



Verified Carbon Standard

BUNDLED SOLAR POWER PROJECT BY VECTOR GREEN ENERGY PRIVATE LIMITED

Project title	Bundled Solar Power Project by Vector Green Energy Private Limited
Project ID	1770
Monitoring period	01-November-2022 to 30-April-2024
Original date of issue	22-May-2024
Most recent date of issue	11-August-2024
Version	04
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PROJECT DETAILS

1.1 Summary Description of the Implementation Status of the Project

The main purpose of this project is to generate clean form of electricity through renewable solar energy source. The project is a bundled project activity which involved installation of 105 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 (GHGs) estimated to be approximately 163,888 tCO_{2e} per year, thereon displacing 169,781 MWh/year amount of electricity from the generation-mix of power plants connected to the Indian grid, which is mainly dominated by 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 SPVs	Capacity in MW	Date of Commissioning	Connection with Grid	State	Usage
Winsol Solar Fields(Polepally) Pvt. Ltd.	15 MW	01-July-2016	Indian Grid	Telangana	Sale to State Discom
	50 MW	31-December-2016	Indian Grid	Telangana	Sale to State Discom
Hindupur Solar Park Pvt. Ltd.	40 MW	28-June-2016	Indian Grid	Andhra Pradesh	Sale to State Discom

The total GHG emission reductions achieved in this monitoring period:

During the current monitoring period from 01-November-2022 to 30-April-2024 (first and last date included), the project activity supplied 306,377 MWh and thus contributing to the GHG reductions of 295,745 tCO_{2e}.

1.2 Audit History

Audit type	Period	Program	Validation/verification body name	Number of years
Joint Validation and Verification	28-June-2016 to 22-May-2018	VCS Program	LGAI Technological Center, S.A. (Applus+Certification)	1 year 11 months

Verification	23-May-2018 to 22- December-2019	VCS Program	LGAI Technological Center, S.A. (Applus+Certification)	1 year 7 months
Verification	23-December-2019 to 01-April-2021	VCS Program	Earthood Services Private Limited	1 year 3 months
Verification	02-April-2021 to 31-October 2022	VCS Program	VKU Certification Pvt. Ltd.	1 year 7 months
Verification	01-November-2022 to 30-April-2024	VCS Program	LGAI Technological Center, S.A. (Applus+Certification)	1 years and 6 months
Total	28-June-2016 to 30-April-2024	VCS Program		7 years 10 months

1.3 Sectoral Scope and Project Type

Sectoral scope ¹	01-Energy Industries (Renewable/non-renewable)
Project activity type	Renewable energy projects

The project activity is not a grouped project.

Sectoral scope	Not applicable as it is not a AFOLU project.
AFOLU project category ²	Not applicable as it is not a AFOLU project.
Project activity type	Not applicable as it is not a AFOLU project.

1.4 Project Proponent

Organization name	Winsol Solar Fields (Polepally) Pvt. Ltd.
Contact person	Mr. Rajeev Kumar Singh
Title	Manager-Carbon Team

¹ Projects, activities, or methodologies may be developed under any of the 16 VCS sectoral scopes: <https://verra.org/programs/verified-carbon-standard/vcs-program-details/#sectoral-scopes>

² See Appendix 1 of the VCS Standard

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Telephone	+91-9789183888
Email	Rajeevkumar.Singh@sembcorp.com

Organization name	Hindupur Solar Park Pvt. Ltd.
Contact person	Mr. Rajeev Kumar Singh
Title	Manager-Carbon Team
Address	Office No. 504/2, 5 th Floor, White House Block I, 6-3-1192/1/1, Kundanbagh, Begumpet, Hyderabad Telengana-500016 India
Telephone	+91-9789183888
Email	Rajeevkumar.Singh@sembcorp.com

1.5 Other Entities Involved in the Project

Organization name	Sembcorp Green Infra Private Limited
Role in the project	Representative for above SPV
Contact person	Mr. Rajeev Kumar Singh
Title	Manager- Carbon Team
Address	Office No. 504/2, 5 th Floor, White House Block I, 6-3-1192/1/1, Kundanbagh, Begumpet, Hyderabad Telengana-500016 India
Telephone	91-9789183888
Email	Rajeevkumar.Singh@sembcorp.com

1.6 Project Start Date

Project start date	28-June-2016
Justification	The project start date is the date of commissioning of 40 MW Hindupur Solar Park Pvt. Ltd.

1.7 Project Crediting Period

Crediting period	<input type="checkbox"/> Seven years, twice renewable <input type="checkbox"/> Ten years, <input checked="" type="checkbox"/> Other (The crediting period is for 10 years and it can be renewed 2 times. This is as per the registered PD, section 1.6.))
Start and end date of first or fixed crediting period	28-June-2016 to 27-June-2026

1.8 Project Location

The project is located in the State of Andhra Pradesh, India.

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

Name of SPVs	Capacity (MW)	State	Village	Mandal	District	Latitude(N)	Longitude(E)
Winsol Solar Fields(Polepally) Pvt. Ltd.	15 MW	Telangana	Karoor	Nawabpet	Mahabubnagar	16° 51' 49.9"	78° 05' 33.6"
	50 MW	Telangana	Indur	Peddumal	Vikarabad	17° 20' 41.4"	77° 36' 56.6"
Hindupur Solar Park Pvt. Ltd.	40 MW	Andhra Pradesh	Nelapalle	Peddapanjani	Chittor	13° 19' 31.90"	78° 40' 10.75"

The project locations have been shown in the map below:

1.9 Title and Reference of Methodology

Type (methodology, tool or module).	Reference ID, if applicable	Title	Version
Methodology	ACM0002	Grid-connected electricity generation from renewable sources	18.1
Tool	07	Tool to calculate the emission factor for an electricity system ³	06.0
Tool	01	Tool for the demonstration and assessment of additionality ⁴	07.0.0

1.10 Double Counting and Participation under Other GHG Programs

1.10.1 No Double Issuance

Is the project receiving or seeking credit for reductions and removals from a project activity under another GHG program?

Yes No

If yes, provide required evidence of no double issuance as outlined by the VCS Standard.

1.10.2 Registration in Other GHG Programs

Was the project registered or seeking registration under any other GHG programs?

Yes No

If yes, provide the registration number and all relevant details including the date of project inactivity in the other GHG program.⁵

³ <https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-07-v6.pdf>

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

⁵ The requirement to provide the date of project inactivity only applies to projects which request registration or crediting period renewal under the VCS Program on or after 1 January 2025.

1.11 Double Claiming, Other Forms of Credit, and Scope 3 Emissions

1.11.1 No Double Claiming with Emissions Trading Programs or Binding Emission Limits

Are project reductions and removals or project activities also included in an emissions trading program or binding emission limit? See the *VCS Program Definitions* for definitions of emissions trading program and binding emission limit.

Yes No

If yes, provide all required evidence of no double claiming as outlined by the VCS Standard.

1.11.2 No Double Claiming with Other Forms of Environmental Credit

Has the project activity sought, received, or is planning to receive credit from another GHG-related environmental credit system? See the *VCS Program Definitions* for definition of GHG-related environmental credit system.

Yes No

If yes, provide all required evidence of no double claiming as outlined by the VCS Standard.

1.11.3 Supply Chain (Scope 3) Emissions

Do the project activities affect the emissions footprint of any product(s) (goods or services) that are part of a supply chain?

Yes No

If yes:

Is the project proponent(s) or authorized representative a buyer or seller of the product(s) (goods or services) that are part of a supply chain?

Yes No

If yes:

Has the project proponent(s) or authorized representative posted a public statement on their website saying, “Carbon credits may be issued through the Verified Carbon Standard project [project ID] for the greenhouse gas emission reductions or removals associated with [project proponent or authorized representative organization name(s)] [name of product(s) whose emissions footprint is changed by the project activities].”

Yes No

If yes to all:

Provide evidence of the public statement. Evidence must be provided in this section or in an appendix.

1.12 Sustainable Development Contributions

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 105 MW solar project in different states of India. The solar project has been developed by Winsol Solar Fields (Polepally) Pvt. Ltd & Hindupur Solar Park Pvt. Ltd.

Over the 10 years of the crediting period, the project replaces anthropogenic emissions of greenhouse gases (GHG's) estimated to be approximately 163,888 tCO_{2e} per year, thereon displacing 169,781 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 power plants.

In a nutshell, the various contributions by the Project Proponent towards the SDGs have been given below:

1. For SDG -7 Affordable and Clean Energy: Since the project activity is a solar power project, it generates clean energy. The project activity is a new facility (Greenfield) and the electricity generated by the project is exported to the Indian electricity grid. The project displaces an equivalent amount of electricity which would have been otherwise been generated by fossil fuel dominant electricity grid.

During the current monitoring period 01-November-2022 to 30-April-2024 (inclusive of both dates) 306,377 MWh electricity has supplied to Indian grid.

2. For SDG -13 Climate Action: The main purpose of this project is to generate a clean form of electricity through renewable solar energy sources. The project activity involves installation of 15 MW solar project by Winsol Solar Fields (Polepally) Pvt. Ltd. At Mahabunagar district, Telengana, India, 50 MW solar project by Winsol Solar Fields (Polepally) Pvt. Ltd. At Vikarabad district, Telengana, India and 40 MW solar power project by Hindupur Solar Park Pvt. Ltd. At Chittoor district, Andhra Pradesh, India.

The project supplies clean electricity from the solar power plants to the Indian Grid, hence displacing the electricity generated from grid connected fossil fuel power plants and thereby avoiding the equivalent carbon dioxide which is a greenhouse gas.

By supplying 306,377 MWh clean electricity to Indian grid, the project avoided release of 295,745 tCO_{2e} into the atmosphere during the current monitoring period: 01-November-2022 to 30-April -2024(inclusive of both dates).

3. SDG 8 -Employment and decent work: The implementation of the project activity has led to increase in the employment and skill upliftment in the surrounding areas. The current monitoring period has employed 84 people for the project activity and 12 trainings were conducted.

Table 1: Sustainable Development Contributions

Row number	SDG target	SDG indicator	Net impact on SDG indicator	Current project contributions	Contributions over project lifetime
1)	7.2	7.2.1-Renewable energy share in the total final energy consumption	Implemented activities to increase	In this monitoring period, this project has supplied 306,376 MWh clean electricity by using solar energy resources	The clean energy generation from the project activity over its entire lifetime is 1,464,400 MWh.
2)	8.0	8.6.1-Proportion of youth (aged 15-24 year) not in education, employment or training.	Implemented activities to increase	84 people are employed for the project and 12 trainings were provided during the current monitoring period.	Currently 84 people are working in the project activity. Total number of trainings provided up to current project activity is 42.
3	13.0	Tonnes of greenhouse gas emissions avoided or removed	Implemented activities to increase	By supplying 306,377 MWh clean electricity to Indian grid, the project avoided release of 295,745 tCO ₂ in to the atmosphere during the reporting period.	Prevented the release of 1,413,579 tCO _{2e} into the atmosphere over its entire lifetime. Electricity generation form clean energy (Solar energy) resources leads to low greenhouse gases emission along with supplying affordable, clean electricity.

1.13 Commercially Sensitive Information

There is no commercial sensitive information related the project activity. All information is provided in the public version of the project documents.

2 SAFEGUARDS AND STAKEHOLDER ENGAGEMENT

2.1 Stakeholder Engagement and Consultation

2.1.1 Stakeholder Identification

Stakeholder Identification	<p>The main stakeholders of this project identified by the project participant are the local villagers who are the main population of this area. Other stakeholders are the unskilled labour, operations and maintenance team of the project activity.</p>
Legal or customary tenure/access rights	<p>The land on which the Solar Panels are installed is owned by the Project Participant which has project lifetime of 25 years.</p>
Stakeholder diversity and changes over time	<p>The project owner has conducted and stakeholder meeting during the start of registration process of this project under the VCS mechanism. In this stakeholder meeting, diverse stakeholders such as local villagers (villages nearby the project site), state utility officials, NGOs were invited. The project owner has explained the various benefits and advantages of this project including the economic impact on the local area. Over the period of the year, the nature of the stakeholders has not changed.</p>
Expected changes in well-being	<p>Over the course of the project implementation, there has been considerable and positive impact on the livelihood of the local people. The project activity has generated employment to the local people, development of new skills</p>

	for the locals by providing trainings and exposing to various awareness programs.
Location of stakeholders	<p>The main stakeholders of this project are:</p> <ul style="list-style-type: none"> • State utility which includes transmission and distribution companies which have offices at local (block level) and as well as State Capital. <p>Villagers/local citizens- they are located near the project area. The project has positive impact on the local people as it has generated employment (temporary/permanent) opportunities for them.</p>
Location of resources	The land on which the Solar Panels are installed belongs to the project owner. The locations of all Solar Panels are provided in Section 1.8.

2.1.2 Stakeholder Consultation and Ongoing Communication

Ongoing consultation	<p>For on-going consultation, the project proponent has kept grievance register in plant site office and sought comments/grievances from the local stakeholders. The representative of PP addresses the grievances if any to the stakeholders and communicates them on regular basis. PP has also kept provision for submitting comments/grievances from local stakeholder through direct emails. Below are the details:</p> <ul style="list-style-type: none"> • Company Website: www.sembcorpindia.com—Green Infra Wind Energy Limited • Email: sgil.grievance@sembcorp.com <p>During the current monitoring period, no negative comments were received from the local stakeholders.</p>
Date(s) of stakeholder consultation	Local stakeholder consultation was conducted during the registration of the project. The Project Proponent had conducted local stakeholder’s consultation at three different project sites.

	Project Location	Capacity	Date of meeting	Mode of Invitation
	Project site, Telengana by Winsol Solar Fields (Polepally) Pvt. Ltd.	15 MW	12/01/2016	Public notice, email
	Project site, Telengana by Winsol Solar Fields (Polepally) Pvt. Ltd.	50 MW	13/01/2016	Public notice, email
	Project site, Andhra Pradesh by HIndupur Solar Park Pvt. Ltd.	40 MW	14/01/2016	Public notice, email
Communication of monitored results	The main outcomes and benefits of the project activity like the total power generated, the employment opportunities and economic development of the villages near the project site was explained to all the stakeholders.			
Consultation records	The consultation with stakeholders was documented in the forms of Minutes of Meeting consisting outcome of the consultation process and the same has been shared with the stakeholders.			
Stakeholder input	<p>During the stakeholder’s consultation process, the below inputs were received for the project:</p> <p>1. Does the project provide employment opportunities or economic development of the area?</p> <p>PP response: Yes, the project will provide economic development of the area and employment opportunities to the local people.</p>			

	<p>2. How the project activity will benefit the villages around the project site and their residents?</p> <p>PP response: The project activity will benefit the villagers by providing employment opportunities to local or nearby people like module cleaning, hiring of vehicles and various social activities shall help to uplift the standard of living.</p>
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2.1.3 Free, Prior, and Informed Consent

Consent	The project area legally belongs to the Project Proponent and no conflicts have arised related to the rights of the project, the project location or any other disagreements with any stakeholders.
Outcome of FPIC	The project site belongs to the Project Proponent and it has a legal document of its rights over the Land. In the process, there has no displacement or relocation of the local villages. Since the start of the project activity there has been many positive economic impacts which has greatly contributed to the upliftment of the region.

2.1.4 Grievance Redress Procedure

Grievances received	Resolution and outcome
No grievances received during the monitoring period.	There is a grievance register which is kept at the project site. Any stakeholder who has comments/complaints can contact as per the details mentioned. The Project representative would address the complaints on immediate basis.

2.1.5 Public Comments

Summary of comments received	Actions taken
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No negative comments have been received	Since the commissioning, there has been no change in the project design and therefore any updates were not necessary.
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2.2 Risks to Stakeholders and the Environment

2.2.1 Management Experience

The project owner has a robust management structure to manage the financial, operational, and environmental risks. It has a team of qualified engineers, financial analysts, community engagement professionals and health, safety, and environmental (HSE) risk management professionals to manage the operational, financial, social and environmental risks.

The project proponent has vast experience in managing renewable energy projects across the globe and has developed a Standard Operational Procedure (SoP) for Identifying the environmental hazards/risks related to health, safety, and operations and managing all risks adequately at the project site as well as at the corporate office. for monitoring all relevant risks at the project site as well as at the corporate office. The project owner has also developed a training schedule for the site managers to manage the operational, and environmental risks.

The project owner has a robust CSR team which engage with the local communities including women, youths, and marginalized people located in the project area right from the project conceptualization stage to execution and operational stage.

2.2.2 Risk assessment

This section and its subsequent sub-sections are not applicable.⁶

	Risk identified	Mitigation or preventative measure(s) taken
Natural and human-induced risks to stakeholders' wellbeing		
Risks to stakeholder participation		
Working conditions		

⁶According to April 2024 Overview of VCS Program Updates and Effective dates, this section is not applicable yet. It is effective for all project requests submitted to Verra Registry on or after 01 January 2025.

Safety of women and girls		
Safety of minority and marginalized groups, including children		
Pollutants (air, noise, discharges to water, generation of waste, and release of hazardous materials and chemical pesticides and fertilizers)		

2.3 Respect for Human Rights and Equity

This section and its subsequent sub-sections are not applicable.⁷

2.3.1 Labor and Work

	Risks identified ⁸	Mitigation or preventative measure(s) taken
Discrimination		
Sexual harassment		
Gender equity in labor and work		
Forced labor		
Child labor		
Human trafficking		

⁷According to April 2024 Overview of VCS Program Updates and Effective dates, this section is not applicable yet. It is effective for all project requests submitted to Verra Registry on or after 01 January 2025.

⁸ The identified risks and commensurate mitigation or preventative measure(s) for forced labor, child labor, and human trafficking, must be inclusive of staff and contracted workers employed by third parties.

2.3.2 Human Rights

It is not applicable as mentioned above.

Risks identified	Mitigation or preventative measure(s) taken

2.3.3 Indigenous Peoples and Cultural Heritage

Risks identified	Mitigation(s) or preventative measure taken

2.3.4 Property Rights

Risks identified	Mitigation or preventative measure(s) taken

2.3.5 Benefit Sharing

Summary of the benefit sharing plan	
Benefit sharing during the monitoring period	

2.4 Ecosystem Health

This section and subsequent sub-sections are not applicable.⁹

⁹ According to April 2024 Overview of VCS Program Updates and Effective dates, this section is not applicable yet. It is effective for all project requests submitted to Verra Registry on or after 01 January 2025.

	Risk identified	Mitigation or preventative measure(s) taken during the monitoring period
Impacts on biodiversity and ecosystems		
Soil degradation and soil erosion		
Water consumption and stress		

2.4.1 Rare, Threatened, and Endangered species

Species or habitat	
Areas needed for habitat connectivity	

	Risks identified	Mitigation or preventative measure(s) taken
Habitats for rare, threatened, and endangered species		
Areas for habitat connectivity		

2.4.2 Introduction of species

Species introduced	Classification	Justification for use	Adverse effects and mitigation
N/A	N/A	N/A	N/A

Existing invasive species	Mitigation measures to prevent the spread or continued existence of invasive species
N/A	N/A

	Risks identified	Mitigation or preventative measure(s) taken
Invasive species	Not applicable	Not applicable

2.4.3 Ecosystem conversion

This section and subsequent sub-sections are not applicable.¹⁰

	Risks identified	Mitigation or preventative measure(s) taken
Ecosystem conversion		

3 IMPLEMENTATION STATUS

3.1 Implementation Status of the Project Activity

The project activity involves the installation of Solar PV project. The total installed capacity of the project is 105 MW of solar PV plant located at different states in India. The project is promoted by Vector Green Energy Private Limited.

The project activity is a new facility (Greenfield) and the electricity generated by the project is being exported to the Indian electricity grid. The project therefore displaces an equivalent amount of electricity which would have otherwise been generated by fossil fuel dominant electricity grid. The Project Proponent plans to avail the VCS benefits for the project.

In the Pre-Project scenario to the entire 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.

During the current monitoring period from 01-November-2022 to 30-April-2024(first and last date included) the project activity has supplied 306,377 MWh of net electricity and thus contributing to GHG reductions of 296,520 tCO_{2e}.

The technical details of the Solar PV project are described in below table¹¹:

¹⁰ According to April 2024 Overview of VCS Program Updates and Effective dates, this section is not applicable yet. It is effective for all project requests submitted to Verra Registry on or after 01 January 2025.

¹¹ Technical specification are mentioned as per Joint VCS PD & MR(Version 02 dated 16-July-2018)

The project activity aims to harness solar energy through installation of solar PV project with total installed capacity of 105 MW. The technical specification of each SPV mentioned during the validation of project activity.

The technical specification of 40 (4 x 10MW) plant recommendation with grid on 28-June-2016 by Hindupur Solar Park Pvt. Ltd. Are as follows:

Sl.No.	Technical details of the equipment	Description
1.	Make of modules installed	First Solar series4V2
2.	No. of the modules installed	Wp capacity - 110 & 112.5 Wp Total No. of modules - 432300 Nos.
3.	Tilt angle	11 degrees
4.	Make & Model of Invertor	Make - ABB Model -PVS-800-57-1000kW-C
5.	Number of inverters	40 Nos.
6	Make & Number of Transformers & capacity	Voltamp transformer Ltd. -2000 kVA-20 Nos.

The technical specification of 15 MW plant interconnection with grid on 01-July-2016 by Winsol Solar Fields (Polepally) Pvt. Ltd. Are as follows:

Sl. No.	Technical details of the equipment	Description
1	Make of modules installed	First Solar series4V2
2	No. of the modules installed	Wp capacity -100, 102.5, 107.5 Wp. Total No. of modules - 172788 Nos.
3	Tilt angle	13 degrees
4	Make & Model of Invertor	Make-ABB Model - PVS-800-57-1000 kW-C
5	Number of inverters	15 Nos.
6	Make & Number of Transformers & capacity	Voltamp- 2000kVA-7Nos. Voltamp - 1000 kVA -1 No. Schneider - 25/30 MVA - 1 No.

The technical specification of 50 MW plant interconnection with grid on 31- December-2016 by Winsol Solar Fields (Polepally) Pvt. Ltd are as follows:

Sl. No.	Technical details of the equipment	Description
1	Make of modules installed	First Solar series4V2
2	No. of the modules installed	Wp capacity -100, 112.5 Wp Total No. of modules – 551840 Nos.
3	Tilt angle	13 degrees
4	Make & Model of Invertor	SMA – SC 2500 EV -19 Nos. ABB -PVS-980-58-2000 kVA-K – 2 Nos. ABB – PVS-980-58-2091 kVA-L-1 No.
5	Number of inverters	22 Nos.
6	Make & Number of Transformers & capacity	Voltamp- 2250kVA- 9 Nos. Voltamp – 2250 kVA -10 Nos. Scilchar – 2000 kVA – 2 Nos Scilchar – 2700 kVA – 1 No Bharat Bijlee -35/40 MVA – 2Nos.

During the current monitoring period, all project sites were operational and no events happened which may impact the GHG emission reductions or removals and monitoring.

Plant wise breakdown/shutdown details for the current monitoring period is mentioned in Appendix II of this monitoring report.

During the current monitoring period, no Project Proponent were changed.

3.2 Deviations

3.2.1 Methodology Deviations

No methodological deviation is applied during the current monitoring period.

3.2.2 Project Description Deviations

There was no project description deviation taken during the current monitoring period. The following deviations were taken during the previous monitoring period (23-March-2021 to 31-October-2022):

Deviation 1:

The Geo-coordinate of 40 MW Hindupur Solar Park Pvt. Ltd., Chittoor, Andhra Pradesh is revised to exact site location, there was some minor correction in minutes & seconds of values in the previous monitoring report.

The deviation is of permanent nature and does not affect the additionality and baseline scenario of the project activity.

Deviation 2:

In the event of 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. The nature of deviation is permanent and does not affect the additionality and baseline scenario of the project activity.

3.3 Grouped Projects

The specified project is not a part of grouped project.

3.4 Baseline Reassessment

Did the project undergo baseline reassessment during the monitoring period?

Yes No

4 DATA AND PARAMETERS

4.1 Data and Parameters Available at Validation

Data / Parameter	EF _{grid,OM,y}
Data unit	tCO ₂ /MWh
Description	Operating Margin CO ₂ emission factor in year y
Source of data	Calculated from CEA database, Version 12, May 2017 (as per Joint VCS PD & MR, Version 02 dated 16-July-2018)
Value applied	0.9843
Justification of choice of data or description of	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.

measurement methods and procedures applied	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 For the calculation of the Baseline Emission
Purpose of data	For the calculation of Baseline emissions
Comments	This parameter is fixed ex-ante for the entire crediting period.

Data / Parameter	EF _{grid,BM,y}
Data unit	tCO ₂ /MWh
Description	Build Margin CO ₂ emission factor in year y
Source of data	Calculated from CEA database, Version 12, May 2017 ¹² (as per Joint VCS PD & MR, Version 02 dated 16-July-2018)
Value applied	0.9083
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	For the calculation of the baseline emissions
Comments	This parameter is fixed ex-ante for the entire crediting period.

Data / Parameter	EF _{grid,CM,y}
Data unit	tCO ₂ /MWh
Description	Combined Margin CO ₂ emission factor in year y
Source of data	Calculated from CEA database, Version 12, May 2017 (as per Joint VCS PD & MR, Version 02 dated 16-July-2018)
Value applied	0.9653
Justification of choice of data or description of measurement methods and procedures applied	<p>The combined margin emissions factor is calculated as follows:</p> $EF_{grid,CM,y} = EF_{grid,OM,y} * W_{OM} + EF_{grid,BM,y} * W_{BM}$ <p>Where: EF_{grid,BM,y}= Build margin CO₂ emission factor in year y (tCO₂/MWh)</p> <p>EF_{grid,OM,y}= Operating margin CO₂ emission factor in year y (tCO₂/MWh)</p>

¹² https://cea.nic.in/wp-content/uploads/baseline/2020/07/user_guide_ver12.pdf

	<p>W_{OM} = Weighting of operating margin emissions factor (%) = 75%</p> <p>W_{BM} = Weighting of build margin emissions factor (%) = 25%</p>
Purpose of data	For the calculation of the baseline emissions
Comments	This parameter is fixed ex-ante for the entire crediting period.

4.2 Data and Parameters Monitored

Data / Parameter	$EG_{PJ, y}$
Data unit	MWh/y
Description	Quantity of net electricity generation supplied by the project plant/unit to the grid in year y in MWh (This value is the sum of the net electricity generated from all 3 sites).
Source of data	Monthly joint meter reading reports
Description of measurement methods and procedures to be applied	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 has been considered for ER calculations.
Frequency of monitoring/recording	Continuous measurement & monthly recording
Value monitored	306,377 MWh
Monitoring equipment	<p>The electricity exported / supplied by the plant to pooling substation and further to substation. This meter also measures electricity imported by the plant from the grid.</p> <p>The billing meter used for project activity having following specification Monitoring: ABT cum Tri vector meter are used.</p> <p>Data type: Measured Type of meter: Static type meter (Main, Check & Standby meter). Accuracy Class of meters: 0.2s.</p> <p>The meter details are mentioned in Appendix 1: Meter Calibration Details</p>
QA/QC procedures to be applied	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 ¹³ . 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 are applied appropriately to confirm the conservativeness of metering.

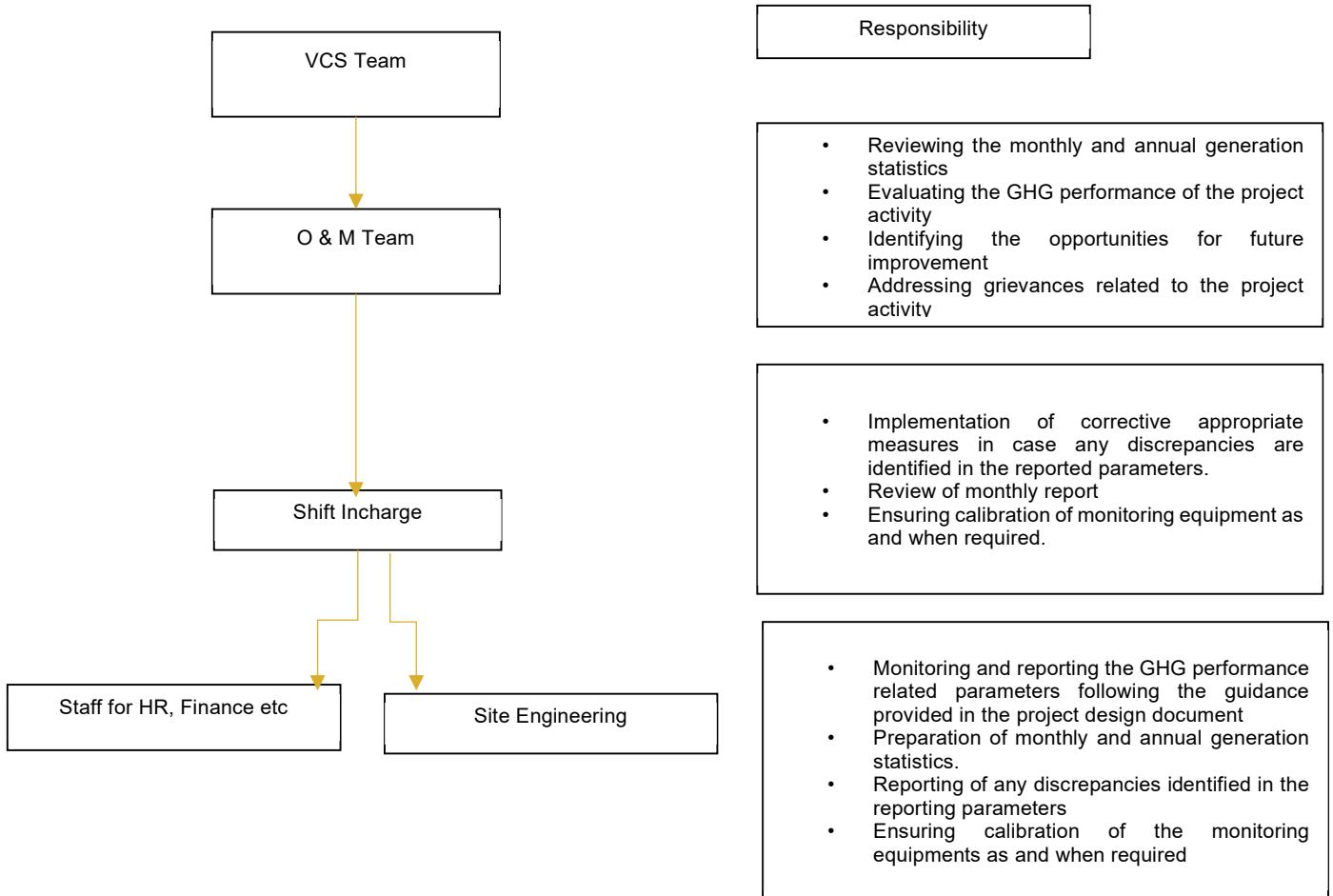
¹³ http://www.aegcl.co.in/Metering_Regulations_Of_CEA_17_03_2006.pdf

	<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.</p> <p>The billing is raised based on substation meters.</p>
Purpose of the data	<ul style="list-style-type: none"> • Calculation of baseline emissions
Calculation method	<p>Thus, Net electricity supplied to the grid by the project plant in a given month = Export, kWh– Import, kWh</p>
Comments	<p>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.</p>

4.3 Monitoring Plan

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 being implemented. The monitoring plan, which will be implemented by the project participant describes about the monitoring organisation, parameters to be monitored, monitoring practices, quality assurance, quality control procedures, data storage and archiving.

The authority and responsibility for registration, monitoring, measurement, reporting and reviewing of the data rests with the project participant. PP proposed the following structure for data monitoring, collection, data archiving and calibration of equipment's for this project activity. The team comprises of the following members:



Data Measurement

The export and import energy have been measured continuously using above mentioned Main and Check meters located at the substations. Readings of meters has 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 were raised. These invoices are used for cross checking the meter readings taken for the respective project activity.

Data collection and archiving

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

Emergency preparedness

The project activity does not 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.

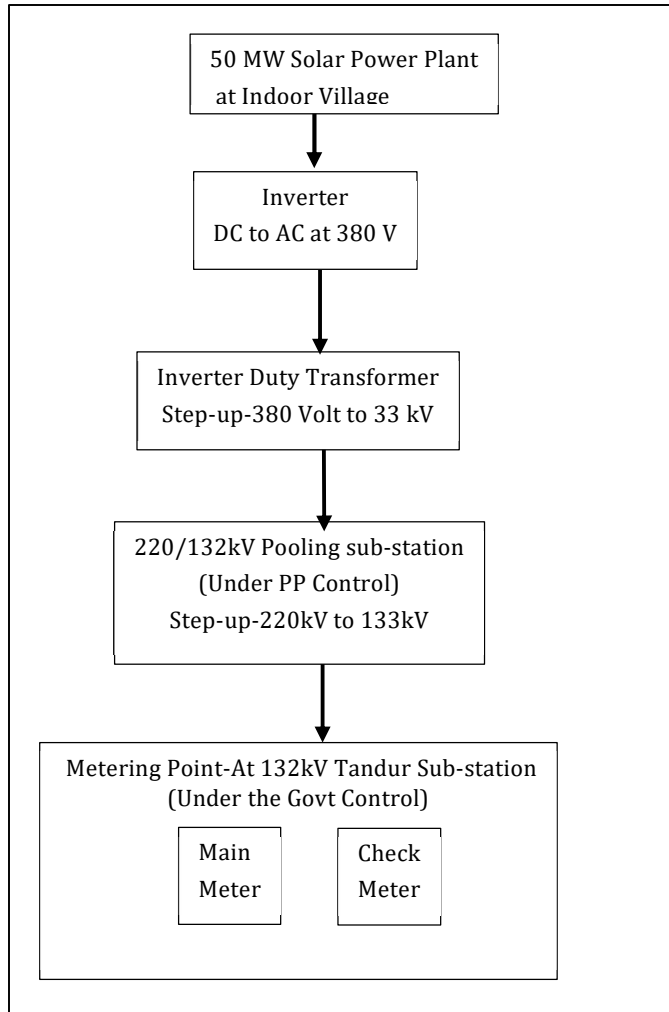
In the event that the main meter, which is used to record the net electricity exported by the project, is found to be faulty it will be repaired or replaced and the data from the check meter will be used in its place. In the unlikely event that the check meter fails it will also be repaired or replaced.

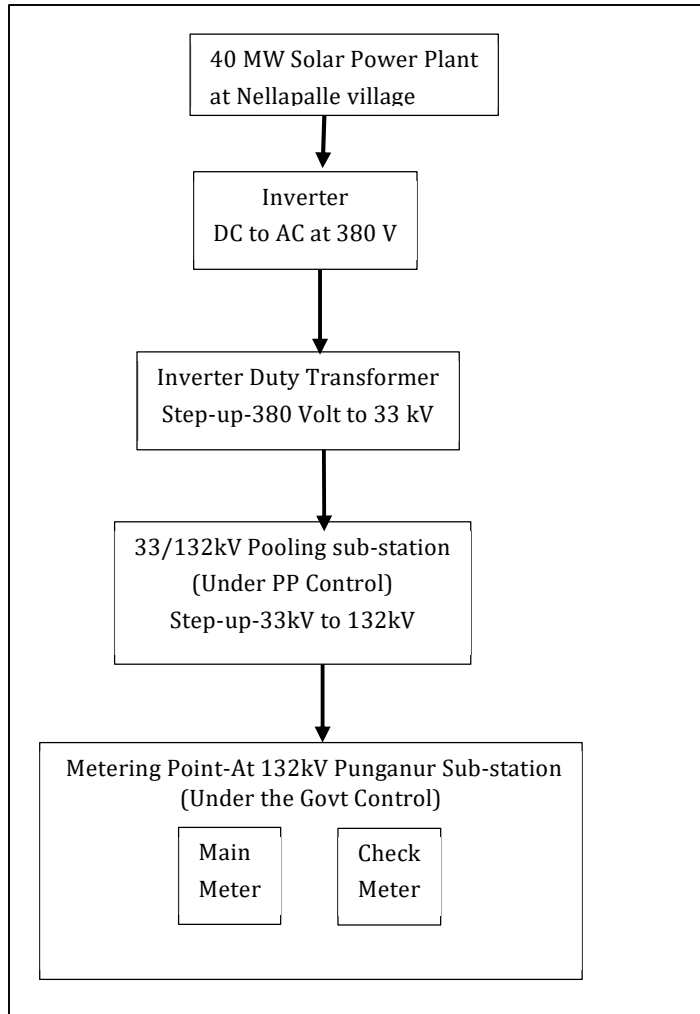
Personnel training

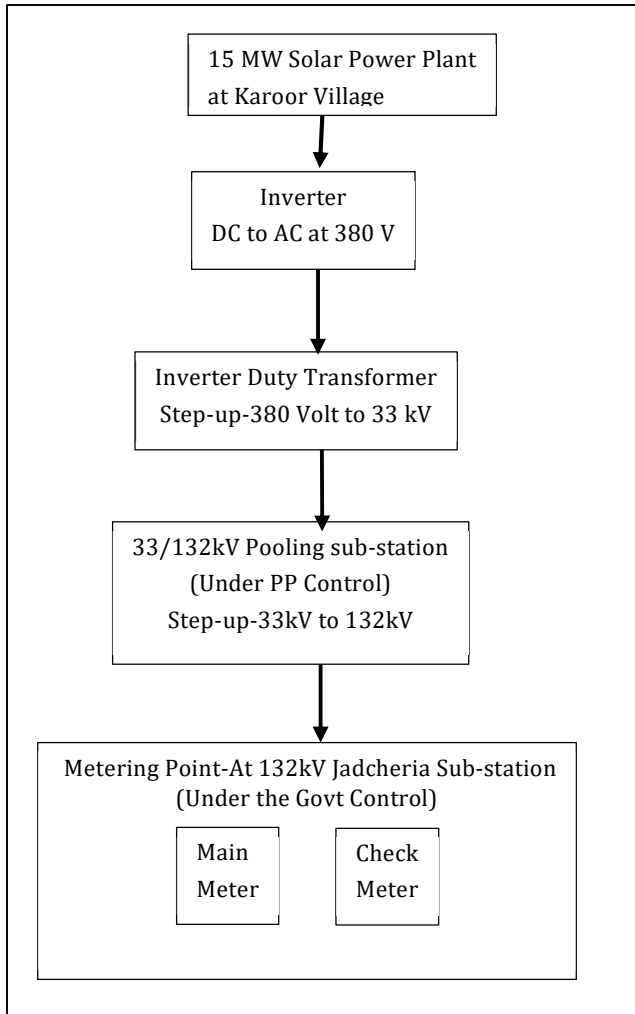
In order to ensure a proper functioning of the project activity and a properly monitoring of emission reductions, the staff are trained. The plant helpers are trained in equipment operation, data recording, reports writing, operation and maintenance and emergency procedures in compliance with the monitoring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

Metering Arrangement

Line diagram with metering arrangement for the project activity is shown below.







The metering arrangement for all the three sites are the same. Each solar plant has their own dedicated metering arrangement at the substation end. The metering arrangement is under control of state electricity board and may change in future.

5 QUANTIFICATION OF GHG EMISSION REDUCTIONS AND REMOVALS

5.1 Baseline Emissions

The baseline is the MWh produced by the renewable generating unit multiplied by an emission coefficient (measured in tCO_{2e}/MWh) calculated in a transparent and conservative manner as:

$$BE_y = EF_y \times EG_y$$

Where,

BE_y: Baseline emissions due to displacement of electricity during year y in tons of tCO_{2e}

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

EF_{grid,CM,y}: Combined Margin CO₂ emission factor in year y in tons CO₂/MWh

Hence, Baseline Emission (BE_y)= CO₂ Emission Factor (EF_y) * Electricity supplied to the grid by the project activity during monitoring period (EG_y):

$$= 306,377 * 0.9653 = 295,745 \text{ tCO}_{2e}$$

Grid Emission Factor,

The GEF is fixed ex-ante in the Joint VCS PD & MR (Version 02 dated 16-July-2018) which is given below:

Parameter	Value
OM	0.9843
BM	0.9083
CM	0.9653

5.2 Project Emissions

As per the approved consolidated Methodology ACM0002 (Version 18.1), para 34, for most renewable energy power generation project activities, $PE_y = 0$.

5.3 Leakage Emissions

As per the approved consolidated Methodology ACM0002 (Version 18.1) section 5.6, No other leakage emissions are considered. The emissions potentially arising due to activities such as power plant construction and upstream emissions from fossil fuel use (e.g., extraction, processing, transport etc.) are neglected. Hence, $LE_y = 0$.

5.4 GHG Emission Reductions and Carbon Dioxide Removals

The net emission reductions achieved during the current monitoring period are being calculated as per below equation:

$$\text{Net Emission Reductions} = BE_y - PE_y$$

$$= 295,745 - 0 = 295,745 \text{ tCO}_2\text{e}$$

Vintage period	Baseline emissions (tCO ₂ e)	Project emissions (tCO ₂ e)	Leakage emissions (tCO ₂ e)	Reduction VCUs (tCO ₂ e)	Removal VCUs (tCO ₂ e)	Total VCUs (tCO ₂ e)
01-Nov-2022 to 31-Dec-2022	37,034	0	0	37,034	0	37,034
01-Jan-2023 to 31-Dec-2023	188,501	0	0	188,501	0	188,501

01-Jan-2024 to 30-April-2024	70,211	0	0	70,211	0	70,211
Total	295,745	0	0	295,745	0	295,7453

Vintage period	Ex-ante estimated reductions/removals	Achieved reductions/removals	Percent difference	Explanation for the difference
01-Nov-2022 to 31-Dec-2022	27,390	37,034	35.21%	As per the registered PD estimated annual emission reduction from the project activity is 245,607 tCO _{2e} , whereas actual emission reductions achieved during the current monitoring period is 295,745 tCO _{2e} , which is 26% increase than the estimated annual emission reductions. However, there is an increase in the generation due to better O&M practice and plant management. While proving additionality of a project, we consider the generation and cash flow for the entire project life. So, increase in the generation just for 1-2 years will not impact the overall additionality of the project. Therefore, even after this increase in generation/PLF, the Rol of the project will not cross the additionality benchmark. Hence, the increase is acceptable.
01-Jan-2023 to 31-Dec-2023	163,888	188,501	15.02%	
01-Jan-2024 to 30-April-2024	54,330	70,211	29.23%	
Total	245,607	295,745	26%	

APPENDIX 1: COMMERCIALY SENSITIVE INFORMATION

Section	Information	Justification
NA	NA	NA

THE ABOVE SECTION IS NOT APPLICABLE.

APPENDIX 2: CALIBRATION OF METERS

For Winsol Solar – 15 MW			
Meter Details	Main meter	Check Meter	Standby Meter
Meter Serial No.	APX00924	APX00925	APX00926
Make	Secure meters	Secure meters	Secure meters
Accuracy Class	0.2s	0.2s	0.2s
Calibration Frequency	Once in 5 years	Once in 5 years	Once in 5 years
Date of Calibration	30-August-2019	30-August-2019	30-August-2019
Due date of calibration	29-August-2024	29-August-2024	29-August-2024
For Winsol Solar-50 MW			
Meter Details	Main meter	Check Meter	Standby Meter
Meter Serial No.	APW00111	AP925645	APX00645
Make	Secure	Secure	Secure
Accuracy Class	0.2s	0.2s	0.2s
Calibration Frequency	Once in 5 years	Once in 5 years	Once in 5 years
Date of Calibration	11-February-2021	11-February-2021	11-February-2021
Calibration validity	10-February-2026	10-February-2026	10-February-2026
For Hindupur Solar-40 MW			
Hindupur Solar Park Pvt.Ltd.- Feeder I			
Meter Details	Main meter	Check Meter	Standby Meter
Meter Serial No.	APX00864	APX00865	APX00866
Make	Secure	Secure	Secure
Accuracy Class	0.2s	0.2s	0.2s
Calibration Frequency	Once in 5 years	Once in 5 years	Once in 5 years
Date of Calibration	23-February-2021	23-February-2021	23-February-2021
Due of Calibration	22-February-2026	22-February-2026	22-February-2026
Hindupur Solar Park Pvt. Ltd. - Feeder II			
Meter Details	Main Meter	Check meter	Standby Meter
Meter Serial No.	APX00858	APX00859	APX00860
Make	Secure	Secure	Secure
Accuracy Class	0.2s	0.2s	0.2s
Calibration Frequency	Once in 5 years	Once in 5 years	Once in 5 years
Date of Calibration	23-February-2021	23-February-2021	23-February-2021
Due of Calibration	22-February-2026	22-February-2026	22-February-2026
Hindupur Solar Park Pvt. Ltd. - Feeder III			
Meter Details	Main Meter	Check meter	Standby Meter
Meter Serial No.	APX00861	APX00862	APX00863

Make	Secure	Secure	Secure
Accuracy Class	0.2s	0.2s	0.2s
Calibration Frequency	Once in 5 years	Once in 5 years	Once in 5 years
Date of Calibration	22-February-2021	22-February-2021	22-February-2021
Due Date of Calibration	21-February-2026	21-February-2026	21-February-2026
Hindupur Solar Park Pvt. Ltd. - Feeder IV			
Meter Details	Main Meter	Check meter	Standby Meter
Meter Serial No.	APX00867	APX00868	APX00869
Make	Secure	Secure	Secure
Accuracy Class	0.2s	0.2s	0.2s
Calibration Frequency	Once in 5 years	Once in 5 years	Once in 5 years
Date of Calibration	22-February-2021	22-February-2021	22-February-2021
Due date of Calibration	21-February-2026	21-February-2026	21-February-2026

APPENDIX 3: SDG CONTRIBUTIONS

SDG 8.6.1- Proportion of youth (aged 15-24 year) not in education, employment or training .



Winsol Solar Fields (Polepally) Private Limited
 CIN: U40102HR2014PTC118852
Regd. Office: Building 7A, Level 5, DLF Cyber City,
 Gurugram – 122002, Haryana, India
 Tel: +91 124 6986700, Fax: +91 124 6986710
 Email: cs.india@sembcorp.com

To whomsoever it may concern.

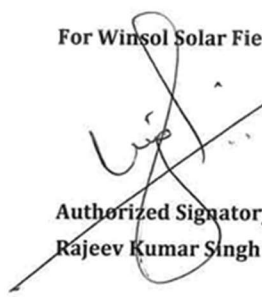
Date: 27/05/2024

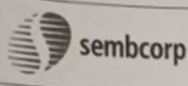
This declaration is in reference to the project VCS 1770, Bundled solar power project which is undergoing Verification process, the Employment generation as under.

Project ID	Project Name - SPV	Employment (Nos)
VCS 1770	Winsol Solar Fields (Polepally) Pvt Ltd - WSPPL - 50 Mw	40
VCS 1770	Winsol Solar Fields (Polepally) Pvt Ltd - WSPPL - 15 Mw	19
VCS 1770	Hindupur Solar Part Pvt Ltd - HSPPL - 40Mw	25
	Total	84

Total number of employees in this project, working from 1st November 2022 to 30th April 2024 = 84

For Winsol Solar Fields (Polepally) Private Limited



Authorized Signatory
Rajeev Kumar Singh

	Training Attendance Format	Format No.	SGIL-HR-02-F1
		Rev. No.	01
		Effective Date	01.06.2015

Title of the Training Program	Review of SOP-S&IL-BBS-01-
Date of the Training Program	10/11/2023
Location of the Training Program	WSP1-Kasar
Faculty Name	Pragnath.V
Duration of Training Program	13:30PM - 14:30PM


Sr. No.	Name	Department	Designation	Signature
1	A. Nagarajan	ORM	Engineer	<i>[Signature]</i>
2	Balraj	ORM	Jr-Eng.	<i>[Signature]</i>
3	Nagesh	ORM	Helper	<i>[Signature]</i>
4	Venkatiah	ORM	Helper	<i>[Signature]</i>
5	K. Nagesh	ORM	Helper	<i>[Signature]</i>
6	Pragnath	ORM	Jr-Tech	<i>[Signature]</i>
7	J. Brinivas Chand.	Security	A.S.O	<i>[Signature]</i>
8	G. Thirupathi Chand.	?		<i>[Signature]</i>
9	Lingaiath	?		<i>[Signature]</i>
10	Venkatiah Chand.	?		<i>[Signature]</i>
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17				
18				

Signature of Training Coordinator: *[Signature]*


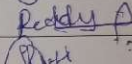


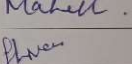


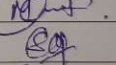


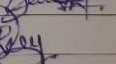

 sembcorp	Training Attendance Format	Format No.	SGIL-HR-02-F1
		Rev. No.	01
		Effective Date	01.06.2015

Title of the Training Program	Household fires & Safety Awareness Training
Date of the Training Program	15-04-2024
Location of the Training Program	Teams
Faculty Name	Venkatesh Selthunathan
Duration of Training Program	60 minutes

Sr. No.	Name	Department	Designation	Signature
1	Y. Manoj Kumar	ORM	Cr. Executive	Manoj
2	Kannanarao	ORM	Sr. Engineer	K
3	Hari	ORM	Sr. Technician	Hari
4	Riya	ORM	Sr. Technician	R
5	G. Vinod	ORM	Sr. Technician	Vinod
6	Prasad	ORM	Technician	P
7	P. Vinod	ORM	Jr. Engineer	P. Vinod
8	Munna	ORM	Technician	M
9	Georges	ORM	Technician	G

	Training Attendance Format	Format No.	SGIL-HR-02-F1
		Rev. No.	01
		Effective Date	01.06.2015

Title of the Training Program	-training on usage of PPE'S & Importants.
Date of the Training Program	29-11-2023
Location of the Training Program	MCR
Faculty Name	B. Venkata Ramana .
Duration of Training Program	15:30 to 17:30 .

Sr. No.	Name	Department	Designation	Signature
1	Venkata Chari	OEM	engg	
2	Raja shaker	OEM	Sr. Tech	
3	Shashikanth.	OEM	Sr. Tech	
4	Raju	OEM	Sr. Tech	
5	B. Mahesh .	OEM	Sr. Tech	
6	Shiva	OEM	Tech	
7	Mahendar .	OEM	Helper	
8	Mahesh .	OEM	Helper	
9	Srinivas t .	OEM	Helper	
10	Ramappa	Security	Security	
11	S. Srinanth .	Security	Security	
12	Ramchandar .	Security	Security	
13				
14				
15				
16				
17				
18				

Signature of Training Coordinator: 