



**Verified Carbon
Standard**

RENEWABLE ENERGY PROJECT BY LNB GROUP



**INFINITE
SOLUTIONS**

Project title	Renewable Energy Project by LNB Group
Project ID	VCS 1418
Monitoring period	31-March-2023 to 30-September-2024 (Inclusive of both days)
Crediting period	31-March-2023 till 30-March-2033 (inclusive of both the dates)
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1 PROJECT DETAILS

1.1 Summary Description of the Project

The project activity involves the installation of Wind and Solar Power Projects. The total installed capacity of the project is 27.20 MW_{AC}; which involves operation of 18 Wind Turbine Generators (WTGs) with total capacity of 22.20 MW & 1 Solar power plant with total capacity of 5.00 MW located at different states of Rajasthan and Maharashtra in India. The project is already commissioned, and is replacing anthropogenic emissions of greenhouse gases. Over the 10 years of the 2nd crediting period the project will also replace anthropogenic emissions of greenhouse gases (GHG's) estimated to be approximately 29,669 tCO_{2e} per year, thereon displacing 34,451.41 MWh/year amount of electricity from the generation-mix of power plants connected to the INDIAN Grid, which is mainly dominated by thermal/fossil fuel-based power plant.

The purpose of the project activity is to generate energy electricity by the utilization of wind velocity/solar power and further selling the generated energy to the respective Grid. In this process there is no consumption of any fossil fuel and hence it does not lead to any greenhouse gas emissions. Thus, electricity would be generated through sustainable means without causing any negative impact on the environment.

Scenario existing prior to the implementation of project activity:

In the Pre- project scenario, the entire electricity, delivered to the grid by the project activity, would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources, as reflected in the Combined Margin (CM) calculations described in the "Tool to calculate the emission factor for an electricity system".

The project is promoted by individual sub project investors, the details of which are as follows:

Wind Project proponent	Capacity (MW)	Technology	Purpose	Regional Grid	State
Manifold Agricrops Pvt. Ltd.	5 x 2.00	Wind	Sale to EB	INDIAN Grid	Rajasthan
Parmarth Wind Energy Pvt. Ltd.	12 x 0.85				Maharashtra
Sidhidata Power LLP	1 x 2.00				Maharashtra
Total capacity of Wind projects	22.20 MW				

Solar Project proponent	Capacity (MW)	Technology	Purpose	Regional Grid	State
Sidhidata Solar Urja Ltd.	5.00	Solar	Sale to EB	INDIAN Grid	Rajasthan
Total capacity of the Solar Project	5.00 MW				

Thus, the total capacity of the project activity is 27.20 MW.

A comprehensive list of the of the commissioning of the WTGs and the SPV has been provided in the table below and the plant is in operational condition.

Wind proponent	Project	Capacity (MW)	Machine ID	Commissioning Date
Manifold Pvt.Ltd.	Agricrops	2.00	DAN-T-12	31-March-2013
		2.00	DAN-T-59	31-March-2013
		2.00	DAN-T-60	31-March-2013
		2.00	DAN-T-61	31-March-2013
		2.00	DAN-T-88	31-March-2013
Parmarth Energy Pvt. Ltd.	Wind	0.85	GAL-03	29-March-2014
		0.85	GAL-06	29-March-2014
		0.85	GAL-07	29-March-2014
		0.85	GAL-08	29-March-2014
		0.85	GAL-09	29-March-2014
		0.85	GAL-10	29-March-2014
		0.85	GAL-18	29-March-2014
		0.85	GAL-22	29-March-2014
		0.85	GAL-23	29-March-2014
		0.85	GAL-24	29-March-2014
		0.85	GAL-26	29-March-2014
		0.85	GAL-33	29-March-2014
Sidhidata Power LLP		2.00	MVT-83	31-March-2014
Total Capacity of Wind Projects		22.20 MW		

Solar proponent	Project	Capacity (MW)	Machine ID	Commissioning Date
Sidhidata Solar Urja Ltd.		5.00	-	11-August-2014

Total Capacity of Solar Project	5.00MW		
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Total emission reductions achieved in this monitoring period:

During the current monitoring period i.e., from 31-March-2023 to 30-September-2024 (inclusive of both days), the project activity supplied 52,011.36 MWh of electricity that has contributed to 44,788 tCO₂e of GHG reductions.

1.2 Audit History

Audit type	Period	Program	Validation/verification body name	Number of years
Validation	31-March-2013 to 30-March-2023 (Inclusive of both days)	VCS	EPIC Sustainability Services Private Limited	10 years
Verification	31-March-2013 to 31-May-2015 (Inclusive of both days)	VCS	EPIC Sustainability Services Private Limited	02 Years, 02 Months, 00 Days
Verification	01-June-2015 to 30-November-2017 (Inclusive of both days)	VCS	Applus Certification	02 Years, 05 Months, 29 Days
Verification	01-December-2017 to 29-February-2020 (Inclusive of both days)	VCS	Applus Certification	02 Years, 02 Months, 28 Days
Verification	01-March-2020 to 31-December-2021 (Inclusive of both days)	VCS	Applus Certification	01 Years, 09 Months, 30 Days
Verification	01-January-2022 to 30-March-2023 (Inclusive of both days)	VCS	RINA Services S.p.A.	01 Year, 02 Months, 30 Days
Validation (Renewal)	31-March-2023 to 30-March-2033 (inclusive of both the dates)	VCS	VKU Certification Private Limited	10 Years

Verification	31-March-2023 to 30-September-2024 (Inclusive of both days)	VCS	VKU Certification Private Limited	01 Year, 06 Months, 01 day
Total	Crediting Period 01: 31-March-2013 to 30-March-2023 (inclusive of both the dates) Crediting Period 02: 31-March-2023 to 30-March-2033 (inclusive of both the dates) CP 02 Verification 01: 31-March-2023 to 30-September-2024 (Inclusive of both days)	VCS		11 Year, 06 Months and 01 day.

1.3 Sectoral Scope and Project Type

Sectoral scope ¹	01 – Energy industries (renewable/non-renewable sources)
Project activity type	I - Renewable Energy Projects

1.4 Project Eligibility

1.4.1 General eligibility

As per section 2.1.1 of VCS Standard (version 4.7)², the scope of the VCS Program includes:

1) The seven Kyoto Protocol greenhouse gases:

The project operated by LNB Renewable Energy Private Limited is designated to

2) Ozone-depleting substances:

Not Applicable

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

² <https://verra.org/wp-content/uploads/2024/04/VCS-Standard-v4.7-FINAL-4.15.24.pdf>

3) Project activities supported by a methodology approved under the VCS Program through the methodology approval process:

Not Applicable

4) Project activities supported by a methodology approved under an approved GHG program, unless explicitly excluded (see the Verra website for exclusions).

The applied methodology ACM0002 (Version 22.0) of the project is approved under CDM Program, which is a VCS approved GHG program.

5) Jurisdictional REDD+ programs and nested REDD+ projects as set out in the VCS Program Document Jurisdictional and Nested REDD+ (JNR) Requirements.

Not Applicable

1.4.2 AFOLU project eligibility

Not Applicable, as the project does not come under AFOLU category.

1.4.3 Transfer project eligibility

Not Applicable, as the project has not been transferred from any other registry.

1.5 Project Design

The project is not a grouped project and relevant check box is marked.

☐ Single location or installation

☒ Multiple locations or project activity instances (but not a grouped project)

☐ Grouped project

1.6 Project Proponent

Organization name	LNB Renewable Energy Private Limited
Contact person	Rohan Jhawar
Title	Director – Renewables
Address	L. N. Bangur Group of Companies, 3rd Floor, Uptown Banjara, Road No. 3, Banjara Hills, Hyderabad- 500034.
Telephone	+91-40-23553354

Email	rihawar@lnbgroup.com
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1.7 Other Entities Involved in the Project

Organization name	Infinite Environmental Solutions Limited
Role in the project	Project Consultant
Contact person	Mr. Jimmy Sah
Title	Chief Operating Officer
Address	Plot Number 128 FB, Ring Road, Sector F, Scheme Number 94, Indore-452016 (Madhya Pradesh), India
Telephone	+91-731-4050174
Email	jimmy@infisolutions.org

1.8 Ownership

The Project is owned by LNB Renewable Energy Private Limited, which is the project participant of the Project. The right to use the project is completely entrusted to the individual PPs, who are the sole owner of project activity which can be cross verified by following evidences:

- Power Purchase Agreement

1.9 Project Start Date

Project start date	31-March-2013
Justification	The project start date is the earliest commissioning date amongst all the individual projects which are part of this project activity which is 31-March-2013.

1.10 Project Crediting Period

Crediting period	☐ Seven years, twice renewable ☐ Ten years, fixed ☒ Other (state the selected crediting period and justify how it conforms with the VCS Program requirements)
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Start and end date of first or fixed crediting period	First Crediting Period:
	First Crediting Period Start Date: 31-March-2013
	First Crediting Period End Date: 30-March-2023
	The project activity adopts renewable crediting period of 10 years' period which can be renewed for maximum 2 times.
	Second Crediting Period:
	Second Crediting Period Start Date: 31-March-2023
	Second Crediting Period End Date: 30-March-2033
	Estimated lifetime of the project:
	20 Years, 00 Months, 00 Days - For Wind Projects
	25 Years, 00 Months, 00 Days - For Solar Projects

1.11 Project Scale and Estimated GHG Emission Reductions or Removals

The estimated annual GHG emission reductions/removals (ERRs) of the project:

- ☒ < 300,000 tCO₂e/year (project)
- ☐ ≥ 300,000 tCO₂e/year (large project)

Hence for the current project activity Estimated GHG emission reduction is less than the 300,000 tCO₂e, thus the current project activity falls under the Projects category.

The table below for the first (if renewable) or fixed crediting period:

Calendar year of crediting period	Estimated GHG emission reductions or removals (tCO ₂ e)
31-March-2023 to 31-December-2023	22,445
01-January-2024 to 31-December-2024	29,871
01-January-2025 to 31-December-2025	29,816
01-January-2026 to 31-December-2026	29,762
01-January-2027 to 31-December-2027	29,708
01-January-2028 to 31-December-2028	29,654
01-January-2029 to 31-December-2029	29,601
01-January-2030 to 31-December-2030	29,548
01-January-2031 to 31-December-2031	29,495

01-January-2032 to 31-December-2032	29,443
01-January-2033 to 30-March-2033	7,348
Total estimated ERRs during the first or fixed crediting period	296,691
Total number of years	10 years
Average annual ERRs	29,669

1.12 Description of the Project Activity

The project activity involves the installation of Wind and Solar Power Projects. The total installed capacity of the project is 27.20 MW; which involves operation of 18 Wind Turbine Generators (WTGs) with total capacity of 22.20 MW & 1 Solar power plants with total capacity of 5.00 MW located at different states; Rajasthan and Maharashtra in India. The project is promoted by individual sub project investors, the details of which are as follows:

Wind proponent	Project	Capacity (MW)	Technology	Purpose	Regional Grid	State
Manifold Agricrops Pvt. Ltd.		5 x 2.00	Wind	Sale to EB	INDIAN Grid	Rajasthan
Parmarth Wind Energy Pvt. Ltd.		12 x 0.85				Maharashtra
Sidhidata Power LLP		1 x 2.00				Maharashtra
Total capacity of Wind projects		22.20 MW				

Solar proponent	Project	Capacity (MW)	Technology	Purpose	Regional Grid	State
Sidhidata Solar Urja Ltd.		5.00	Solar	Sale to EB	INDIAN Grid	Rajasthan
Total capacity of the Solar Project		5.00 MW				

Hence, Total Capacity of Project is 27.20 MW.

The purpose of the project activity is to generate energy electricity by the utilization of wind velocity/solar power and further selling the generated energy to the respective Grid. In this process there would be no consumption of any fossil fuel, thereby any greenhouse gas emissions. Thus, electricity would be generated through sustainable means without causing any negative impact on the environment. The estimated annual average GHG emission reductions from the

project activity for 2nd crediting period will be 29,669 tonnes of CO₂e and total GHG emission reductions for the chosen 10- year crediting period will be 296,691 tonnes of CO₂e.

Wind Power Project Technology Details – The technology employed, converts wind energy to electrical energy. In wind power generation, energy of wind is converted into mechanical energy and subsequently into electrical energy. The technology is an environment friendly technology since there are no GHG emissions associated with the electricity generation. There is no transfer of technology involved in the project activity. The project activity comprises a total of 18 WTG"s of Inox Wind Limited & Gamesa India Limited. The commissioning of the project activity has been completed and details are mentioned in section 1.1.

Technical details for WT 2000 DF³, 2000 kW Machine

Particulars	Details
Model	INOX DF 93.3
Rated power	2000 kW
Cut-in wind speed	3 m/s
Cut-out wind speed	20 m/s
Rated wind speed	≤ 11.5 m/s
Survival wind speed	52.5 m/s
Hub height	80 m
Rotor speed	15.9 rpm
Diameter	93.3 m
Swept area	6,795 m ²
Design lifetime	20 years

Technical details for Gamesa G-58⁴, 850 kW Machine

Particulars	Details
Model	Gamesa G58 850kW
Rated power	850 kW
Cut-in wind speed	3 m/s
Cut-out wind speed	23 m/s
Rated wind speed	From 14.6 rpm to 30.8 rpm
Diameter	58m
Swept area	2642 m ²
Design lifetime	20 years

³ <https://www.inoxwind.com/products/>

⁴ <https://en.wind-turbine-models.com/turbines/762-gamesa-g58>

Solar Power Project Technology Details – The technology being employed, converts solar energy into electrical energy. The technology is an environment friendly technology since there are no GHG emissions associated with the electricity generation.

The PV project uses crystalline silicon based solar PV modules. Since the project activity is a Greenfield installation there was no electricity generation at the project site prior to its implementation. The whole installation have a 25 years of design life. Technical specifications of typical modules for the project activity is as follows:

Technical specifications for 5.00 MW Solar power plant:

1. Solar Panels: IBC PolySol 245 (Ecoline)⁵
 - a. No. of Panels installed of each type = 245 Wp – 22,440 Nos.
2. Inverters: M/s Sungrow Power Supply Co.Ltd.⁶
 - a. No. of Inverter Installed = SGKTL 30 KW - 156 Nos

1.13 Project Location

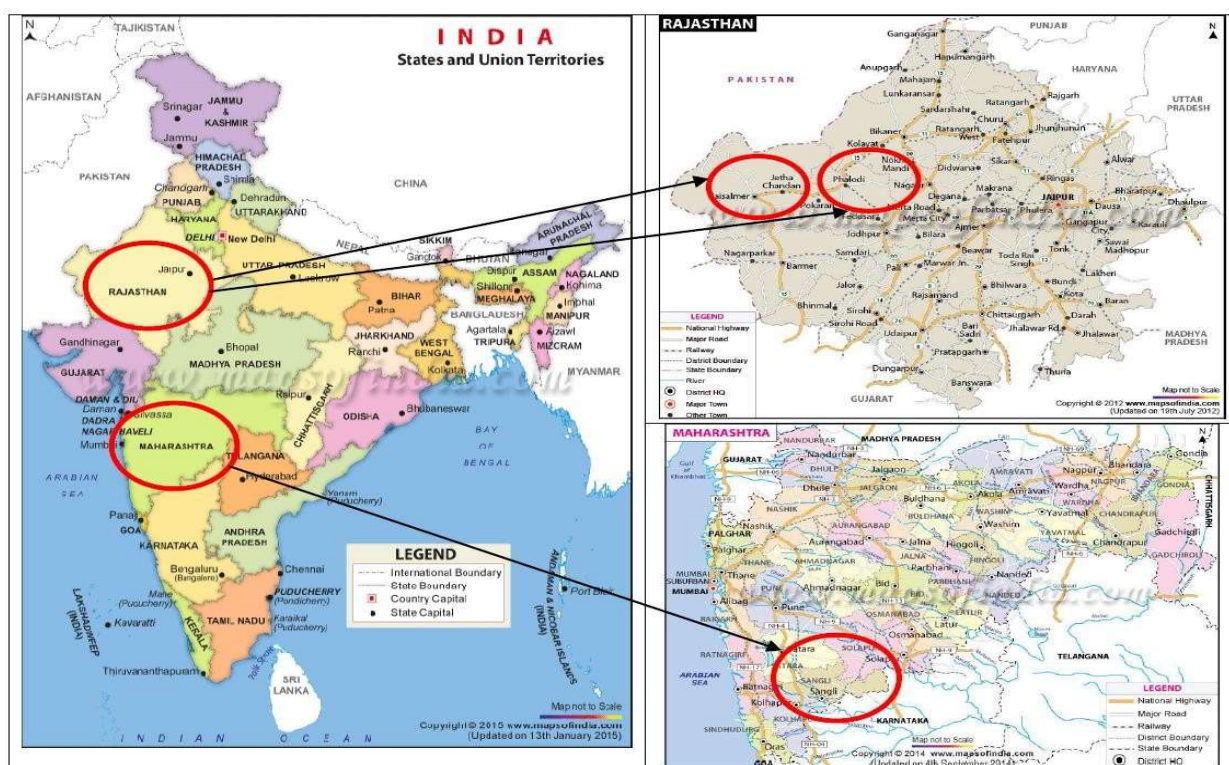
Project proponent	Capacity (MW)	Machine ID	Location	Latitude	Longitude
Manifold Agricrops Pvt.Ltd.	2.00	DAN-T-12	Malusar, Dangri Area,Jaisalmer, Rajasthan	26°33'38.2"	71°21'1.5"
	2.00	DAN-T-59		26°31'23.4"	71°25'55"
	2.00	DAN-T-60		26°31'6.8"	71°25'58.3"
	2.00	DAN-T-61		26°31'36.2"	71°25'44.3"
	2.00	DAN-T-88		26°31'17.6"	71°27'0.6"
Parmarth Wind Energy Pvt. Ltd.	0.85	GAL-03	Bhendawade, Shahuwadi, Kolhapur, Maharashtra	17°0'13"	73°55'16"
	0.85	GAL-06	Altur, Shahuwadi, Kolhapur, Maharashtra	16°59'59"	73°55'15"
	0.85	GAL-07		16°59'51"	73°55'19"
	0.85	GAL-08		16°59'45"	73°55'18"
	0.85	GAL-09		16°59'56"	73°54'59"
	0.85	GAL-10		16°59'50"	73°54'59"
	0.85	GAL-18		17°0'12"	73°55'36"
	0.85	GAL-22		17°0'7"	73°55'38"
	0.85	GAL-23		17°0'2"	73°55'45"
	0.85	GAL-24		16°58'53"	73°54'52"

⁵ <http://karl-meyer-energie.de/files/2013/06/Datenblatt-Solarmodule-poly-IBC-PolySol-240-DS.pdf>

⁶ https://reenergyhub.com/files/hersteller/Sungrow/pdf/Sungrow_SG30KTL-M_en.pdf

	0.85	GAL-26	Karungale, Shahuwadi, Kolhapur, Maharashtra	16° 58'48"	73° 54'49"
	0.85	GAL-33	Kotoli, Shahuwadi, Kolhapur, Maharashtra	16° 58'24"	73° 55'55"
Sidhidata Power LLP	2.00	MVT-83	Jath, Sangli, Maharashtra	17° 04'8.1"	75° 15'17.3"
Sidhidata Solar Urja Ltd.	5.00	-	Bhadla, Phalodi, Jodhpur, Rajasthan	27° 30'0"	71° 54'0"

The project locations have been shown in the maps below:



1.14 Conditions Prior to Project Initiation

The pre project scenario is same as baseline scenario. Please refer section 3.4 for the description of baseline scenario.

1.15 Compliance with Laws, Statutes and Other Regulatory Frameworks

The Project has received necessary approvals for development and commissioning for each Wind Project & Solar Project from the state Nodal agencies and is in compliance to the local laws and regulations.

1.16 Double Counting and Participation under Other GHG Programs

1.16.1 No Double Issuance

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

☐ Yes ☒ No

1.16.2 Registration in Other GHG Programs

Has the project registered under any other GHG programs?

☐ Yes ☒ No

Is the project active under the other program?

☐ Yes ☒ No

1.16.3 Projects Rejected by Other GHG Programs

Has the project been rejected by any other GHG programs?

☐ Yes ☒ No

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

1.17.1 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

1.17.2 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

1.17.3 Supply Chain (Scope 3) Emissions

Do the project activities specified in Section 1.12 affect the emissions footprint of any product(s) (goods or services) that are part of a supply chain?

☐ Yes

☒ No

1.18 Sustainable Development Contributions

1.18.1 Sustainable Development Contributions Activity Description

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

Economic well-being:

- The project activity generates employment in the local areas.
- The project activity leads to investment to a developing region which otherwise would not have happened in the absence of project activity. The generated electricity is fed into grid, thereby improving the grid frequency and availability of electricity which provides new opportunities for industries and economic activities for greater local employment and development. The project activity also leads to diversification of the national energy supply, which is dominated by conventional fuel based generating units.
- Use of renewable energy source (wind energy/solar power) also helps in conservation of natural resources (like coal) in the country & thus less GHG emissions in the atmosphere.
- The project contributes to the economic sustainability around the plant sites, which is promotion of decentralization of economic power.

Social well-being:

- The plant sites are isolated rural areas which are the victims of unemployment, poverty and other social backwardness. The project would lead to the development of these regions.
- The project enhances availability of power to the local industries, agriculture and commercial activities in the vicinity of the project area by augmenting power supply to the INDIAN Grid, thereby improving quality of power supplied to various users by stabilizing the grid.
- During civil works, a lot of construction work took place, which generated employment for local people around the plant site.
- Other than these, there are various kinds of mechanical work, which would generate employment opportunity on regular and permanent basis

- Frequency of visits by skilled, technical personnel and industrialists increases due to installation / site visit / operation and maintenance work related to WTGs and solar projects. This directly and indirectly positively effects the social behavior & economy of villages and nearby area.

Environmental well-being:

- The Wind/Solar power is one of the cleanest renewable energy powers and does not involve any fossil fuel. There are no GHG emissions.
- There is no impact on land, water, air and soil due to the installation of WTGs/solar projects. Thus, the project activity contributes to environmental well-being without causing any negative impact on the surrounding environment.

Technological well-being:

- The project activity is step forward in harnessing the untapped wind/solar potential and further diffusion of the technology in the region.
- The project activity leads to the promotion of WTGs and demonstrates the success of wind turbines in the region which further motivate more investors to invest in wind power projects. Similarly, the project helps in promoting more and more solar power projects. Hence, the project activity leads to technological well-being.

1.18.2 Sustainable Development Contributions Activity Monitoring

The solar and wind Project is located at different states; Rajasthan and Maharashtra in India. The main purpose of this project activity is to generate clean form of electricity through renewable solar and wind energy sources. The total installed capacity of the project is 27.20 MW; which involves operation of 18 Wind Turbine Generators (WTGs) with total capacity of 22.20 MW & 1 Solar power plants with total capacity of 5.00 MW.

The project is contributing in sustainable development by generating electricity and reduction of CO₂ emissions due to implementation of project activity and generates employment to the local stakeholders. Through Project activity economic development has been achieved in the project location by creating opportunities of employment during the project lifetime. Project proponent monitors the carbon emission with help of the record of electricity generated. Quantity of employment are monitored through employment record maintained at the site.

The project is solar and wind power project, it has generated 52,011.36 MWh electricity and avoided 44,788 tons of greenhouse gas emissions in the atmosphere during the current monitoring period. So, the project contributes to the sustainable development, and it is fulfilling SDG 07 and SDG 13. The project is promoting local economic development and improving the level of people's life by proving potential job opportunities to the residents and it has employed 20 number of people and in this it is fulfilling SDG 8.5.

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	During the current monitoring period the project has supplied 52,011.36 MWh of renewable electricity to INDIAN Grid. This contribution accounts for 0.002% of total electricity (energy) supplied to Indian grid.	This lifetime contribution represents 0.003% of total electricity (energy) supplied to Indian grid. A total of about 396,163.56 MWh (57,992+103,169+76,635+61,184+45,172.20+52,011.36) renewable electricity has supplied to INDIAN Grid by the project activity since start date of the project activity. By contributing renewable energy to the grid, the project has actively supported the transition towards cleaner energy systems. This aligns with SDG 7.2.1, which focuses on increasing the share of renewable energy in total final energy consumption, reflecting the project's ongoing role in promoting sustainability and reducing reliance on fossil fuels.
2)	8.5	Number of People Employed	Implemented activities to increase	20 number of people employed.	The project has Employed 20 number of employees.

3)	13.0	Tonnes of greenhouse gas emissions avoided or removed	Implemented activities to increase	By installation of 27.20 MW Solar and Wind Energy Power Plant, project has prevented the release of 44,788 tons of carbon into the atmosphere during the monitoring period	Prevented the release of 381,016 tons of carbon(56,658+100,794+74,871+59,776+44,129+44,788) into the atmosphere.
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1.19 Additional Information Relevant to the Project

Leakage Management

Not applicable since leakage emissions from the project activity is zero as per ACM0002 methodology.

Commercially Sensitive Information

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

Further Information

There are no information or incidents that is bearing on the eligibility of the project, the net GHG emission reductions or removals, or the quantification of the project's net GHG emission reductions or removals.

2 SAFEGUARDS AND STAKEHOLDER ENGAGEMENT

2.1 Stakeholder Engagement and Consultation

2.1.1 Stakeholder Identification

Stakeholder Identification

All the stakeholders have been invited through submission of the invitation letter and Public Notice to attend the stakeholders meeting during validation of the project activity. Following stakeholders have been identified for this project activity those who are likely to be impacted by this project are as follows:

1. Local community members
2. Local village administration
3. Technology suppliers
4. Local vendors
5. Employees

Legal or customary tenure/access rights	There is 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. Not Applicable
Stakeholder diversity and changes over time	Based on the continuous interactions and ongoing communication with the stakeholders it is identified that the social, economic, and cultural diversity within stakeholder groups remained stable over time and there are no significant changes in the composition of each group observed during the monitoring period.
Expected changes in well-being	Expected changes 1. Economic well-being – The project activity is likely to provide employments to the locality thus economic well beings are expected. 2. Environmental well-being – The project activity reduces the dependence on fossil fuels and conserves natural resources which are on the verge of depletion and thus preserve limited fossil fuel resources. Along with CO₂ reductions, the project activity also helps in avoiding significant amount of GHG emissions and specific pollutants like SO_x, NO_x, and SPM associated with the conventional thermal power generation facilities
Location of stakeholders	1. Jaisalmer, Rajasthan 2. Kolhapur, Maharashtra 3. Sangli, Maharashtra 4. Bhadhla, Jodhpur, Rajasthan
Location of resources	All the resources and the territories associated with the project did not result in rehabilitation and resettlement. There is no settlement on the land acquired. Therefore, no territories and resources of stakeholders directly intersect with the project area.

2.1.2 Stakeholder Consultation and Ongoing Communication

Date of stakeholder consultation	1. Manifold Agricrops Pvt. Ltd (Jaisalmer, Rajasthan): 25-February-2015 2. Parmarth Wind Energy Pvt. Ltd. (Kolhapur, Maharashtra): 26-February-2015 3. Sidhidata Power LLP (Sangli, Maharashtra): 27-February-2015 4. Sidhidata Solar Urja Ltd. (Bhadhla, Jodhpur, Rajasthan): 28- February-2015
Stakeholder engagement process	All the stakeholders were invited through submission of the invitation letter and Public Notice to attend the stakeholders meeting on 11-February-2015 and this invitation was posted in multiple locations in the regional language within the vicinity of all project instances.
Consultation outcome	Project representatives explained the project's associated benefits with respect to CO₂ emission reductions and explained the purpose of conducting the stakeholder meeting in order to gather the views and comments of the local stakeholders on the project activity and no negative comments were received during the local stakeholder meeting. The PP also placed a grievance register onsite in where the stakeholder can put down his/her complain and the same if found genuine is been addressed in a reasonable time period. Also, regular stakeholder engagement is one the key focus at the site. The local stakeholders' consultation was well attended, with a number of participants coming from the village's local bodies and local residents around the project area.
Ongoing communication	Stakeholder's consultation is a continuous process and hence a grievance register is kept in the communication room of the company gate where any stakeholder can come and share his/her feedback. The feedback received is taken care by PP with utmost priority. During current monitoring period, no negative comments from local or nearby stakeholders were received.
Stakeholder input	Stakeholder's 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 by PP with outmost priority. No negative comments were received from any of the stakeholders.
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2.1.3 Free Prior and Informed Consent

Obtaining consent	Consent from concerned parties, including local communities (LCs) was obtained through a transparent and inclusive process. This involved engaging in meaningful dialogue, providing relevant information in accessible formats, and addressing any concerns or questions raised. Agreements were reached through consensus-building and ensuring that all parties had the opportunity to express their views and negotiate terms. Transparency was maintained by documenting the process and agreements reached and ensuring that all stakeholders understood the implications of their consent.
Outcome of FPIC	The outcome of the Free, Prior, and Informed Consent (FPIC) process resulted in a transparent agreement between the project proponent and all concerned parties, including local communities (LCs) during validation of the project activity. Prior to establishing this agreement, comprehensive information regarding the project's scope, potential impacts and mitigation measures was disclosed to stakeholders in accessible formats and local languages during the LSC. The Plant land lease documents with complete agreement between both the parties is in place. PP hereby declares that the project has not encroached on any land, and does not relocate people, or forced physical or economic displacement. All activities have been conducted in accordance with the regulatory norms and terms outlined in the transparent agreement, ensuring the protection of rights and interests of all stakeholders involved.

2.1.4 Grievance Redress Procedure

Development process	Feedback register is kept at project site office where any stakeholder can come and register his/her feedback
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Grievance redress procedure	Stakeholder's feedback is monitored daily and any grievance if found, resolved immediately.
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Grievances received	Resolution and outcome
No negative grievances have been received in the current monitoring period	There were no negative grievances recorded during the current monitoring period. To resolve the issue/ comments PP is maintaining a Feedback register and it is kept at project site office for each instance where any stakeholder can come and register his/her feedback comments/ suggestions. Any comments/inputs/grievance received shall be processed in line with procedure and it is publicly accessible location at which local stakeholders can provide their feedback on the project.

2.1.5 Public Comments

Comments received	Actions taken
No comments received	Since there were no comments received during the current monitoring period, no actions were taken and there are no updates to project design. There were no other major comments or protests raised by the stakeholders till now. The local stakeholders were totally in support of setting up of the project in the region.

2.2 Risks to Stakeholders and the Environment

2.2.1 Management Experience

The management teams are well equipped with the extensive expertise and experience in implementing similar project activities and engaging communities effectively.

2.2.2 Risk Assessment

	Risks identified	Mitigation or preventative measure taken
Natural and human-induced risks to stakeholders' wellbeing	No risk identified	No risk is identified regarding natural and human induced risks to stakeholder wellbeing.

Risks to stakeholder participation	No risk identified	Input/Grievance Register is maintained at company gate and a transparent grievance mechanism is followed at all the site where any stakeholder can give their inputs/comments which is been further resolved.
Working conditions	No risk identified	LNB Renewable Energy Private Limited has initiated a customized training program for their engineers and plant operators. The above Program is started as part of the health and safety measures. Also, the PP is providing the good working conditions to work at site.
Safety of women and girls	No risk identified	No risk is identified to safety of women and girls due to project activity and has No Discrimination Policy and following it strictly.
Safety of minority and marginalized groups, including children	No risk identified	No risk is identified to safety of minority and marginalized groups, including children and is following Child Labor (Prohibition & Regulation) Act, 1986 prohibits employment of children.
Pollutants (air, noise, discharges to water, generation of waste, and release of hazardous materials and chemical pesticides and fertilizers)	No risk identified	No risk is identified to Pollutants (air, noise, discharges to water, generation of waste, release of hazardous materials). Currently the project is generating very less amount of hazardous waste at site and the e waste generated during the current monitoring period is been stored in a separate container at all PAls sites and it does not pose any threat to the environment.

2.3 Respect for Human Rights and Equity

2.3.1 Labor and Work

	Risks identified ⁷	Mitigation or preventative measure(s) taken
Discrimination	No risk identified	Discrimination based on gender is prohibited, and strict rules are in place to address sexual harassment.
Sexual harassment	No risk identified	The project proponent provides employee's equal pay for equal work. Also, PP do not involve and promote any discrimination about the gender differences.
Equal pay for equal work	No risk identified	The project proponent provides employee's equal pay for equal work.
Gender equity in labor and work	No risk identified	PP is committed to providing equal opportunities for all individuals, regardless of gender, by ensuring equitable pay and fair treatment in the workplace. This dedication to gender equity extends across all aspects of labor and work within the organization. However, the project activity is located in remote locations so women don't prefer to work.
Forced labor	No risk identified	PP strongly opposes and actively fights against forced labor in every aspect of its operations. The company is committed to maintaining ethical standards and ensuring that its supply chain and business practices are free from any form of exploitation.
Child labor	No risk identified	PP opposes and actively combats child labor in all aspects of its operations. The company is dedicated to upholding ethical standards and ensuring that its supply chain and business practices are free from any form of exploitation.
Human trafficking	No risk identified	PP is vehemently opposed to and actively combats human trafficking in all aspects of its operations. The company is dedicated to upholding ethical standards and ensuring that its supply chain and business practices are free from any form of exploitation.

⁷ The identified risks and commensurate mitigation or preventative measure(s) for forced labor, child labor, and human trafficking, must be inclusive of staff and contracted workers employed by third parties.

2.3.2 Human Rights

Risks identified	Mitigation or preventative measure(s) taken
No risks identified	No human rights are violated in the installation and operation of project activity. The project activity is following anti-discrimination practices and follow the Human rights moral principles and PP prepared Anti-discrimination Policy before implementation of the project activity. Facility employees are hired and contracted without discrimination based on gender, race, caste, national origin, religion, age, disability, marital status, sexual orientation, cooperative membership, or political affiliation.

2.3.3 Indigenous Peoples and Cultural Heritage

Risks identified	Mitigation(s) or preventative measure taken
No risks identified	PP is committed to protect regional as well as national cultural heritage and the project activity is not affecting the any regional or national cultural heritage.

2.3.4 Property Rights

Risks identified	Mitigation or preventative measure(s) taken
No risks identified	No risks identified in the current monitoring period. Regular consultations and grievance mechanisms are maintained to address any concerns promptly if any.

2.3.5 Benefit Sharing

Process used to design the benefit sharing plan	There is no benefit sharing in the project, all the environmental rights are exclusive to the PP. Therefore, this section is not applicable.
Summary of the benefit sharing plan	Not Applicable
Approval and dissemination of benefit sharing plan	Not Applicable

Benefit sharing during the monitoring period

Not Applicable

2.4 Ecosystem Health

	Risks identified	Mitigation or preventative measure(s) taken
Impacts on biodiversity and ecosystems	No risk identified	The O&M team maintains a Bird strike register. As per the record, there are no observed carcasses in vicinity of the WTGs. The death of birds by other reasons including prey and accidents has been observed however as this is not caused by the project activity and its ancillary; it is not recorded. The impact of parameter is neutral as there is no impact observed during the current monitoring period.
Soil degradation and soil erosion	No risk identified	Re-vegetation has been taken up as necessary after construction and the project proponent has planted number of trees wherever possible in the project's land, in order to reduce the risk of soil degradation and soil erosion. Also, the project activity is renewable project so there are no hazardous materials used at site and does not lead to release of any hazardous substances that pose threat to the environment i.e., soil degradation and soil erosion. In case if any hazardous waste is release than the waste is disposed to the waste handlers and the firm complies with all the local laws for monitoring and disposal.
Water consumption and stress	No risk identified	The water conservation measures during the current monitoring period includes consumption of minimal amount of water during the cleaning of panels and reduced frequency of module cleaning. Water stress is not experienced in the vicinity of the project activity.

2.4.1 Rare, Threatened, and Endangered species

Is the project located in or adjacent to habitats for rare, threatened, or endangered species?

☐ Yes ☒ No

	Risks identified	Mitigation or preventative measure(s) taken
Habitats for rare, threatened, and endangered species	No risk identified	The project is located in Rajasthan and Maharashtra and there are no rare, threatened or endangered species found during the current monitoring period. Hence not applicable.
Areas for habitat connectivity	No risk identified	The project has not adversely impacted areas needed for habitat connectivity during the monitoring period.

2.4.2 Introduction of species

The project activity is a renewable project hence the 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
Not applicable	Not applicable

	Risks identified	Mitigation or preventative measure(s) taken
Invasive species	No risks identified	Not applicable

2.4.3 Ecosystem conversion

Ecosystem conversion is justified by the transition to renewable energy sources, mitigating climate change, reducing reliance on fossil fuels, and fostering sustainable development for future generations. Hence no ecosystem conversion is applicable to the current monitoring period.

	Risks identified	Mitigation or preventative measure(s) taken
Ecosystem conversion	No risks identified	Not applicable

3 APPLICATION OF METHODOLOGY

3.1 Title and Reference of Methodology

Type (methodology, tool or module).	Reference ID, if applicable	Title	Version
Methodology	ACM0002	Grid-connected electricity generation from renewable sources	22.0 ⁸
Tool	Tool 01	Tool for the demonstration and assessment of additionality	07.0.0 ⁹
Tool	Tool 07	Tool to calculate the emission factor for an electricity system	07.0 ¹⁰
Tool	Tool 11	Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period	3.0.1 ¹¹

3.2 Applicability of Methodology

Methodology ID	Applicability condition	Justification of compliance
ACM0002	1) This methodology is applicable to grid connected renewable energy power generation project activities that: a) Install a Greenfield power plant; b) Involve a capacity addition to (an) existing plant(s); c) Involve a retrofit of (an) existing operating plants/units;	The project activity is installation of a new grid connected wind/solar power plant at a site where no renewable power plant was operated prior to the implementation of the project activity. Thus, it falls under applicability criteria option 1 (a) i.e., "Install a Greenfield power plant"

⁸ <https://cdm.unfccc.int/UserManagement/FileStorage/ROIJ1X9LQ7W2GOYHSMBFCPE3VKZ685>

⁹ <https://cdm.unfccc.int/methodologies/PAMethodologies/tools/am-tool-01-v7.0.0.pdf>

¹⁰ <https://cdm.unfccc.int/methodologies/PAMethodologies/tools/am-tool-07-v7.0.pdf>

¹¹ <https://cdm.unfccc.int/methodologies/PAMethodologies/tools/am-tool-11-v3.0.1.pdf>

	d) Involve a rehabilitation of (an) existing plant(s)/unit(s); or e) Involve a replacement of (an) existing plant(s)/unit(s). f) Install a Greenfield power plant together with a grid-connected Greenfield pumped storage power plant. The greenfield power plant may be directly connected to the PSP or connected to the PSP through the grid.	and hence this criterion is applicable.
	2) In case the project activity involves the integration of a BESS, the methodology is applicable to grid-connected renewable energy power generation project activities that: (a) Integrate BESS with a Greenfield power plant; (b) Integrate a BESS together with implementing a capacity addition to (an) existing solar photovoltaic or wind power plant(s)/unit(s); (c) Integrate a BESS to (an) existing solar photovoltaic or wind power plant(s)/unit(s) without implementing any other changes to the existing plant(s); (d) Integrate a BESS together with implementing a retrofit of (an) existing solar photovoltaic or wind power plant(s)/unit(s). (e) Integrate a BESS together with a Greenfield power plant that is operating in coordination with a PSP. The BESS is located at site of the greenfield renewable power plant.	The project activity does not have a battery energy storage system. Thus, this criterion is not applicable.
	3) The methodology is applicable under the following conditions: (a) Hydro power plant/unit with or without reservoir, wind power plant/unit, geothermal power plant/unit, solar power plant/unit, wave power	The project activity is not a Hydro power project, and it does not have BEES. Hence not applicable.

	plant/unit or tidal power plant/unit; (b) In the case of capacity additions, retrofits, rehabilitations or replacements (except for wind, solar, wave or tidal power capacity addition projects) the existing plant/unit started commercial operation prior to the start of a minimum historical reference period of five years, used for the calculation of baseline emissions and defined in the baseline emission section, and no capacity expansion, retrofit, or rehabilitation of the plant/unit has been undertaken between the start of this minimum historical reference period and the implementation of the project activity; (c) In case of Greenfield project activities applicable under paragraph 5 (a) above, the project participants shall demonstrate that the BESS was an integral part of the design of the renewable energy project activity (e.g., by referring to feasibility studies or investment decision documents); (d) The BESS should be charged with electricity generated from the associated renewable energy power plant(s). Only during exigencies may the BESS be charged with electricity from the grid or a fossil fuel electricity generator. In such cases, the corresponding GHG emissions shall be accounted for as project emissions following the requirements under section 5.4.4 below. The charging using the grid or using	
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	fossil fuel electricity generator should not amount to more than 2 per cent of the electricity generated by the project renewable energy plant during a monitoring period. During the time periods (e.g., week(s), months(s)) when the BESS consumes more than 2 per cent of the electricity for charging, the project participant shall not be entitled to issuance of the certified emission reductions for the concerned periods of the monitoring period. (e) In case the project activity involves PSP, the PSP shall utilize the electricity generated from the renewable energy power plant(s) that is operating in coordination with the PSP during pumping mode.	
	4) In case of hydro power plants, one of the following conditions shall apply: (a) The project activity is implemented in existing single or multiple reservoirs, with no change in the volume of any of the reservoirs; or (b) The project activity is implemented in existing single or multiple reservoirs, where the volume of the reservoir(s) is increased and the power density, calculated using equation (7), is greater than 4 W/m²; or (c) The project activity results in new single or multiple reservoirs and the power density, calculated using equation (7), is greater than 4 W/m²; or (d) The project activity is an integrated hydro power project involving multiple reservoirs, where the power density for any	The project activity is a grid connected wind/solar power project and not a hydro power plant. Therefore, these criteria are not relevant for the project activity.

	of the reservoirs, calculated using equation (7), is lower than or equal to 4 W/m², all of the following conditions shall apply: (i) The power density calculated using the total installed capacity of the integrated project, as per equation (8), is greater than 4 W/m²; (ii) Water flow between reservoirs is not used by any other hydropower unit which is not a part of the project activity; (iii) Installed capacity of the power plant(s) with power density lower than or equal to 4 W/m² shall be: a. Lower than or equal to 15 MW; and b. Less than 10 per cent of the total installed capacity of integrated hydro power project.	
	5) In the case of integrated hydro power projects, project participants shall: (a) Demonstrate that water flow from upstream power plants/units spill directly to the downstream reservoir and that collectively constitute to the generation capacity of the integrated hydro power project; or (b) Provide an analysis of the water balance covering the water fed to power units, with all possible combinations of reservoirs and without the construction of reservoirs. The purpose of water balance is to demonstrate the requirement of specific combination of reservoirs constructed under	The project activity is a grid connected wind/solar power project and not a hydro power plant. Therefore, these criteria are not relevant for the project activity.

	CDM project activity for the optimization of power output. This demonstration has to be carried out in the specific scenario of water availability in different seasons to optimize the water flow at the inlet of power units. Therefore, this water balance will take into account seasonal flows from river, tributaries (if any), and rainfall for minimum of five years prior to the implementation of the CDM project activity.	
	6) The methodology is not applicable to: (a) Project activities that involve switching from fossil fuels to renewable energy sources at the site of the project activity, since in this case the baseline may be the continued use of fossil fuels at the site; (b) Biomass fired power plants/units	a) The project activity is installation of a new grid connected wind/solar power project and does not involve switching from fossil fuel to renewable energy and hence this criterion is not relevant to the project activity. b) This is a wind/solar power plant and not a biomass fired plant and hence this criterion is not applicable to the project activity.
	7) In the case of PSP, the project participants shall demonstrate in the PDD that the project is not using water which would have been used to generate electricity in the baseline.	The project is not a hydro power project. Hence, this criterion is not applicable.
	8) In the case of retrofits, rehabilitations, replacements, or capacity additions, this methodology is only applicable if the most plausible baseline scenario, as a result of the identification of baseline scenario, is "the continuation of the current situation, that is to use the power generation equipment that was already in use prior to the implementation of the	The project activity is a new grid connected wind/solar power plant and not a retrofits, replacement or capacity additions and therefore this criterion is not applicable to the project activity

	project activity and undertaking business as usual maintenance”.	
Tool 01	1) The use of the “Tool for the demonstration and assessment of additionality” is not mandatory for project participants when proposing new methodologies. Project participants may propose alternative methods to demonstrate additionality for consideration by the Executive Board. They may also submit revisions to approved methodologies using the additionality tool.	The project is not proposing any new methodologies, hence the use of the “Tool for the demonstration and assessment of additionality” is mandatory. Refer to section 3.5 for details where additionality of the project activity is demonstrated using TOOL 1.
	2) Once the additionally tool is included in an approved methodology, its application by project participants using this methodology is mandatory.	This document is related to Renewable of crediting period hence the steps are not required in this document the Steps of this tool are applied in the section 2.5 of registered PDD please refer it.
Tool 07	1) This tool may be applied to estimate the OM, BM and/or CM when calculating baseline emissions for a project activity that substitutes grid electricity that is where a project activity supplies electricity to a grid or a project activity that results in savings of electricity that would have been provided by the grid (e.g., demand-side energy efficiency projects).	The project is a grid connected Greenfield wind/solar power project and thus the tool is applicable.
	2) Under this tool, the emission factor for the project electricity system can be calculated either for grid power plants only or, as an option, can include off-grid power plants. In the latter case, two sub-options under the step 2 of the tool are available to the project participants, i.e., option II a and option II b. If option II a is chosen, the conditions specified in “Appendix 1: Procedures related to off-	Steps involved in calculation of Emission Factor is included in PDD as per the requirement of the tool. This project uses ACM0002, which refers this tool, the project emissions refer to this tool. Emission factor has been sourced from CENTRAL ELECTRICITY AUTHORITY: CO₂ BASELINE

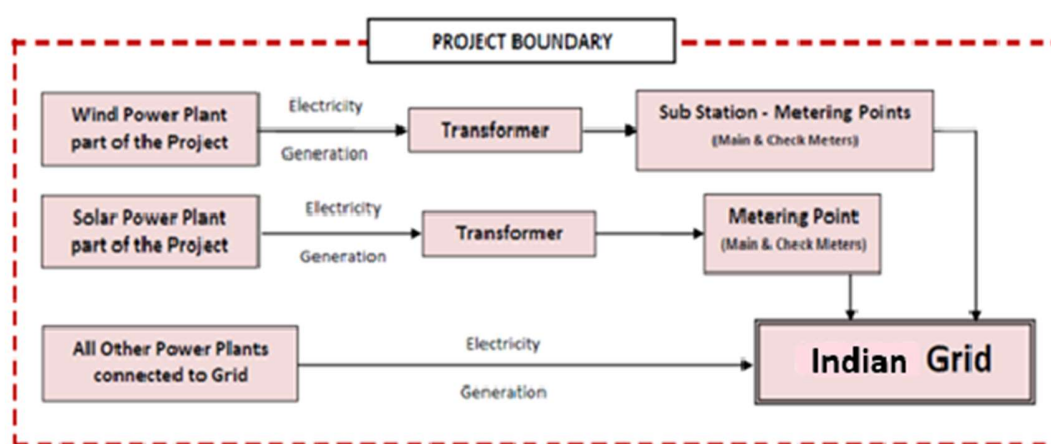
	grid power generation” should be met. Namely, the total capacity of off-grid power plants (in MW) should be at least 10 per cent of the total capacity of grid power plants in the electricity system; or the total electricity generation by off-grid power plants (in MWh) should be at least 10 per cent of the total electricity generation by grid power plants in the electricity system; and that factors which negatively affect the reliability and stability of the grid are primarily due to constraints in generation and not to other aspects such as transmission capacity.	DATABASE, VERSION 20.0 dated December-2024 ¹² .
	3)In case of CDM projects the tool is not applicable if the project electricity system is located partially or totally in an Annex I country.	Project is located in non-Annex I country and hence the tool is applicable
	4)Under this tool, the value applied to the CO ₂ emission factor of biofuels is zero.	The project is a Wind/solar project and there is no involvement of biofuels. Therefore, this criterion is not applicable.
Tool 11	1)This tool provides a stepwise procedure to assess the continued validity of the baseline and to update the baseline at the renewal of a crediting period, as required by paragraph 49 (a) of the modalities and procedures of the clean development mechanism.	The project activity adopts renewable crediting period of 10 years’ period which can be renewed for maximum 2 times and now performing renewable of crediting period for next 10 years (31-March-2023 to 30-March-2033).
	2)The tool consists of two steps. The first step provides an approach to evaluate whether the current baseline is still valid for the next crediting period. The second step provides an approach to update the baseline in case that the	The baseline scenario remains unchanged. Only the approach used to calculate the baseline emission factor is updated as per the latest version (Version 20.0 of

¹² https://cea.nic.in/wp-content/uploads/2021/03/User_Guide_Version_20.0.pdf

	current baseline is not valid anymore for the next crediting period.	CEA data base) ¹³ of database available at the time of PDD submission for renewal.
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3.3 Project Boundary

As per methodology ACM0002 version 22, the project boundary includes wind/solar PV power generation system and all other power plants connected physically to the local grid to which the project supplies renewable electricity to avoid GHG emissions. The project is located in INDIAN grids of the Indian Electricity system. The following diagram explains the project boundary for the proposed project activity.



Source		Gas	Included?	Justification/Explanation
Baseline	Grid-connected electricity generation	CO ₂	Yes	Major emission sources.
		CH ₄	No	Excluded for simplification. This is conservative
		N ₂ O	No	Excluded for simplification. This is conservative
Project	Greenfield Wind / Solar energy conversion system	CO ₂	No	The project activity does not emit any emissions.
		CH ₄	No	No methane generation is expected to be emitted.
		N ₂ O	No	No nitrous oxide generation is expected to be emitted.

¹³ https://cea.nic.in/wp-content/uploads/2021/03/User_Guide_Version_20.0.pdf

3.4 Baseline Scenario

As per tool 11 version 3.0.1 “Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period”

Step 1: Assess the validity of the current baseline for the next crediting period

Step 1.1: Assess compliance of the current baseline with relevant mandatory national and/or sectoral policies

⇒ As per tool 11 (Version 3.1) step 1.1 If the current baseline complies with all relevant mandatory national and/or sectoral policies which have come into effect after the submission of the project activity for validation or the submission of the previous request for renewal of the crediting period. The project is voluntary and the project is not claiming any carbon benefits in any other mechanism like REC and not a part of compliance with NDC target. There are no new relevant national and/or sectoral policies and/or circumstances in the electricity sector applicable to the Project Activity, in comparison to the time of the submission of the project activity for validation, which could impact the validity of the current baseline for the next crediting period. Therefore, the current baseline scenario does not need to be updated for this crediting period. Thus, the baseline scenario remains unchanged and is in compliance with all the relevant mandatory national and/or sectoral policies so we can go to Step 1.2.

Step 1.2: Assess the impact of circumstances

⇒ The baseline scenario identified at the validation of the project activity was the electricity delivered to the grid by the project activity would have otherwise been generated by the operation of grid connected power plants and by the addition of new generation sources into the grid. Thus, this project activity was a voluntary investment which intends to replace equivalent amount of electricity at grid from renewable source. PP was not bound to incur this investment; hence absence of project activity (i.e., the investment) does not lead to any continued baseline practice for PP within their scope whereas the continued operation of the project activity would continue to replace equivalent amount of electricity at grid. Hence, the same baseline as identified in the previous crediting period is still valid for the project. Therefore, the assessment of the changes in market characteristics is not required for the renewal of the project's crediting period.

Step 1.3: Assess whether the continuation of the use of current baseline equipment(s) or an investment is the most likely scenario for the crediting period for which renewal is requested.

⇒ As explained in step 1.2, the baseline scenario was the electricity import/generation from the power plants connected to the electricity grid. The project activity in green field project

and there is not any baseline equipment or investment involved in project activity. Therefore, this condition is not applicable to the project activity.

Step 1.4: Assessment of the validity of the data and parameters

⇒ This step stipulates that “Where emission factors, values or emission benchmarks are used and determined only once for the crediting period, they should be updated, except if the emission factors, values or emission benchmarks are based on the historical situation at the site of the project activity prior to the implementation of the project and cannot be updated because the historical situation does not exist anymore as a result of the CDM project activity.” In the context of the present project activity the emission factor has been updated along with the approach used to calculate the emission factor.

Step 2: Update the current baseline and data & parameters

⇒ As evident from the explanation provided above the baseline scenario remains unchanged. Only the approach used to calculate the baseline emission factor is updated as per the latest version (Version 20.0 of CEA data base)¹⁴ of database available at the time of PDMR submission for renewal. In line with the principles and requirements version 1.2, the impact of new relevant national and/or sectoral policies and circumstances on the baseline taking into account relevant EB guidance with regard to renewal of the crediting period at the time of requesting renewal of crediting period; and the correctness of the application of an approved baseline methodology for the determination of the continued validity of the baseline or its update, and the estimation of emission reductions for the applicable crediting period.

Methodological Reference:

As per para 24 of the approved consolidated Methodology ACM0002 (Version 22.0)

“If the project activity is the installation of a Greenfield power plant with or without a BEES, the baseline scenario is electricity delivered to the grid by the project activity would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources, as reflected in the combined margin (CM) calculations described in the “Tool to calculate the emission factor for an electricity system”.

Scenario existing prior to the implementation of project activity (Baseline scenario):

In the Pre- project scenario, the entire electricity, delivered to the grid by the project activity, would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources, as reflected in the Combined Margin (CM) calculations described in the “Tool to calculate the emission factor for an electricity system”.

¹⁴ https://cea.nic.in/wp-content/uploads/2021/03/User_Guide_Version_20.0.pdf

The project activity involved setting up of wind turbines for generating the power of wind to produce electricity and supply to the grid. In the absence of the project activity, the equivalent amount of power would have been supplied to the electricity grid by the operation of grid-connected power plants (mainly by fossil fuel fired plants) and by the addition of new generation sources, as reflected in the combined margin (CM) calculations.

Hence, the baseline for the project activity is the equivalent amount of power from the INDIAN grid.

The combined margin ($EF_{grid,CM,y}$) is the result of a weighted average of two emission factor pertaining to the electricity system: the operating margin (OM) and build margin (BM), in accordance with the Tool to calculate the emission factor for an electricity system - Version 7.0. Calculations for this combined margin must be based on data from an official source (where available) and made publicly available. In India, Central Electricity Authority (CEA), Government of India provides this data, and accordingly the same latest available data at the time of PDD submission to VVB has been used and considered for emission factor calculations.

The combined margin of the INDIAN grid used for the project activity is as follows:

Parameter	Value	Nomenclature	Source
$EF_{grid,CM,y}$	0.8612 tCO ₂ /MWh	Combined margin CO ₂ emission factor for the project electricity system in year y	Calculated as the weighted average of the operating margin (0.75) & build margin (0.25) values, sourced from Baseline CO ₂ Emission Database, Version 20.0, December 2024 published by Central Electricity Authority (CEA) ¹⁵ , Government of India
$EF_{grid,OM,y}$	0.9643 tCO ₂ /MWh	Operating margin CO ₂ emission factor for the project electricity system in year y	Calculated as the last 3-year (2021-22, 2022-23 and 2023-24) generation-weighted average, sourced from Baseline CO ₂ Emission Database, Version 20.0 ¹⁶ , December 2024 published by Central Electricity Authority (CEA), Government of India
$EF_{grid,BM,y}$	0.5522 tCO ₂ /MWh	Build margin CO ₂ emission factor for the project electricity system in year y	Baseline CO ₂ Emission Database, Version 20.0 ¹⁷ , December 2024 published by Central Electricity Authority (CEA), Government of India

The project replaces anthropogenic emissions of greenhouse gases (GHG's) estimated to be approximately 29,669 tCO₂e per year, thereon displacing 34,451.41 MWh/year amount of

¹⁵ https://cea.nic.in/wp-content/uploads/2021/03/User_Guide_Version_20.0.pdf

¹⁶ https://cea.nic.in/wp-content/uploads/2021/03/User_Guide_Version_20.0.pdf

¹⁷ https://cea.nic.in/wp-content/uploads/2021/03/User_Guide_Version_20.0.pdf

electricity from the generation-mix of power plants connected to the INDIAN Grid, which is mainly dominated by thermal/fossil fuel-based power plant.

3.5 Additionality

The project is seeking for renewal of crediting period and hence this section is not required. This project is already registered under VCS and hence this section can also be checked from registered PDD through below mentioned link.¹⁸

3.5.1 Regulatory Surplus

Is the project registered or seeking registration in an UNFCCC Annex 1 or Non-Annex 1 country?

☐ Annex 1 country

☒ Non-Annex 1 country

Are the project activities mandated by any law, statute, or other regulatory framework?

☐ Yes

☒ No

If the project is located inside a Non-Annex 1 country and the project activities are mandated by a law, statute, or other regulatory framework, are such laws, statutes, or regulatory frameworks systematically enforced?

☐ Yes

☒ No

The project is located in non-Annex 1 country. However, the project activities are mandated by a law, statute, or other regulatory framework. There are no enforced laws, statutes, regulations, court orders, environmental-mitigation agreements, permitting conditions or other legally-binding mandates requiring its implementation, or requiring the implementation of a similar technology/measure that would achieve equivalent levels of GHG emission reductions.

Below is the list if the key policies, national laws and regulations applicable to develop a wind and solar power project in India:

- Electricity Act 2003¹⁹: The act provides a framework for the overall growth of the electricity sector in India. It gives provisions for preferential tariff and quotas for opting for renewable energy. Mandatory procurement of renewable energy for distribution licensees and facilitation of grid connectivity were incorporated.
- National Electricity Policy 2005²⁰: The policy allows preferential tariffs for power produced from renewable energy sources. It aimed to provide access to electricity to all and increase the minimum per capita availability to 1000 kWh per year by 2012.

¹⁸ <https://registry.terra.org/app/projectDetail/VCS/1418>

¹⁹ <https://powermin.gov.in/en/content/electricity-act-2003>

²⁰ <https://powermin.gov.in/en/content/national-electricity-policy>

- Integrated Energy Policy, 2006²¹: This integrated policy recommended a particular focus on renewable energy development and set specific targets for capacity addition.
- Tariff Policy 2006²²: (As per the national tariff policy, the central and the state electricity regulatory commissions must purchase a certain percentage of grid-based power from renewable sources.)
- Renewable Energy Certificates (RECs), 2011²³: RECs are a market-based mechanism. It was introduced to enhance renewable energy capacity. It levels the inter-state divergences of renewable energy generation and the requirement of the obligated entities to meet their RPOs with a differentiated price for Wind and non-wind.
- The Factories Act 1948²⁴: All persons working under the Organizations.
- Environmental (Protection) Act, 1986 and amendment(s)²⁵: The Environment (Protection) Act, 1986 authorizes the central government to protect and improve environmental quality, control and reduce pollution from all sources, and prohibit or restrict the setting and /or operation of any industrial facility on environmental grounds.
- The Air (Prevention and Control of Pollution) Act, 1981²⁶ including Rules 1982 and 1983 and amendment(s).
- The Water (Prevention and Control of Pollution) Cess Act 1977²⁷ including Rules 1978 and 1991.
- Solid Waste Management Rules, 2016/ E-waste (Management) Rules 2016²⁸ and amendment(s) / Batteries (Management and Handling) Rules, 2001²⁹ and amendment

²¹

https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&cad=rja&uact=8&ved=2ahUKEwin5ficpuGDAXWK6KACHZghCPAQFnoECBUQAQ&url=https%3A%2F%2Fclimate-laws.org%2Fdocument%2Fintegrated-energy-policy_9159&usg=AOvVawOMr9B7feKCZb-AOYXJ9dFG&opi=89978449

²² https://cdn.climatepolicyradar.org/navigator/IND/2006/tariff-policy_1e5003e88610d4fdd5efd66738f13dab.pdf

²³

https://www.recregistryindia.nic.in/pdf/Others/Renewable_Energy_Certificate_Mechanism_in_India_16th_NATIONAL_POWER_SYSTEMS_CONFERENCE.pdf

²⁴ https://labour.gov.in/sites/default/files/factories_act_1948.pdf

²⁵ <https://cpcb.nic.in/env-protection-act/>

²⁶ <https://cpcb.nic.in/air-pollution/>

²⁷ <https://cpcb.nic.in/water-pollution/>

²⁸ https://cpcb.nic.in/uploads/MSW/SWM_2016.pdf

²⁹ <https://cpcb.nic.in/uploads/hwmd/battery%20management%20&%20handling%20rules%202001.pdf>

in 2010³⁰(Solid waste/E waste/Batteries management program should be prepared with thrust on reuse and recycling as per the CPCB guidelines).

3.5.2 Additionality Methods

The project is seeking for renewal of crediting period and hence this section is not required. This project is already registered under VCS and hence this section can also be checked from registered PDD through footnote link.³¹

3.6 Methodology Deviations

There has been no methodology deviation applied during this monitoring period of the project activity.

4 IMPLEMENTATION STATUS

4.1 Implementation Status of the Project Activity

The Project Activity has total installed capacity of 27.20 MW, which involves operation of 18 Wind Turbine Generators (WTGs) with total capacity of 22.20 MW & 1 Solar power plants with total capacity of 5.00 MW located at different states; Rajasthan and Maharashtra in India.

Wind Power Project Technological Details:

Technical details for WT 2000 DF³², 2000 kW Machine

Particulars	Details
Model	INOX DF 93.3
Rated power	2000 kW
Cut-in wind speed	3 m/s
Cut-out wind speed	20 m/s
Rated wind speed	≤ 11.5 m/s
Survival wind speed	52.5 m/s
Hub height	80 m
Rotor speed	15.9 rpm
Diameter	93.3 m
Swept area	6,795 m ²
Design lifetime	20 years

³⁰ <https://cpcb.nic.in/uploads/hwmd/battery%20management%20&%20handling%20rules%202001.pdf>

³¹ <https://registry.terra.org/app/projectDetail/VCS/1418>

³² <https://www.inoxwind.com/products/>

Technical details for Gamesa G-58³³, 850 kW Machine

Particulars	Details
Model	Gamesa G58 850kW
Rated power	850 kW
Cut-in wind speed	3 m/s
Cut-out wind speed	23 m/s
Rated wind speed	From 14.6 rpm to 30.8 rpm
Diameter	58m
Swept area	2642 m ²
Design lifetime	20 years

Solar Power Project Technological Details:

The PV project uses crystalline silicon based solar PV modules. Since the project activity is a Greenfield installation there is no electricity generation at the project site prior to its implementation. The whole installation has a 25-year design life. Technical specifications of typical modules are as follows:

Technical specifications for 5.00 MW Solar power plant:

1. Solar Panels: IBC PolySol 245 (Ecoline)³⁴
 - a. No. of Panels installed of each type = 245 Wp – 22,440 Nos.
2. Inverters: M/s Sungrow Power Supply Co.Ltd.³⁵
 - a. No. of Inverter Installed = SGKTL 30 KW - 156 Nos

Since its commissioning, the plant has operated continuously with some breakdowns or shutdowns, demonstrating consistent performance and reliability. There is some major breakdowns in SPLLP site in July 2023 as there is only one WTG at this location and in other sites has some minor incidents occurred such as those caused by routine maintenance activities and the plant underwent scheduled breakdown, these did not significantly disrupt operations. The breakdown/shut down details are provided in appendix 3 of the PDMMR. Importantly, no events or situations have arisen that would impact the applicability of the methodology since the commissioning date. The events or situations which may impact the applicability of the methodology have not occurred from the commission.

³³ <http://www.gcenergy.yolasite.com/resources/gamesa-g5x-catalogue-eng.pdf>

³⁴ [IBC PolySol 250MS.pdf](#)

³⁵ https://reenergyhub.com/files/hersteller/Sungrow/pdf/Sungrow_SG30KTL-M_en.pdf

5 QUANTIFICATION OF ESTIMATED GHG EMISSION REDUCTIONS AND REMOVALS

5.1 Baseline Emissions

The baseline emission calculation for the project activity is attributable to the CO₂ Emission that could have been produced by the fossil fuel-based power plants in absence of the project activity. Therefore, the amount electricity supplied to the Indian grid is multiplied by the grid emission factor of Indian grid to calculate the baseline emissions reduced by the project activity.

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

Where:

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

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

$EF_{grid,CM,y}$ = Combined margin CO₂ emission factor for grid connected power generation in year y calculated using the latest version of the “Tool to calculate the emission factor for an electricity system” (tCO₂/MWh)

Calculation of $EG_{PJ,y}$

The calculation of $EG_{PJ,y}$ is different for

- Greenfield plants,
- Retrofits and replacements, and
- Capacity additions

The project activity is the installation of wind plant, and it is a green field project. So, the formula in option (a) i.e., greenfield plants is used to calculate the value of $EG_{PJ,y}$. In accordance with para 49 of the applied methodology.

$$EG_{PJ,y} = EG_{facility,y}$$

Where:

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

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

Project Investors	Capacity (MW)	PLF ³⁶	Net Generation (MWh/year)
Manifold Agricrops Pvt. Ltd.	10.00	12.83%	11,240.86
Parmarth Wind Energy Pvt. Ltd.	10.20	14.90%	13,313.81
Sidhidata Power LLP	2.00	12.23%	2,142.72
Sidhidata Solar Urja Ltd.	5.00	18.54%	7,738.86
Total	27.20	-	34,451.41

Therefore, $EG_{PJ,y} = 34,451.41$

Calculation of $EF_{grid,CM,y}$

The methodology ACM0002 (Version 22.0) requires that the combined margin for the grid be calculated in accordance with the procedure provided in the “Tool to calculate the emission factor for an electricity system”.

As per tool 07: “Tool to calculate the emission factor for an electricity system, Version 7.0.0”; The baseline emission factor ($EF_{grid,y}$) is calculated as a combined margin (CM), consisting of the combination of operating margin (OM) and build margin (BM) factors.

The methodology provides following approaches for emission factor calculations:

(a) Combined margin (CM), consisting of the combination of operating margin (OM) and build margin (BM) according to the procedures prescribed in the approved methodology “Tool to calculate the emission factor for an electricity system”. OR

(b) The weighted average emissions (in t CO₂/MWh) of the current generation mix. The data of the year in which project generation occurs must be used.

Option (a) has been considered to calculate the grid emission factor as per the “Tool to calculate the emission factor for an electricity system” since data is available from an official source i.e., CO₂ Baseline Database for the Indian Power Sector, Version 20, December 2024³⁷, published by Central Electricity Authority (CEA), Government of India has been used for the calculation of emission reduction.

The project activity falls under INDIAN Grid, which constitutes of both fossil fuels and non-fossil fuels sources of electricity generation. Emission reductions due to the project activity are considered to be equivalent to the baseline emissions, since the wind/solar project does not lead to any project emission and leakage emissions. Emission reductions are related to the electricity exported by the project and the emission coefficient of the grid system.

Baseline emission factor is calculated as combined margin, consisting of a combination of operating margin and build margin factors according to the procedures prescribed in the latest

³⁶ The project has already been commissioned, and the project proponent (PP) has an actual generation record spanning 10 years. To ensure a more accurate estimation, the Plant Load Factor (PLF) was updated based on the actual generation data from the past decade, which is lower than the estimated PLF considered at the time of registration.

³⁷ https://cea.nic.in/wp-content/uploads/2021/03/User_Guide_Version_20.0.pdf

tool for calculating the emission factor for an electricity system. The steps of calculation are as follows:

STEP 1: Identify the relevant electricity systems;

STEP 2: Choose whether to include off-grid power plants in the project electricity system (optional);

STEP 3: Select a method to determine the operating margin (OM);

STEP 4: Calculate the operating margin emission factor according to the selected method;

STEP 5: Calculate the build margin (BM) emission factor;

STEP 6: Calculate the combined margin (CM) emission factor.

Step 1: Identify the relevant electricity systems

As described in tool “For determining the electricity emission factors, identify the relevant project electricity system. Similarly, identify any connected electricity systems”. It also states that “If the DNA of the host country has published a delineation of the project electricity system and connected electricity systems, these delineations should be used”.

Step 2: Choose whether to include off-grid power plants in the project electricity system (optional)

Option I is opted for the project activity i.e., only grid connected power plants are included in the calculation.

Step 3: Select a method to determine the operating margin (OM)

According to the tool, the calculation of the operating margin emission factor is based on one of the following methods:

- a) Simple OM; or
- b) Simple adjusted OM; or
- c) Dispatch data analysis OM; or
- d) Average OM.

The data required to calculate Simple adjusted OM and Dispatch data analysis OM is not possible due to lack of availability of data to project developers.

The choice of other two options for calculating operating margin emission factor depends on generation of electricity from low-cost/ must-run sources. In the context of the methodology low cost/must run resources typically include hydro, geothermal, Wind, low-cost biomass, nuclear and Wind generation.

Share of Must-Run (Hydro/Nuclear) (% of Net Generation)

	2018-19	2019-20	2020-21	2021-22	2022-23
India	14.5%	17.0%	16.5%	15.8%	15.3%

The above data clearly shows that the percentage of total grid generation by low-cost/ must-run plants (on the basis of average of five most recent years) for the INDIAN grid is less than 50 % of the total generation.

Thus, the Average OM method cannot be applied, as low cost/must run resources constitute less than 50% of total grid generation.

The simple OM emission factor is calculated as the generation-weighted average CO₂ emissions per unit net electricity generation (tCO₂/MWh) of all generating power plants serving the system, not including low-cost/must-run power plants/units.

For the simple OM, the simple adjusted OM and the average OM, the emissions factor can be calculated using either of the two following data vintages:

(a) Ex ante option: if the ex-ante option is chosen, the emission factor is determined once at the validation stage, thus no monitoring and recalculation of the emissions factor during the crediting period is required.

OR

(b) Ex post option: if the ex-post option is chosen, the emission factor is determined for the year in which the project activity displaces grid electricity, requiring the emissions factor to be updated annually during monitoring.

PP has chosen ex-ante option for calculation of Simple OM emission factor using a 3-year generation weighted average, based on the most recent data available at the time of submission of the RCP-PD to the DOE for validation.

Step 4: Calculate the operating margin emission factor according to the selected method

The operating margin emission factor has been calculated using a 3-year data vintage:

Net Generation in Operating Margin (GWH) (incl. Imports)			
	2021-22	2022-23	2023-24
Indian Grid	1,035,672	1,117,846	1,248,868

Simple Operating Margin (tCO ₂ /MWh) (incl. Imports)			
	2021-22	2022-23	2023-24
Indian Grid	0.9605	0.9710	0.9615

Weighted Generation Operating Margin	
Indian Grid	0.9643

Step 5: Calculate the build margin (BM) emission factor

As per Methodological tool: "Tool to calculate the emission factor for an electricity system" (Version 07.0, EB 100, Annex 4) para 72:

In terms of vintage of data, project participants can choose between one of the following two options:

(a) Option 1 - For the first crediting period, calculate the build margin emission factor ex ante based on the most recent information available on units already built for sample group m at the time of PD submission to the VVB for validation. For the second crediting period, the build margin emission factor should be updated based on the most recent information available on units already built at the time of submission of the request for renewal of the crediting period to the VVB.

(b) Option 2 - For the first crediting period, the build margin emission factor shall be updated annually, ex post, including those units built up to the year of registration of the project activity or, if information up to the year of registration is not yet available, including those units built up to the latest year for which information is available.

Option 1 as described above is chosen to calculate the build margin emission factor for the project activity.

BM is calculated ex-ante based on the most recent information available at the time of submission of PD and is fixed for the entire crediting period.

Build Margin (tCO ₂ /MWh) (not adjusted for imports)	
	2023-24
Indian Grid	0.5522

Step 6: Calculate the combined margin (CM) emission factor ($EF_{grid,CM,y}$)

As per Methodological tool: “Tool to calculate the emission factor for an electricity system” (Version 07.0, EB 100, Annex 4) para 81:

The calculation of the combined margin (CM) emission factor ($EF_{grid,CM,y}$) is based on one of the following methods:

(a) Weighted average CM; or

(b) Simplified CM.

PP has chosen option (a) i.e weighted average CM to calculate the combined margin emission factor for the project activity.

The combined margin emissions factor is calculated as follows:

$$EF_y = EF_{grid,OM,y} * W_{OM} + EF_{grid,BM,y} * W_{BM}$$

Where:

$EF_{grid,BM,y}$ = Build margin CO₂ emission factor in year y (t CO₂/MWh)

$EF_{grid,OM,y}$ = Operating margin CO₂ emission factor in year y (t CO₂/MWh)

W_{OM} = Weighting of operating margin emissions factor (per cent)

W_{BM} = Weighting of build margin emissions factor (per cent)

According to “Tool to calculate the emission factor for an electricity system” the weights for OM and BM are 0.75 and 0.25 respectively.

$$\begin{aligned} \text{Therefore, } EF_{\text{grid,CM},y} &= 0.9643 * 0.75 + 0.5522 * 0.25 \\ &= 0.8612 \text{ tCO}_2/\text{MWh} \end{aligned}$$

As per the latest CEA database and Tool to calculate the emission factor for an electricity system', version 7, the weights for OM and BM are 0.75 and 0.25 respectively. Using the values for operating and build margin emission factor provided in the CEA database version 20.0 and their respective weights for calculation of combined margin emission factor, the baseline carbon emission factor (CM) was calculated: 0.8612 tCO₂e/ MWh. Therefore, the value of baseline carbon emission factor (CM) has been taken as 0.8612 tCO₂e/MWh.

5.2 Project Emissions

As per the ACM0002 version-22.0, Project Emission for most renewable energy power generation project activities, $PE_y = 0$. However, some project activities may involve project emissions that can be significant. These emissions shall be accounted for as project emissions by using the following equation:

$$PE_y = PE_{FF,y} + PE_{GP,y} + PE_{HP,y}$$

Where:

PE_y = Project emissions in year y (tCO₂e/ year)

$PE_{FF,y}$ = Project emissions from fossil fuel consumption in year y (tCO₂/ year)

$PE_{GP,y}$ = Project emissions from the operation of geothermal power plants due to the release of non-condensable gases in year y (tCO₂e/ year)

$PE_{HP,y}$ = Project emissions from water reservoirs of hydro power plants in year y (tCO₂e/ year).

The project activity involves the generation of electricity from the installation Wind and Solar power plant. Hence, as per ACM0002, Version 22, there is no project emission for wind/solar power projects. Therefore, project emissions are zero.

$$PE_y = 0$$

5.3 Leakage Emissions

As per of ACM0002 version 22, no leakage emissions are considered in the project activity. The emissions potentially giving rise to leakage in the context of electric sector projects are emissions arising due to activities such as power plant construction and upstream emissions from fossil fuel use (e.g., extraction, processing, transport) are neglected.

$$LE_y = 0.$$

5.4 Estimated GHG Emission Reductions and Carbon Dioxide Removals

As per the approved consolidated Methodology ACM0002 (Version 22.0), Emission reductions are calculated as follows:

$$ER_y = BE_y - PE_y$$

Where:

ER_y = Emission reductions in year y (tCO₂e/year)

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

PE_y = Project emissions in year y (tCO₂e/ year)

Vintage period	Estimated baseline emissions (tCO ₂ e)	Estimated project emissions (tCO ₂ e)	Estimated leakage emissions (tCO ₂ e)	Estimated reduction VCU (tCO ₂ e)	Estimated removal VCU (tCO ₂ e)	Estimated total VCUs (tCO ₂ e)
31-March-2023 to 31-December-2023	22,445	0	0	22,445	0	22,445
01-January-2024 to 31-December-2024	29,871	0	0	29,871	0	29,871
01-January-2025 to 31-December-2025	29,816	0	0	29,816	0	29,816
01-January-2026 to 31-December-2026	29,762	0	0	29,762	0	29,762
01-January-2027 to 31-December-2027	29,708	0	0	29,708	0	29,708
01-January-2028 to 31-December-2028	29,654	0	0	29,654	0	29,654
01-January-2029 to 31-December-2029	29,601	0	0	29,601	0	29,601

01-January-2030 to 31-December-2030	29,548	0	0	29,548	0	29,548
01-January-2031 to 31-December-2031	29,495	0	0	29,495	0	29,495
01-January-2032 to 31-December-2032	29,443	0	0	29,443	0	29,443
01-January-2033 to 30-March-2033	7,348	0	0	7,348	0	7,348
Total	296,691	0	0	296,691	0	296,691

6 MONITORING

6.1 Data and Parameters Available at Validation

Data / Parameter	EF _{grid,OM,y}
Data unit	tCO ₂ /MWh
Description	Operating Margin CO ₂ emission factor in year y
Source of data	Calculated from CEA database, Version 20, December 2024 ³⁸
Value applied	0.9643 (INDIAN Grid)
Justification of choice of data or description of measurement methods and procedures applied	Calculated as per “Tool to calculate the emission factor for an electricity system, version 07.0.0” as 3-year generation weighted average using data for the years 2021-2022, 2022-2023 & 2023-24. The data are obtained from “CO ₂ Baseline Database for Indian Power Sector” version 20.0, published by the Central Electricity Authority, Ministry of Power, Government of India.
Purpose of data	For the calculation of the Baseline Emission
Comments	This parameter is fixed ex-ante for the entire crediting period

³⁸ https://cea.nic.in/wp-content/uploads/2021/03/User_Guide_Version_20.0.pdf

Data / Parameter	EF _{grid,BM,y}
Data unit	tCO ₂ /MWh
Description	Build Margin CO ₂ emission factor in year y
Source of data	Calculated from CEA database, Version 20, December 2024 ³⁹
Value applied	0.5522 (INDIAN Grid)
Justification of choice of data or description of measurement methods and procedures applied	Calculated as per “Tool to calculate the emission factor for an electricity system, version 07.0.0” for the year 2023-2024. The data is obtained from “CO ₂ Baseline Database for Indian Power Sector” version 20.0, published by the Central Electricity Authority, Ministry of Power, Government of India.
Purpose of data	For the calculation of the Baseline Emission
Comments	This parameter is fixed ex-ante for the entire crediting period

Data / Parameter	EF _{grid,CM,y}
Data unit	tCO ₂ /MWh
Description	Combines Margin CO ₂ emission factor in year y
Source of data	Calculated from CEA database, Version 20, December 2024 ⁴⁰
Value applied	0.8612 (INDIAN Grid)
Justification of choice of data or description of measurement methods and procedures applied	The combined margin emissions factor is calculated as follows: $EF_{grid,CM,y} = EF_{grid,OM,y} * W_{OM} + EF_{grid,BM,y} * W_{BM}$ Where: EF_{grid,BM,y} = Build margin CO₂ emission factor in year y (tCO₂/MWh) EF_{grid,OM,y} = Operating margin CO₂ emission factor in year y (tCO₂/MWh) W_{OM} = Weighting of operating margin emissions factor (%) = 75% W_{BM} = Weighting of build margin emissions factor (%) = 25%
Purpose of data	For the calculation of the Baseline Emission
Comments	This parameter is fixed ex-ante for the entire crediting period

6.2 Data and Parameters Monitored

Data / Parameter	EG _{PJ,y}
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³⁹ https://cea.nic.in/wp-content/uploads/2021/03/User_Guide_Version_20.0.pdf

⁴⁰ https://cea.nic.in/wp-content/uploads/2021/03/User_Guide_Version_20.0.pdf

Data unit	MWh
Description	Quantity of net electricity generation supplied by the project (Wind or Solar) plant/unit to the grid in year y
Source of data	Monthly electricity share certificates/note or Credit Note or Joint Meter Reading Report
Description of measurement methods and procedures applied	The value of net electricity generation supplied to the grid as per Monthly electricity share certificates/note or Credit Note or Joint Meter Reading Report forms the basis for calculation of the emission reductions; which can be cross checked from the invoice raised to DISCOM. Net electricity supplied to grid is calculated as the difference of the measured values of “export” and “import” of electricity through the dedicated SEB energy meter (electronic tri vector bidirectional main meter & check meter which measures both export & import concurrently) installed at the delivery point (i.e., the connected substation). Net electricity generated and supplied by the project (Wind or Solar) plant/unit to the grid = Electricity Export to the grid - Electricity Import from the grid Monthly meter readings are taken from the main and check meter installed at the substation and certified by the representatives of SEB Officials and the representatives of the project proponent. Same are crosschecked with Invoices raised by PP towards State Utilities For apportioning procedure refer section 6.3
Frequency of monitoring/recording	Continuous monitoring and monthly recording
Value applied:	34,451.41 MWh
Monitoring equipment	Monitoring: Tri vector meter is used Data type: Measured Type of meter: Static type meter (Main & Check). Both are Bidirectional meters. Class of meter: 0.2s The meter details are provided in appendix 2 of the PDMR.
QA/QC procedures applied	The energy meter reading is taken on monthly basis

	- Energy meters are calibrated once in a three year and faulty meters are been duly replaced immediately. Refer Appendix 2 for Energy Meter Calibration details. - All the energy meters are under the control of state utility and calibration/testing of energy meters is also under the jurisdiction of state utility. - The Net electricity exported to the grid is cross checked against the invoice raised by the PP towards the DISCOM
Purpose of data	Calculation of Baseline emissions
Calculation method	N/A
Comments	The data would be archived electronically and maintained for the entire crediting period plus two years.

6.3 Monitoring Plan

The monitoring methodology specified in the methodology requires that the project- monitoring plan to consist of monitoring of quantity of net electricity supplied to the grid in the year y. In order 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.

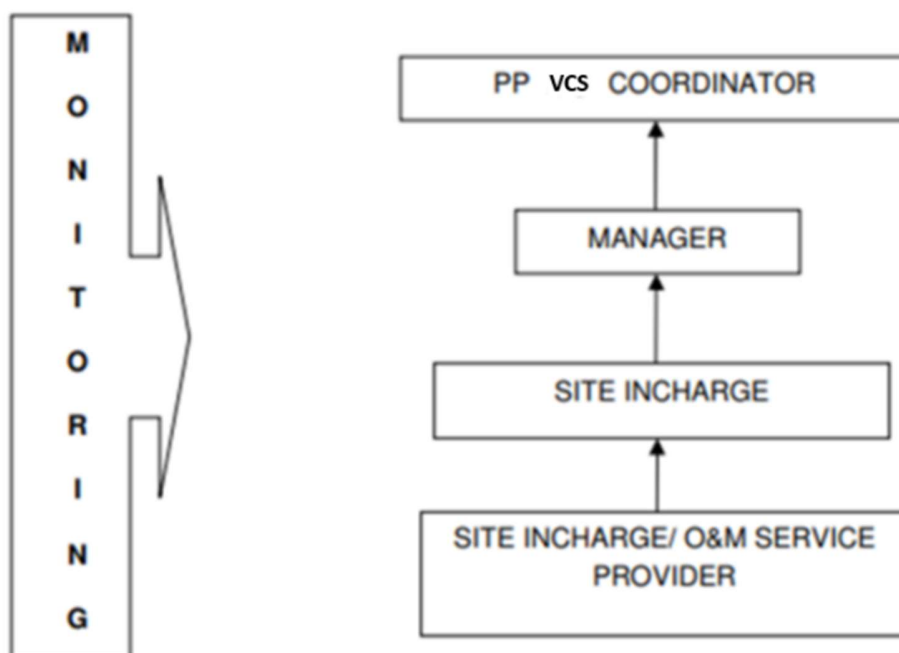
Since the baseline emission factor is based on an ex-ante determination, monitoring of this parameter is not required. The sole parameter for monitoring is the net electricity exported to the grid.

Aim of monitoring:

The monitoring procedure sets guidelines for the project investor to monitor the parameters regularly and to ensure quality and accuracy in monitoring. It elaborates on the functions of the monitoring team and procedures to be followed in monitoring of the VCS parameters.

The monitoring shall include all the equipment's that contribute towards reduction in GHG emissions. Since the project activity focuses mainly on the generation of renewable power, it is important to monitor all the equipment's involved in the metering of all the necessary instruments.

The project investor has a well-defined management structure for monitoring the project activity.



Organizational Structure for monitoring (Common for all states):

Designation	Responsibilities
PP VCS COORDINATOR	Overall project monitoring including collecting and aggregating JMRs/Invoices for all WTG/solar investors
MANAGER	Holds complete control over monitoring aspects pertaining to the project
SITE INCHARGE	• Recording • Verification • Storage of Data
SITE INCHARGE/ O&M SERVICE PROVIDER	• Operation and Maintenance • Storage of data • Data Recording

O&M Team Involved:

Wind Project Investor	Capacity (MW)	Technology	O&M Team Involved
Manifold Agricrops Pvt. Ltd.	5 x 2.00	Wind	INOX Green Energy Services Ltd.
Parmarth Wind Energy Pvt. Ltd.	12 x 0.85		Siemens Gamasa Renewable Power Pvt. Ltd. (Previous O&M team involved before 29-May-2024)
			Ever Renew Energy Pvt. Ltd. (New O&M team involved from 29-May-2024)
Sidhidata Power LLP	1 x 2.00		INOX Green Energy Services Ltd.
Total capacity of Wind projects	22.20 MW		

Solar Project Investor	Capacity (MW)	Technology	O&M Team
Sidhidata Solar Urja Ltd.	5.00	Solar	LNB Renewable Energy Limited (In house O&M)
Total capacity of Solar projects	5.00 MW		

Personnel Training (Common for All states):

The project personnel, including those involved in data recording, maintenance and direct data assessments are provided with training on the application and usage of the manual.

Training and maintenance requirements (Common for All states):

O&M operator provides training to the on-site staffs on operation and maintenance of the metering system and adherence to the Monitoring Plan of the project activity. Training for operation of both Wind and Solar projects shall be provided by the respective O&M Operators.

For WTGs, Training on the machine is an essential pre-requisite, to ensure necessary safety of man and machine. Further, in order to maximize the output from the WTGs, it is extremely essential, that the engineers and technicians understand the machines and keep them in good health. In order to ensure that technology providers' service staff is deft at handling technical snags on top of the turbine, the necessity of ensuring that they are capable of climbing the tower with absolute ease and comfort has been established.

Reading and Correction of Meters:

For the purpose of energy accounting, O&M operator provides ABT compliant meters at the interface points. Interface metering confirms to the Central Electricity Authority (Installation and Operation Meters) Regulation, 2006. In the event that the main meter is not in service as a result of maintenance, repairs or testing, then the check meter will be used during the period the main meter is not in service.

Calibration of Meters:

Calibration of all the meters is undertaken at least once in 3 years and faulty meters are been duly replaced immediately. Calibration is done by an authorized agency or reputed laboratory.

Apportioning Procedure for Solar Power project:

As individual main & check meter are installed for each Solar Plant, hence no apportioning is required for Solar Projects.

Apportioning Procedure for Wind Power project:

The net electricity supplied to the grid would be reported as the difference between the net export and import from the WTG. The electricity export and import data is monitored via main and check meters connected to feeders at the respective sub-station.

In case of INDIAN Grid, multiple WTGs would be connected to the feeder, one of which would be part of the project activity and rest of which would not be part of the project activity (WTGs owned by other entities). The import and export of electricity is continuously monitored by the export/import meter and the data is recorded on a monthly basis jointly by the proponent and the electricity board. The meter is located at the delivery point of wind power in the grid. This accounts for the import of electricity that is used by the Project proponent. Hence the net electricity generated is calculated from the joint meter reading and recorded /archived in paper/electronic.

SEB/O&M Contractor follows an apportioning procedure to account for electricity generation from individual WTGs based on data from individual WTG controllers.

Following the joint meter readings, apportioning of net electricity supplied to grid by each WTG is done by the SEB/O&M Contractor based on the individual meter readings recorded from the controller panel meter of each WTG and based on the meter reading recorded from the meters situated at the connected substations.

In case of Maharashtra only, based on the monthly export and import data as per main/check meters and the WTG controller readings, SEB provides a break-up of the electricity exported and imported for each WTG.

Rajasthan

A monthly joint meter reading of the energy meters is taken by State Electricity Board officials and O&M contractors (representatives of the project investor). Apportioning of net electricity generation from each WTG connected to INDIAN Grid is then determined as follows:

1.	Apportioning Ratio	=	Generation at WTG Controller ÷ Total Generation of all WTG Controller for the feeder
2.	Electricity export to the grid by WTG (EG_{export})	=	Export from Main/Check Meter * Apportioning Ratio
3.	Electricity Import from the grid by WTG (EG_{import})	=	Import from Main/Check Meter * Apportioning Ratio
4.	Net electricity generated by WTG	=	Electricity Export to the grid by WTG – Electricity Import from the grid by WTG

Above steps for calculation of EG_{export} and EG_{import} are carried out by O&M Contractor & energy break-up sheet is issued by the O&M Contractor which is certified by the representatives of SEB Officials. Based on the break-up sheets Project investor raises invoice to DISCOM which forms the cross-check for the net electricity generated. The Project investor has no role in the entire procedure of apportioning.

Maharashtra

A monthly joint meter reading of the energy meters is taken by MSEDCL officials and O&M contractors (representatives of the project investor). Apportioning of net electricity generation from each WTG connected to INDIAN Grid is then determined as follows:

1.	Apportioning Ratio		Generation at WTG Controller ÷ Total Generation of all WTG Controller for the feeder
2.	Electricity Import from WTG by the grid (EG_{import})	=	Import from Main/Check Meter * Apportioning Ratio
3.	Electricity Export to the WTGs by the grid (EG_{export})	=	Export from Main/Check Meter * Apportioning Ratio
4.	Net electricity generated by WTG	=	Electricity Import from WTG by the grid – Electricity Export to the WTGs by the grid

Above steps for calculation of EG_{import} and EG_{export} are carried out by MSEDCL Officials & energy break-up sheet is issued by the MSEDCL Officials. Based on the break-up sheets Project investor raises invoice to DISCOM which forms the cross-check for the net electricity generated. The Project investor has no role in the entire procedure of apportioning.

Emergency Preparedness and Uncertainty Procedure:

In case Main meter or check meter is found to be outside the acceptable limits of accuracy or faulty or not functioning properly, it is repaired, recalibrated or replaced as soon as possible. In

the event that the Main meter is not in service as a result of maintenance, repairs or testing, the check meter is used. In case both the main and check meter are found to be outside the acceptable limits of accuracy or faulty or not functioning properly, both the meters shall be calibrated immediately, and the error percentage found in the main meter during its calibration shall be applied to its metered energy data for the entire period since its last calibration to obtain the corrected value of net electricity exported to the grid.

Mismatch in Monitoring Period and the 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 from:

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

Where,

D = Net electricity exported to the grid

A = Difference of number of days which are not matching of 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.

Data Recording & Archiving:

O&M operator keeps complete and accurate records of operating log at the Power Plant. The data is been archived electronically as well as in logbooks at the power plant and is kept for two years after the end of the crediting period or the last issuance of VCUs for this project activity, whichever occurs later.

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

Apportioning the net electricity exported to grid, as recorded in the consolidated Share Certificate / JMR Report / Credit Notes certified by the respective state DISCOM, based on the number of days in the monitoring period and the number of days for which Share Certificate / JMR Report / Credit Notes was prepared.

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

7 QUANTIFICATION OF GHG EMISSION REDUCTIONS AND REMOVALS

7.1 Data and Parameters Monitored

Data / Parameter	EG _{PJ,y}
Data unit	MWh
Description	Quantity of net electricity generation supplied by the project (Wind or Solar) plant/unit to the grid in year y
Value applied:	52,011.36 MWh
Comments	The data would be archived electronically and maintained for the entire crediting period plus two years.

7.2 Baseline Emissions

The baseline emission calculation for the project activity is attributable to the CO₂ Emission that could have been produced by the fossil fuel-based power plants in absence of the project activity. Therefore, the amount electricity supplied to the Indian grid is multiplied by the grid emission factor of Indian grid to calculate the baseline emissions reduced by the project activity.

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

Where,

BE_y = Baseline Emissions in year y; tCO₂

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

EF_{grid, CM, y} = CO₂ emission factor of the grid in year y; tCO₂/MWh

Calculation of EG_{PJ,y}

If the project activity is the installation of a Greenfield power plant, then:

$$EG_{PJ,y} = EG_{facility,y}$$

Where,

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

$EG_{\text{facility},y}$ = Quantity of net electricity generation supplied by the project plant/unit to the grid in year y (MWh/yr)

Vintage-wise calculation	MAPL (Net Export MWh)	PWEPL (Net Export MWh)	SPLLP (Net Export MWh)	SSUL (Net Export MWh)
Period				
01-March-2023 to 31-December-2023	8,884.85	12,811.00	1,485.18	6,792.26
01-January-2024 to 30-September-2024	6,089.55	6,960.96	2,276.12	6,711.44

Thus, $EG_{PJ,y} = 52,011.36$ MWh

Therefore,

$BE_y = 8,884.85 \text{ (MWh)} \times 0.8612 \text{ (tCO}_2\text{/MWh)} + 12,811.00 \text{ (MWh)} \times 0.8612 \text{ (tCO}_2\text{/MWh)} + 1,485.18 \text{ (MWh)} \times 0.8612 \text{ (tCO}_2\text{/MWh)} + 6,792.26 \text{ (MWh)} \times 0.8612 \text{ (tCO}_2\text{/MWh)}$ (From 01-March-2023 to 31-December-2023) $+ 6,089.55 \text{ (MWh)} \times 0.8612 \text{ (tCO}_2\text{/MWh)} + 6,960.96 \text{ (MWh)} \times 0.8612 \text{ (tCO}_2\text{/MWh)} + 2,276.12 \text{ (MWh)} \times 0.8612 \text{ (tCO}_2\text{/MWh)} + 6,711.44 \text{ (MWh)} \times 0.8612 \text{ (tCO}_2\text{/MWh)}$ (From 01-January-2024 to 30-September-2024)

$BE_y = 7,651 \text{ tCO}_2\text{e (Round down)} + 11,032 \text{ tCO}_2\text{e (Round down)} + 1,279 \text{ tCO}_2\text{e (Round down)} + 5,849 \text{ tCO}_2\text{e (Round down)}$ (From 01-March-2023 to 31-December-2023) $+ 5,244 \text{ tCO}_2\text{e (Round down)} + 5,994 \text{ tCO}_2\text{e (Round down)} + 1,960 \text{ tCO}_2\text{e (Round down)} + 5,779 \text{ tCO}_2\text{e (Round down)}$ (From 01-January-2024 to 30-September-2024)

$BE_y = 25,811$ (Round down) $+ 18,977$ (Round down)

$BE_y = 44,788 \text{ tCO}_2\text{e}$ (Vintage wise rounded down value)

7.3 Project Emissions

Not applicable since emissions from the project activity is zero as per ACM0002 methodology. Hence, $PE_y = 0$

7.4 Leakage Emissions

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

7.5 GHG Emission Reductions and Carbon Dioxide Removals

The formula used to calculate the net emission reduction for the project activity is:

$$ER_y = BE_y - PE_y - LE_y$$

Where,

ER_y = Emission Reduction in tCO₂e/year

BE_y = Baseline emission in tCO₂e/year

PE_y = Project emissions in tCO₂e/year

LE_y = Leakage Emissions in tCO₂e/year

For the project activity during the current monitoring period, as per section 5.1

$BE_y = 44,788$ tCO₂e

$PE_y = 0$ tCO₂e

$LE_y = 0$ tCO₂e

Therefore, ER_y is 44,788 tCO₂e

Vintage period	Baseline emissions (tCO ₂ e)	Project emissions (tCO ₂ e)	Leakage emissions (tCO ₂ e)	Reduction VCU (tCO ₂ e)	Removal VCU (tCO ₂ e)	Total VCUs (tCO ₂ e)
31-March-2023 to 31-December-2023	25,811	0	0	25,811	0	25,811
01-January-2024 to 30-September-2024	18,977	0	0	18,977	0	18,977
Total	44,788	0	0	44,788	0	44,788

Vintage period	Ex-ante estimated reductions/removals	Achieved reductions/removals	Percent difference	Explanation for the difference
31-March-2023 to 31-December-2023	22,434	25,812	15.05%	It is to be noted here that as per the estimated emission reduction to be achieved from the project activity for the current monitoring period is 44,706 tCO ₂ e, whereas actual emission reductions achieved are 44,788 tCO ₂ e, which is approximately 0.18% higher than the estimated emission reductions. The higher generation during the current verification period is due to certain natural conditions as this monitoring period includes all the seasons i.e., rainy, winter and summer season which are most favorable time in terms of wind and solar energy.
01-January-2024 to 30-September-2024	22,272	18,981	-14.79%	
Total	44,706	44,788	0.18%	

APPENDIX 1: COMMERCIALLY SENSITIVE INFORMATION

No commercially sensitive information has been excluded from the public version of the project description. Hence, appendix 1 is not applicable.

APPENDIX 2: CALIBRATION DETAILS

Meter and Calibration details⁴¹ of following instances of Wind and Solar Power Projects for the current monitoring period is as follows:

For Manifold Agricrops Pvt. Ltd.

Meter Details	Main Meter	Check Meter
Installed at	GSS Akal	GSS Akal
Meter Serial No	RJB 78210	RJB 78212
Meter Make	Secure	Secure
Model	R3M021-436	R3M021-436
Accuracy Class	0.2 s	0.2 s
Date of Calibration	14-March-2023	14-March-2023
Due Date of Calibration	13-March-2026	13-March-2026

For Parmarth Wind Energy Pvt. Ltd.

Meter Details	Main Meter	Check Meter
Installed at	Bambawade S/Stn	Bambawade S/Stn
Meter Serial No	13769361	16595547
	23006356 ⁴²	23006353
Meter Make	Elster	Elster
Model	Alpha A 1800	Alpha A 1800
Accuracy Class	0.2 s	0.2 s
Date of Calibration	07-March-2021	07-March-2021
	06-March-2024	06-March-2024
Due Date of Calibration	05-March-2027	05-March-2027

For Sidhidata Power LLP

Meter Details	Main Meter	Check Meter
Installed at	Shedyal S/Stn	Shedyal S/Stn
Meter Serial No	HT01131245 (Feeder No. 5)	HT01131246 (Feeder No. 5)

⁴¹ As per registered PD the calibration frequency is at least once in 3 years however DISCOM is carrying out calibration which is not under the control of PP.

⁴² The main and check meters (13769361 and 16595547) was replaced on 01-October-2024 with the new main and check meters (23006356 and 23006353). However, the replacement did not occur in the current monitoring period i.e., from 31-March-2023 to 30-September-2024. Therefore, it has no impact on the emission reduction and the calibration is not required.

	Q0723119 ⁴³ (Feeder No. 5)	Q0833064 (Feeder No. 5)
Meter Make	EDMI	EDMI
Accuracy Class	0.2 s	0.2 s
Date of calibration	06-November-2020	06-November-2020
Due Date of Calibration	05-November-2023 ⁴⁴	05-November-2023

For Sidhidata Solar Urja Ltd.

Meter Details	Main Meter	Check Meter
Installed at	SPD Site (Plant)	SPD Site (Plant)
Meter Serial No	13194928	13194929
Meter Make	Larsen & Toubro	Larsen & Toubro
Model	ER300P	ER300P
Accuracy Class	0.2 s	0.2 s
Date of Calibration	20-July-2020	20-July-2020
	19-July-2023	19-July-2023
Due Date of Calibration	18-July-2026	18-July-2026

⁴³ The main and check meters (HT01131245 and HT01131246) was replaced on 01-September-2023 by main and check meters (Q0723119 and Q0833064) and as the meters are not calibrated in the specified frequency. Therefore, PP has applied the maximum permissible error factor (0.2%) for the delayed period during the monitoring period from 01-September-2023 to 30-September-2024.

⁴⁴ The previous meter calibration was valid until 05-November-2023. However, due to certain circumstances, the old meters were replaced with new ones on 01-September-2023.

APPENDIX 3: BREAKDOWN DETAILS

For Manifold Agricrops Pvt. Ltd.

Date	WTG Location	Start Time	Stop Time	Total Breakdown Hours
08-April-2023	DAN-T-12	7:05	7:45	0:40
15-July-2023	DAN-T-59	14:13	14:49	0:36
26-September-2023	DAN-T-60	15:13	15:45	0:32
12-November-2023	DAN-T-61	15:15	15:50	0:35
05-January-2024	DAN-T-88	23:13	23:55	0:42
13-April-2024	DAN-T-12	16:15	16:48	0:33
18-September-2024	DAN-T-60	17:03	17:55	0:52
Total				4:30

For Parmarth Wind Energy Pvt. Ltd.

Date	WTG Location	Start Time	Stop Time	Total Breakdown Hours
08-April-2023	GAL-03	17:03	17:59	0:56
12-October-2023	GAL-06	5:15	5:50	0:35
15-February-2024	GAL-07	15:13	15:46	0:33
12-April-2024	GAL-08	14:15	14:55	0:40
13-September-2024	GAL-23	15:28	16:14	0:46
Total				3:30

For Sidhidata Power LLP

Date	WTG Location	Start Time	Stop Time	Total Breakdown Hours
01-July-2023 to 31-July-2023	MVT-83	0:00 (01-Jul)	0:00 (31-Jul)	744:00
16-October-2023	MVT-83	15:15	16:15	1:00
23-February-2024	MVT-83	13:25	14:25	1:00
Total				746:00

For Sidhidata Solar Urja Ltd.

Date	B/d Description	Start Time	Stop Time	Total Breakdown Hours
18-November-2023	Grid BD from GSS	7:15	7:45	0:30
12-December-2023	Grid BD from GSS	15:20	15:50	0:30
8-January-2024	Grid BD from GSS	14:15	14:40	0:25
12-August-2024	Grid BD from GSS	22:10	22:45	0:35
Total				2:00

Therefore, the total maintenance and downtime for the project activity during the current monitoring period is 756:00:00 hrs.

APPENDIX 4: SDG CONTRIBUTION

For Manifold Agricrops Pvt. Ltd.

Months	Total Net Generation (MWh)	Emission Factor(tCO ₂ /MWh)	Emission Reductions(tCO ₂)	Number of Employees (Nos)
	SGD 7		SGD 13	SDG 8
March-2023	19.41	0.8612	16.72	4
April-2023	833.89	0.8612	718.15	
May-2023	1,252.68	0.8612	1,078.81	
June-2023	1,374.61	0.8612	1,183.81	
July-2023	916.15	0.8612	788.99	
August-2023	1,855.44	0.8612	1,597.91	
September-2023	717.76	0.8612	618.13	
October-2023	747.34	0.8612	643.61	
November-2023	532.46	0.8612	458.55	
December-2023	635.10	0.8612	546.95	
Vintage 2023	8,884.85	-	7,651	4
January-2024	330.66	0.8612	284.76	4
February-2024	611.90	0.8612	526.97	
March-2024	734.65	0.8612	632.68	
April-2024	574.95	0.8612	495.15	
May-2024	828.55	0.8612	713.55	
June-2024	1,078.22	0.8612	928.56	
July-2024	718.38	0.8612	618.66	
August-2024	809.96	0.8612	697.54	
September-2024	402.28	0.8612	346.44	
Vintage 2024	6,089.55	-	5,244	4
Total	14,974.39	-	12,895	4

For Parmarth Wind Energy Pvt. Ltd.

Months	Total Net Generation (MWh)	Emission Factor(tCO ₂ /MWh)	Emission Reductions(tCO ₂)	Number of Employees (Nos)
	SGD 7		SGD 13	SDG 8
March-2023	20.57	0.8612	17.71	5
April-2023	636.33	0.8612	548.00	
May-2023	1,202.78	0.8612	1,035.84	
June-2023	2,122.25	0.8612	1,827.68	
July-2023	3,870.36	0.8612	3,333.15	
August-2023	2,055.07	0.8612	1,769.82	
September-2023	1,470.61	0.8612	1,266.49	
October-2023	306.80	0.8612	264.22	

November-2023	448.20	0.8612	385.99	
December-2023	678.05	0.8612	583.93	
Vintage 2023	12,811.00	-	11,032	5
January-2024	430.88	0.8612	371.07	5
February-2024	354.77	0.8612	305.53	
March-2024	630.94	0.8612	543.36	
April-2024	507.20	0.8612	436.80	
May-2024	1,027.04	0.8612	884.48	
June-2024	1,250.52	0.8612	1,076.94	
July-2024	1,657.32	0.8612	1,427.28	
August-2024	882.92	0.8612	760.37	
September-2024	219.37	0.8612	188.92	
Vintage 2024	6,960.96	-	5,994	5
Total	19,771.96	-	17,026	5

For Sidhidata Power LLP

Months	Total Net Generation (MWh)	Emission Factor(tCO ₂ /MWh)	Emission Reductions(tCO ₂)	Number of Employees (Nos)
	SGD 7		SGD 13	SDG 8
March-2023	5.48	0.8612	4.72	4
April-2023	116.27	0.8612	100.14	
May-2023	183.32	0.8612	157.87	
June-2023	425.59	0.8612	366.52	
July-2023	0.00	0.8612	0.00	
August-2023	125.64	0.8612	108.20	
September-2023	335.40	0.8612	288.85	
October-2023	93.56	0.8612	80.57	
November-2023	98.27	0.8612	84.63	
December-2023	101.65	0.8612	87.54	
Vintage 2023	1,485.18	-	1,279	4
January-2024	131.20	0.8612	112.99	4
February-2024	91.23	0.8612	78.57	
March-2024	102.32	0.8612	88.12	
April-2024	112.97	0.8612	97.29	
May-2024	138.93	0.8612	119.64	
June-2024	295.79	0.8612	254.73	
July-2024	700.42	0.8612	603.20	
August-2024	364.63	0.8612	314.02	
September-2024	338.64	0.8612	291.64	
Vintage 2024	2,276.12	-	1,960	4
Total	3,767.30	-	3,239	4

For Sidhidata Solar Urja Ltd.

Months	Total Net Generation (MWh)	Emission Factor(tCO ₂ /MWh)	Emission Reductions(tCO ₂)	Number of Employees (Nos)
	SGD 7		SGD 13	SDG 8
March-2023	26.22	0.8612	22.58	7
April-2023	826.43	0.8612	711.72	
May-2023	848.62	0.8612	730.83	
June-2023	789.81	0.8612	680.19	
July-2023	748.11	0.8612	644.28	
August-2023	758.67	0.8612	653.37	
September-2023	742.91	0.8612	639.80	
October-2023	801.32	0.8612	690.09	
November-2023	569.19	0.8612	490.19	
December-2023	680.98	0.8612	586.46	
Vintage 2023	6,792.26	-	5,849	7
January-2024	565.04	0.8612	486.62	7
February-2024	728.72	0.8612	627.57	
March-2024	867.97	0.8612	747.50	
April-2024	799.49	0.8612	688.52	
May-2024	847.42	0.8612	729.80	
June-2024	773.70	0.8612	666.31	
July-2024	770.60	0.8612	663.64	
August-2024	609.48	0.8612	524.88	
September-2024	749.01	0.8612	645.05	
Vintage 2024	6,711.44	-	5,779	7
Total	13,503.71	-	11,628	7