



**Verified Carbon
Standard**

GRID CONNECTED 25 MW PV SOLAR POWER PROJECT AT CHARANKA IN GUJARAT



Project title	Grid Connected 25 MW PV Solar Power Project at Charanka in Gujarat
Project ID	VCS ID: 1685
Monitoring period	01-November-2020 to 03-March-2022 (inclusive of both start and end dates)
Original date of issue	11-June-2025
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Version	1.3
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Prepared by	Asvata Climate Solutions Private Limited

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PROJECT DETAILS

1.1 Summary Description of the Implementation Status of the Project

The project activity is a 25 MW grid connected solar PV power project in Charnaka Gujarat Solar Power Park District Patan in the State of Gujarat, India promoted by GMR Gujarat Solar Power Private Limited (GGSPPL). The power generated is supplied to the Gujarat Urja Vikas Nigam Limited (GUVNL) and replaces the equal amount of power which would have been generated by fossil fuel-intensive thermal power plants in the Northeastern Western and North Eastern (NEWNE) grid (now known as Indian grid). The project activity uses thin film solar photovoltaic technology to generate clean energy. The generation of power from solar photovoltaic is a clean technology as there is no fossil fuel fired or no GHG gases are emitted during the process. The total estimated GHG emission reductions for the chosen 10-year renewable crediting period will be 344,620 tons of CO₂

The monitoring plan and other monitoring requirements are referred to from the registered CDM PDD (UNFCCC Ref no: 7128). The registered PDD can be referred from

<https://cdm.unfccc.int/Projects/DB/LRQA%20Ltd1346316979.16/view>

The net electricity exported to grid during the monitoring period 01-November-2020 to 03-March-2022 (Inclusive of both the dates) is 46,583 MWh which results in a net emission reduction of 44,188 tCO₂e.

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

Project Proponent name	Commissioning Date	Capacity	Location (Village/State)
GMR Gujarat Solar Power Private Limited (GGSPPL)	04-March-2012	25 MW	Charanka Village of Patan District of Gujarat State in India.

Further details of implemented technological equipment have been provided under section 3 of the MR

1.2 Audit History

The audit history of the project is included in the following table:

Audit type	Period	Program	Validation/verification body name	Number of years
Validation	01-Jan-2013— 30-Aug-2019	CDM program	Lloyd's Register Quality Assurance Limited (LRQA)	7 years

Verification (1 st Monitoring Period)	01-Jan-2013– 31-Aug-2016	CDM program	TÜV NORD CERT GmbH	2 years & 8 months
Joint Validation- verification (1 st Monitoring Period) ¹	04-March-2012- 31-Dec-2012	VCS program (VERRA)	TUV NORD CERT GmbH	9 months & 28 days
Verification (2 nd Monitoring Period)	01-Sep-2016- 31-Oct-2020	VCS program (VERRA)	TUV SUD SOUTH ASIA PVT LTD	4 years
Verification (3 rd Monitoring Period)	01-Nov-2020- 03-March-2022	VCS program (VERRA)	GALAXY CERTIFICATION SERVICES PRIVATE LIMITED	1 year, 04 months & 03 days

1.3 Sectoral Scope and Project Type

Sectoral scope ²	1.Energy (renewable/non-renewable)
Project activity type	Renewable Energy Projects

1.4 Project Proponent

Organization name	GMR Gujarat Solar Power Private Limited (GGSPPL)
Contact person	Mr. Gaurav Kumar
Title	Head Sustainability and EHS
Address	GMR Gujarat Solar Power Private Limited New Shakti Bhawan – Ground Floor Building no 301 Near Terminal 3 IGI Airport New Delhi 110 037.
Telephone	+91-11-4988-3343
Email	Gaurav.Kumar2@gmrgroup.in

1.5 Other Entities Involved in the Project

Organization name	Asvata Climate Solutions Private Limited
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¹ Considered as the 1st Monitoring Period under the VCS program. Subsequent verifications have been conducted in sequential order in CDM & VCS with no overlap in verification periods throughout the entire crediting period.

² 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>

Role in the project	Project Consultant
Contact person	Navin Mathur
Title	COO
Address	RPG House, 463 Dr. Annie Besant Road, Worli, Mumbai 400030
Telephone	+91 9867015373
Email	navin.mathur@asvata.com

1.6 Project Start Date

Project start date	04-March-2012
Justification	The project start date refers to the date when the solar panels were commissioned under the project activity

1.7 Project Crediting Period

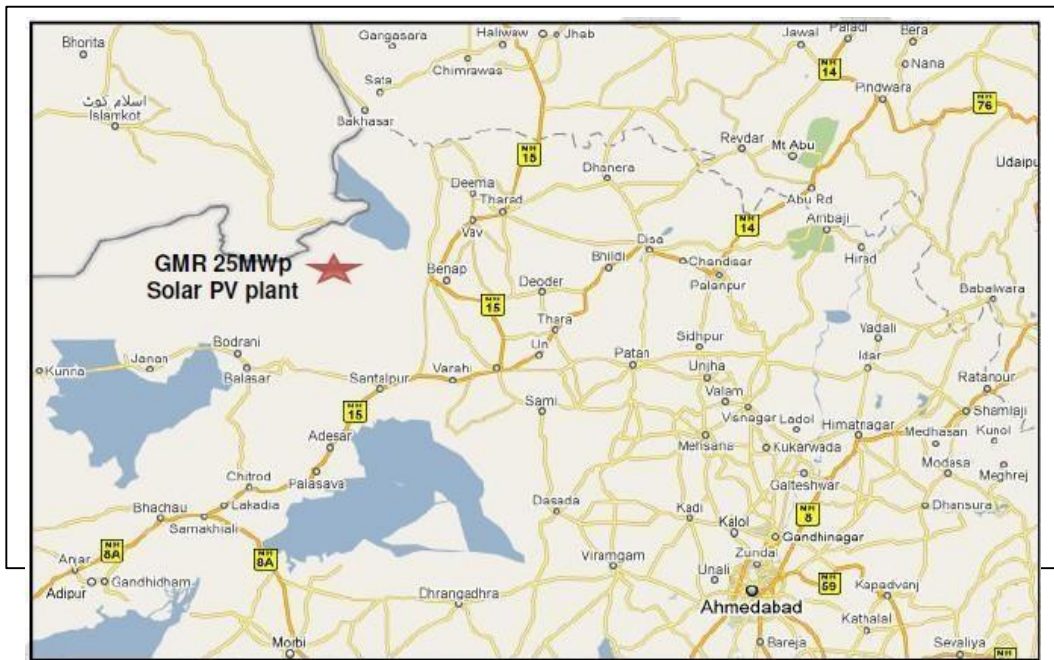
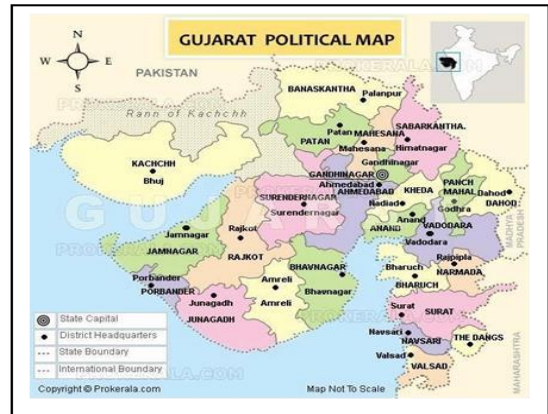
Crediting period	☐ Seven years, twice renewable ☐ Ten years, fixed ☒ Other (10 Years twice renewable as per deviation requested in Registered Monitoring Report Version 02 section Dated 28- January-2021 as per VCS version 3) ³
Start and end date of first or fixed crediting period	04-March-2012 to 03-March-2022

1.8 Project Location

The project activity is located at the Charanka Village of Patan District of Gujarat State in India at an altitude of approximately 8m above mean sea level. The site is located within the GPCL developed Gujarat Solar Park coming up in this village which is approximately 58km from the Radhanpur and 174km from the city of Ahmedabad, a commercial city in the Indian state of Gujarat.

The geographical coordinates of the project activity are between: Latitude: 23°55' 03.32" N, Longitude: 71°12'53.24" E.

³ <https://registry.verra.org/app/projectDetail/VCS/1685>



1.9 Title and Reference of Methodology

Type (methodology, tool or module).	Reference ID, if applicable	Title	Version
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Methodology	ACM0002	Consolidated Baseline Methodology for grid connected electricity generation from renewable sources.	12.3.0 ⁴
Tool	07	Tool to calculate the emission factor for an electricity system.	02.2.1 ⁵
Tool	01	Tool for demonstration and assessment of additionality.	6.0 ⁶
Tool	27	Guidance on the Assessment of Investment Analysis.	05.0 ⁷

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

The project was registered under the UNFCCC Clean Development Mechanism (CDM) program with registration reference number 7128. The first crediting period in CDM was from 01 January 2013 to 30 August 2019, with verification completed up to August 2016. Also, it was renewed for second crediting period from 31 Aug 2019 to 30 August 2026.

The project is registered under the Verified Carbon Standard (VCS) program, with a crediting period from 04 March 2012 to 03 March 2022 (10 years and renewal twice). The current VCS verification covers the period from 01 November 2020 to 03 March 2022. A declaration has been provided to confirm no double accounting for the current monitoring period.

1.10.2 Registration in Other GHG Programs

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

⁴ <https://cdm.unfccc.int/methodologies/DB/5725LCHYPYM4I1V8OD9SFYVAMFFWNP>

⁵ <https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-07-v2.2.1.pdf>

⁶ <https://cdm.unfccc.int/UserManagement/FileStorage/9AGSVUJ4HP731N0DRL8CYF5EXTBZKQ>

⁷ <https://cdm.unfccc.int/UserManagement/FileStorage/OHNFC4T6RUZEQXDL20JVG7MWK35YI1>

☒ Yes ☐ No

The project was registered under the UNFCCC Clean Development Mechanism (CDM) program with registration reference number 7128.

<https://cdm.unfccc.int/Projects/DB/LRQA%20Ltd1346316979.16/view?cp=1>

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

The project is registered under CDM and UNFCCC (Registration ID -7128). The project is also approved by the DNA. Project Proponent has submitted undertaking that PP does not claim same GHG emission reductions of the project from CDM and VCS. PP would not use net GHG emission reductions by the projects for compliance with emission trading program to meet binding limits on GHG emissions.

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

The project does not directly impact emissions associated with any good or service other than the electricity supplied to the national grid. Therefore, no double counting within scope 3 should be generated in the supply chain.

1.12 Sustainable Development Contributions

Contribution to sustainable development:

The Ministry of Environment and Forests 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 helps generate employment opportunities during the construction and operation phases. The project activity leads to infrastructure development in the region, such as road construction, and may promote business with improved power generation.
- **Economic well-being:** The project is a clean technology investment in the region, which does not take place without its benefits. The project also helps to reduce the demand-supply gap in the state. It generates power using zero-emission solar-based power generation, reducing GHG emissions and specific pollutants like SO_x, NO_x, and SPM associated with conventional thermal power generation facilities.
- **Technological well-being:** The successful operation of the project activity promotes solar-based power generation and encourages 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 emissions the Project activity also helps in avoiding significant amount of GHG emissions.

This project contributes with different actions to 3 of the 17 Sustainable Development Goals. Directly, it strengthens Goals 7, 8 and 13 with the generation of clean energy and therefore the reduction of GHG emissions. SD contributions have been described in Table 1 of this report.

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 renewable energy share in the total final energy consumption	The main activity of the project is based on the production of clean energy that increases the percentage of renewable energy from the energy mix, displacing fossil fuels in the country's electrical system. From November 2020 to March 2022, the Project injected 46,583 MWh of renewable energy into the country's electricity grid.	Since commissioning 383,248 MWh, renewable electricity generated has been supplied to Indian grid to increase the renewable energy share in the energy mix. - 1st Monitoring Period (CDM):154,027 MWh - 1st Monitoring Period (VCS): 31,507 MWh - 2nd Monitoring Period: 151,131 MWh - 3rd Monitoring Period: 46,583 MWh										
2)	8.5	8.5.2 Unemployment rate, by sex, age, and persons with disabilities	Implemented activities to decrease	Total: -10 people employed during this reporting period. The number of people employed with their designation is as follows: <table><tr><td>Designation</td><td>No. of Employee</td></tr><tr><td>Sr. Engineer</td><td>01</td></tr><tr><td>Engineer</td><td>02</td></tr><tr><td>Technician</td><td>05</td></tr><tr><td>Helper</td><td>02</td></tr></table>	Designation	No. of Employee	Sr. Engineer	01	Engineer	02	Technician	05	Helper	02	The declaration for the number of people employed i.e. 10 during the monitoring period.
Designation	No. of Employee														
Sr. Engineer	01														
Engineer	02														
Technician	05														
Helper	02														

3)	13.0	Tonnes of greenhouse gas emissions avoided or removed	Implemented activities to increase	Using renewable energy for generating electricity which otherwise would have been generated through alternate fuel (most likely - fossil fuel) based power plants, contributing to reduction in specific emissions (emissions of pollutant/unit of energy generated) including GHG emissions. During this monitoring period (from November 2020 to March 2022), the Project has reduced 44,188 tons of CO₂ emissions.	The amount of CO₂ reductions from the date of commissioning of the project till the end of this monitoring period is 371,315 tCO₂e. - 1st Monitoring Period (CDM): 146, 109 tCO₂e - 1st Monitoring Period (VCS): 29,887 tCO₂e - 2nd Monitoring Period: 151,131 tCO₂e - 3rd Monitoring Period: 44,188 tCO₂e .
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1.13 Commercially Sensitive Information

Not applicable. This project does not have any commercially sensitive information that 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	Since the local stakeholder consultation was conducted prior to the implementation of the project activity during validation. The consultation process involved relevant stakeholders such as the Governmental, Non-governmental organization, Farmers, Education Centre etc., representatives According to registered CDM PDD, the meeting was conducted on 11/06/2011 at Site office involving the local stakeholders identified from various section. The list of identified stakeholders is as follows: 1. Local villagers/ farmers 2. Shopkeepers 3. Government organization 4. Principal (Education center) 5. Representative of PPs.
Legal or customary tenure/access rights	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 the ownership has been clearly established, as the land is leased to the project proponent by Gujarat Solar Park (Charnaka) developed by GPCL (Gujarat Power Corporation Limited) .

Stakeholder diversity and changes over time	Stakeholders identified for this project activity were 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	Social well-being: The project helps generate employment opportunities during the construction and operation phases. The project activity leads to infrastructure development in the region, such as road construction, and may promote business with improved power generation. Environmental well-being – as this project activity reduces the CO₂ gas emissions in atmosphere by utilizing solar power generation to generate electricity. It brings environmental well-being to the locality Technological well-being: The successful operation of the project activity promotes solar-based power generation and encourages other entrepreneurs to participate in similar projects.
Location of stakeholders	The stakeholder consultation was held at the project site i.e. within the GPCL developed Gujarat Solar Park located in the Charanka Village of Patan District of Gujarat State in India. All the details of the process were presented to the VVB by request during the validation process at that time.
Location of resources	The local community holds rights of territories and resources to which they have customary access.

2.1.2 Stakeholder Consultation and Ongoing Communication

Ongoing consultation	PP is open for continuous stakeholder interaction and forms a grievance/suggestion register placed at the project site for the comments at any point of time during the project crediting period. PP has explained this mechanism for on-going communication to the local stakeholders and transparently kept the notice mentioning the grievance register available at the project site. Identified stakeholders were local community members i.e., local villagers, local government officials (village council members),
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	Governmental, Non-governmental organization, Farmers, Education Centre. The accounting of all and any input received during ongoing communication should be taken into consideration to take the appropriate measure to resolve the grievance.
Date(s) of stakeholder consultation	The stakeholder consultation was conducted on 11 September-2011 i.e. prior to validation. Refer to the registered CDM PDD for details of consultation conducted prior to validation.
Communication of monitored results	The project activity is a Solar PV based power generation project and operates without any emission to air, water & soil even there is no noise pollution associated with the project. No issues and grievances for the project activity have been identified during the current monitoring period as recorded in the grievance register maintained at the project site office.
Consultation records	Refer to the registered CDM PDD for details of consultation conducted prior to validation and records of local meetings conducted before commissioning of the plant. No comments were received during the current monitoring period.
Stakeholder input	During the monitoring period (from 01/11/2020 to 03/03/2022), there are no comments received from stakeholders through the comment books, phone calls or emails.

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'
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	concerns were adequately addressed and mitigated in advance.
Outcome of FPIC	Not Applicable. The stakeholders were identified, and the consultation meeting was conducted on 11-09-2011 i.e. prior to validation. Refer to the registered CDM PDD for details of consultation conducted prior to validation. Further, the project activity is a Solar PV based power generation project and operates without any emission to air, water & soil even though there is no noise pollution associated with the project. The project proponent confirms that the project has not encroached on land, relocated people without consent, and forced physical or economic displacement since commissioning.

2.1.4 Grievance Redress Procedure

Stakeholders' consultation is a continuous process and hence a feedback register is kept at the project site office where any stakeholder can come and share his/her feedback. The feedback irrespective of the type is taken care of by PP with utmost priority. No grievances are registered during the current monitoring period at the project site.

Grievances received	Resolution and outcome
NA	NA

2.1.5 Public Comments

Summary of comments received	Actions taken
No comments received during the current monitoring period.	Not Applicable.

2.2 Risks to Stakeholders and the Environment

2.2.1 Management Experience

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 has positive impacts on the environment, society and economy; and has no risks to stakeholders' wellbeing.
Risks to stakeholder participation	No risk identified	There are no risks to stakeholders. The local stakeholder consultation meetings were held in the construction phase; all stakeholders support the project implementation.
Working conditions	No risk identified	All Project activities ensure safe working conditions for employees.
Safety of women and girls	No risk identified	The Project does not involve harm to women and girls in the local community.
Safety of minority and marginalized	No risk identified	The Project doesn't involve risks in the protection of children and minority and

groups, including children		marginalized groups from harm in the local community.
Pollutants (air, noise, discharges to water, generation of waste, and release of hazardous materials and chemical pesticides and fertilizers)	No risk identified	As a solar power plant, the project activity does not impact air quality, noise, nor release of chemical pesticides and fertilizers.

2.3 Respect for Human Rights and Equity

2.3.1 Labor and Work

	Risks identified ⁸	Mitigation or preventative measure(s) taken
Discrimination	No risk identified.	There have been no complaints about discrimination cases and there is no evidence that there has been any case.
Sexual harassment	No risk identified.	There have been no complaints about sexual harassment cases and there is no evidence that there has been any case.
Gender equity in labor and work	No risk identified.	There has been no discrimination based on gender observed at the project site.
Forced labor	No risk identified.	No forced labor is involved in the project activity.
Child labor	No risk identified.	No child labor is involved in the project activity.
Human trafficking	No risk identified.	The project activity does not involve or promote Human trafficking, forced labor, and child labor.

2.3.2 Human Rights

Risks identified	Mitigation or preventative measure(s) taken
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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.

No Risk identified	The project activity recognizes, respects, and promotes the protection of the rights of IPs, LCs, and customary rights holders in line with applicable international human rights law, and the United Nations Declaration on the Rights of Indigenous Peoples and ILO Convention 169 on Indigenous and Tribal Peoples.
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2.3.3 Indigenous Peoples and Cultural Heritage

Risks identified	Mitigation(s) or preventative measure taken
No risk identified	There are no indigenous peoples present in or within the area of influence of the project and the project is not located on land/territory claimed by indigenous peoples. The project area does not include sites, structures, or objects with historical, cultural, artistic, traditional or religious values or intangible forms of culture.

2.3.4 Property Rights

Risks identified	Mitigation or preventative measure(s) taken
No risk identified	Not Applicable as the project activity is implemented on Project owners land and no land or property acquired from indigenous peoples. Also, the project is not located on land/territory claimed by indigenous peoples.

2.3.5 Benefit Sharing

Summary of the benefit sharing plan	Not applicable Since the benefits of the carbon credits lie with the project proponent.
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	Also, section 2.3.4 property rights of the monitoring report are not applicable.
Benefit sharing during the monitoring period	Not Applicable since PP is the sole owner of the revenue generated from the project activity.

2.4 Ecosystem Health

	Risk identified	Mitigation or preventative measure(s) taken during the monitoring period
Impacts on biodiversity and ecosystems	No Risk identified	The project is not located in a conservation value area or within critical natural habitats. Thus, there is no impact on biodiversity and ecosystem.
Soil degradation and soil erosion	No Risk identified	The project activity is a ground-mounted solar power project. It does not impact soil degradation and soil erosion.
Water consumption and stress	No Risk identified	Water consumption is not likely to be ceased.

2.4.1 Rare, Threatened, and Endangered species

The project does not locate in or adjacent to habitats for rare, threatened, or endangered species. Therefore, the section is not applicable

Species or habitat	Not applicable
Areas needed for habitat connectivity	Not applicable

	Risks identified	Mitigation or preventative measure(s) taken
Habitats for rare, threatened, and endangered species	Not Applicable	Not Applicable
Areas for habitat connectivity	Not Applicable	Not Applicable

2.4.2 Introduction of species

At the time of registration, no species were identified as requiring mitigation for this project. The project involves the generation of solar power electricity and its export to the Indian grid, which does not include the planting or introduction of any species. Hence, this section is not applicable.

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
No Risk Identified	There are no invasive species identified hence no mitigation measure is required.

	Risks identified	Mitigation or preventative measure(s) taken
Invasive species	No risk identified	No mitigation measures are required as no invasive species are identified.

2.4.3 Ecosystem conversion

	Risks identified	Mitigation or preventative measure(s) taken
Ecosystem conversion	No risk identified	There are no invasive species identified hence no mitigation measure is required.

3 IMPLEMENTATION STATUS

3.1 Implementation Status of the Project Activity

The project activity aims to harness solar energy through installation of PV. The solar PV power plant have solar PV modules, inverters, transformers and other protection systems and supporting components are already commissioned and operational. since the date of commissioning i.e. 04- March-2012.

The project activity has been operational since commissioning and there have been no events or capacity changed that may have an impact on the GHG emissions or removals during the current monitoring period.

Solar Power Project Technology Details

The PP GGSPPL has selected crystalline silicon PV technology and central inverters for its 25MW solar PV plant. PV modules required for the plant has been sourced from Canadian solar make.

The two PV Modules numbers are CS6P 235P & 240P. The modules have a rated output of 235 Wp & 240 Wp have been selected. The Canadian solar modules are qualified to IEC 61215 and are TUV certified. These module specifications are suitable for the conditions encountered at the site.

The DC electrical output from the PV modules is fed through solar PV grade cables to string combiner boxes (SCB) and further through D.C switchboard to inverters. The inverters convert the DC electrical output to AC. The cable routes from inverter lead to the MV transformers stepping up voltage to 11kV. To achieve system redundancy at MV level, a set of five rings of 5 MW each exists before feeding into HV substation. 11kV AC voltage is further stepped up to 66kV at the HV substation before feeding into the grid.

Crystalline Solar Modules:

1. The crystalline solar modules are manufactured using silicon cells
2. The modules comply with International Electrotechnical Commission IEC 61215 standards.
3. Maximum wind load bearing capacity is 2.4 KPa (Kilo Pascals)
4. The modules are designed to have minimum maintenance requirements and high reliability having a minimum design life of 25 years.
5. The PV modules, Canadian solar make SMA's, 500 CP inverters manufactured by SMA are considered for the project activity.

Electrical Power Requirements:

The DC electrical output from the PV modules is fed through solar PV grade cables to string combiner boxes (SCB) and further through D.C switchboard to inverters. The inverters convert the DC electrical output to AC. The cable routes from inverter lead to the MV transformers stepping up

voltage to 11kV. To achieve system redundancy at MV level, a set of five rings of 5 MW each exists before feeding into HV substation. 11kV AC voltage is further stepped up to 66kV at the HV substation before feeding into the grid.

The point of interconnection and metering shall remain at solar PV plant.

PV Plant components:

The main components of the PV plant that has been used for the design and energy yield predictions are solar PV modules, inverters, junction boxes, mounting structure, 11kV & 66 kV electrical substation, monitoring and data acquisition system.

PV Modules:

Two Canadian solar CS6P 235P & 240P modules with a rated output of 235 Wp & 240 Wp have been installed. The Canadian solar modules are qualified to IEC 61215 and are TUV certified. These module specifications are suitable for the conditions encountered at the site.

Table 1: Technical Specifications

S. No.	Description	Specification
	PV Modules	
1.	Photovoltaic Power plant type	Fixed array ground mounted Photovoltaic Power Plant
2.	Module Technology	Polycrystalline silicon
3.	Module Make	Canadian Solar
4.	Module Name plate peak power	235 Wp / 240Wp
5.	Number of Modules	105,624
	Central Inverter	
6.	Make	SMA
7.	Nominal DC power	500 kW
8.	MPP voltage range	430 V to 820 V
9.	Nominal AC voltage	270 V
10.	Operational Temperature Range	-20° C to 50° C
11.	Number of Inverters	45 No's
	MV/HV Transformers	
12.	Make	Voltamp Transformers Ltd
13.	Capacity	10/12.5 MVA & 6.3 MVA
14.	Rated voltage HV side	66 kV
15.	Rated voltage MV side	11 kV
16.	Number of Transformers	2 no's of 10/12.5 MVA & 1 No. of 6.3 MVA
	Tilt angle	
17.	Tilt angle to horizontal	20 °
18.	Direction	Towards south

Cables and Connectors:

The cables deployed have to be robust and resist high mechanical bad and tension. High temperature resistance and weather proofing characteristics provide long life. The connectors should have high current carrying capacity and should be free from any water ingress.

Table 2: Technical specification of the HT cable:

Equipment Name	Manufacturer	Technical Details	
400 Sqmmx3 core 11KV XLPE Armoured cable	Ravin Cables Ltd	Nominal Area Of conductors	400
		Thickness of insulation	3.4 mm
		Thickness of outer sheath	3.55 mm
		Over All diameter	81.4 mm
		Approximate Weight	7070 kg/km
		Current Rating	
		a. In air at 40 ⁰ C	502
		b. In ground at 25 ⁰ C	441
		Conductor Resistance	
		a. Dc at 20 ⁰ C	0.0778 ohms/km
		b. 50 Hz at 90 ⁰ C	0.102 ohms/km
		Reactance at 50Hz	0.083 ohms/km
		Capacitance	0.59 µF/km
300 Sqmmx3 core 11KV XLPE Armoured chain	Ravin Cables Ltd	Nominal Area Of conductors	300
		Thickness of insulation	3.4 mm
		Thickness of outer sheath	3.3 mm
		Over All diameter	75.2 mm
		Approximate Weight	5910 kg/km
		Current Rating	
		a. In air at 40 ⁰ C	434
		b. In ground at 25 ⁰ C	392
		Conductor Resistance	
		a. Dc at 20 ⁰ C	0.1 ohms/km
		b.50 Hz at 90 ⁰ C	0.130 ohms/km
		Reactance at 50Hz	0.086 ohms/km
		Capacitance	0.53 µF/km
240 Sqmm x 3	Ravin Cables	Nominal Area Of conductors	240
		Thickness of insulation	3.4 mm
		Thickness of outer sheath	3.1 mm
		Over All diameter	70.0 mm
		Approximate Weight	5060 kg/km

Transformer:

Step-up transformers are used to step-up the inverter output voltage to exportable power voltage (from 280/300 V to 11 kV and from 11kV to 66 kV).

The technical details of the power transformer are as follows:

Make: VOLTAMP transformers Pvt Ltd.

Table 3: Technical details of power transformers

Rating (Kw/KVA)	10000/12500
Rated Voltage (HV)	66000
Rated Voltage (LV)	11000
Rated Current (HV)	109.35
Rated Current (LV)	656.08
Frequency	50 Hz
Cooling	ONAN
Winding Material	Copper
Weight of Oil	7890Kgs
Oil Quantity	8865 Lts
Total Weight	32390Kgs
Core & Winding	13600Kgs
Vector Group	YNyn0
Insulation Level (HV)	325KVP
Insulation Level (HVN)	95KVP
Insulation Level (LV)	76KVP
Max Temp Rise (Oil/Wndg)	50/55 °C
HV CT Ratio	300/1A
LV CT Ratio	800/1A
HV NCT Ratio	300/1A
LV NCT Ratio Core 1	300/1A
LV NCT Ratio Core 2	800/1A

Rating (KVA)	6300
Rated Voltage (HV)	Vers66000
Monitoring Report: VCS	ion 4.0
Rated Voltage (LV)	11000
Rated Current (HV)	55.11
Rated Current (LV)	330.66
Frequency	50Hz

Cooling	ONAN
Winding Material	Copper
Weight of Oil	5545Kgs
Oil Quantity	6230 Lts
Total Weight	22445Kgs
Core & Winding	9800Kgs
Vector Group	YNyn0
Insulation Level (HV)	325Kvp
Insulation Level (HVN)	95Kvp
Insulation Level (LV)	75Kvp
Max Temp Rise (Oil/Wndg)	50/55 °C
HV CT Ratio	300/1
LV CT Ratio	600/1
HV NCT Ratio	300/1A
LV NCT Ratio Core 1	200/1A
LV NCT Ratio Core 2	600/1A

Technical details of Inverter duty transformers are as below:

Make: Danish Pvt Ltd:

Table 4: Technical details of power transformers

Capacity	1250KVA
Rated Voltage (HV)	11KV
Rated Current (HV)	65.61A
Rated Voltage (LV)	270V
Rated Current (LV)	1336.5A
Cooling Type	ONAN
Vector Group	Dy11y11
Winding Material	Copper
Insulation Class	A
Temp rise oil/wdg	35/45 °C at Ambient
Oil Qty	1100lts

Lightning Arrestors:

Lightning arrestor of adequate capacity is provided for transformer/ switchyard equipment protection and on terminating ends of the transmission lines. The lightning arrestor is heavy duty station class type, discharge class III, conforming to IEC specification. Arrestors are complete with insulating base, self-contained discharge counters and suitable milli-ammeters.

Technical specifications of LA:

Make: OBLUM

Table 5: Technical Details of Lighting Arrestors

Technical Details	
Rated Voltage	60KV
Pressure Relief clam	40KA
Rated Frequency	48-60HZ
Discharge clam	3
MCOV	541KV

HT-Structures:

The structures is made up of hot-dip galvanized steel and designed to withstand forces during normal conditions (viz. wind loads & dead load of switchyard components) and abnormal conditions (viz. short circuit, earthquake, etc.)

Safety Earthing /Grounding System:

A safety earthing system consisting of a buried GI flat conductor earthing grid is provided for the switchyard and the Solar PV array system. The earthing system is formed to limit the grid resistance to below 1 ohm.

Table 6: Technical details of Earthing:

Sr. No	Technical description	Material used
1	Earthing conductor for earth mat	40MM dia MS rod
2	Type of earth electrode	40MM dia MS rod
3	Number of earth electrode for switchyard	Total 27 Nos pit

Lighting (Plant Illumination) System:

A suitable number of lighting fixtures are provided in the plant area to illuminate the complete solar power plant area in the nighttime.

Table 7: Technical Specification lighting:

Sr. no	Description	Location	Total no
1	30W LED lighting	Plant peripheral area	126
2	2* 400Watt HPSV	66KV switchyard	14
3	13W lighting fixture	Plant Internal lighting	157

4	2X36W FTL Fixtures	Inverter station	45
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Power Evacuation System:

The power from the inverters / transformers is collected in a collecting station (pooling substation inside the SPV plant boundary) and the high voltage power is routed through the double circuit 66 kV switchyard to the transmission line and eventually connected to the grid (66kv/220kv GETCO sub-station, Charanka). All the statutory requirements of the state grid code are complied with. The tariff metering panels and accessories are provided in 66 kV switchyard in the plant boundary of solar power plant. The technology used in the project activity employs renewable solar energy for electricity generation. It generates no end products in the form of solid waste (ash etc.) compared to alternative modes of power generation (e.g. coal based on which the NEWNE grid is primarily dependent). Hence, the solar PV technology is environmentally safe and sound. Technology is indigenous as available within the country. Further, there is no technology transfer associated with the project activity.

The project is designed for an operational lifetime of 25 years

3.2 Deviations

3.2.1 Methodology Deviations

Not Applicable

3.2.2 Project Description Deviations

No project deviations were taken during the current monitoring period.

The deviations below are requested for project activity to rectify the typo error in Joint PD & MR dated 28- January-2021 for second monitoring period.

1. There is a typo error in joint PD & MR, the start date (i.e PPA signing date) mentioned joint PD & MR is as per CDM definition of start date. As per VCS standard, the earliest commissioning date is the starting date, hence VCS MR has mentioned 04/03/2012 as start date of project activity and start date of crediting period. Deviation is requested in VCS MR for same.
2. Joint PD & MR dated 16/10/2018, has mentioned CDM crediting period as 01 Jan 13 - 30 Aug 19 which is 7 years renewal twice. This is a typo error in Joint PD & MR dated 16/10/2018, regarding mention of CDM crediting period and not mention of VCS crediting period.

However as per VCS standard available at the time of project's VCS registration, VCS project crediting period can start from commissioning date and crediting period can be of 10 years with maximum renewal of 2 times. Hence VCS project crediting period is from 04/03/2012 to 03/03/2022 (10 years period) and same can renew twice.

The above requested deviations do not have any impact on applicability of the methodology, additionality or the appropriateness of the baseline scenario for the current monitoring period.

3.3 Grouped Projects

The project is not a grouped project activity.

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,CM,y}
Data unit	t CO ₂ /MWh
Description	Combined Margin emission factor for NEWNE grid (now part of Unified Indian Grid)
Source of data	Latest CO ₂ Baseline Database for the Indian Power Sector prepared by Central Electricity Authority Version 6.0.
Value applied	0.9486 tCO ₂ /MWh. Fixed during the crediting period.
Justification of choice of data or description of measurement methods and procedures applied	The CO ₂ database is an official publication CEA, Government of India for the purpose of CDM baselines. It is based on most recent data (2007-08, 2008-09 & 2009-10) available to the CEA and hence considered authentic.
Purpose of data	Calculation of baseline emissions
Comments	The value is fixed ex-ante and it remains same throughout during the crediting period

Data / Parameter	EF _{grid,OM,y}
Data unit	t CO ₂ /MWh
Description	Simple Operating Margin emission factor for NEWNE grid(now part of Unified Indian Grid)
Source of data	Latest CO ₂ Baseline Database for the Indian Power Sector prepared by Central Electricity Authority Version 6.0.
Value applied	0.9941
Justification of choice of data or description of measurement methods and procedures applied	The CO ₂ database is an official publication CEA, Government of India for the purpose of CDM baselines. It is based on most recent data (2007-08, 2008-09 & 2009-10) available to the CEA and hence considered authentic.
Purpose of data	For the calculation of Emission Factor of the grid
Comments	The value is fixed ex-ante and it remains same throughout during the crediting period

Data / Parameter	EF _{grid,BM,y}
Data unit	t CO ₂ /MWh

Description	Build Margin emission factor for NEWNE grid(now part of Unified Indian Grid)
Source of data	Latest CO ₂ Baseline Database for the Indian Power Sector prepared by Central Electricity Authority Version 6.0.
Value applied	0.8123
Justification of choice of data or description of measurement methods and procedures applied	The CO ₂ database is an official publication CEA, Government of India for the purpose of CDM baselines. It is based on most recent data (2007-08, 2008-09 & 2009-10) available to the CEA and hence considered authentic.
Purpose of data	For the calculation of Emission Factor of the grid
Comments	The value is fixed ex-ante and it remains same throughout during the crediting period

4.2 Data and Parameters Monitored

Data / Parameter	EG _{Facility,y}
Data unit	MWh/yr
Description	Quantity of net electricity generation supplied by the project plant/unit to the grid in year y
Source of data	Joint Meter readings by Project Proponent and GETCO at the interconnection point
Description of measurement methods and procedures to be applied	The metering system will include three main meters and three check meters (also known as Backup meters) at HT side of the transformers. (three transformers exist). The Backup meters are used for cross checking. Total electricity generated by the project activity would be the sum of three-meter readings of the main meters having facilities to record both export and import of electricity to and from the grid. The net electricity exported from project to the grid is a calculated parameter and is determined from the difference between the electricity export and import. In case of failure of the main meters, check meter readings would be used. The meter readings (coded) will be taken by GETCO on monthly basis and will be decoded at their end and send a statement of electricity generation to PP. Data Type: Measured Monitoring equipment: Energy Meters are used for monitoring Recording Frequency: Continuous monitoring and Monthly recording from Energy Meters Calibration frequency: 3 years The main meter and check meters are sealed under in the presence of representatives of Project Proponent and GETCO. The main and check

	meters are electronic trivector meters of accuracy class 0.2s. The main and check meters are calibrated once in a period of three years. However, in case of any of the meters found outside the acceptable limits of accuracy or otherwise not functioning properly it is repaired or adjusted or re- calibrated or replaced by Project Proponent in consultation with GETCO. Cross Checking: The quantity of net electricity supplied to the grid is cross-checked with records for sold electricity invoices raised by the project participant to the grid.																																																								
Frequency of monitoring/recording	Continuously measured with Monthly recording																																																								
Value monitored	46,583 MWh/yr																																																								
Monitoring equipment	3 Main Meter and 3 Check Meter at 3 Transformer Equipment: Electronic trivector meters Accuracy Class: 0.2S. The details of calibration meters during the current monitoring period are as follows: Main Meters: <table><tr><td>Type of Meter</td><td>Main Meter -1</td><td>Main Meter -2</td><td>Main Meter -3</td></tr><tr><td>Location</td><td>Transformer-1</td><td>Transformer-2</td><td>Transformer-3</td></tr><tr><td>Serial No.</td><td>GJ-1819-A</td><td>GJ-1820-A</td><td>GJ-1818-A</td></tr><tr><td>Accuracy class</td><td>0.2s</td><td>0.2s</td><td>0.2s</td></tr><tr><td>Make of meter</td><td>Wallaby</td><td>Wallaby</td><td>Wallaby</td></tr><tr><td>Last Calibration Date</td><td>26/09/2019</td><td>25/09/2019</td><td>25/09/2019</td></tr><tr><td>Valid till date</td><td>25/09/2022</td><td>24/09/2022</td><td>24/09/2022</td></tr></table> Check Meters: <table><tr><td>Type of Meter</td><td>Check Meter -1</td><td>Check Meter -2</td><td>Check Meter -3</td></tr><tr><td>Transformer</td><td>Transformer-1</td><td>Transformer-2</td><td>Transformer-3</td></tr><tr><td>Serial No.</td><td>HT01131053</td><td>HT01131051</td><td>HT01131052</td></tr><tr><td>Accuracy class</td><td>0.2s</td><td>0.2s</td><td>0.2s</td></tr><tr><td>Make of meter</td><td>Wallaby</td><td>Wallaby</td><td>Wallaby</td></tr><tr><td>Last Calibration Date</td><td>26/09/2019</td><td>26/09/2019</td><td>25/09/2019</td></tr><tr><td>Validity till</td><td>25/09/2022</td><td>25/09/2022</td><td>24/09/2022</td></tr></table> No meters have been changed during the monitoring period. However, the new main meters were replaced on 20-November -2024, which is beyond our monitoring period. The new meter serial no. and the calibration details for the meters covering the whole monitoring period have been provided in Appendix 2 of this report.	Type of Meter	Main Meter -1	Main Meter -2	Main Meter -3	Location	Transformer-1	Transformer-2	Transformer-3	Serial No.	GJ-1819-A	GJ-1820-A	GJ-1818-A	Accuracy class	0.2s	0.2s	0.2s	Make of meter	Wallaby	Wallaby	Wallaby	Last Calibration Date	26/09/2019	25/09/2019	25/09/2019	Valid till date	25/09/2022	24/09/2022	24/09/2022	Type of Meter	Check Meter -1	Check Meter -2	Check Meter -3	Transformer	Transformer-1	Transformer-2	Transformer-3	Serial No.	HT01131053	HT01131051	HT01131052	Accuracy class	0.2s	0.2s	0.2s	Make of meter	Wallaby	Wallaby	Wallaby	Last Calibration Date	26/09/2019	26/09/2019	25/09/2019	Validity till	25/09/2022	25/09/2022	24/09/2022
Type of Meter	Main Meter -1	Main Meter -2	Main Meter -3																																																						
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Valid till date	25/09/2022	24/09/2022	24/09/2022																																																						
Type of Meter	Check Meter -1	Check Meter -2	Check Meter -3																																																						
Transformer	Transformer-1	Transformer-2	Transformer-3																																																						
Serial No.	HT01131053	HT01131051	HT01131052																																																						
Accuracy class	0.2s	0.2s	0.2s																																																						
Make of meter	Wallaby	Wallaby	Wallaby																																																						
Last Calibration Date	26/09/2019	26/09/2019	25/09/2019																																																						
Validity till	25/09/2022	25/09/2022	24/09/2022																																																						
QA/QC procedures to be applied	This data is directly used for calculation of emission reductions. Measurement results of electricity supplied to the grid and that delivered from the grid to the project is crosschecked with records for sold electricity. The meter(s) are calibrated once in three Years in accordance with national standards and procedures.																																																								

Purpose of the data	To calculate the baseline emission.
Calculation method	NA
Comments	The data is archived for crediting period + 2 years.

4.3 Monitoring Plan

Monitoring of emission reductions is carried out as per the baseline and monitoring methodology for the project activity i.e. ACM0002 version 12.3.0 which requires monitoring of the following:

Quantity of net electricity supplied to the grid from project activity:

The project proponent selected ex-ante determination of the baseline hence the monitoring of operating margin emission factor and build margin emission factor is not required. Further, solar energy-based electricity generation is not associated with any kind of leakages. Hence, the sole parameter for monitoring is the electricity generated by the project activity and supplied to the grid.

Monitoring Plan:

The metering arrangement is done as per Power Purchase Agreement (PPA) signed by the project proponent. For energy accounting, the project proponent shall provide ABT complaint meters at the interface points. Interface metering shall confirm to the Central Electricity Authority (installation and Operation Meters) Regulation 2006.

Metering Equipment:

Main meter and backup meter:

Measurement Procedure:

GETCO and the project proponent shall jointly read the metering system every month at the delivery point. In the event that the main metering system is not in service as a result of maintenance, repairs or testing, then the backup metering system is used during the period the main metering system is not in service and the provisions above shall apply to the backup metering system.

Meter reading taken jointly at the appointed date and time is signed by the representatives of GUVNL, GETCO and the project proponent. If project proponent's representative is not present, then the GETCO shall provide the project proponent with the signed copy of the meter reading of the main metering system or the backup metering system. Such meter reading is treated as the accurate and final measurement, unless proved otherwise, of the energy provided to the GUVNL, by the project proponent of the preceding month for the purpose of payment.

Sealing and Maintenance of Meters:

The main metering system and the backup metering system are sealed in the presence of representatives of the project proponent and GETCO. When the main metering system and/or backup metering system and/or any component thereof is found to be outside the acceptable limits

of accuracy or otherwise not functioning properly, it is repaired, re- calibrated or replaced by the project proponent and/or the GUVNL/GETCO at the project proponent's cost, as soon as possible.

Any meter seal(s) is broken only by the GETCO's representative in the presence of project proponent's representative whenever the main metering System or the Backup Metering System is to be inspected, tested, adjusted, repaired or replaced.

All the main and check meters are calibrated once in a period of three (3) years.

In case, both the main and check meters are found to be beyond permissible limit of error, both the meters is be calibrated immediately and the correction applicable to the main meter is applied to the energy registered by the main meter at the correct energy for the purpose of energy account/billing for the actual period during which inaccurate measurements were made, if such period can be determined or, if not readily determinable, is the shorter of:

1. The period since the immediately preceding test of the relevant Main Meter, or
2. One hundred and eighty (180) days immediately preceding the test at which the relevant Main meter was determined to be defective or inaccurate.

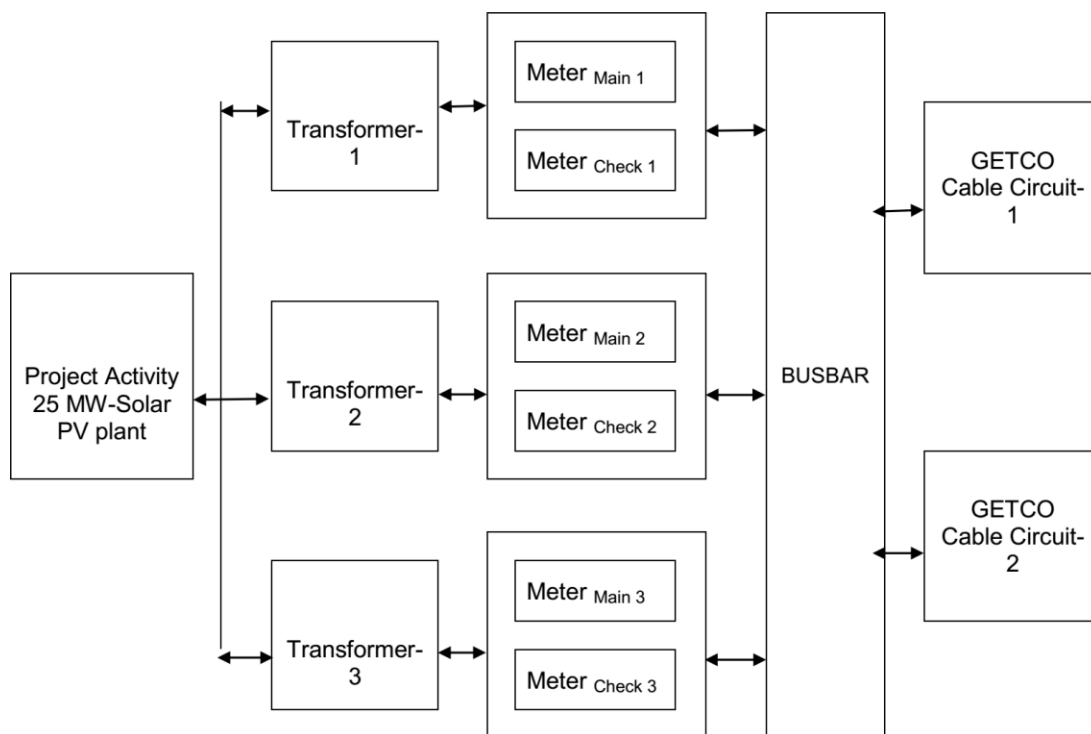
QA/QC Procedure:

1. Meters accuracy class: 0.2 s
2. Meters are calibrated once in a period of three years.
3. Net electricity generated by project activity is cross-checked with electricity invoiced.

Data Monitoring Procedures:

The metering system includes three main meters and three check meters (also known as Backup meters) at HT side of the transformers. (Three transformers exist). The Backup meters are used for cross checking.

The Line diagram of the Metering arrangements at the project activity (The BUSBAR is the connection point of Indian grid (NEWNE) at the project site) is shown below:



Total electricity generated by the project activity would be the sum of three-meter readings of the main meters having facilities to record both export and import of electricity to and from the grid. The net electricity exported from project to the grid is a calculated parameter and is determined from the difference between the electricity export and import. In case of failure of the main meters, check meter readings would be used. The meter readings (coded) are taken by GETCO monthly and are decoded at their end and send a statement of electricity generation to PP.

The project team is delegated with the responsibility to monitor and document the electricity generated and safe keeping of the recorded data. The project team is also responsible for calculation of emission reduction in the most transparent and relevant manner. All the monitoring data is stored/is recorded and kept in safe custody. The organizational structure for the monitoring plan for both the sites is shown below.

The monitoring plan for measurement of key parameters for emission reduction calculations and the responsible personnel is given below:

Position	Responsibility
Project in-charge (at corporate office, Bangalore)	• Reviewing the monthly and annual generation statistics. • Evaluating the GHG performance of the project activity. • Identify opportunities for further improvement.
Site In-charge	• Implementation of appropriate corrective measures in case any discrepancies are identified in the reported parameters. • Review of monthly reports. • Monitoring and reporting on the GHG performance related parameters following the guidance provided in the Project

	Design Document Ensuring calibration of the monitoring equipment's as and when required
O&M In-charge (outsourced)	- Preparation of the monthly and annual generation statistics. - Reporting of any discrepancies identified in the reporting parameters
Support Staff	Data input to O&M in-charge for report preparation

5 QUANTIFICATION OF GHG EMISSION REDUCTIONS AND REMOVALS

5.1 Baseline Emissions

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

$EF_{grid,CM,y}$: 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” (tCO₂/MWh) (i.e., 0.9486 tCO₂/MWh).

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

BE_y : Baseline emissions in year y (tCO_{2e})

As per meth eq 7, if the project activity is the installation of a new grid-connected renewable power plant/unit at a site where no renewable power plant was operated prior to the implementation of the project activity. Then, $EG_{PJ,y} = EG_{facility,y}$

Thus, Baseline emissions are calculated as follows.

Period	Total Generated Power (MWh/yr)	Baseline Emission Factor (tCO ₂ /MWh)	Total Baseline Emission Reduction (tCO ₂ / year)
01/11/2020 to 31/12/2020	5,964	0.9486	5,657
01/01/2021 to 31/12/2021	34,393	0.9486	32,625
01/01/2022 to 03/03/2022	6,227	0.9486	5,906
Total	46,583	0.9486	44,188

5.2 Project Emissions

The project activity involves in harnessing Solar power. So, the emissions from the project are zero.

5.3 Leakage Emissions

No leakage emissions have been considered and hence the leakage emission is zero

5.4 GHG Emission Reductions and Carbon Dioxide Removals

The net GHG emission reduction is calculated following the guidance of the methodology ACM0002, as follows:

$$ER_y = BE_y - PE_y$$

Where,

ER_y = Emission Reduction in tCO₂/year

BE_y = Baseline emission in tCO₂/year

PE_y = Project emissions in tCO₂/year

Vintage period	Baseline emissions (tCO ₂ e)	Project emissions (tCO ₂ e)	Leakage emissions (tCO ₂ e)	Reduction VCU's (tCO ₂ e)	Removal VCU's (tCO ₂ e)	Total VCUs (tCO ₂ e)
01-Nov-2020 to 31-Dec-2020	5,657	-	-	5,657	0	5,657
01-Jan-2021 to 31-Dec-2021	32,625	-	-	32,625	0	32,625
01-Jan-2022 to 03-March-2022	5,906	-	-	5,906	0	5,906
Total	44,188	-	-	44,188		44,188

The comparison of emission reductions achieved with estimates in the registered PD is presented in the table below.

Vintage period	Ex-ante estimated reductions/removals	Achieved reductions/removals	Percent difference	Explanation for the difference
----------------	---------------------------------------	------------------------------	--------------------	--------------------------------

01-Nov-2020 to 31-Dec-2020	5759	5,657	-1.78%	The actual ERs in this period is 1.78 % less than the estimated valued is due to lower electricity generation (i.e. lower Plant Load Factor (PLF) which is affected by the factors such as solar irradiation levels, module performance, and grid availability.
01-Jan-2021 to 31-Dec-2021	34,462	32,625	-5.33%	The actual ERs achieved in the Second monitoring period are - 5.33% less than the estimated value in the registered PDMR is due to lower electricity generation (i.e. lower Plant Load Factor (PLF) which is affected by the factors such as solar irradiation levels, module performance, and grid availability.
01-Jan-2022 to 03-March-2022	5854	5906	0.89%	There is no such difference in ERs from the estimated value in the registered PDMR is due to higher electricity generation (i.e. higher Plant Load Factor (PLF) which is affected by the factors such as solar irradiation levels, module performance, and grid availability.
Total	46,075	44,188	-4.10%	The actual ERs achieved in the third monitoring period is 4.10% less than the estimated value in the registered PDMR is due to lower electricity generation (i.e. lower Plant Load Factor (PLF) which is affected by the factors such as solar irradiation levels, module performance, and grid availability.

APPENDIX 1: COMMERCIALY SENSITIVE INFORMATION

There is not any commercially sensitive information that has been excluded from the monitoring report.

Section	Information	Justification
NA	NA	NA

APPENDIX 2: METER CALIBRATION DETAILS

Type Of Meter	Main Meter	Main Meter	Main Meter
New meter Sr.No.	GJ-1819-A	GJ-1820-A	GJ-1818-A
Meter Make	Wallaby	Wallaby	Wallaby
Model	Mk6E	Mk6E	Mk6E
Accuracy class	0.2s	0.2s	0.2s
Calibration frequency	3 years	3 years	3 years
Date of Testing	26-09-2019	25-09-2019	25-09-2019
Due date of calibration	25-09-2022	24-09-2022	24-09-2022
New meter Sr. No*	GJ-9308-A	GJ-9307-A	GJ-9306-A

Type Of Meter	Check Meter	Check Meter	Check Meter
New meter Sr.No.	HT01131053	HT01131051	HT01131052
Meter Make	Wallaby	Wallaby	Wallaby
Model	Mk6E	Mk6E	Mk6E
Accuracy class	0.2s	0.2s	0.2s
Calibration frequency	3 years	3 years	3 years
Date of Testing	26-09-2019	26-09-2019	25-09-2019
Valid till date	25-09-2022	25-09-2022	24-09-2022

*No meters have been changed during the monitoring period. However, the main meters were replaced on 20- November-2024 with new ABT meters which is beyond our monitoring period. The check meters remain unchanged.