i>Indicate the project's contribution to the SDG Indicator (implemented activities to increase or decrease)</i>	<i>Brief description of the quantifiable impact of the project's activities related to the SDG indicator, during the monitoring period.</i>	<i>Brief description of the cumulative quantifiable impact of the project's activities related to the SDG indicator, over the project lifetime.</i>
1)	7.2	7.2.1: Renewable energy share in the total final energy consumption	Implemented activities to increase	About 107,123 MWh renewable electricity has supplied to Central Grid of Indian Electricity grid during the reported period that helps to increase the renewable energy share in the energy mix.	A total of 1,187,052 MWh renewable electricity has been supplied to the Indian grid by the project activity since commissioning.

2)	8.8	Protect labour rights and promote safe and secure working environments for all workers	Implemented activities to increase	<p>Approximately 150 employees from SolarArise India Projects Pvt. Ltd. And employees from its O&M contractor are employed directly/indirectly in the projects. To ensure occupational health and safety various trainings has been conducted:</p> <table border="1" data-bbox="984 378 1476 1359"> <thead> <tr> <th data-bbox="989 378 1136 492">Date</th> <th data-bbox="1136 378 1308 492">Name of the Training</th> <th data-bbox="1308 378 1472 492">No of Employee Benefitted</th> </tr> </thead> <tbody> <tr> <td data-bbox="989 492 1136 605">16-05-2022</td> <td data-bbox="1136 492 1308 605">Electric safety awareness</td> <td data-bbox="1308 492 1472 605">16</td> </tr> <tr> <td data-bbox="989 605 1136 719">17-06-2022</td> <td data-bbox="1136 605 1308 719">Snake bite first aid training</td> <td data-bbox="1308 605 1472 719">18</td> </tr> <tr> <td data-bbox="989 719 1136 906">22-06-2022</td> <td data-bbox="1136 719 1308 906">Hazard identification and risk management</td> <td data-bbox="1308 719 1472 906">13</td> </tr> <tr> <td data-bbox="989 906 1136 979">29-06-2022</td> <td data-bbox="1136 906 1308 979">PTW/LOTO importance</td> <td data-bbox="1308 906 1472 979">3</td> </tr> <tr> <td data-bbox="989 979 1136 1060">28-07-2022</td> <td data-bbox="1136 979 1308 1060">Safety training</td> <td data-bbox="1308 979 1472 1060">9</td> </tr> <tr> <td data-bbox="989 1060 1136 1174">25-08-2022</td> <td data-bbox="1136 1060 1308 1174">SCB hot and cold work SOP</td> <td data-bbox="1308 1060 1472 1174">4</td> </tr> <tr> <td data-bbox="989 1174 1136 1287">07-09-2022</td> <td data-bbox="1136 1174 1308 1287">SOP for transformer training</td> <td data-bbox="1308 1174 1472 1287">7</td> </tr> <tr> <td data-bbox="989 1287 1136 1359">10-09-2022</td> <td data-bbox="1136 1287 1308 1359">LOTO/PTW training</td> <td data-bbox="1308 1287 1472 1359">10</td> </tr> </tbody> </table>	Date	Name of the Training	No of Employee Benefitted	16-05-2022	Electric safety awareness	16	17-06-2022	Snake bite first aid training	18	22-06-2022	Hazard identification and risk management	13	29-06-2022	PTW/LOTO importance	3	28-07-2022	Safety training	9	25-08-2022	SCB hot and cold work SOP	4	07-09-2022	SOP for transformer training	7	10-09-2022	LOTO/PTW training	10	<p>To ensure occupational health and safety 3 trainings has been conducted</p> <p>Please refer Appendix II for supporting documents</p>
Date	Name of the Training	No of Employee Benefitted																														
16-05-2022	Electric safety awareness	16																														
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16-09-2022	Fire safety awareness training	17									
28-09-2022	PPE importance	11									
3)	13.2.2	Total greenhouse gas emissions per year avoided or removed	Implemented activities to increase	By generating 107,123 MWh renewable electricity the project has avoided emission of 103,406 tCO2e in the atmosphere.	Since commissioning the project has avoided emission of 1,145,862 tCO2e in the atmosphere.						

2 SAFEGUARDS

2.1 No Net Harm

The project activity does not involve any major construction activity. It primarily requires the installation of Solar PVs interfacing the generators with the State Electricity Board by setting up HT transmission lines and installation of other accessories.

The report on “Developmental Impacts and Sustainable Governance Aspects of Renewable Energy Projects” prepared by MNRE dated September 2013. This report clearly mentioned that solar power project activity operations do not result in direct air pollution or noise pollution. Please refer below web link for the same⁴.

Thus, it is envisaged that the implementation of the project activity will not lead to any significant impacts on air, water, soil quality and ambience.

2.2 Local Stakeholder Consultation

The project has already been registered under VCS mechanism. The local stakeholder meeting was carried out for the project activity and the details of the same can be referred to from the registered VCS PD.

There were no negative comments received during the meeting and stakeholders appreciated proactive efforts taken by project proponent towards reducing emissions.

As a part of continuous feedback from stakeholders, the PP has also placed a grievance register onsite where in the stakeholder can put down his/her complain and the same if found genuine will be addressed immediately.

However, there is no negative feedback has been reported within this monitoring period.

2.3 AFOLU-Specific Safeguards

Not applicable to this as this is not an AFOLU project activity.

⁴ <http://mnre.gov.in/file-manager/UserFiles/report-on-developmental-impacts-of-RE.pdf>

3 IMPLEMENTATION STATUS

3.1 Implementation Status of the Project Activity

The project activity involves the installation of Solar PVs. The total installed capacity of the project is 120 MW located across different states in India. The project is promoted by SolarArise India Projects Pvt. Ltd.

The project shall result in annual replacement of anthropogenic emissions of greenhouse gases (GHGs) estimated to be approximately 244,968 tCO₂e, thereon displacing 253,776 MWh/year amount of electricity from the grid over the 10 years crediting period.

Solar PV Project Technology Details –

The project activity aims to harness solar energy through installation of Solar PVs with total installed capacity of 120 MW.

- a) The technical specification of 10 MW plant interconnection with grid on 23/06/2016 by Talettutayi Solar Projects Pvt Ltd are as follows:

S. No	Technical details of the equipment	Description
1	Technology Used	Poly Crystalline Silicon
2	Make of modules installed	Trina Solar
3	Model of the modules installed	TSM-310PC14, TSM-315PC14
4	Make & Model of Inverter	Make – ABB, Model - PVS-800-1000KW
5	Number of Inverters	10 Nos.
6	Make & Number of Transformers	Make- Voltamp Model- 2 MVA, 5 Nos.

- b) The technical specification of 10 MW plant interconnection with grid on 23/06/2016 by Talettutayi Solar Projects Pvt Ltd are as follows:

S. No	Technical details of the equipment	Description
1	Technology Used	Poly Crystalline Silicon
2	Make of modules installed	Trina Solar
3	Model of the modules installed	TSM-310PC14, TSM-315PC14
4	Make & Model of Inverter	Make – ABB, Model - PVS-800-1000KW
5	Number of Inverters	10 Nos.
6	Make & Number of Transformers	Make- Voltamp Model- 2 MVA, 5 Nos.

- c) The technical specification of 50 MW plant interconnection with grid on 10/08/2017 by Talettutayi Solar Projects Four Pvt Ltd are as follows:

S. No	Technical details of the equipment	Description
1	Technology Used	Poly Crystalline Silicon
2	Make of modules installed	JA Solar
3	Model of the modules installed	320 Wp & 325 Wp
4	Make & Model of Inverter	Make- Sungrow, Model- SG 2500
5	Number of Inverters	20 Nos.
6	Make & Number of Transformers	Make- Sudhir, Model- 5 MVA, 10 Nos. Make- Voltamp, Model- 50 MVA, 1 No.

- d) The technical specification of 30 MW plant interconnection with grid on 05-01-2018 by Talettutayi Solar Projects One Pvt Ltd are as follows:

S. No	Technical details of the equipment	Description
1	Technology Used	Poly Crystalline Silicon
2	Make of modules installed	JA Solar
3	Model of the modules installed	320 Wp & 325 Wp
4	Make & Model of Inverter	Make- Sungrow, Model- SG 2500
5	Number of Inverters	12 Nos.
6	Make & Number of Transformers	Make- Silchar, Model- 5 MVA, 6 Nos. Make- Raychem, Model- 30 MVA, 1 No.

- e) The technical specification of 20 MW plant interconnection with grid on 07-08-2019 by Talettutayi Solar Projects Two Pvt Ltd are as follows:

S. No	Technical details of the equipment	Description
1	Technology Used	Poly Crystalline Silicon
2	Make of modules installed	JA Solar
3	Model of the modules installed	325 Wp & 330 Wp
4	Make & Model of Inverter	Make- TBEA, Model- TBEA 3750, TBEA 5000
5	Number of Inverters	5 Nos. (4 Nos of TBEA 3750 and 1 Nos of TBEA 5000)
6	Make & Number of Transformers	Make- Silchar, Model- 5 MVA & 7.5MVA, 3 Nos. Make- Voltamp, Model- 20 MVA, 1 No.

3.2 Deviations

3.2.1 Methodology Deviations

No methodology deviation is applied during the monitoring period.

3.2.2 Project Description Deviations

Below deviation has been applied in the last monitoring period: -

In the registered PD, formula used in the calculation net electricity supplied to the grid was not mentioned correctly for the Karnataka state projects, hence the same was corrected in line with the JMRs (Form-B). This correction was considered as project deviation in the current monitoring period. The formula used in the monitoring plan for calculating the net electricity supplied to the grid was based on the B-Form values provided by KPTCL as follows for the Karnataka state projects: -

$$\text{EGPJ, } y = \text{Export (Kwh)} - 115\% * \text{Import (Kwh)} - \text{Transmission losses (Kwh)}$$

This was in line with the actual monitoring procedure followed on the project activity.

The Project deviation was in line with the guidance provided under section 3.18.2 point 2. of VCS standard v4.4. However, it did not impact the existing applicability conditions of the methodology, additionality or the appropriateness of the baseline scenario.

No deviation has been applied in this monitoring period.

3.3 Grouped Projects

The project is not a grouped project thus this is not applicable.

4 DATA AND PARAMETERS

4.1 Data and Parameters Available at Validation

Data / Parameter	$EF_{\text{grid, OM, } y}$
Data unit	tCO ₂ /MWh
Description	Operating margin CO ₂ emission factor for the project electricity system in year.
Source of data	Calculated from CEA database, Version 12, May 2017
Value applied	0.9843 tCO ₂ /MWh
Justification of choice of data or description of measurement methods and procedures applied	Calculated as per “Tool to calculate the emission factor for an electricity system, version 05” as 3-year generation weighted average using data for the years 2013-14, 2014-15 & 2015-16. The data are obtained from “CO ₂ Baseline Database for Indian Power Sector” version 12, published by the Central Electricity Authority, Ministry of Power, Government of India.
Purpose of Data	<ul style="list-style-type: none"> For the calculation of the Baseline Emission

Comments	This parameter is fixed ex-ante for the entire crediting period.
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Data / Parameter	$EF_{grid, BM, y}$
Data unit	tCO ₂ /MWh
Description	Build margin CO ₂ emission factor for the project electricity system in year
Source of data	Calculated from CEA database, Version 12, May 2017
Value applied	0.9083 tCO ₂ /MWh
Justification of choice of data or description of measurement methods and procedures applied	Calculated as per “Tool to calculate the emission factor for an electricity system, version 05” as per the latest data available for the most recent year 2015-16. The data is obtained from “CO ₂ Baseline Database for Indian Power Sector” version 12, published by the Central Electricity Authority, Ministry of Power, Government of India.
Purpose of Data	<ul style="list-style-type: none"> Calculation of baseline emissions
Comments	The above value is fixed, and it is same for the entire crediting period

Data / Parameter	$EF_{grid, CM, y}$
Data unit	tCO ₂ /MWh
Description	Combined margin CO ₂ emission factor for the project electricity system in year y
Source of data	Calculated from CEA database, Version 12, May 2017
Value applied	0.9653 tCO ₂ /MWh
Justification of choice of data or description of measurement methods and procedures applied	<p>The combined margin emissions factor is calculated as follows: $EF_{grid, CM, y} = EF_{grid, OM, y} * W_{OM} + EF_{grid, BM, y} * W_{BM}$</p> <p>Where:</p> <p>$EF_{grid, BM, y}$ = Build margin CO₂ emission factor in year y (tCO₂/MWh) $EF_{grid, OM, y}$ = Operating margin CO₂ emission factor in year y (tCO₂/MWh) W_{OM} = Weighting of operating margin emissions factor (%) = 75% W_{BM} = Weighting of build margin emissions factor (%) = 25%</p>
Purpose of Data	<ul style="list-style-type: none"> Calculation of baseline emissions
Comments	The above value is fixed, and it is same for the entire crediting period

4.2 Data and Parameters Monitored

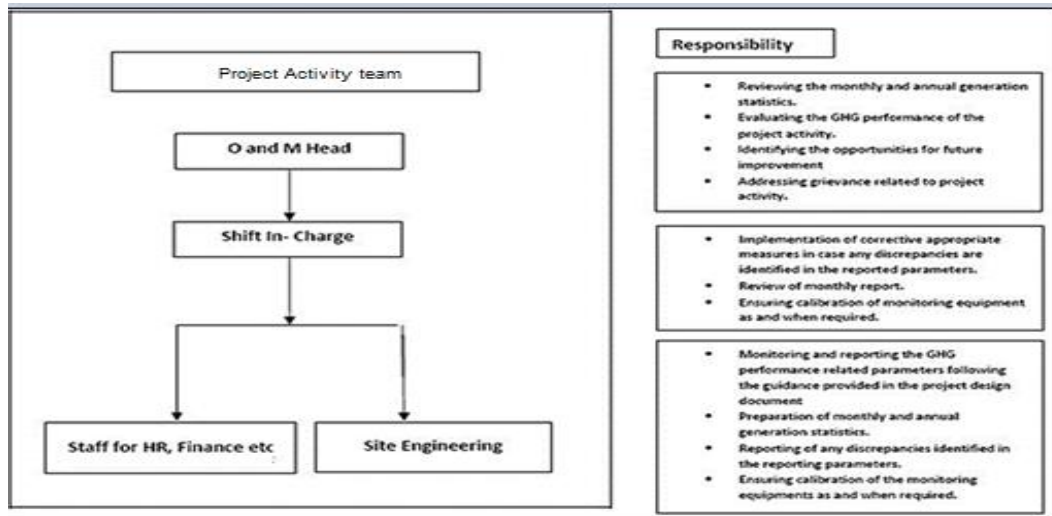
Data / Parameter	$EG_{PJ, y}$
Data unit	MWh
Description	Quantity of net electricity generation supplied by the project plant/unit to the grid in year y in MWh

Source of data	Credit note/ JMR/Form B reports/ monthly generation report from respective state electricity board/DISCOM
Description of measurement methods and procedures to be applied	<p>The difference of final value of export and import is used for monthly values of net electricity supplied to the grid by the project activity and same value will be considered for ER calculations for Telangana & Maharashtra sites.</p> <p>The difference of final value of export and import (115%) & transmission loss is used for monthly values of net electricity supplied to the grid by the project activity and same value will be considered for ER calculations for Karnataka sites.</p> <p>For detailed schedule of Calibration of energy meters involved in project activity please refer Appendix 1.</p>
Frequency of monitoring/recording	Continuous measurement & monthly recording
Value monitored	107,123 MWh
Monitoring equipment	The electricity exported / supplied by the plant to pooling substation and further to MSEDCL/RRVNL/TSTRANSCO/KPTCL substation. This meter also measures electricity imported by the plant from the grid.
QA/QC procedures to be applied	<p>The meters are approved, tested & sealed by the State Utility. The meters are in the custody of State Utility. The frequency of calibration is once in 5 years. 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.</p> <p>The metering arrangement, accuracy class of meters, calibration frequency is under control of state electricity board and PP do not have any control on it. PP is getting value of net electricity supplied to grid and the same is considered the monitoring parameter. The billing is raised based on substation meters.</p>
Purpose of the data	Calculation of baseline emissions
Calculation method	<p>Telangana & Maharashtra sites: - Net electricity supplied to the grid by the project plant in a given month = Export (kWh)- Import (kWh)</p> <p>Karnataka sites: - Net electricity supplied to the grid by the project plant in a given month = Export (kWh) - 115% * Import (kWh) - transmission loss</p>
Comments	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.

4.3 Monitoring Plan

Where appropriate monitoring plan is developed in accordance with the modalities and procedures for CDM project activities and is proposed for grid-connected solar power project being implemented. The monitoring plan, which will be 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 equipments for this project activity. The team comprises of the following members:



Data Measurement

The export and import energy will be measured continuously using above mentioned Main and Check meters located at the substations. Readings of meters shall be taken on monthly basis by authorized officer of SEB in the presence of PP or representative of PP. Based on the Meter Reading Statement to PP, invoices will be raised. These invoices can be used for cross checking the meter readings taken for the respective project activity.

Data collection and archiving

Readings from meters will be collected in the presence of the plant in-charge. Export and Import data would be 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 will be 2 years after the end of crediting period or till the last issuance of VCUs for the project activity whichever occurs later.

Emergency preparedness

The project activity will 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 event that the main meter, which is used to record the net electricity exported by the project, is found to be faulty it will be repaired or replaced and the data from the check meter will be used in its place. In the unlikely event that the check meter fails it will also be repaired or replaced

Personnel training

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

QA/QC procedures

The energy meters at the feeders are maintained and owned by state electricity board. Neither the project proponent nor the site personnel have any control over it. The records will be crosschecked with the records of sold electricity to state electricity board. The meters are calibrated by state electricity board at-least once in five years.

Apportioning

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.

5 QUANTIFICATION OF GHG EMISSION REDUCTIONS AND REMOVALS

5.1 Baseline Emissions

As per the approved consolidated Methodology ACM0002 (Version 18.1) para 42:

Baseline emissions include only CO₂ emissions from electricity generation in fossil fuel fired power plants that are displaced due to the project activity. The methodology assumes that

existing grid- connected power plants and the addition of new grid- connected power plants would have generated all project electricity generation above baseline levels. The baseline emissions are to be calculated as follows:

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

Where:

BE_y = Baseline emissions in year y (tCO₂/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 CO₂ 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 CO₂/MWh)

Grid Emission Factor

The grid emission factor is fixed ex-ante in the PD as given below:

Parameter	Value
OM	0.9843
BM	0.9083
CM	0.9653

Therefore,

$$\begin{aligned}
 BE_y &= 107,123 \times 0.9653 \\
 &= 103,405 \text{ tCO}_2\text{e (Rounded Down)}
 \end{aligned}$$

5.2 Project Emissions

Not Applicable, since project emissions from the solar power project activity is zero as per ACM0002 methodology. Hence, PE_y = 0.

5.3 Leakage

Not Applicable, since leakage emissions from the solar power project activity is zero as per ACM0002 methodology. Hence, LE_y = 0.

5.4 Net GHG Emission Reductions and Removals

Year	Baseline emissions or removals (tCO ₂ e)	Project emissions or removals (tCO ₂ e)	Leakage emissions (tCO ₂ e)	Net GHG emission reductions or removals (tCO ₂ e)
2022 (01/04/2022 to 30/09/2022)	103,405	0	0	103,405
Total	103,405	0	0	103,405

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 is 122,820 tCO₂e, whereas actual emission reductions achieved are 103,405 which is approximately -15.81% lower than the estimated emission reductions. The generation of electricity depends upon many other climatic conditions, and not within the control of the project participant. The lower generation during the current verification period is hence due to certain natural conditions.

APPENDIX 1: METER CALIBRATION DETAILS

a. **Meter Calibration details of 10 MW solar project by Talettutayi Solar Projects Pvt Ltd**

Metering Location: 132/33 kV Substation Control Room, Gadwal.

Meter Sl. No.	Make	Class	Calibration date	Due date for Calibration
APX00685 (Main Meter)	Secure	0.2 s	24/08/2022 and 30/12/2020	30/12/2025
APX00686 (Check Meter)	Secure	0.2 s	24/08/2022 and 30/12/2020	30/12/2025
APX00687(Standby Meter)	Secure	0.2 s	24/08/2022 and 30/12/2020	30/12/2025

b. **Meter Calibration details of 10 MW solar project by Talettutayi Solar Projects Six Pvt Ltd**

Metering Location: 132/33 kV Substation Control Room, Gadwal.

Meter Sl. No.	Make	Class	Calibration date	Due date for Calibration
APX00682 (Main Meter)	Secure	0.2 s	24/08/2022 and 30/12/2020	30/12/2025
APX00684 (Check Meter)	Secure	0.2 s	24/08/2022 and 30/12/2020	30/12/2025
APX00704(Standby Meter)	Secure	0.2 s	24/08/2022 and 30/12/2020	30/12/2025

c. **Meter Calibration details of 50 MW solar project by Talettutayi Solar Projects Four Pvt Ltd**

Metering Location: Control Room, 132kV Telgaon Sub-Station

Meter Sl. No.	Make	Class	Calibration date	Due date for Calibration
02832405 (Main Meter)	Elster	0.2 s	08/12/2021 and 22/12/2020	22/12/2025
02832406 (Check Meter)	Elster	0.2 s	08/12/2021 and 22/12/2020	22/12/2025
02832404 (Standby Meter)	Elster	0.2 s	08/12/2021 and 22/12/2020	22/12/2025

d. **Meter Calibration details of 30 MW solar project by Talettutayi Solar Projects One Pvt Ltd**

Metering Location: 110/33/11 KV MUSS Yelburga substation

Meter SI. No.	Make	Class	Calibration date	Due date for Calibration
20007786 (Main Meter)	L&T	0.2 s	12/04/2022 and 19/07/2021	19/07/2026
20007853 (Check Meter)	L&T	0.2 s	12/04/2022 and 19/07/2021	19/07/2026

e. **Meter Calibration details of 20 MW solar project by Talettutayi Solar Projects Two Pvt Ltd**

Metering Location: 110/33/11 KV Kerehalli substation


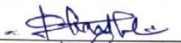

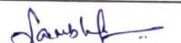
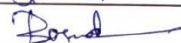
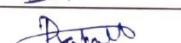
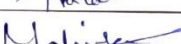
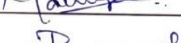
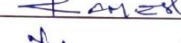


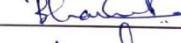
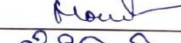

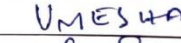





Meter SI. No.	Make	Class	Calibration date	Due date for Calibration
20009519 (New Main Meter)	L&T	0.2 s	16/02/2022	16/02/2027
20009520 (New Check Meter)	L&T	0.2 s	16/02/2022	16/02/2027

APPENDIX II: SUPPORTING EVIDENCE FOR SDG













SDG 7.2: About 107,123 MWh renewable electricity has supplied to Indian grid during the reported period that helps to increase the renewable energy share in the energy mix.

SDG 8.8: To ensure occupational health and safety various trainings has been conducted. To systematically manage safety at SolarArise, have a well- defined EHS policy.

TATA POWER		THE TATA POWER CO LTD TPREL SOLAR POWER PLANTS				FORMAT NO : S-FM-09	
		Training Attendance				RO-01-10-18	
Course Code :		Course Title: <i>Basic Electrical Safety at Workplace</i>				Faculty:	
Organized By :		Coordinator : <i>Mx Aradhya Selgati</i>		Date		Hours	
Duration : (Full Day/Half Day)		From	Date	Hours	To	Date	16/05/2022
Internal/External		16/05/2022		Venue		CMCS Office	
Awareness /Interactive /Brainstorming/Group Exercise/Practical/ Demonstration/Workshop/Certificate (Strike off which ever is not applicable)							
Type							
List of Participants							
Sl No	Name of the participant	Emp.No	Organization/Plant Code	Grade /Designation	email	Contact Number	Signature
1	Lahu Kathimbike			Helper			<i>[Signature]</i>
2	Balwan Kathimbike			Helper			<i>[Signature]</i>
3	Vijay Singh			Helper			<i>[Signature]</i>
4	Ramesh Dapikoti			Helper			<i>[Signature]</i>
5	Rajeshwar Vaita			Helper			<i>[Signature]</i>
6	Tatyasabab Kathimbike			Helper			<i>[Signature]</i>
7	Anand Shinde			Helper			<i>[Signature]</i>
8	Ketan Upade			Helper			<i>[Signature]</i>
9	Balwanbhai Thete			Sr. Tech			<i>[Signature]</i>
10	Jalindar Pelenati			Sr. Tech			<i>[Signature]</i>
11	Nayan Mumbay			Site Engg.			<i>[Signature]</i>
12	Vijay Kande			Tech			<i>[Signature]</i>
13	Asatman Payave			Tech			<i>[Signature]</i>
14	Aradhya Selgati			Site Engg			<i>[Signature]</i>
15	Sandeep Kathimbike			Helper			<i>[Signature]</i>
16	Shyampradab Upade			Helper			<i>[Signature]</i>

Training Attendance Sheet				
Topic		Snake bite first aid Training		
Training Location		TT2 20 MW, Solar power plant, Kerehalli Village, Koppal dist, Karnataka		
S. No.	Date	Participant Name	Designation	Signature
1	6/17/2022	Madhusudanan.G	Site-incharge	
2	6/17/2022	Logesh	Engineer	
3	6/17/2022	Sambhunath muduli	Technician	
4	6/17/2022	Karna biswal	Technician	
5	6/17/2022	Prakash	Technician	
6	6/17/2022	Malinga	Officeboy	
7	6/17/2022	Ramesh	Helpers	
8	6/17/2022	Muttu	Helpers	
9	6/17/2022	Malesh	Helpers	
10	6/17/2022	Bharamesh	Helpers	
11	6/17/2022	Mounesh	Helpers	
12	6/17/2022	Basappa	Helpers	
13	6/17/2022	Umesh	Driver	
14	6/17/2022	Virupax	S/S	
15	6/17/2022	Ameresh	S/G	
16	6/17/2022	Manjunath.u	S/G	
17	6/17/2022	Gavi	S/G	
18	6/17/2022	Ashok	S/G	
Trainer		Madhusudanan.G		

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HSE TRAINING			
PROGRAM TITLE	HAZARD IDENTIFICATION & RISK ASSESSMENT		
LOCATION	40.5MWp Chikkoppa Yelburga Site		
DATE	22.06.2022	Time :-	03:10 PM - 04:15 PM
TRAINER NAME	Chandrakant yadav 		
Sr.No	Name	Designation	sign
1	Manjunath		
2	Shiddaramayya		
3	AUddin		
4	Bhargav		
5	Badrappa		
6	Ambresh		
7	channabasawa		
8	Rajiv		
9	Raghu		
10	Vmesh		
11	Shekappa		
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SolarArise

2X10MW TT & TT6 Gadwal TS

Training Class on PTW & TBT

Date:29.06.2022

- Introduction of PTW & TBT.
- Introduction of LOTO.



TATA POWER		THE TATA POWER CO LTD TPREL SOLAR POWER PLANTS				FORMAT NO : 5-FM-09	
Training Attendance		RO-01-10-16					
Course Code		Course Title: Standard operating procedure of 5MVA x'mer & 50MVA power a'mr				Coordinator: Arshinder Yadavkar	
Organized By		Date: 07/09/2022		From: 11:00 am		To: 2:00 pm	
Duration: (Full Day/Half Day)		Internal/External		Date: 07/09/2022		Hours	
Type		Awareness /Interactive /Brainstorming/Group Exercise/Practical/ Demonstration/Workshop/Certificate (Strike off which ever is not applicable)					
List of Participants							
Sl No	Name of the participant	Emp No	Organization/Plant Code	Grade /Designation	email	Contact Number	Signature
1)	Balasesh Thakur			ss. Tech.		9145770570	[Signature]
2)	Arshinder Yadavkar			engg	arshinder@tata.com	940252957	[Signature]
3)	Nayan Malwani			Engg		9807873873	[Signature]
4)	Dhyan Arora			Tech			[Signature]
5)	Jaladon Katar			Sr Tech		808988138	[Signature]
6)	Arshinder Yadavkar			Tech		998529838	[Signature]
7)	Surya Chakraborty			Sr. TE Engg		807009878	[Signature]

SolarArise

Training Attendance

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Attendance Sheet			
PROGRAM TITLE	LOCATION	DATE	TRAINER NAME
LET'S TRAINING	SEKAR PLANT, CHIKKAPPA VILLAGE	08/09/2022	MANEESH ISHAK
Sl No	Name	Designation	Signature
1	Shridhar	SS	[Signature]
2	Subramanian P U	SS	[Signature]
3	Pranav	SS	[Signature]
4	Pranav	SS	[Signature]
5	Pranav	SS	[Signature]
6	Pranav	SS	[Signature]
7	Pranav	SS	[Signature]
8	Pranav	SS	[Signature]
9	Pranav	SS	[Signature]
10	Pranav	SS	[Signature]

Attendance Sheet			
PROGRAM TITLE	LOCATION	DATE	TRAINER NAME
LET'S TRAINING	SEKAR PLANT, CHIKKAPPA VILLAGE	08/09/2022	MANEESH ISHAK
Sl No	Name	Designation	Signature
1	Shridhar	SS	[Signature]
2	Subramanian P U	SS	[Signature]
3	Pranav	SS	[Signature]
4	Pranav	SS	[Signature]
5	Pranav	SS	[Signature]
6	Pranav	SS	[Signature]
7	Pranav	SS	[Signature]
8	Pranav	SS	[Signature]
9	Pranav	SS	[Signature]
10	Pranav	SS	[Signature]

Training Attendance Sheet				JAKSON
Topic		Fire safety & Physical Fitness Training		
Training Location		TT2 20 MW Solar power plant, Kerehalli Village, Koppal dist, Karnataka		
S. No.	Date	Participant Name	Designation	Signature
1	16-09-2021	Madhusudan.G	Senior Engineer	<i>[Signature]</i>
2	16-09-2021	Logesh	Engineer	<i>[Signature]</i>
3	16-09-2021	Sambhunath muduli	Associate Technician	<i>[Signature]</i>
4	16-09-2021	Karna biswal	Technician	<i>[Signature]</i>
5	16-09-2021	Ramparasad kowsalya	Technician	<i>[Signature]</i>
6	16-09-2021	Mahalingappa	Officeboy	<i>[Signature]</i>
7	16-09-2021	Ramesh	Helpers	<i>[Signature]</i>
8	16-09-2021	Muttu	Helpers	<i>[Signature]</i>
9	16-09-2021	Malesh	Helpers	<i>[Signature]</i>
10	16-09-2021	Bharamesh	Helpers	<i>[Signature]</i>
11	16-09-2021	Mounesh	Helpers	<i>[Signature]</i>
12	16-09-2021	Basappa	Helpers	<i>[Signature]</i>
13	16-09-2021	Umesh	Driver	<i>[Signature]</i>
14	15-09-2021	Virupax	S/S	<i>[Signature]</i>
15	16-09-2021	Ameresh	S/G	<i>[Signature]</i>
16	16-09-2021	Manjunath.u	S/G	<i>[Signature]</i>
17	16-09-2021	Gavi	S/G	<i>[Signature]</i>
Trainer		Madhusudan.G		<i>[Signature]</i>

