



140 MW SOLAR PHOTOVOLTAIC PROJECT IN RAJASTHAN



Project title	140 MW Solar Photovoltaic Project in Rajasthan
Project ID	1709 ¹
Monitoring period	01-December-2023 to 30-June-2025
Original date of issue	31-July-2025
Most recent date of issue	28-November-2025
Version	4.0
VCS Standard Version	VCS Standard version 4.7
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¹ <https://registry.terra.org/app/projectDetail/VCS/1709>

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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. Rising Bhadla 1 Private Ltd. and Rising Bhadla 2 Private Ltd. are the promoter of the project activity. The project activity involves installation of 2 x 70 MW (AC) solar power project at Bhadla, Jodhpur, Rajasthan. The electricity generated from solar power plants is clean and is exported to the Indian grid, which is mainly dominated by thermal/fossil fuel-based power plant.

Brief description of the installed technology and equipment:

The project activity aims to harness solar energy through installation of PV with total installed capacity of 140 MW (AC). The specification of the plant is provided in “

The relevant implementation dates:

The relevant implementation dates are mentioned in the table below: -

Project Proponents Name	Capacity in MW (AC)	Commissioning Date	Connection with Grid	State
Rising Bhadla 1 Private Ltd.	40 MW	18-July-2017	INDIAN Grid	Rajasthan
	30 MW	29-September-2017		
Rising Bhadla 2 Private Ltd.	40 MW	29-August-2017		
	30 MW	01-November-2017		

The total GHG emission reductions or removals generated in this monitoring period

During this monitoring period i.e. from 01-December-2023 to 30-June-2025 (First and last days included) the project activity has supplied 388,098.61 MWh of electricity, and thus contributing to the GHG reductions 374,630 tCO_{2e}.

1.2 Audit History

Audit type	Period	Program	Validation/verification body name	Number of years
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Validation/ verification	27-December-2017	VCS	LGAI Technological Center S.A. (Applus+ Certification)	
1st Verification	18-July-2017 to 31- December-2018	VCS	LGAI Technological Center S.A. (Applus+ Certification)	1 year, 5 months, 14 days
2nd Verification	01-January-2019 to 31-January-2020	VCS	4K Earth Science Private Limited	1 year, 1 month
3rd Verification	01-February-2020 to 28-February2021	VCS	KBS Certification Services Pvt. Ltd.	1 year, 1 month
4th Verification	01-March-2021 to 30-September2021	VCS	KBS Certification Services Pvt. Ltd.	7 months
5th Verification	01-October-2021 to 30-November-2022	VCS	VKU Certification Pvt. Ltd.	1 year, 2 months
6th Verification	01-December-2022 to 30-November-2023	VCS	LGAI Technological Center S.A. (Applus+ Certification)	1 year, 00 months
7th Verification	01-December-2023 to 30 - June-2025	VCS	VKU Certification Pvt. Ltd.	1 year, 07 months
Total	18-July-2017 to 30- June-2025	VCS		7 years, 11 months, 14 days

1.3 Sectoral Scope and Project Type

Sectoral scope²	01 - Energy industries (renewable / non-renewable sources)
Project activity type	I - Renewable Energy Projects

1.4 Project Proponent

Organization name	Rising Bhadla 1 Private Ltd
Contact person	Mr. Ayush Bhargava
Title	Deputy General Manager- Business Development & Project

	Management
Address	PHD House, Upper Ground Floor, 4/2, Siri Institutional Area, August Kranti Marg, New Delhi-110016
Telephone	+91 9818363357
Email	ayush.bhargava@risingsunenergy.in

Organization name	Rising Bhadla 2 Private Ltd
Contact person	Mr. Ayush Bhargava
Title	Deputy General Manager- Business Development & Project Management
Address	PHD House, Upper Ground Floor, 4/2, Siri Institutional Area, August Kranti Marg, New Delhi-110016
Telephone	+91 9818363357
Email	ayush.bhargava@risingsunenergy.in

1.5 Other Entities Involved in the Project

Organization name	Climera Carbon Private Limited
Role in the project	Project Manager
Contact person	Sagar Upadhaya
Title	Manager- Operations
Address	Corp. Office - Awfis, 2nd Floor, Winway World Offices, Plot No. B-7, Scheme No. PU-4 Commercial, Vijay Nagar, Indore, M.P. - 452010, India
Telephone	+91-8133981389
Email	sagar.upadhaya@climera.co

1.6 Project Start Date

Project start date	18-July-2017
Justification	For this project activity, the project start date is the earliest date of commissioning i.e. 18-July- 2017

1.7 Project Crediting Period

Crediting period	☐ Seven years, twice renewable ☐ Ten years, fixed ☒ Other (state the selected crediting period and justify how it conforms with the VCS Program requirements) The project activity adopts renewable crediting period of 10 years period which can be renewed for maximum 2 times
Start and end date of first or fixed crediting period	18-July-2017 to 17-July-2027 This is the 7th periodic verification of the 1st crediting period

1.8 Project Location

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

Location of the plant	Village-Bhadla, Tehsil - Phalodi, District- Jodhpur, State-Rajasthan	
Location Details	For rising Bhadla 1Private Ltd	
	Latitude (north)	Longitude (east)
	27°29'53.75"	71°54'59.50"
	27°29'38.16"	71°54'59.93"
	27°30'22.73"	71°55'02.19"
	27°30'02.37"	71°55'02.75
	27°30'02.47"	71°55'07.61"
	27°29'53.93"	71°55'07.85"
	27°30'23.09"	71°55'19.10"
	27°30'14.47"	71°55'25.29"

	27°30'17.81"	71°55'28.04"
	27°30'10.09"	71°55'32.22"
	27°30'13.76"	71°55'34.88"
	27°30'09.80"	71°55'41.91"
	27°29'39.09"	71°55'42.60"
	27°30'09.66"	71°55'44.77"
	27°29'41.14"	71°55'45.55"
	For Rising Bhadla 2 Private Ltd	
	Latitude (north)	Longitude (East)
	27°30'03.31"	71°54'37.83"
	27°29'06.79"	71°54'39.38"
	27°30'03.49"	71°54'45.87"
	27°29'53.46"	71°54'46.15"
	27°29'06.99"	71°54'48.62"
	27°29'09.85"	71°54'55.74"
	27°29'53.75"	71°54'59.39"
	27°29'38.06"	71°54'59.82"
	27°29'12.12"	71°55'02.33"
	27°29'14.43"	71°55'08.92"
	27°29'16.22"	71°55'11.47"
	27°29'27.56"	71°55'25.93"
	27°29'38.99"	71°55'42.45"
Since the project activity is spread across the area of 2,800,200 square meters (1,400,000 square meters for Rising Bhadla 1 Private Limited and 1,400,200 square meters for Rising Bhadla 2 Private Limited) the details coordinates are mentioned in the table above. Elevation :180 m above MSL		
Distance from District Headquarter	159 km from Jodhpur	

Access by Road	Connected by Road- NH65
Access by Rail	Nearest Railway station- Phalodi: 83 km
Access by Air	Nearest Airport – Jodhpur
Telecommunication	Fairly available
Land	Approximately 140ha of land available for each 70 MW Solar PV plant.
Climate	Annual Rainfall – 3 mm Max Temp: 50°C Min Temp: -3°C Max Relative Humidity: 100 % Min Relative Humidity: 5%

The project locations have been shown in the map below:



Figure 1. State and district Map of Rajasthan and Jodhpur



Figure 2 Entire project Location on Google maps

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	17.0 ³
Tool	Tool - 07	Tool to calculate the emission factor for an electricity system	05.0 ⁴
Tool	Tool - 01	Tool for the demonstration and assessment of additionality	07.0.0 ⁵

³ <http://cdm.unfccc.int/methodologies/DB/8W400U6E7LFHHYH2C4JR1RJWWO4PVN>

⁴ <http://cdm.unfccc.int/methodologies/PAMethodologies/tools/am-tool-07-v5.0.pdf>

⁵ <http://cdm.unfccc.int/methodologies/PAMethodologies/tools/am-tool-01-v7.0.0.pdf>

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

1.10.2 Registration in Other GHG Programs

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

☐ Yes ☒ No

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

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

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

1.12 Sustainable Development Contributions

Ministry of Environment, Forests and climate change (MoEFCC),⁹ has stipulated economic, social, environment and technological well-being as the four indicators of sustainable development. The project contributes to sustainable development using the following ways.

- **Social well-being:** The project would help in generating employment opportunities during the construction and operation phases. The project activity will lead to development in

infrastructure in the region like development of roads and also may promote business with improved power generation.

- **Economic well-being:** The project is a clean technology investment in the region, which would not have taken place in the absence of the VCS benefits. The project activity will also help to reduce the demand supply gap in the state. The project activity will generate power using zero emissions Solar PV based power generation which helps to reduce GHG emissions and specific pollutants like SO_x, NO_x, and SPM associated with the conventional thermal power generation facilities.
- **Technological well-being:** The successful operation of project activity would lead to promotion of Solar based power generation and would encourage other entrepreneurs to participate in similar projects
- **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.

The project activity has beneficial effect on the local environment and employment in the nearby region. Clean Electricity generation through Solar technology results in avoidance of consumption of fossil fuels which results in contribution to SDG 7. The emission avoidance through these activities results in contribution to SDG 13. All the workers at site are trained which results in increase of skills, which contributes to SDG 8. Detailed indicators are mentioned in table 1. This is a voluntary project activity doesn't contribute to achieving any nationally stated sustainable development priorities. There is no compliance for monitoring and reporting the emission reduction and SDG contribution from the project activity.

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	Project specific indicator: Total quantum of renewable energy produced by the project activity	Implemented activities to increase the use of renewable energy.	About 388,098.61 MWh renewable electricity has supplied to Indian grid during the reported period that helps to increase the renewable energy share in the energy mix.	About 352,376.94 + 288,061.61+388,098.61 = 1,028,537.16 MWh renewable electricity has supplied to Indian grid throughout the project lifetime that helps to increase the renewable energy share in the energy mix.
2)	8.6	Project specific indicator: To train youth of age (15-24 years) by the way of education/training	Implemented activities to reduce the unskilled working environment.	Total 10 numbers of trainings conducted during the current monitoring period.	41 trainings are provided till previous monitoring period, overall 51 trainings has been conducted throughout the lifetime of this project activity,
3)	13.2	Project specific indicator: Tonnes of greenhouse gas emissions avoided or removed	Implemented activities to increase the share of renewable energy and thereby avoid GHG emissions.	By supplying 388,098.61 MWh clean electricity (generated through Solar PV) to Indian grid, the project avoided release of 374,630 tCO ₂ e in to the atmosphere during the reporting period.	Overall Prevented the release of 340,149 + 278,065 +374,630 = 992,844 tCO ₂ e into the atmosphere since project commissioning.

1.13 Commercially Sensitive Information

No commercially sensitive information has been excluded from the public version of the project description.

2 SAFEGUARDS AND STAKEHOLDER ENGAGEMENT

2.1 Stakeholder Engagement and Consultation

2.1.1 Stakeholder Identification

Stakeholder Identification

The details of process of the Stakeholder Meetings are as follows:

Meeting location	Date of invitation	Date of meeting
Project site, Rajasthan	15-September-2016	24-September-2016

In the introductory speech, the representative of Rising Bhadla 1 Private Ltd. and Rising Bhadla 2 Private Ltd. (Project Investor), Mr. Ayush Bhargava welcomed the gathering and given a brief about the climate mitigation project activity. Subsequent to the introductory speech, stakeholders were explained about the electricity generation from solar project is an environmentally friendly power generation technology contributing to reduction in GHG emissions. They were also explained about the benefits of the solar power projects like, increasing energy availability and improving quality of power and its assistance to the local population by providing employment opportunities to both skilled & unskilled labors.

Meeting started with opening speech by representative of project participant. He introduced all guests on dais. The representative of project participant explained technical aspects of project to stakeholders. He also explained about social, environmental & economic benefits of the project. He also elaborated about carbon mechanism & its

	requirement for the current project. After the detailed discussions, the session was open for questions from stakeholders. Following stakeholders have been identified for this project activity 1. Local community members 2. Local village administration 3. Technology suppliers 4. Local vendors
Legal or customary tenure/access rights	Not Applicable There are no legal or customary tenure/access rights to territories and resources, including collective and conflicting rights held by stakeholders, indigenous people (Ips), Local communities (LCs), and customary rights holders with regards to the project. The project is Solar energy generation and it is established on the project proponent's land.
Stakeholder diversity and changes over time	Stakeholders identified for this project activity are diverse in nature – in terms of socio-economic status, age and gender wise and the diversity is unlikely to change over time.
Expected changes in well-being	Expected changes 1. Economic wellbeing – the project activity is likely to provide employments to the locality thus economic well beings are expected 2. Environmental wellbeing – as this project activity 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.
Location of stakeholders	Location of stakeholders

	Village - Bhadla, Tehsil - Phalodi, District- Jodhpur, State: Rajasthan
Location of resources	Not Applicable There no the location of territories and resources which stakeholders own or to which they have customary access

2.1.2 Stakeholder Consultation and Ongoing Communication

Ongoing consultation	Stakeholders' consultation is a continuous process and hence a feedback registers is kept at the MCR (Main Control Room) where any stakeholder can come and share his/her feedback. The feedback irrespective of the type is taken care by PP with utmost priority. Project Proponent had conducted local stakeholder consultation in details during the registration of the project through identification of stakeholders, invitation to them for meeting, explanation of the project to the stakeholders during the meeting and resolving comments/suggestions/grievances of the stakeholders.
Date(s) of stakeholder consultation	24-September-2016
Communication of monitored results	The process of local stakeholder consultation is continuous. During the current monitoring period, the project proponent has kept grievance registers plant at the MCR (Main Control Room) and sought comments/grievances/suggestions from local stakeholders including local community, government agencies and NGOs. However, no comments/grievances/suggestions have been received from the aforementioned stakeholders during the current monitoring period and all such minor suggestions have been take care by the PP..
Consultation records	Minutes of meeting from LSH and Invitation letter. For ongoing communication with local stakeholders, PP has kept the grievance registers for both the sites at the

	MCR (Main Control Room) to record any grievance or feedback by any stakeholders.
Stakeholder input	The feedbacks/comments received from stakeholders were quite positive and no negative comments were received. The questions asked by stakeholders were only on process and these are explained by PP representatives.

2.1.3 Free, Prior, and Informed Consent

Consent	There are no ongoing or unresolved conflicts related to the project, as a comprehensive stakeholders meeting was conducted before the initiation of project activities. All relevant stakeholders were invited to participate through formal invitations and were encouraged to raise any concerns or questions. The project proponent addressed all queries during the meeting, ensuring that any potential issues were resolved before the project began. As a result, the project does not exacerbate or influence the outcomes of any unresolved conflicts, as it was designed with transparency and neutrality, ensuring all stakeholders' concerns were adequately addressed and mitigated in advance.
Outcome of FPIC	The project has not encroached on land, relocated people, or caused any physical or economic displacement. All necessary assessments and consultations were conducted to ensure compliance with legal requirements, and no individuals or communities have been displaced by the project.

2.1.4 Grievance Redress Procedure

Grievances received	Resolution and outcome
No grievance received for the current monitoring period	Feedback registers are kept at both the project sites at MCR where any stakeholder can come and register his/her feedback. Grievances at the site are recorded through registers, complaint boxes, and meetings, and addressed by the Site designated personals. Unresolved issues are escalated to the Grievance Redressal Committee and senior management for resolution.

	The project owner has operating complaint procedure. Since the project activity is implemented across multiple project locations, separate registers are maintained at each site. Each register records site- specific information in accordance with monitoring requirements, ensuring accuracy and transparency. In addition, the registers log ongoing communication and any grievances raised by stakeholders, making this information easily accessible to all concerned parties. This procedure of maintaining and addressing the communication log is systematically applied across the project Stakeholders' feedback is monitored daily and any grievance if found, resolved immediately. No action required as no grievance received for the current monitoring period.
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2.1.5 Public Comments

Summary of comments received	Actions taken
No comments received	No action required as no comments were received. During the current monitoring period not a single comment or grievance has been lodged in the grievance registers hence no action has been taken for any complaint or feedback,

2.2 Risks to Stakeholders and the Environment

2.2.1 Management Experience

Not applicable as there has no new entity involved. The management team of the project proponent has significant expertise and experience in implementing similar project activities, including community engagement. There are no new entities involved in the project's design or implementation, ensuring continuity and stability within the project's management. The team has a proven track record of managing construction, operations, and community engagement, with a particular focus on environmental and social aspects. This includes overseeing registration, monitoring, measurement, reporting, and review processes.

The project team operates within an organizational structure approved by the board members and consists of professionals with diverse expertise in environmental management, data handling, and project management. This combined experience ensures the effective implementation and monitoring of the project, fully compliant with Verra requirements.

In case there are any areas where additional experience is needed, the project proponent has the necessary internal and external resources to address these gaps and ensure successful project delivery

2.2.2 Risk assessment

	Risk identified	Mitigation or preventative measure(s) taken
Natural and human-induced risks to stakeholders' wellbeing	No risk identified	The project does not pose any risks to stakeholder wellbeing. The PP is ensuring open and transparent dialogue with the stakeholders.
Risks to stakeholder participation	No risk identified	Stakeholder participation in Solar projects poses minimal risk due to the clean nature of solar energy production, which does not emit pollutants. This fosters positive community relationships and reduces potential health and environmental concerns, ensuring smoother project implementation and garnering support from the community.
Working conditions	No risk identified	Stakeholder participation in solar projects poses negligible risks when the systems are operational. It typically operates reliably with minimal maintenance requirements, ensuring consistent energy generation and stakeholder satisfaction.
Safety of women and girls	No risk identified	Ensuring the safety of women and girls in the project involves comprehensive risk assessment and mitigation strategies. Measures such as well-lit areas, security patrols, gender-sensitive policies, and training on harassment prevention help mitigate risks, fostering a safe environment for all stakeholders and workers.

Safety of minority and marginalized groups, including children	No risk identified	While the projects generally entail minimal or no risks to minority and marginalized groups, comprehensive safety measures have been implemented. This includes ensuring safe access to project sites, implementing child protection policies, and addressing any potential social or economic impacts on marginalized communities, thereby safeguarding their well-being throughout project development and operation.
Pollutants (air, noise, discharges to water, generation of waste, and release of hazardous materials and chemical pesticides and fertilizers)	No risk identified	As it is a solar power project, hence no risk identified. Noise Pollution: There is no noise generated by the solar power plant, confirming that the impact is well controlled and in compliance with regulations. Air Pollution: There is no risk of air pollutants being emitted from the solar power plant. Discharges to Water: No discharges to water bodies are anticipated, which suggests minimal to no risk of water pollution. Generation of Waste: Operation of the solar PV plant does not result in waste generation, thereby contributing to sustainable development and environmental protection. Hazardous Materials: No hazardous materials or chemicals, such as pesticides or fertilizers, are released as part of the operation of solar power project. The projects' lack of pollutants substantially reduces risks to stakeholders, including potential health hazards or environmental contamination. This inherent cleanliness fosters a safer environment for communities, minimizing concerns related to air and water quality,

noise pollution, waste generation, and exposure to hazardous materials, ensuring overall safety and well-being.

2.3 Respect for Human Rights and Equity

2.3.1 Labor and Work

	Risks identified ⁶	Mitigation or preventative measure(s) taken
Discrimination	No risk identified	No risk identified. Equal opportunity practices are actively implemented across the project. Discrimination based on personal, social, or demographic factors is explicitly prohibited. The project's internal policies foster diversity, promote inclusive conduct, and prohibit all forms of harassment. A confidential grievance mechanism is established to promptly address any reported concerns. No instances of discrimination have been observed or reported during the current monitoring period. Preventative systems are in place to ensure ongoing compliance and early resolution of potential issues.
Sexual harassment	No risk identified	PP has provided declaration that no sexual harassment has occurred or will occur. No risk identified. The project enforces a zero-tolerance policy towards any form of harassment. Internal mechanisms are established to confidentially manage complaints. Regular training and awareness programs are conducted to uphold a respectful workplace culture.
Gender equity in labor and work	No risk identified	PP provides equal opportunities in the context of gender equity and pay for labor and work. No risk identified. Equal participation and pay practices are followed irrespective of gender.

⁶ 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.

		Recruitment, compensation, and advancement are based on merit. Monitoring systems help ensure continued fairness and non-discrimination. Ongoing training programs also foster gender inclusivity and address unconscious biases in the workforce. The Project Proponent ensures equal wage pay to its employees keeping them in line with the minimum wage criteria as per state labor laws.
Forced labor	No risk identified	The project has implemented stringent ethical policies in line with national labor act 1986. Regular audits and inspections are carried out to verify that the project's supply chain and workforce are free from forced labor. The company policy restricts hiring of any such employee involved in such practices. The project remains under strict surveillance of the project proponent & the state DISCOM, any malpractice at the project implemented site will be immediately reported and strict actions will be taken. Since the date of project start date, PP has not encountered any such activity at the project site.
Child labor	No risk identified	No risk identified. Systems are in place to verify worker age during hiring. There is no force labor, which is as per labor act 1986. Labor policies prohibit the engagement of underage workers, and routine checks are conducted to ensure adherence to these policies across all project activities.
Human trafficking	No risk identified	No risk identified. Employment and subcontracting practices are structured to prevent coercion or exploitation. All hiring is based on free and informed consent. Screening procedures for labor providers help ensure ethical sourcing and fair treatment

2.3.2 Human Rights

Risks identified	Mitigation or preventative measure(s) taken
No risk identified	As this is a solar power project, no human

	rights violations are anticipated during construction or operation. The project complies with Indian laws and standards, including the Labour Laws ⁷ , Environment (Protection) Act, 1986 ⁸ and the Human Rights framework under the Constitution of India, ensuring fair practices, community engagement, and grievance mechanisms for which the same is followed under their HR policies.
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2.3.3 Indigenous Peoples and Cultural Heritage

Risks identified	Mitigation(s) or preventative measure taken
No risk identified	The project is implemented entirely within the boundaries of privately owned land. No physical or cultural heritage sites of Indigenous Peoples have been identified within or near the project area. Regular site assessments and stakeholder consultations confirm that there has been no adverse impact on tangible or intangible cultural heritage. Measures are in place to ensure continued protection of local and national heritage assets throughout the project's lifecycle.

2.3.4 Property Rights

Risks identified	Mitigation or preventative measure(s) taken
No risk identified	The project activity is implemented on Project owners land and PP is committed to protecting and preserving the property rights of IPs, LCs, and customary rights holders, and to protecting legal or customary tenure/access rights to territories, property, and resources.

⁷ https://ncib.in/pdf/ncib_pdf/Labour%20Act.pdf

⁸ https://www.indiacode.nic.in/bitstream/123456789/4316/1/ep_act_1986.pdf

2.3.5 Benefit Sharing

Summary of the benefit sharing plan	Not Applicable
Benefit sharing during the monitoring period	Not Applicable

2.4 Ecosystem Health

	Risk identified	Mitigation or preventative measure(s) taken during the monitoring period
Impacts on biodiversity and ecosystems	No risk identified	No risk identified. The project activity has not resulted in any adverse impact on biodiversity or ecosystems. On the contrary, it contributes positively by reducing air pollution and mitigating climate change. During the monitoring period, no negative interactions with local flora or fauna were observed. Solar power projects are typically considered environmentally benign, with limited disruption to surrounding ecosystems.
Soil degradation and soil erosion	No risk identified	No soil erosion and degradation are likely to be caused. This project is a solar power project and does not result adverse effects on Soil degradation and soil erosion.
Water consumption and stress	No risk identified	No risk identified. Water usage associated with the project remains minimal and within sustainable limits. No signs of water stress or resource depletion were observed during the monitoring period. Operations of solar plant typically require very low volumes of water, helping to preserve local water resources and minimize ecological pressure.

2.4.1 Rare, Threatened, and Endangered species

Species or habitat	No impact as the project is Solar power plant.
Areas needed for habitat connectivity	Not Applicable

2.4.2 Introduction of species

Species introduced	Classification	Justification for use	Adverse effects and mitigation
Not applicable	Not applicable	Not applicable	Not applicable

Existing invasive species	Mitigation measures to prevent the spread or continued existence of invasive species
Not applicable	Not applicable

2.4.3 Ecosystem conversion

	Risks identified	Mitigation or preventative measure(s) taken
Ecosystem conversion	No risk identified	No impact on Ecosystem is likely to be caused

3 IMPLEMENTATION STATUS

3.1 Implementation Status of the Project Activity

Starting date of the operation of the project activity is 18 July-2017 which is the date of commissioning/commercial operation of the 1st solar project and since then it is in continuous operation.

The project activity involves the installation of 2 x 70 MW (AC) solar power project at Bhadla, Jodhpur, Rajasthan. The project activity has been commissioned and the monitoring equipment's were installed to monitor the parameters as described in the registered Project Description (PD). The project activity is already commissioned and operational. The commissioning details of the project are as follows:

Project Proponents Name	Capacity in MW (AC)	Commissioning Date
Rising Bhadla 1 Private Ltd.	40 MW	18-Jul-17
	30 MW	29-Sep-17
Rising Bhadla 2 Private Ltd	40 MW	29-Aug-17
	30 MW	01-Nov-17

The plant has been under operation continuously since commissioning. No major equipment has been replaced or exchanged since commissioning. There are no changes that have

happened in project activity during the current monitoring period which may impact the applicability of the methodology. However, during this monitoring period, a few minor malfunctions have occurred. The details have been clearly described in the APPENDIX IV: BREAKDOWN DETAILS.

3.2 Deviations

3.2.1 Methodology Deviations

No methodology deviation is applied during the monitoring period.

3.2.2 Project Description Deviations

Deviation 1: During the physical Audit for the 5th periodic verification for the monitoring period 01-October-2021 to 30-November-2022 (Inclusive of both dates) it was observed that the exact pinpoint location of the project activity as mentioned in the registered VCS PD does not contains any solar modules. So, the exact pin-point location of the Project Activity has been changed. As per the observation the exact physical location for the project activity is as mentioned below –

For rising Bhadla 1 Private Ltd

Latitude (north)	Longitude (east)
27°29'53.75"	71°54'59.50"
27°29'38.16"	71°54'59.93"
27°30'22.73"	71°55'02.19"
27°30'02.37"	71°55'02.75"
27°30'02.47"	71°55'07.61"
27°29'53.93"	71°55'07.85"
27°30'23.09"	71°55'19.10"
27°30'14.47"	71°55'25.29"
27°30'17.81"	71°55'28.04"
27°30'10.09"	71°55'32.22"
27°30'13.76"	71°55'34.88"
27°30'09.80"	71°55'41.91"
27°29'39.09"	71°55'42.60"
27°30'09.66"	71°55'44.77"
27°29'41.14"	71°55'45.55"

For Rising Bhadla 2 Private Ltd

Latitude (north)	Longitude (East)
27°30'03.31"	71°54'37.83"
27°29'06.79"	71°54'39.38"
27°30'03.49"	71°54'45.87"

27°29'53.46"	71°54'46.15"
27°29'06.99"	71°54'48.62"
27°29'09.85"	71°54'55.74"
27°29'53.75"	71°54'59.39"
27°29'38.06"	71°54'59.82"
27°29'12.12"	71°55'02.33"
27°29'14.43"	71°55'08.92"
27°29'16.22"	71°55'11.47"
27°29'27.56"	71°55'25.93"
27°29'38.99"	71°55'42.45"

Since the project activity is spread across the area of 2,800,200 square meters (1,400,000 square meters for Rising Bhadla 1 Private Limited and 1,400,200 square meters for Rising Bhadla 2 Private Limited) the details coordinates are mentioned in the table above. Elevation :180 m above MSL

The same correction has been implemented in the section 1.8 of the MR.

The deviation does not have any impact on the additionality and the applicability condition of the project activity

Deviation 2: During the Remote site visit for the 7th periodic verification for the monitoring period 01-December-2023 to 30-June-2025 (Inclusive of both dates) it was observed that the O&M structure differs from that described in the registered VCS PD. So, the exact O&M structure of the Project Activity has been changed. Which is shown below –

ORGANOGRAM **SWREL O&M TEAM** (Rising Bhadla 1 Pvt Ltd)

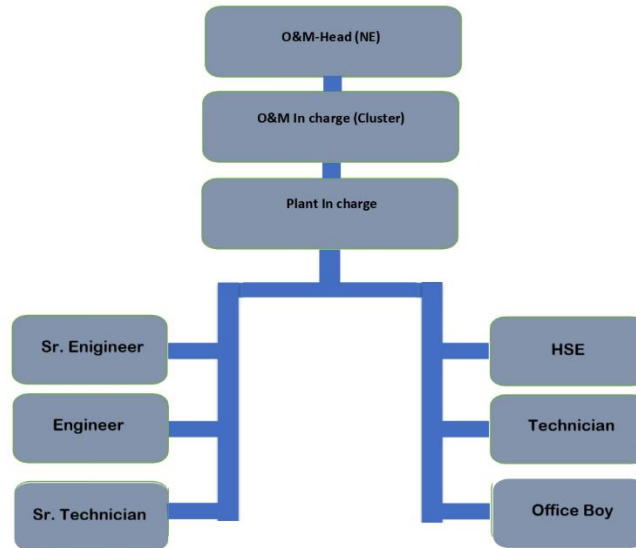


Figure 3 – O&M Structure of Rising Bhadla 1 Pvt. Ltd.

ORGANOGRAM SWREL O&M TEAM (Rising Bhadla 2 Pvt Ltd)

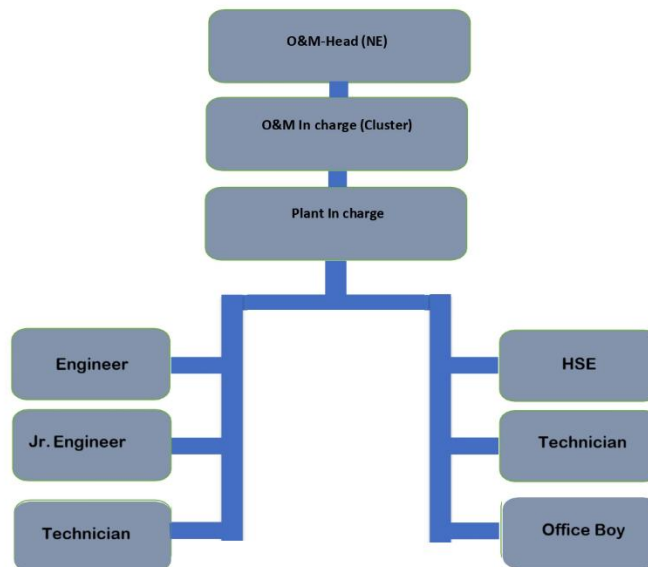


Figure 4 – O&M Structure of Rising Bhadla 1 Pvt. Ltd.

The same correction has been implemented in the section 4.3 of the MR.

The deviation does not have any impact on the additionality and the applicability condition of the project activity

3.3 Grouped Projects

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

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 for the project electricity system in year y
Source of data	Calculated from CEA database, Version 12, May 2017 ⁹
Value applied	0.9843
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 Emission
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 for the project electricity system in year y
Source of data	Calculated from CEA database, Version 12, May 2017 ¹⁰
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 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	For the calculation of the Baseline Emission
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

⁹ https://cea.nic.in/wp-content/uploads/baseline/2020/07/user_guide_ver12.pdf

¹⁰ https://cea.nic.in/wp-content/uploads/baseline/2020/07/user_guide_ver12.pdf

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 ¹¹
Value applied	0.9653
Justification of choice of data or description of measurement methods and procedures applied	The combined margin emissions factor is calculated as follows: $EF_{grid,CM,y} = EF_{grid,OM,y} * W_{OM} + EF_{grid,BM,y} * W_{BM}$ Where: $EF_{grid,BM,y}$ = Build margin 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%
Purpose of Data	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 (MWh)
Source of data	Monthly joint meter reading reports
Description of measurement methods and procedures to be applied	Common metering at the substation: All the plants (including the project activity solar plant and other investors solar plant) are connected to a Pooling substation 132/220 KV GSS II and further electricity is transferred to 220/400 KV RRVNPL substation. The common ³¹ metering point at RRVNPL ¹²

¹¹ https://cea.nic.in/wp-content/uploads/baseline/2020/07/user_guide_ver12.pdf

¹² Rajasthan Rajya Vidyut Prasaran Nigam Limited which is an apex body for the integrate operation of the power system in the state.

	substation consists of both main & check meters (ABT Meters) having accuracy class of 0.2s. The export/import losses between these two substations are apportioned based on pooling substation readings. For detailed schedule of Calibration of energy meters involved in project activity please refer APPENDIX III: CALIBRATION RECORDS
Frequency of monitoring/recording	Continuous measurement & monthly recording
Value monitored	388,098.61 MWh
Monitoring equipment	The electricity is exported / supplied by the plant to pooling substation and further to RRVPNL substation. This main meter & Check meter located at 132/220 KV GSS END are bidirectional which measures export and import of electricity by the plant from the grid. For meter details please refer "APPENDIX III: CALIBRATION RECORDS.
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 as per the registered VCS PD and the Notification by the Central Electricity Authority of India¹¹. But as per the onsite-practice the energy meters are being calibrated once in a year from the last 2 to 3 years which is a more conservative approach. 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 would be applied appropriately to confirm the conservativeness of metering. 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. The detailed explanation on the serial numbers, Accuracy class, calibration dates, validity etc. have been clearly mentioned in the APPENDIX III: CALIBRATION RECORDS.
Purpose of the data	Calculation of baseline emissions
Calculation method	Where relevant, provide the calculation method, including any Thus, Net electricity supplied to the grid by the project plant in a given month = Export, kWh– Import, kWh
Comments	Data would be archived in paper & electronic form for two years after the end of crediting period or of the last issuance of VCUs

for this project activity, whichever occurs later.

4.3 Monitoring Plan

The monitoring plan is developed in accordance with the modalities and procedures for VCS project activities and is used for grid-connected solar energy project. 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 registration, monitoring, measurement, reporting and reviewing of the data rests with Sterling and Wilson Solar Limited which is the O&M Contractor for the project Activity. PP implemented the following structure for data monitoring, collection, data archiving and calibration of equipment for this project activity. The DC to AC capacity conversion factor ranges between 1.25 and 1.26. Also, SCADA¹³ system is used for the continuous monitoring of all the parameters. The calibration of the meters is done by Yash Metrology Laboratory Private Limited for year 2022 and 2023. Yash Metrology Laboratory Private Limited are NABL¹⁴ Accredited agencies that comes under the purview the State Electricity Board. The detailed sheet for the exact date of calibration is mentioned in appendix III. The team comprises of the following members:

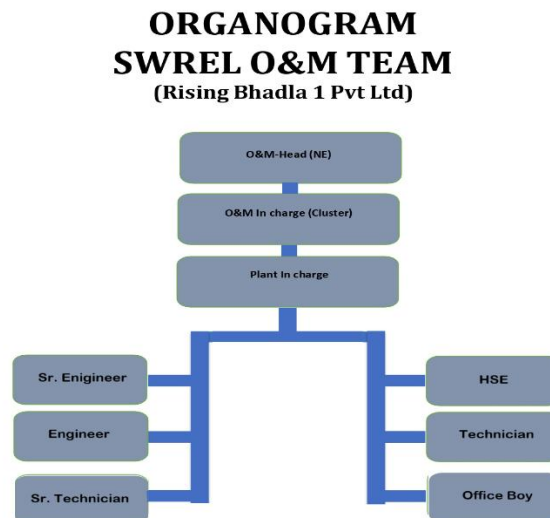


Figure 3 – O&M Structure of Rising Bhadla 1 Pvt. Ltd.

¹³ Supervisory control and data acquisition

¹⁴ National Accreditation Board for Testing and Calibration Laboratories

ORGANOGRAM SWREL O&M TEAM (Rising Bhadla 2 Pvt Ltd)

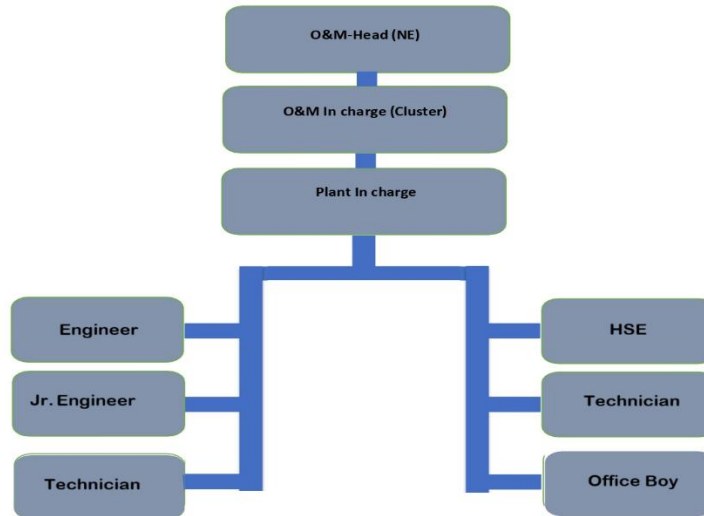
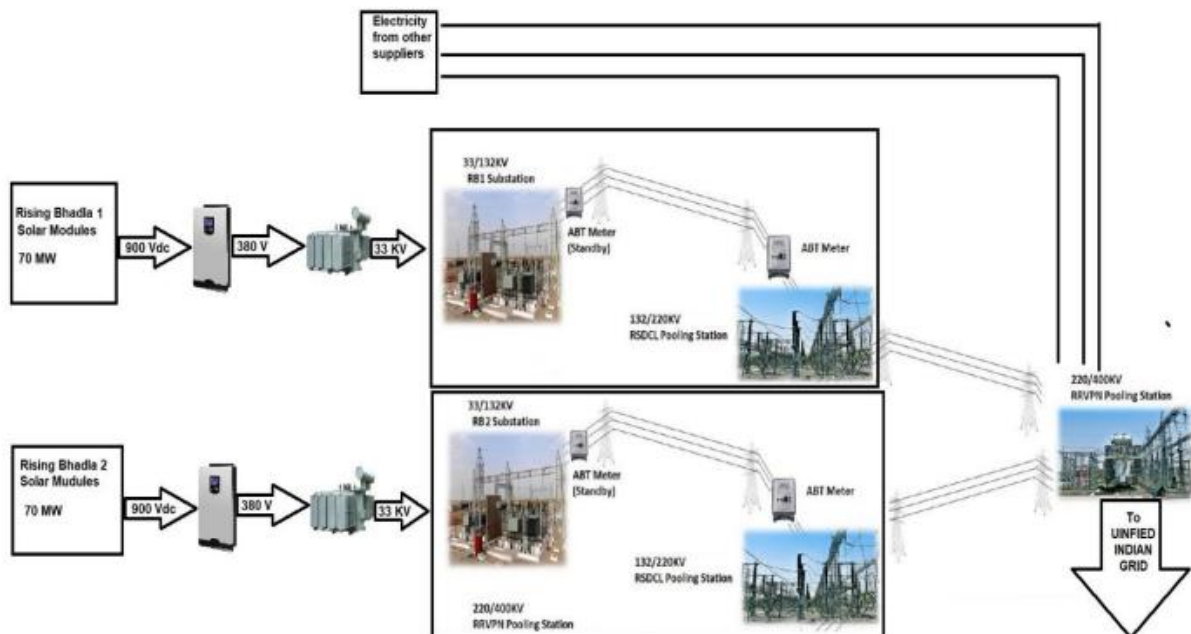


Figure 4 – O&M Structure of Rising Bhadla 1 Pvt. Ltd



The 900 volts DC electricity from the Rising Bhadla 1 and Rising Bhadla 2 solar modules is supplied to the Inverters which converts it to 380 volts AC. The Same is further Supplied to

Inverter Transformer which further converts the same to the 33 kilovolts, which is further Stepped Up to the 132 kilovolts at the plant end substation managed by PP and is further Stepped Up to 220 kilovolts at the RSDCL¹⁵ Pooling Substation. The electricity from both Rising Bhadla 1 and Rising Bhadla 2 along with the electricity from other sources is supplied to the RRVPNL¹⁶ Pooling substation where the same is again Stepped Up to 400 kilovolts. After the 400KV Pooling Substation by RRVPNL the electricity is Supplied to NTPC which is the consumer of the electricity as per the Power Purchase Agreement. NTPC further supplies the electricity to the Unified Indian Grid.

Data Measurement

The export and import energy are 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 (State Electricity Board) in the presence of PP or representative of PP. Based on the Meter Reading Statement to PP, invoices are raised. These invoices can be used for cross checking

Procedure for data apportioning

There is a possibility that the start date of monitoring period (whichever is later) for the project activity may not coincide with the start date of the JMR Statement. For intervening period, the apportioning of electricity exported supplied to the grid from the solar panels would be done as per following procedures:

A = Electricity Exported for the entire billing cycle as per the daily generation data (MWh)

B = Electricity Exported for the intervening period as per the daily generation data (MWh)

C = Generation Ratio = (B/A)

D = Electricity Exported for the entire billing cycle as per the Joint Meter Reading Value - (MWh)

E = Apportioned value of Electricity Exported for the intervening period = (C*D)

The Import Value is considered for the entire monitoring period and thus follows the most conservative approach for the apportioning of net electricity

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 VCUs 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. Onsite Calibration of meters is being followed for the energy meters

¹⁵ Rajasthan Solarpark Development Corporation Limited.

¹⁶ Rajasthan Rajya Vidyut Prasaran Nigam Limited

available at the site and the meters are always in continuous operation. During calibration of the meters, if any one of the three meters is found to exceed the permissible limits, the other two meters are used for measurement and hence there is no interruption in the recording of the energy generation values. The faulty meter is then replaced with a new meter

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 already trained in equipment operation, data recording, reports writing, operation and maintenance and emergency procedures in compliance with the monitoring plan. For the current monitoring period for the duration 01-December-2023 to 30-June-2025 (Inclusive of both dates), Some trainings Monitoring Report: VCS Version 4.2 24 like Road safety training are organized for creating awareness among employees and also some technical trainings like Inverter Operation and Maintenance Training, Switchyard Maintenance Training and Basic Safety Training is organized.

QA/QC procedures

The energy meters at the feeders are maintained and owned by the state electricity board, and neither the project proponent nor the site personnel have any control over them. As per the Power Purchase Agreement, the calibration of the meters must be done once in 5 years. However, as a conservative approach, since the last 2 to 3 years, the calibration of the meters is being done annually. Additionally, a SCADA-based digital monitoring system has been installed at the plant site, which enables continuous real-time monitoring of generation and equipment performance, further ensuring reliability of the recorded data. The solar panels are cleaned manually using water nozzles mounted on tractors, which helps maintain the efficiency of the modules by reducing soiling losses. As per the registered monitoring plan, the meters are to be calibrated by the state electricity board at least once in five years, but the project owner's approach of annual calibration is more conservative and remains fully in compliance with the applicable requirements.

5 QUANTIFICATION OF GHG EMISSION REDUCTIONS AND REMOVALS

5.1 Baseline Emissions

As per the approved consolidated Methodology ACM0002 (Version 17.0): 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 all project electricity generation above baseline levels would have been generated by existing grid connected power plants and the addition of new grid- connected power plants. 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 (t CO₂/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/year)

$EF_{grid,CM,y}$ = 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).

Parameter	$EG_{PJ,y}$	$EF_{grid,CM,y}$	BE_y
Year	MWh	tCO ₂ /MWh	tCO ₂
01-December-2023 to 31-December-2023	22,117.65	0.9653	21,350
01-January-2024 to 31-December-2024	283,897.73	0.9653	274,046
01-January-2025 to 30-June-2025	82,083.23	0.9653	79,234
Total	388,098.61		374,630

5.2 Project Emissions

As per the section 5.4 para 36 of approved consolidated Methodology ACM0002 (Version 17.0) Since for most renewable energy power generation project activities, $PE_y = 0$. Hence, Not Applicable.

5.3 Leakage Emissions

As per the section 5.6 of approved consolidated Methodology ACM0002 (Version 17.0) 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:

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

$$= 374,630 - 0$$

$$= 374,630 \text{ tCO}_2\text{e (Round down)}$$

The vintage breakup has been tabulated below.

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-December-2023 to 31-December-2023	21,350	0	0	21,350	0	21,350
01-January-2024 to 31-December-2024	274,046	0	0	274,046	0	274,046
01-January-2025 to 30-June-2025	79,234	0	0	79,234	0	79,234
Total	374,630			374,630	0	374,630

Vintage period	Ex-ante estimated reductions/removals	Achieved reductions/removals	Percent difference	Explanation for the difference
01-December-2023 to 31-December-2023	20,517	21,350	4.06 %	The achieved GHG emission reduction is -2.07% lower than the estimated value which is 382,545 tCO ₂ e in the current monitoring period which is due ideal sunlight and conditions. weather changes, dust, and high temperature reduce output. Also, equipment downtime and grid cuts further lower the generation.
01-January-2024 to 31-December-2024	242,234	274,046	13.13 %	
01-January-2025 to 30-June-2025	119,793	79,234	-33.86 %	
Total	382,545	374,630	-2.07 %	

APPENDIX I: COMMERCIALLY SENSITIVE INFORMATION

No commercially sensitive information has been provided in the monitoring report.

APPENDIX II : TECHNICAL SPECIFICATION OF EQUIPMENT

The technical specification of 40 MW plant commissioned on 18-July-2017 at Rising Bhadla 1 Private Ltd. are as follows:

SL.NO.	Technical details of the equipment ¹⁶	COMMENTS
1	Technology Used	Multi Crystalline
2	Rating of each module (Wp)	315 Wp to 330 Wp
3	Angle from horizontal at which array is installed	Seasonal Tilt 5 Deg Angle, 30 Deg Angle
4	Number of modules installed of each type	315 Wp- 3120 Nos. 320 Wp 36192Nos. 325 Wp- 53040 Nos 330 Wp- 61152 Nos. The DC capacity of the Solar panels is 49.8 MW and the AC capacity is 40 MW. Hence the DC to AC conversion ratio is 1.25.
5	Sources(s) of the modules installed of each type	Canadian Solar 315 Wp, 320 Wp 325 Wp, 330 Wp
6	Number of the Power Conditioning Units (PCUs) installed	1000 KW- 40 No-s
7	Sources of PCUs (Name of Supplied)	ABB India Limited
8	Invertor Transformers	11 Nos. (4 MVA - 10 Nos & 2 MVA1No.)
9	Power Transformer	2 Nos. (30/36 MVA) Schneider

The Technical Specifications of 30 MW of Rising Bhadla 1 Private limited commissioned on 29-September-2017 are as follows:

Sl. No.	Technical details of the equipment ¹⁷	Comments
1	Technology Used	Multi Crystalline
2	Rating of each module (Wp)	315 Wp to 330 Wp
3	Angle from horizontal at which array is installed	Seasonal Tilt 5 Deg Angle, 30 Deg Angle
4	Number of modules installed of each type	315 Wp- 4,800 Nos. 320 Wp 10,848 Nos. 325 Wp- 85,920Nos 330 Wp- 14,848 Nos. The DC capacity of the Solar panels is 37.80 MW and the AC capacity is 30 MW. Hence
5	Sources(s) of the modules installed of each type	Canadian Solar 315 Wp, 320 Wp 325 Wp, 330 Wp
6	Number of the Power Conditioning Units (PCUs) installed	1000 KW- 30 Nos
7	Sources of PCUs (Name of Supplied)	ABB India Limited
8	Invertor Transformers	7 Nos. (4 MVA- 7 Nos)

The technical specifications of 40 MW of Rising Bhadla 2 Private limited commissioned on 29- August- 2017 are as follows:

SL.NO.	Technical details of the equipment ¹⁶	COMMENTS
1	Technology Used	Multi Crystalline
2	Rating of each module (Wp)	320 Wp to 330 Wp
3	Angle from horizontal at which array is installed	Seasonal Tilt 5 Deg Angle, 30 Deg Angle
4	Number of modules installed of each type	320 Wp 78,400Nos. 325 Wp- 46,320 Nos 330 Wp- 30,400 Nos. The DC capacity of the Solar panels is 50.17 MW and the AC capacity is 40 MW. Hence the DC to AC conversion ratio if 1.25.
5	Sources(s) of the modules installed of each type	Canadian Solar 320 Wp, to 330 Wp JA Solar 320 Wp, 325 Wp

6	Number of the Power Conditioning Units (PCUs) installed	1000 KW- 40 No-s
7	Sources of PCUs (Name of Supplied)	ABB India Limited
8	Invertor Transformers	11 Nos. (4 MVA - 10 Nos)
9	Power Transformer	2 Nos. (30/36 MVA) Crompton Greaves

The technical specifications of 30 MW of Rising Bhadla 2 Private Limited commissioned on 01-November-2017 are as follows:

SL.NO.	Technical details of the equipment ¹⁶	COMMENTS
1	Technology Used	Multi Crystalline
2	Rating of each module (Wp)	320 Wp to 330 Wp
3	Angle from horizontal at which array is installed	Seasonal Tilt 5 Deg Angle, 30 Deg Angle
4	Number of modules installed of each type	320 Wp 15,680Nos. 325 Wp- 84,920 Nos 330 Wp- 15,200 Nos. The DC capacity of the Solar panels is 37.6 MW and the AC capacity is 30 MW. Hence the DC to AC conversion ratio is 1.25.
5	Sources(s) of the modules installed of each type	Canadian Solar 320 Wp, to 330 Wp JA Solar 320 Wp, 325 Wp
6	Number of the Power Conditioning Units (PCUs) installed	1000 KW- 40 No-s
7	Sources of PCUs (Name of Supplied)	ABB India Limited
8	Invertor Transformers	8 Nos. (4 MVA – 7 Nos & 2 MVA – 1 Nos)

The Power Conditioning Units for all the 4 project instances as mentioned above are stored in separate Power Conditioning Rooms, One for each instance.

Cleaning mechanism and Insulation

Tractors are used for the cleaning of the solar panels to increase the efficiency of the solar panels. This is a periodic onsite practice that is performed thrice every month. High Tension circuit breakers are used for the insulation of the circuits and thus the formation of electric arc is avoided. These circuit breakers are situated at various places in the electric circuit making the connection secure and thus avoiding accidents.

APPENDIX III: CALIBRATION RECORDS

Calibration Details

Although, 5 years calibration frequency has been taken as mentioned in the Power Purchase Agreement and as per the registered PD, the validity of the calibration as mentioned in the calibration certificates are mentioned below. The error won't be applied as the meters are calibrated well before the end date of previous calibration as per the registered PD which is 5 years.

Particular	Meter Serial No.	Accuracy Class	Make	Calibration Date	Validity
Rising Bhadla 1 Pvt Ltd (70 MW)					
Main Meter	13194081	0.2 s	L&T	14-October-2022, 27-October-2023	13-October-2027, 26-October-2028,
Check Meter	13194941	0.2 s	L&T	14-October-2022, 27-October-2023	13-October-2027, 26-October-2028,
Stand- by Meter	13195711	0.2 s	L&T	14-October-2022, 27-October-2023	13-October-2027, 26-October-2028,
Rising Bhadla 2 Pvt Ltd (70 MW)					
Main Meter	13194961	0.2 s	L&T	14-October-2022, 27-October-2023	13-October-2027, 26-October-2028,
Check Meter	13195690	0.2 s	L&T	14-October-2022, 27-October-2023	13-October-2027, 26-October-2028,
Stand-by Meter	13195705	0.2 s	L&T	14-October-2022, 27-October-2023	13-October-2027, 26-October-2028,

APPENDIX IV: BREAKDOWN DETAILS

The project underwent continued generation and no Significant breakdown occurred during the monitoring period. However, during current monitoring period, a few malfunctions have occurred. The details have been clearly described on a yearly basis, as shown below.

For RB-1

RB-1 Inverter Breakdown Record		
Year	Faults	Total breakdown hh.mm
2023	Air Temp Diff, Short CKT, ISU Fault, PVS temp. etc.	02:14

RB-1 Inverter Breakdown Record		
Year	Faults	Total breakdown hh.mm
2024	Short Circuit,LCL Fan Fault, DC Ground fault, EXT DI4, Over current & Earth fault etc.	262:07

RB-1 Inverter Breakdown Record		
Year	Faults	Total breakdown hh.mm
2025	Over current & Earth fault, Temperature Diff. Fault (IGBT Fan Fault), Mannual shutdown for IDT trip due to Inverter-4 ACB Replacement etc.	98:03

Total available Day (01/12/2023 to 30/06/2025)	578 days
Total available Hours (01/12/2023 to 30/06/2025)	6,936 Hrs
Breakdown wrt to available hours	362:24 Hrs (Addition of the Breakdown hours of 2023, 2024 and 2025)
Breakdown % wrt to available hours	5.2 %

For RB-2

RB-2 Inverter Breakdown Record		
Year	Faults	Total breakdown hh.mm
2023	Short Circuit, LCL Fan Fault, AC Underfrequency Fault, DC Ground fault etc.	02:28

RB-2 Inverter Breakdown Record		
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Year	Faults	Total breakdown hh.mm
2024	Short Circuit, LCL Fan Fault, AC Underfrequency Fault, DC Ground fault, EXT DI4, Over current & Earth fault etc.	115:13

RB-2 Inverter Breakdown Record		
Year	Faults	Total breakdown hh.mm
2025	Short Circuit, LCL Fan Fault, AC Underfrequency Fault, DC Ground fault, EXT DI4, Over current & Earth fault, Temperature Diff. Fault (IGBT Fan Fault), Mannual shutdown for IDT trip due to Inverter-4 ACB Replacement etc.	56:40

Total available Day (01/12/2023 to 30/06/2025)	578 Days
Total available Hours (01/12/2023 to 30/06/2025)	6,936 Hrs (Addition of the Breakdown hours of 2023, 2024 and 2025)
Breakdown wrt to available hours	173:81 Hrs
Breakdown % wrt to available hours	2.5 %