



SOLAR PV POWER PROJECT BY PRAYATNA DEVELOPERS PVT. LTD. AT BHATINDA, PUNJAB

Document Prepared by Clean Max Enviro Energy Solutions Private Limited

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Project ID	1782
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Prepared by	Clean Max Enviro Energy Solutions Private Limited

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PROJECT DETAILS

1.1 Summary Description of the Implementation Status of the Project

The project activity involves installation of 50 MWAC (Project-I) & 50 MWAC (Project-II), totaling to 100 MWAC (corresponding to 125 MWp) solar power project in Punjab.

The project activity replaces the anthropogenic emissions of greenhouse gases (GHG's) by displacing approximately 177,281 MWh/year amount of electricity from the generation-mix of power plants connected to the Indian electricity grid, which is mainly dominated by thermal/fossil fuel-based power plant, estimated to be approximately 167,974 tCO_{2e} per year.

Total estimated GHG emission reductions for the chosen 10-year twice renewable crediting period will be around 1,679,733 tCO_{2e}. The monitoring period is from 03/04/2021 to 31/08/2024 (Inclusive of both the dates). The total GHG emission reductions or removals generated in this monitoring period are 546,721 tCO_{2e}.

Details of the installation of the project in respective states are as follows:

Project Name	Investors'	Commissioning Date	Capacity in MWAC/ MWp	Location (Village/State)
Prayatna Developers Private Limited (Project-I)		17-September-2016	50/56.168	Chughe Kalan, Bhatinda, Punjab
Prayatna Developers Private Limited (Project-II)		30-September-2016	50/56.168	Sardargarh, Bhatinda, Punjab

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

1.2 Audit History

The table below, includes the audit history of the project. The table includes all monitoring periods, including the period of this monitoring report:

Audit type	Period	Program	Validation/verification body name	Number of years
Validation/Verification	(17-September-2016 - 03-July-2018)	VCS	LGAI Technological Center, S.A. (Applus+ Certification)	1 year 9 months
Verification	(04-July-2018 - 03-January-2020)	VCS	Earthood Services Private Limited	1 year 6 months

Verification	(04-January-2020 – 02–April-2021)	VCS	4K Earth Science Private Limited	1 year 3 months
Verification	(03-April-2021 – 31–August-2024)	VCS	LGA Technological Center, S.A. (Applus+ Certification)	3 years 5 months

1.3 Sectoral Scope and Project Type

The project activity falls under the following Sectoral scope and Project Type:

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

1.4 Project Proponent

Organization name	Prayatna Developers Private Limited
Contact person	Mr. Debjit Bag
Title	Sr. Manager – Business Development
Address	5B, Sambhav Press Building, Judges Bungalow Road, Bodakdev, Ahmedabad, Gujarat, India.
Telephone	+91 95586 47725
Email	Debjit.Bag@adani.com

1.5 Other Entities Involved in the Project

Organization name	Clean Max Enviro Energy Solutions Private Limited
Role in the project	Project Consultant
Contact person	Mr. Sandip Saha
Title	Deputy General Manager
Address	No.1, 4th Floor, The International, 16 Maharshi Karve Road, Cross Road, New Marine Lines, Churchgate, Mumbai, Maharashtra 400020.
Telephone	+91 98337 75833
Email	Sandip.saha@cleanmax.com

1.6 Project Start Date

Project start date	17-September-2016
Justification	The project start date is the earliest commissioning date amongst projects which are part of this Project. It is also the date on which the first clean energy product disseminated under this project began generating GHG emission reductions.

1.7 Project Crediting Period

Crediting period	☐ Seven years, twice renewable ☐ Ten years, fixed ☒ Other – Ten years, twice renewable (As the project was commissioned in 2016, the project adhered to guidelines from the VCS-Standard-v3.7, statement 3.8.1)
Start and end date of first or fixed crediting period	17-September-2016 to 16-September-2026

1.8 Project Location

The proposed solar PV Plant site is located near Bhatinda, Punjab state of India. The site lies around the coordinates stated in the table below:

Project Name	Investors'	Commissioning Date	Location	Latitude	Longitude
Prayatna Developers Private Limited (Project-I)		17/09/2016	Chughe Kalan, Bhatinda, Punjab	30° 12' 50.05"N	74° 44' 37.60"E
Prayatna Developers Private Limited (Project-II)		30/09/2016	Sardargarh, Bhatinda, Punjab	30° 13' 0.66"N	74° 45' 37.01"E

1.9 Title and Reference of Methodology

Type (methodology, tool or module).	Reference ID, if applicable	Title	Version
Energy industries (renewable / non-renewable sources)	ACM0002	Grid-connected electricity generation from renewable sources	18.1
Tools	TOOL07, EB 100, Annex 04	Tool to calculate the emission factor for an electricity system	07.0
	TOOL01, EB 70, Annex 08	Tool for the demonstration and assessment of additionality	07.0

1.10 Double Counting and Participation under Other GHG Programs

1.10.1 No Double Issuance

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

☐ Yes ☒ No

1.10.2 Registration in Other GHG Programs

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

☐ Yes ☒ No¹

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 Project was submitted on CDM only for prior consideration on 25/08/2018. PP has not initiated any registration process after that. Hence project is not registered or seeking registration in any other GHG programs.

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

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 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 may promote business with improved power generation. Evidence of the project's SD contributions shall be provided as appendices to this report.

Economic well-being: The project is a clean technological investment in the region, which would not have taken place in the absence of the VCS benefits. The project will also help to reduce the supply demand gap in the state. The project activity will generate power using zero emissions solar 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 the 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, 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.

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	About 577,017 MWh, renewable electricity has been supplied to Indian grid during the reported period that helps to increase the renewable energy share in the energy mix.	About 1,381,862 MWh, renewable electricity has supplied to Indian grid till August 2024 that helps to increase the renewable energy share in the energy mix.
2)	8.8	The number of safety trainings provided	Implemented activities to increase	To ensure occupational health and safety 12 trainings have been conducted during this monitoring period as mentioned in appendix 2 alongside monthly safety committee meetings:	To ensure occupational health and safety, 28 trainings have been conducted till August 2024 from the date of commissioning
3)	13.0	Tonnes of greenhouse gas emissions avoided or removed.	Implemented activities increase. to	By supplying clean electricity to the Indian grid, the project avoided release of 546,721 tCO ₂ e into the atmosphere during this monitoring period.	Prevented the release of 1,309,001 tCO ₂ e of carbon into the atmosphere till August 2024.

1.13 Commercially Sensitive Information

No commercially sensitive information has been excluded from the public version of the monitoring report.

2 SAFEGUARDS AND STAKEHOLDER ENGAGEMENT

2.1 Stakeholder Engagement and Consultation

2.1.1 Stakeholder Identification

Stakeholder Identification	Stakeholders identified include local villagers, panchayat members, shopkeepers, suppliers, vendors, and representatives of the Project Proponent (PP). These stakeholders were engaged through public invitations, personal outreach, and meetings held at the project site. The involvement reflects the diverse interests and roles within the local community.
Legal or customary tenure/access rights	The project site is owned by the Project Proponent (PP), and there are no known conflicts or claims regarding land tenure or resource access. The project does not overlap with communal or customary resource zones, ensuring that local or indigenous rights are not impacted.
Stakeholder diversity and changes over time	Stakeholder groups reflect significant social and economic diversity, comprising rural households, small business owners, and local governance representatives (panchayat members). No substantial changes in the makeup of these groups have been observed since the project's inception. However, the project's benefits are expected to strengthen socio-economic stability over time.
Expected changes in well-being	Improvements in community well-being are anticipated due to enhanced energy access, job opportunities, and secondary economic activities related to the project. Additional benefits include reduced environmental pollution due to the clean energy generated by the Solar PV project. No adverse impacts on health, livelihood, or resources are reported.
Location of stakeholders	The stakeholders are in and around the Solar PV project in Bathinda, Punjab. They include communities living in nearby villages, businesses operating in the vicinity, and local administrative representatives. Proximity to the

	project site ensures direct interaction and engagement with the stakeholders, with many locals potentially involved in the construction and operation of the solar park, as well as benefiting from any infrastructural improvements resulting from the project.
Location of resources	The project utilizes solar energy resources, a natural resource. There is no impact on shared or customary resources used by the local communities, such as agricultural land, water sources, or forest areas. The project design ensures minimal disruption to existing land use patterns in the region, ensuring that local communities can continue their traditional activities, including farming and access to water resources, without significant interference.

2.1.2 Stakeholder Consultation and Ongoing Communication

Ongoing consultation	The Project Proponent (PP) established mechanisms for ongoing communication with stakeholders, including maintaining a grievance box and register at the project site. Stakeholders were informed about the grievance mechanism through public notices displayed at the project site and regular interactions with local community members.
Date(s) of stakeholder consultation	01-February-2016
Communication of monitored results	The monitoring results were shared with stakeholders through public notices and verbal updates during community meetings. Stakeholders were kept informed about the project's progress and performance, ensuring transparency and timely communication.
Consultation records	Records of the stakeholder consultation were documented through meeting minutes, attendance sheets, and notes on stakeholder feedback. Copies of the invitations sent, and public notices displayed at the project site were retained as evidence of communication efforts.
Stakeholder input	All input received during the consultation process was considered. No specific grievances or concerns were raised by stakeholders during the monitoring period. The project's design and operations required no updates or modifications, as the stakeholders expressed support for the project and noted no adverse impacts on their communities or resources.

2.1.3 Free, Prior, and Informed Consent

Consent	Since this is Solar power project developed by Prayatna Developers Private Limited (Independent power producer) Hence, no IPs, LCs, or customary rights holders were impacted, and no unresolved conflicts were identified. Hence Not applicable for this kind of project activities.
Outcome of FPIC	Project does not encroach on land, relocation of people or cause physical or economic displacement, ensuring compliance with ethical and legal standards.

2.1.4 Grievance Redress Procedure

PP has maintained a Grievance Register at site which is accessible to all. Anyone can reach out to this register and can lodge their grievances. After receiving the grievance, concerned team/department handles it and provide resolutions. Below are the Grievances that has been received and addressed successfully.

Date of Grievances registered	Grievances received	Resolution and outcome
27-June-2021	Local villagers requested to change the night lamp provided as it stopped working when the raining season started	The request was passed to the O&M team and new night lamps were installed.
10-July-2021	Local villagers requested to repair the farm water ditched which got damaged due to the moment of heavy vehicle	The request was taken into consideration, and the damaged ditch was repaired at the earliest convenience.
8-March-2022	Local villagers raised an issue that the solar security lights are not working in the locality.	The request was passed to the O&M team and new night lamps were installed.
14-May-2022	The villagers raised an issue where the cable was kept open lying in water course which led to concerns amongst the villagers.	The issue was taken up by the site head and the same was successfully resolved.

The above-mentioned grievance was raised by the local villagers during this monitoring period and was successfully resolved by the site team at the earliest convenience. All grievances (Photographs) have been detailed in Appendix 4.

2.1.5 Public Comments

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

2.2 Risks to Stakeholders and the Environment

2.2.1 Management Experience

As this project is part of one of the SPVs within the Adani Green Energy Limited portfolio, it is managed by a team with significant expertise in implementing renewable energy projects, ensuring effective execution and compliance with regulatory standards. The management team has a proven track record of successful project delivery, with a focus on stakeholder engagement and sustainable outcomes. Where specific expertise is required, the project proponent collaborates with experienced partners, such as EPC contractors and technology providers, and employs a recruitment strategy to address skill gaps. New entity (Adani Green Energy Limited) involved in the project bring additional technical and operational knowledge to support successful implementation and long-term sustainability.

2.2.2 Risk assessment

	Risk identified	Mitigation or preventative measure(s) taken
Natural and human-induced risks to stakeholders' wellbeing	No risk identified	This project is designed to harness renewable energy from the sun, thereby reducing reliance on fossil fuels and minimizing greenhouse gas emissions. The project is installed with safety protocols to ensure proper functioning and user protection. Overall, the transition to solar energy offers a sustainable and safe alternative to traditional energy sources, enhancing environmental and public health without introducing new risks.
Risks to stakeholder participation	No risk identified	Not Applicable, on the contrary the project will contribute to the social, economic, and environmental development of the stakeholders that are directly or indirectly impacted by the project.
Working conditions	No risk identified	Not Applicable, PP fosters an environment of mutual respect where employees and business partners can work together without fear of harassment, discrimination, or infringement on human rights. PP further confirms that the average wages / remunerations paid to the employees working with PP is at / above par with the industry standards and in compliance with the minimum wage rate prescribed by the state / local government regulations
Safety of women and girls	No risk identified	Not Applicable, the project does not involve any activities that compromise the safety of women and girls.
Safety of minority and marginalized groups, including children	No risk identified	Not Applicable, the project does not involve any activities that compromise the safety of minority and marginalized groups, (including children). On the contrary it leads to the Sustainable development of the community.
Pollutants (air, noise, discharges to water, generation of waste,	No risk identified	The project involves a strategic shift from conventional fossil fuel-based energy systems, that are known for producing pollution, to solar powered

and release of hazardous materials and chemical pesticides and fertilizers)		clean energy products. During its lifetime, clean energy products will not emit any pollutants. Instead, solar lighting systems and solar PV systems are designed to decrease GHG emission levels solely due to its ability to utilize renewable energy sources. All E-waste generated on site is collected and recycled.
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2.3 Respect for Human Rights and Equity

2.3.1 Labor and Work

	Risks identified ²	Mitigation or preventative measure(s) taken
Discrimination	No risk identified	Through its 'Human Rights & Diversity, Equity & Inclusion' and 'Prevention of Sexual Harassment' policies PP fosters an environment of mutual respect where employees and business partners can work together without fear of harassment, discrimination, or infringement on human rights. The project activity does not endorse any form of discrimination based on gender, sexual orientation, religion, race etc.
Sexual harassment	No risk identified	Through its 'Human Rights & Diversity, Equity & Inclusion' and 'Prevention of Sexual Harassment' policies PP fosters an environment of mutual respect where employees and business partners can work together without fear of harassment, discrimination, or infringement on human rights. The project activity does not endorse any form of discrimination based on gender, sexual orientation, religion, race etc.
Gender equity in labor and work	No risk identified	Through its 'Human Rights & Diversity, Equity & Inclusion' and 'Prevention of Sexual Harassment' policies PP does not discriminate based on gender and promotes equal work for equal pay. PP further confirms that the average wages / remunerations paid to the employees working with PP is at / above par with the industry standards and in compliance with the minimum wage rate prescribed by the state / local government regulations.
Forced labor	No risk identified	As per the 'Human Rights & Diversity, Equity & Inclusion' and 'Prevention of Sexual Harassment' policies the PP neither endorses nor is involved in the utilization of forced labor.
Child labor	No risk identified	As per 'Human Rights & Diversity, Equity & Inclusion' and 'Prevention of Sexual Harassment'

² 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.

		policies, the PP neither endorses nor is involved in child labor.
Human trafficking	No risk identified	As per 'Human Rights & Diversity, Equity & Inclusion' and 'Prevention of Sexual Harassment' policies, the PP neither endorses nor is involved in the exploitation of human trafficking victims.

2.3.2 Human Rights

Risks identified	Mitigation or preventative measure(s) taken
No risk identified	The project activity involves distribution of clean energy, 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), or customary rights holders.

2.3.3 Indigenous Peoples and Cultural Heritage

Risks identified	Mitigation(s) or preventative measure taken
No risk identified	The clean energy distributed does not interfere with any 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	The project involves distribution of clean energy, and it does not require acquisition of property. It is a completely voluntary activity. Hence No risk identified for property Rights.

2.3.5 Benefit Sharing

Summary of the benefit sharing plan	Not applicable, the project activity involves distribution of clean energy, and it does not require acquisition of property.
Benefit sharing during the monitoring period	Not applicable as the project activity does not require acquisition of property.

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 installation of the project poses no significant risks to biodiversity and ecosystems. These technologies are environmentally friendly, emitting no pollutants or greenhouse gases, hence they have no impact on natural habitats.

		All E-waste generated on site is collected and recycled.
Soil degradation and soil erosion	No risk identified	Since this is a solar power project and Project installations do not contribute to soil degradation or erosion.
Water consumption and stress	No risk identified	Clean energy does not affect overall water consumption. Rather solar energy systems significantly reduce water consumption compared to conventional power plants, which need substantial water for cooling and processing. Project systems generate energy using sunlight, conserving water resources. This is especially beneficial in water-scarce regions, supporting sustainable water management practices.

2.4.1 Rare, Threatened, and Endangered species

Species or habitat	Clean energy systems are typically open areas, and are not located in or adjacent to habitats for rare, threatened, or endangered species.
Areas needed for habitat connectivity	The clean energy systems are open areas, and are not located in the areas needed for habitat connectivity of rare, threatened, or endangered species.

	Risks identified	Mitigation or preventative measure(s) taken
Habitats for rare, threatened, and endangered species	No risk identified	Not applicable, clean energy systems are open areas, and are not located in, or adjacent to habitats for rare, threatened, or endangered species.
Areas for habitat connectivity	No risk identified	Not applicable, clean energy systems are open areas, and are not located in the areas needed for habitat connectivity of rare, threatened, or endangered species

2.4.2 Introduction of species

Not applicable, the project does not involve the introduction of any species.

2.4.3 Ecosystem conversion

	Risks identified	Mitigation or preventative measure(s) taken
Ecosystem conversion	No risk identified	Not applicable, the project is not an ARR, ALM, WRC or ACoGS project.

3 IMPLEMENTATION STATUS

3.1 Implementation Status of the Project Activity

Project Proponent:

Project proponent is still Prayatna developers private limited for this project which is a part (SPV) of AGEL.

Solar Power Project Technology Details

The technology employed converts solar energy to electrical energy. In solar power generation, solar energy is converted into electrical energy. Solar technology is an environmentally friendly technology since there are no GHG emissions associated with electricity generation. There is no transfer of technology involved in the project activity.

The solar PV power plant will have solar PV modules, inverters, transformers and other protection systems and supporting components as under:

Solar Panels/Modules:

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

For Project-I - 50 MW/56.168 MW (DC)

Total Modules	Module make	P (Wp)	Number	DC Capacity(kW)
Hanwha	Poly C-Si	315	117440	36.9936
Hanwha	Poly C-Si	320	54920	17.5744
Adani	Poly C-Si	320	2400	0.768
Adani	Poly C-Si	325	2560	0.832
Total				56.168

Inverters

Make	Hitachi
Model	NPi201
Rated Capacity	1250 KVA
No. of Inverters	36
Rated Input Voltage	350 V

Transformers

Make	ABB	Rechem
Capacity	50/60 MVA	5 MVA
No. of Transformers	1	9
Voltage Ratio	33/132 KV	350 KV/33 KV

For Project-II - 50 MW/56.168 MW (DC)

Total Modules	Module make	P (Wp)	Number	DC Capacity(kW)
Hanwha	Poly C-Si	315	117440	36.9936
Hanwha	Poly C-Si	320	54920	17.5744
Adani	Poly C-Si	320	2400	0.768
Adani	Poly C-Si	325	2560	0.832
Total				56.168

Inverters

Make	Hitachi
Model	NPi201
Rated Capacity	1250 KVA
No. of Inverters	36
Rated Input Voltage	350 V

Transformers

Make	ABB	Rechem
Capacity	50/60 MVA	5 MVA
No. of Transformers	1	9
Voltage Ratio	33/132 KV	350 KV/33 KV

Emission Reductions from anthropogenic sources:

The solar power generated from the Project will be displacing the electricity generated from thermal power stations feeding into Indian grid and will be replacing the usage of diesel generators for meeting the power demand during shortage periods. Since solar power is Green House Gas (GHG) emissions free, the power generated will prevent the anthropogenic GHG emissions generated by the fossil fuel based thermal power stations comprising coal, diesel, furnace oil and gas. The estimation of GHG reductions by this project is limited to carbon dioxide (CO₂) only.

The project shall result in replacing anthropogenic emissions of greenhouse gases (GHG's) estimated to be approximately 157,702 tCO₂e per year, thereon displacing 166,440 MWh/year amount of electricity from the Grid.

The project results in replacing 546,721 tCO₂e emissions of greenhouse gases (GHG's) during this monitoring period of 1247 days, thereon displacing 577,017 MWh. The project activity is in continue operation since commissioning of the project activity. There is no such event occurred during this monitoring period which may impact the GHG emission reductions or removals and monitoring.

3.2 Deviations

3.2.1 Methodology Deviations

Not Applicable

3.2.2 Project Description Deviations

There were two project deviations during previous monitoring period.

The total DC Capacity in approved PD is incorrectly added as 62.5 MWp, however it comes out to be 56.168 MWp; thus, Previous MR was revised with the correct sum of DC capacity.

The Geo-Coordinates assessed were not correct in registered Project Description; however as confirmed with the site person the same was revised in the relevant section of the previous MR.

These two deviations were related to typographical error in nature and do not impact in additionality and baseline. PD has considered the updated information in this MR, since previous MR is approved.

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 Indian grid connected power generation in year y calculated using the latest version of “Tool to calculate the emission factor for an electricity system”
Source of data	CO ₂ baseline database (Version 13.0) published by CEA in June -2018
Value applied	0.9475
Justification of choice of data or description of measurement methods and procedures applied	This value is calculated using OM and BM values according to Version 7.0 of methodological tool to calculate the emission factor for an electricity system and using database of CEA.
Purpose of data	For the calculation of Emission Factor of the grid
Comments	This parameter is fixed ex-ante for the entire crediting period.

Data / Parameter	EF _{grid, OM, y}
Data unit	t CO ₂ /MWh
Description	Operating margin CO ₂ emission factor for the project electricity system in year y
Source of data	CO ₂ baseline database (Version 13.0) published by CEA in June -2018
Value applied	0.9726
Justification of choice of data or description of measurement methods and procedures applied	This value is calculated by taking weighted average of Simple Operating Margin of recent three years for Indian grid as per the “Tool to calculate the emission factor for an electricity system”, version 07.0.0
Purpose of data	For the calculation of Emission Factor of the grid
Comments	This parameter is fixed ex-ante for the entire crediting period.

Data / Parameter	EF _{grid, BM, y}
Data unit	t CO ₂ /MWh
Description	Build margin CO ₂ emission factor for the project electricity system in year y
Source of data	CO ₂ baseline database (Version 13.0) published by CEA in June -2018
Value applied	0.8723
Justification of choice of data or description of	Calculated as per “Tool to calculate the emission factor for an electricity system, version 07” as per the latest data available for the most recent

measurement methods and procedures applied	year 2017-18. The data is obtained from “CO2 Baseline Database for Indian Power Sector” version 13, published by the Central Electricity Authority, Ministry of Power, Government of India.
Purpose of data	For the calculation of Emission Factor of the grid
Comments	This parameter is fixed ex-ante for the entire crediting period.

4.2 Data and Parameters Monitored

Data / Parameter	EG _{PJ, y}
Data unit	MWh
Description	Quantity of net electricity generation supplied by the project plant/unit to the grid in year y
Source of data	Monthly Credit Report/JMR
Description of measurement methods and procedures to be applied	Data Type: Measured Monitoring equipment: Energy Meters are used for monitoring Recording Frequency: Continuous monitoring and Monthly recording from Energy Meters, Summarized Annually Archiving Policy: Paper & Electronic Calibration frequency: 5 years Electricity exported/imported to the grid is in kWh. However, for the calculation purpose electricity exported is converted in MWh. The Net electricity supplied to the grid by the project activity will be calculated as a difference of electricity exported to the grid, electricity imported from the grid obtained from joint meter reading certificates/credit notes issued by Punjab State Power Corporation Limited as per below equation: $EG_{PJ, y} = EG_{Export} - EG_{Import}$ The calculation is done by Punjab State Power Corporation Limited, and the PP has no say in the calculation. Based on the joint meter reading certificates/credit notes, the project shall raise the invoice. The electricity exported to the grid by the project activity connected to the sub-station is measured by electronic trivector meters of accuracy class 0.2s. The electricity exported will be measured continuously using Main & Check meters. Export readings of Main, check meters shall be taken on monthly basis by authorized officer of Punjab State Power Corporation Limited in the presence of PP or representative of PP. Cross Checking: The quantity of net electricity supplied to the grid will be cross-checked from the invoices raised by the project proponent to the grid.
Frequency of monitoring/recording	Monthly

Value monitored	577,017																															
Monitoring equipment	The two parameters, import and export to the grid, are measured at the same location near the connection to the grid, through standard electricity metering instrument. The metering instruments will be installed at the grid-connected point to measure the amount of electricity going from and to the grid. The readings of electricity will be continuously measured by metering instrument itself and monthly recorded. Project I: <table> <tr> <td></td><td>Main Meter</td><td>Check Meter</td></tr> <tr> <td>Serial No.</td><td>14198457</td><td>15191796</td></tr> <tr> <td>Make</td><td>L&T</td><td>L&T</td></tr> <tr> <td>Class</td><td>0.2s</td><td>0.2s</td></tr> <tr> <td>Calibration and Due Date</td><td>Refer Appendix 3</td><td>Refer Appendix 3</td></tr> </table> Project II: <table> <tr> <td></td><td>Main Meter</td><td>Check Meter</td></tr> <tr> <td>Serial No.</td><td>15191786</td><td>15191794</td></tr> <tr> <td>Make</td><td>L&T</td><td>L&T</td></tr> <tr> <td>Class</td><td>0.2s</td><td>0.2s</td></tr> <tr> <td>Recent Calibration Dates</td><td>Refer Appendix 3</td><td>Refer Appendix 3</td></tr> </table>			Main Meter	Check Meter	Serial No.	14198457	15191796	Make	L&T	L&T	Class	0.2s	0.2s	Calibration and Due Date	Refer Appendix 3	Refer Appendix 3		Main Meter	Check Meter	Serial No.	15191786	15191794	Make	L&T	L&T	Class	0.2s	0.2s	Recent Calibration Dates	Refer Appendix 3	Refer Appendix 3
	Main Meter	Check Meter																														
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Serial No.	15191786	15191794																														
Make	L&T	L&T																														
Class	0.2s	0.2s																														
Recent Calibration Dates	Refer Appendix 3	Refer Appendix 3																														
QA/QC procedures to be applied	This data will be directly used for calculation of emission reductions. Measurement results of electricity supplied to the grid and that delivered from the grid to the project will be crosschecked with records for sold electricity. The meter(s) will be calibrated once in 5 years in accordance with national standards and procedures.																															
Purpose of the data	The Data/Parameter is required to calculate the baseline emission.																															
Calculation method	N/A																															
Comments	Data will be archived electronically for a period of 2 years beyond the end of crediting period.																															

4.3 Monitoring Plan

Aim of monitoring:

The monitoring methodology specified in the methodology requires that the project-monitoring plan consists of monitoring of quantity of net electricity supplied to the grid in the year y. To monitor the mitigation of GHG due to the project activity, the total energy exported needs to be measured. The net energy supplied to grid by the project activity multiplied by emission factor for regional grid, would form the baseline for the project activity.

Since the baseline emission factor is based on an ex-ante determination, monitoring of this parameter is not required. The sole parameter for monitoring is the net electricity exported to the grid.

Monitoring roles and responsibilities:

The operational and management structure implemented for data monitoring is as follows:

The monitoring plan is developed in accordance with the modalities and procedures for VCS project activities and is proposed for grid-connected solar power project being implemented in Punjab, India. The monitoring plan, which will be implemented by the project proponent, describes the monitoring organization, parameters to be monitored, monitoring practices, quality assurance, quality control procedures, data storage and archiving.

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

Responsibilities of O & M Head: Overall functioning and maintenance of the project activity and overall responsibility of compliance with the VCS Monitoring Plan.

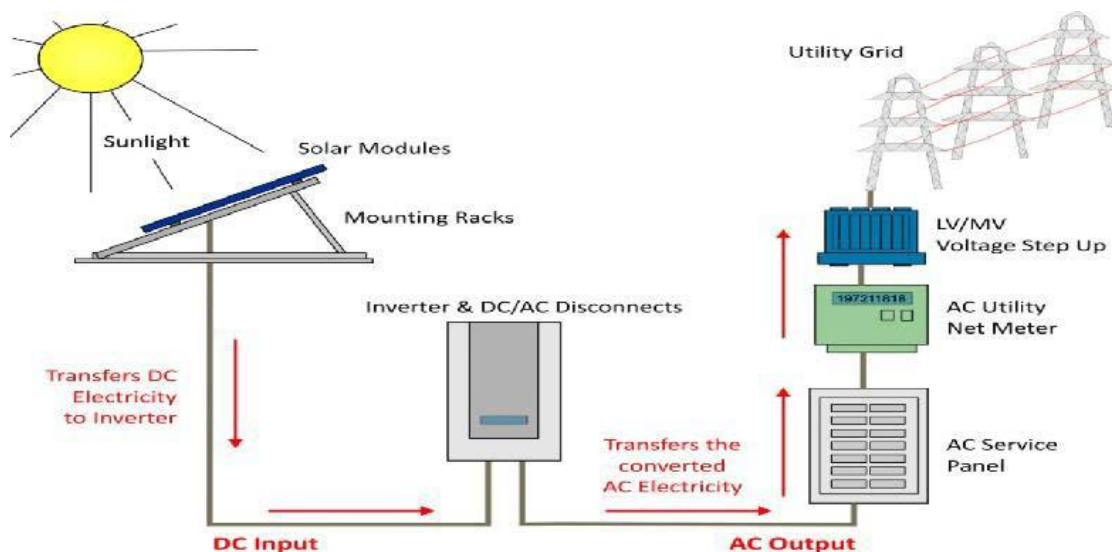
Responsibilities of Plant In-charge: Responsibility for Maintains the data records, ensures completeness of data, and reliability of data. Regularly verifying the monthly energy generation date with energy sales receipt or installed meters reading for identification of any discrepancies in data collection and taking suitable action to rectify them.

Responsibilities of Shift In-charge:

- Responsibility for day-to-day data collection and maintains day-to-day logbook for monitored data.
- Responsibility for monthly and annual report generation and quality assurance of the data/reports and preliminary check of data for any discrepancies.

QA/QC procedures: The energy meters at the feeders are maintained and owned by Punjab State Power Corporation Limited. Neither the project proponent nor the site personnel have any control over it. The records will be cross-checked with the records of sold electricity to Punjab State Power Corporation Limited. The meters are calibrated by Punjab State Power Corporation Limited at least once in five years.

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



Data Archiving:

Monthly data shall be archived electronically and in paper form and stored for the entire crediting period and two years thereafter.

Emergency preparedness:

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

If 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.

Training and maintenance requirements:

Training on the machine is an essential pre-requisite, to ensure necessary safety of man and machine. Further, to maximize the output from the solar plants, it is extremely essential that engineers and technicians understand the machines and keep them in good health. To ensure that the O&M team is deft at handling technical snags on top of the turbine, the necessity of ensuring that they can climb the tower with absolute ease and comfort has been established. Each and all site personnel are provided with proper training to meet the requirements of the operations and maintenance. This ultimately leads to creativity in problem solving.

Personnel training:

To ensure the proper functioning of the project activity and the proper monitoring of emission reductions, the staff (VCS team) will be trained. The plant helpers will be trained in equipment operation, data recording, reports writing, operation and maintenance and emergency procedures in compliance with the monitoring plan.

Data Adjustment in case of monitoring period different from billing period:

In case the dates of a particular monitoring period do not match with the dates of the billing period, the net electricity exported to the grid would be calculated as follows:

$$D = (A/B) * C$$

A = Difference of number of days which do not match billing period and monitoring period.

B = Number of days of the billing period/ month which was not matched with the monitoring period.

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

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

5 QUANTIFICATION OF GHG EMISSION REDUCTIONS AND REMOVALS

5.1 Baseline Emissions

As per description earlier under this document:

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

$EF_{grid,CM,y}$: 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” (tCO₂e/MWh) (i.e., 0.9475 tCO₂e/MWh).

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

BE_y : Baseline emissions in year y (tCO₂e/yr)

Here,

The monitoring period (03/04/2021 to 31/08/2024)

$$EF_{grid,CM,y} = 0.9475$$

$$EG_{PJ,y} = 577,017 \text{ MWh}$$

$$BE_y = 577,017 * 0.9475 = 546,721 \text{ tCO}_2\text{e (Rounded Down value)}$$

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

As per the applied methodology, emission reductions are calculated as follows:

$$ER_y = BE_y - PE_y$$

Where,

ER_y = Emission Reduction in tCO₂e/year

BE_y = Baseline emission in tCO₂e/year

PE_y = Project emissions in tCO₂e/year

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)
03-Apr-2021 to 31-Dec-2021	127,720.00	0	0	127,720.00	N/A	127,720.00
01-Jan-2022 to 31-Dec-2022	154,650.00	0	0	154,650.00	N/A	154,650.00
01-Jan-2023 to 31-Dec-2023	153,133.00	0	0	153,133.00	N/A	153,133.00
01-Jan-2024 to 31-Aug-2024	111,218.00	0	0	111,218.00	N/A	111,218.00
Total	546,721.00	0	0	546,721.00	N/A	546,721.00

Vintage period	Ex-ante estimated reductions/removals	Achieved reductions/removals	Percent difference	Explanation for the difference
03-Apr-2021 to 31-Dec-2021	117,952	127,720	8%	The generation of electricity depends upon the number of annual days of sunshine availability and many other climatic conditions, and not within the control of the project proponent. The minor increase in electricity generation during the current verification period is due to certain natural conditions.
01-Jan-2022 to 31-Dec-2022	157,702	154,650	-2%	
01-Jan-2023 to 31-Dec-2023	157,702	153,133	-3%	
01-Jan-2024 to 31-Aug-2024	105,422	111,218	5%	
Total	538,778	546,721	1%	

APPENDIX 1: COMMERCIALY SENSITIVE INFORMATION

Not applicable.

APPENDIX 2: TRAINING DETAILS

Training Details for this MP:

Training name	Date	No of attendees
Safety & SI awareness	Aug-24	8
Defensive driving training	Jul-24	12
Machine guarding safety awareness	Jun-24	8
Hot work assessment	May-24	9
Evaluation material handling	May-24	10
Animal bite training	Apr-24	5
Fire training	Apr-24	5
Electrical safety	Apr-24	8
Chemical safety training	Nov-23	7
Defensive training	Jul-23	10
Emergency response training	Aug-21	10
Fire safety training	Apr-21	13

Training attendance records are attached below as supporting documents to Table 1, SDG 8.

Attendance sheet for emergency response training conducted in August 2021

Attendance Sheet							
adani Renewables		Document No. IMS/OHS/F/30	Ver No 1.1	Date 18/11/23			
Course Title : Chemical Safety Training							
Training Module : Chemical Safety Training							
Program Duration (In days) : From: 2 hrs.							
Time : 14:00 From:							
Faculty Name : Anand Kumar Internal/External : Internal							
Organization : L&M P&L Refinery							
Venue : Conference Hall							
No. of Participant	Sr.	Name of Employee	Bussine ss Unit	Emp Code	Designatio n	Departme nt	Signature
1		Sandeep Janya	Renew	20060509	So. officer	ORH	[Signature]
2		Chakraborty Singh	"	200130700	Sub.	ORH	[Signature]
3		Tushar Kumar	Renew	20012269	Deputy	ORH	[Signature]
4		Mahender	Renew	20010073	Asst. eng.	ORH	[Signature]
5		Kulvinder Singh	"	20020202	Asst.	ORH	[Signature]
6		Sudhar	"	20015062	Asst.	ORH	[Signature]
7		Chakraborty	"	20010068	SLE	ORH	[Signature]
8							
9							
10							
11							
12							
Training Faculty Name			Anand Kumar		Training Faculty Sign		[Signature]
Training Co-ordinator Name					Training Co-ordinator Sign		[Signature]

Attendance sheet for chemical safety training conducted in November 2023

Attendance Sheet							
adani Renewables		Document No. IMS/OHS/F/30	Ver No 1.1	Date			
Course Title : Defensive Driving Training							
Training Module : Class Room							
Program Duration (In days) : From: 13:00 - 15:00 29/07/24							
Time : 13:00 - 15:00							
Faculty Name : Anand Kumar Internal/External : Internal							
Organization : PDPL BATHINDA							
Venue : Conference hall							
No. of Participant	Sr.	Name of Employee	Bussine ss Unit	Emp Code	Designation	Department	Signature
1		CHAKRABARTY SINGH	Renew	200130700	Sub. Engineer	ORH	[Signature]
2		VARENDER SINGH	"	20010062	Asst. Engg.	ORH	[Signature]
3		Sudhar Kumar	"	20015062	Sub.	ORH	[Signature]
4		Anand Kumar Singh	"	20010070	A.M.	"	[Signature]
5		Sudhar Singh	"	20010069	J.E.	"	[Signature]
6		Chakraborty Singh	"	20010068	J.E.	"	[Signature]
7		Suman Jaiswal	"	20010068	Supervisor	ORH	[Signature]
8		Harpal Singh	"	20010068	Technician	ORH	[Signature]
9		Ravi Singh	"	20010068	Sub.	ORH	[Signature]
10		Mahender	"	20010073	Asst. eng.	ORH	[Signature]
11		Anand Singh	"	20010068	Asst.	ORH	[Signature]
12		Amol	"	20010068	Asst.	ORH	[Signature]
Training Faculty Name			Anand Kumar		Training Faculty Sign		[Signature]
Training Co-ordinator Name			Suman Singh		Training Co-ordinator Sign		[Signature]

Attendance sheet for defensive driving training conducted in July 2024

APPENDIX 3: CALIBRATION DETAILS

Project I

Main Meter: 14198457		Check Meter: 15191796	
Calibration date	Due Date	Calibration date	Due Date
14-March-2019	13-March-2024	14-March-2019	13-March-2024
07-March-2022	06-March-2027	07-March-2022	06-March-2027
06-May-2023	05-May-2028	06-May-2023	05-May-2028

Project II

Main Meter: 15191786		Check Meter: 15191794	
Calibration date	Due Date	Calibration date	Due Date
14-March-2019	13-March-2024	14-March-2019	13-March-2024
07-March-2022	06-March-2027	07-March-2022	06-March-2027
06-May-2023	05-May-2028	06-May-2023	05-May-2028

APPENDIX 4: GRIEVANCE REDNESS REGISTER FOR THIS MP

					Month of June			
GRIEVANCE REPORT	REPORT DATE	GRIEVANCE DETAIL	Action	STATUS	Grievance Detail	Action	Status	
May 2	26-05-2021	Mr. Kewal Singh from Kanamgarh Shakti Sam. Coming to gate and claimed that Phase 1 Block 7 Area Covered with wild bushes. his Land is along the Boundary line wild Rats and Rigs hide behind these bushes which Damage crops at night.	Security Officer Mr. Kuldeep Singh take immediately Action and called to Grass Cutting workmen and Order Clean this Area first. within 8 day Phase 1 Block 7 Area Cleared.	Successfully Closed	3 June 2021	Dr. Pyara Singh from Kanamgarh Shakti Sam. Coming to the gate and told about lighting who provide key Compound in the Village. Force of Cost are faulty. after the Rain one clear Curdwanis and one clear Dr. Pyara Singh house. He informed the Security Person Balkar Singh and Balkar Singh informed to OBI Dept. for this issues.	Mr. Kuldeep Singh Passed this Request to OBI Staff. Tech. Rajinder Singh checked this issue and Repair Night Lamp. Battery Changing Level is low. So one time Camp is working for one hour. because his Battery not charging properly.	Pending ↓ Closed 08/07/21
		May 2021 Closed						

classmate Date _____ Page _____					classmate Date _____ Page 7			
DATED 07-09-2021								
GREIVANCE REPORT	DATE	GREIVANCE DETAIL	ACTION	STATUS	GREIVANCE REPORT	GREIVANCE DETAIL	ACTION	STATUS
	04/08/21 Wed.	Mr. Daggot Singh Numbered from Karamgarh Shetty coming to gate and Request for Cutting the Trees and Bushes on his lands. He said his Land was 1 Block 5 and Trees on fencing line down to his lands. Way, there is no way is totally blocked. He Request to clear all Area As Soon As Possible.	Security team passing this grievance to OSM team. And within 3 days this way is cleared.	Success fully Closed.	07-09-21 Tuesday	Mr. Bhupinder Singh coming to gate meet with Mr. Kuldip Singh (PSM) and claimed that his Domain goes to his farm inside the plant to his farm. The Domain damaged by heavy vehicle which worked in plant. OSM team promised to repair the Domain. but till now Domain is not repaired. He wanted if Domain is not repaired by OSM Company, He take legal action against the company.	Case Pending	0/0 Srd.
	31/08/21 Tue.	Mr. Vakil Singh from Chura Kalam, BTL. Reached the Main Gate for claimed the Trees on fencing line and Damage his Crops. He Request to Cut the all Trees. Mr. Kuldip Singh (PSM) Assuring them that this work would be Done Soon.	OSM team Hire Job for cutting all trees within 3 working days this Area cleared.	Success fully Closed.	12-09-21 Sunday	Mr. Sewak Singh Pandhagat Member of Sandargarh. from Chura Ka Tibha Road coming to gate and discuss his Peoples Problem with Chamkaur Singh that the vine on the his is over growth that way is totally covered. there for the People could not Mutual quarrels. he Request to Cut the this vine properly.	His Cutting work Complete	Success fully Closed. 15-9-21
classmate Date _____ Page _____								

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classmate Date _____ Page _____				classmate Date _____ Page 15			
Date	Complaints Received	Action Taken	Status	Date	Complaints Received	Action Taken	Status
10/12/2013	Request by farmer Ranjit Singh Wild - Salsagooch Heavy tree in plant area near fencing area. PH-1, PH-5, 6 Please solve this issue. Request for Plant Head. Mr. Manoj Kumar. rnfz Pte.	Area and tree cutting work fencing area work in progress. Two more cut all clear suff.	in progress closed	17/12/14	Request from farmer vill. Salsagooch Tree and heavy grass cutting in plant area. PH-1, 5, 6 Request to Plant Head Mr. Manoj Kumar.	Area & Tree cutting near fencing area work in progress suff.	work in progress closed
				09/12/14	Request from Mr. Gharu Singh farmer land near Phat's Bui a heavy change of wheat many numbers of rat	Problem solved has been done suff.	work has completed suff. closed
				03/12/14	Mr. Jagtar Singh Give number of Subst a report that a thief car has been happened at Phat's Bui. 9 of cattle. Solve please to their field	Update Sir Head 112 Engineer staff work in progress suff.	work in progress closed