



**Verified Carbon
Standard**

WIND POWER PROJECT OF CLP WIND FARMS (INDIA) PRIVATE LIMITED AT JATH

Document Prepared by CLP Wind Farms (India) Private Limited

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1 PROJECT DETAILS

1.1 Summary Description of the Implementation Status of the Project

The project has been implemented by CLP Wind Farms (India) Private Limited (“CLP”) in the state of Maharashtra. The combined capacity of the project activity is 60 MW (30*2) MW which is using Gamesa make 2 MW G97 Wind Turbine Generators (WTG). The project is located at Jath taluka, District: Sangli in the state of Maharashtra. The project activity utilises wind power to generate clean power with a view to bring in greenhouse gas emission reductions. The power generated from this project activity has been supplied to the Indian Integrated Grid System. The Project is fully commissioned and is supplying electricity to Integrated Indian Grid system.

The Project activity is a new facility (Greenfield) and the purpose of the project activity is to generate energy electricity by the utilization of wind velocity power and further selling the generated energy to the Indian Integrated Grid (same is now part of integrated Indian grid). In this process there is no consumption of any fossil fuel and hence the project does not lead to any greenhouse gas emissions. Thus, electricity has been generated through sustainable means without causing any negative impact on the environment.

The Project activity helps to reduce the demand- supply gap in the country and also helps in contributing to the sustainable development by using wind energy as the source of power generation and reduction of GHG emissions.

The first machine under this project activity was commissioned on 26-03-2014 and last machine was commissioned on 31-03-2014.

During this monitoring period the project activity has exported 104.214 GWh of net energy to the Integrated Indian Grid system. Initially, the Indian electricity system was divided into two regional grids, the synchronous Northern, Eastern, Western, and North Eastern (NEWNE) grid and the Southern grid. Each grid covers several states. However, Govt. of India has decided to integrate all the regional grid systems and thus, regional grids do not exist now. Thus, now the project activity is connected to Integrated Indian Grid system.

The total emission reductions achieved during the monitoring period from 01/10/2021 to 31/12/2022 (both days inclusive) is 101,816 tCO₂.

Audit Type	Period	Program	VVB Name	Number of years
Validation/ Verification	26/03/2014 - 01/08/2015	VCS	Bureau Veritas Certification Holding SAS	1 year, 4 months

Verification	02/08/2015 - 01/10/2016	VCS	Earthood Services Private Limited	1 year, 2 months
Verification	02/10/2016 - 31/10/2017	VCS	LGAI Technological Center, S.A. (Applus+)	1 year, 30 days
Verification	01/11/2017 - 31/12/2018	VCS	Earthood Services Private Limited	1 year, 2 months
Verification	01/01/2019 - 30/09/2020	VCS	Earthood Services Private Limited	1 year, 9 months
Verification	01/10/2020 - 30/09/2021	VCS	LGAI Technological Center, S.A. (Applus+)	1 year
Verification	01/10/2021 to 31/12/2022	VCS	LGAI Technological Center, S.A. (Applus+ Certification)	1 years, 3 months,
Total	26/03/2014 - 31/12/2022	VCS		8 years, 9 months,

1.2 Sectoral Scope and Project Type

Sectoral scope : 1 Energy Industries (renewable -/ non renewable sources)

Project Type : I, Renewable energy project

Methodology : ACM0002 - Consolidated baseline methodology for grid-connected electricity generation from renewable sources (Version 16.0)

1.3 Project Proponent

Organization name	CLP Wind Farms (India) Private Limited
Contact person	Navneet Kumar
Title	Head-Carbon Offsets
Address	7 th Floor, FULCRUM, Sahar Road, Andheri (East), Mumbai – 400 099. India
Telephone	+9122 67588888
Email	carbon@clpindia.in

1.4 Other Entities Involved in the Project

Organization name	Not Applicable
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Role in the Project	Not Applicable
Contact person	Not Applicable
Title	Not Applicable
Address	Not Applicable
Telephone	Not Applicable
Email	Not Applicable

1.5 Project Start Date

The project start date is 26-03-2014 which is the date of commissioning of the first WTG installed under the project activity.

1.6 Project Crediting Period

The length of the Crediting period of the project activity is 10 years (Renewable twice) starting from 26-03-2014 to 25-03-2024.

1.7 Project Location

The project activity is located at Achakanhali, Amrutwadi, Devnal, Jath, Khojanwadi, Mendhegiri, Salekiri, Untawadi and Valsang in the distt. Sangli of Maharashtra in India. The location details of project activity are given in below table:

Sr. No.	Location No.	Gut. No	Village	Latitude	Longitude
1	J97/2-110	58	Untawadi	16° 58' 55.776" N	75° 15' 50.148" E
2	J97/2-87	67/1 67/2/2	Untawadi	16° 58' 59.664" N	75° 15' 21.78" E
3	J97/2-114	61	Untawadi	16° 59' 11.652" N	75° 15' 50.544" E
4	J97/2-41 J97/2-42	218	Khojanwadi	16° 57' 17.424" N 16° 57' 33.3" N	75° 16' 38.352" E 75° 16' 38.208" E
5	J97/2-16	173	Khojanwadi	16° 57' 52.884" N	75° 16' 9.3" E
6	J97/2-91	144/1 144/2	Menthagiri	17° 0' 11.124" N	75° 13' 26.976" E
7	J97/2-132	34/3	Devnal	17° 1' 12.36" N	75° 15' 55.62" E
8	J97/1-165	16/2	Amrutwadi	17° 3' 5.256" N	75° 16' 14.13" E
9	J97/1-102	133/2A	Jath	17° 4' 44.652" N	75° 15' 51.12" E

Sr. No.	Location No.	Gut. No	Village	Latitude	Longitude
10	J97/1-147	120/1/3	Jath	17° 4' 25.608" N	75° 15' 11.304" E
		120/1/4			
11	J97/1-190	125/2	Jath	17° 4' 18.264" N	75° 15' 41.904" E
12	J97/1-231	86/6	Achakanhal li	17° 5' 51.072" N	75° 14' 50.172" E
13	J97/1-114	88	Achakanhal li	17° 3' 57.492" N	75° 15' 38.952" E
14	J97/1-173	239/2	Valsang	17° 5' 2.976" N	75° 17' 12.408" E
15	J97/1-185	68	Achakanhal li	17° 6' 17.928" N	75° 15' 25.74" E
16	J97/1-164	138	Jath	17° 4' 56.82" N	75° 15' 39.51" E
17	J97/1-239	343	Salagiri	17° 2' 33.18" N	75° 17' 48.084" E
18	J97/2-161	47/1	Mendhegiri	16° 59' 16.404" N	75° 14' 40.56" E
		48/3			
19	J97/1-197	146/2A/1	Jath	17° 5' 16.944" N	75° 15' 48.132" E
		146/2B			
		146/2A/2A			
20	J97/1-227	167	Jath	17° 5' 8.736" N	75° 16' 6.672" E
21	J97/1-163	253	Valsang	17° 4' 47.604" N	75° 17' 14.604" E
		256			
22	J97/2-145	24/1	Untawadi	17° 0' 33.3" N	75° 16' 43.968" E
23	J97/1-228	384	Salekari	17° 2' 59.28" N	75° 17' 59.388" E
24	J97/2-129	10/B	Devnal	17° 0' 31.032" N	75° 15' 39.672" E
		9/2B/2			
25	J97/1-226	96/1	Achakanhal li	17° 5' 28.896" N	75° 15' 16.56" E
26	J97/1-166	210	Valsang	17° 4' 33.888" N	75° 17' 14.82" E
		269			
27	J97/2-128	49	Untawadi	16° 59' 0.42" N	75° 16' 14.232" E
28	J97/2-119	88/4	Untawadi	16° 58' 31.476" N	75° 16' 1.416" E
29	J97/1-248	147	Salagiri	17° 1' 18.264" N	75° 17' 22.416" E

Sr. No.	Location No.	Gut. No	Village	Latitude	Longitude
30	J97/1-114	215	Jath	17° 3' 57.492" N	75° 15' 38.952" E

1.8 Title and Reference of Methodology

Sectoral Scope: 1, Energy industries (renewable/ non-renewable sources)

Project Category: ACM0002, Version-16, "Grid-connected electricity generation from renewable sources - Version 16.0

(<http://cdm.unfccc.int/methodologies/DB/EY2CL7RTEHRC9V6YQHLAR6MJ6VEU83>)

The tools referenced in this methodology are:

The project activity also takes reference from following Tools from the tools prescribed by applied methodology:

1. Tool for the demonstration and assessment of additionality --- Version 07.0.0, EB 70, Annex 8 (<https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-01-v7.0.0.pdf>)
2. Tool to calculate the emission factor for an electricity system --- Version 04.0, EB 75, Annex 15 (<https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-07-v4.0.pdf>)

1.9 Participation under other GHG Programs

The project activity has not been registered or currently seeking registration under any other GHG programs.

1.10 Other Forms of Credit and Supply Chain (Scope 3) Emissions

- Emission Trading Programs and Other Binding Limits: The project has not participated in any Emissions Trading Programs. The emission reductions generated for this duration of periodic verification would not be claimed under any other GHG programs
- Other Forms of Environmental Credit: CLP here by confirms that the project has not sought or received any other GHG related environmental credit and submitted a declaration to DoE that CLP wouldn't claim any form of environmental credit except VCU for the said duration.

1.11 Sustainable Development Contributions

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

- **Social well-being:** The project has helped in generating employment opportunities during the construction and operation phases. The project activity leads to development in infrastructure in the region like development of roads and also may promote business with improved power generation.
- **Economic well-being:** The project is a clean technology investment in the region, which would not have been taken place in the absence of the VCS benefits the project activity also helped to reduce the demand supply gap in the state.
- **Technological well-being:** The successful operation of project activity leads to promotion of wind based power generation and encouraged other entrepreneurs to participate in similar projects
- **Environmental well-being:** Wind being a renewable source of energy, it reduces the dependence on fossil fuels and conserves natural resources which are on the verge of depletion. The project activity has generated power using zero emissions wind-based power generation which helps to reduce GHG emissions and specific pollutants like SO_x, NO_x, and SPM associated with the conventional thermal power generation facilities. Due to its zero emission the Project activity also helps in avoiding significant amount of GHG emissions

Table 1: Sustainable Development Contributions

Row number	SDG Target	SDG Indicator	Net Impact on SDG Indicator	Current Project Contributions	Contributions Over Project Lifetime
Not Applicable	Not Applicable	Not Applicable	Since PP did not monitor SDG activities during current or previous monitoring period, No SDG indicator and its impact has been reported. Since the project was registered before 20 January 2023, it is not mandatory to report SDG contributions.	Not Applicable	Not Applicable

2 SAFEGUARDS

2.1 No Net Harm

In line with Ministry of Environment Forest and Climate Change, Govt. of India, Environmental Impact Assessment (EIA) is not mandatory for wind energy project. However, as per CLP's internal governance system, EIA is mandatory for all projects. Thus, EIA has been conducted before project installation and found that this project does not have any negative environmental and socio-economic impacts. Thus, this is not applicable for this project activity.

2.2 Local Stakeholder Consultation

CLPWFPL had identified different stakeholders for its wind power project as per the different phases of Implementation. Separate stakeholder consultation was carried out for all the 2 phases. Following are the identified stakeholders,

- a) Representatives from O&M contractor;
- b) Employees of CLPWFPL;
- c) Contractor of CLPWFPL;
- d) Villagers from nearby villages

As the project is located at Jath project site, thus, stakeholders' meeting was organized to receive comprehensive feedback from the local peoples.

The meeting was carried out by CLPWFPL on 08/01/2014 at the Project Storage Yard, Village Kumbhari, Dist. Sangli. All the stakeholders have been invited through submission of the invitation letter and/or Public Notice to attend the stakeholders meeting.

The local stakeholder meetings were carried out at site of the project activity and the details of the same can be referred from the registered VCS PD. As a part of continuous feedback from stakeholders, along with the 3rd party O&M contractor, CLP has also appointed independent Asset Managers at every site. These assets managers are responsible for site supervision and continuous day-to-day interaction with the local stakeholders e.g. local villagers, local govt. authorities and others. Based on the local requirements, CLP has initiated several CSR/sustainable development activities in the project catchment area.

Further, CLP has also placed a grievance register onsite where-in, the stakeholders can put down their request/complaint/requirements. Same is continuously monitored and appropriate action are also being taken by management. Furthermore, CLP has also placed a notice board on site to communicate any necessary information/updates to local stakeholders. CLP has found this two-way communication with local stakeholders is very effective towards sustainability of the project in long run.

2.3 AFOLU-Specific Safeguards

This section is not applicable for this project activity

3 IMPLEMENTATION STATUS

3.1 Implementation Status of the Project Activity

The first machine under the project activity was commissioned on 26-03-2014 and last machine was commissioned on 31-03-2014. The combined capacity of the project is 60 MW which is using Gamesa make 2.0 MW G97 WTGs at Jath site. The commissioning date for all the machines installed in the project activity is given in the table below:

S. No.	Machine ID	Commissioning Dates	S. No.	Machine ID	Commissioning Dates
1.	J97/2-110	26-Mar-14	16.	J97/1-227	30-Mar-14
2.	J97/2-87	26-Mar-14	17.	J97/1-190	30-Mar-14
3.	J97/2-114	26-Mar-14	18.	J97/1-164	30-Mar-14
4.	J97/1-185	30-Mar-14	19.	J97/2-91	30-Mar-14
5.	J97/1-226	30-Mar-14	20.	J97/2-145	30-Mar-14
6.	J97/2-16	30-Mar-14	21.	J97/2-119	30-Mar-14
7.	J97/1-166	30-Mar-14	22.	J97/2-128	30-Mar-14
8.	J97/1-163	30-Mar-14	23.	J97/2-132	30-Mar-14
9.	J97/1-231	30-Mar-14	24.	J97/2-129	30-Mar-14
10.	J97/1-228	30-Mar-14	25.	J97/2-41	30-Mar-14
11.	J97/1-147	30-Mar-14	26.	J97/2-42	30-Mar-14
12.	J97/1-114	30-Mar-14	27.	J97/1-165	30-Mar-14
13.	J97/1-173	30-Mar-14	28.	J97/1-248	30-Mar-14
14.	J97/1-197	30-Mar-14	29.	J97/1-239	30-Mar-14
15.	J97/1-102	30-Mar-14	30.	J97/2-161	31-Mar-14

Events that may impact the GHG emission reductions or removals and monitoring:

No such events took place during the monitoring period that may impact the GHG emission reductions for the project activity. The project activity has been exporting electricity continuously since commissioning. There were neither major breakdowns nor other events for the project activity during the monitoring period that may impact the GHG emission reductions for the project activity.

3.2 Deviations

3.1.1 Methodology Deviations

There are no deviations related to methodology.

3.1.2 Project Description Deviations

No deviation was considered during current monitoring period.

However, below deviation considered in previous verification:

In previous monitoring period, It was observed that date and time shown in main meter installed at feeder no-01 were not appropriate. Thus, Maharashtra State Electricity Distribution Company Limited has replaced the concerned meter on 19/11/2019 to maintain the appropriateness in electricity monitoring in line with section 4.3 of registered PD. Thus, same change in energy meter has been accounted as Project Description deviations in line with section 3.18.2 of VCS standard version 4.1.

Further, in 3rd monitoring period, during meter testing, it was observed that date and time shown in check meter installed at feeder no-08 were not appropriate. Thus, Maharashtra State Electricity Distribution Company Limited has replaced the concerned meter to maintain the appropriateness in electricity monitoring in line with section 4.3 of registered PD. Thus, same change in energy meter has been accounted as Project Description deviations in line with section 3.18.2 of VCS standard version 4.1. However, this project deviation doesn't have an adverse impact in the applicability of the methodology, additionally or the appropriateness of the baseline scenario.

3.3 Grouped Projects

The project activity is not a grouped project.

4 DATA AND PARAMETERS

4.1 Data and Parameters Available at Validation

Data / Parameter	EF _{grid,OM,y}
Data unit	tCO ₂ e/MWh
Description	Operating Margin (OM) Emission Factor in year y
Source of data	Calculated from CEA database, Version 10, December 2014
Value applied	0.9862
Justification of choice of data or description of	Calculated as per "Tool to calculate the emission factor for an electricity system, version 04.0.0" as 3-year generation weighted

measurement methods and procedures applied	average using data for the years 2011-2012, 2012-2013 & 2013-2014. The data are obtained from “CO2 Baseline Database for Indian Power Sector” version 10.0, published by the Central Electricity Authority, Ministry of Power, Government of India.
Purpose of Data	Baseline Emission calculation
Comments	Operating margin emission factor is fixed ex-ante throughout the crediting period.

Data / Parameter	$EF_{grid,BM,y}$
Data unit	tCO ₂ e/MWh
Description	Build Margin (BM) Emission Factor in year y
Source of data	Calculated from CEA database, Version 10, December 2014
Value applied	0.9495
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 04.0.0” for the year 2013-2014. The data is obtained from “CO2 Baseline Database for Indian Power Sector” version 10.0, published by the Central Electricity Authority, Ministry of Power, Government of India.
Purpose of Data	Baseline Emission calculation
Comments	Build margin emission factor is fixed ex-ante throughout the crediting period

Data / Parameter	$EF_{grid,CM,y}$								
Data unit	tCO ₂ e/MWh								
Description	Combined Margin (CM) Emission Factor in year y								
Source of data	Calculated from CEA database, Version 10, December 2014								
Value applied	0.9770								
Justification of choice of data or description of measurement methods and procedures applied	Calculation based on 75% of OM and 25% of BM values approach as directed by ‘Tool to calculate the emission factor for an electricity system’, version 04.0.0” for the year 2013-2014. <table border="1"> <tr> <th colspan="2">Combined Margin Estimation for Indian Integrated Grid (tCO₂/MWh)</th></tr> <tr> <td>Generation Weighted Average OM ($EF_{grid, OM,y}$)</td><td>0.9862</td></tr> <tr> <td>BM ($EF_{grid, BM, y}$)</td><td>0.9495</td></tr> <tr> <td>Combined Margin ($EF_{grid,CM,y}$)</td><td>0.9770</td></tr> </table>	Combined Margin Estimation for Indian Integrated Grid (tCO ₂ /MWh)		Generation Weighted Average OM ($EF_{grid, OM,y}$)	0.9862	BM ($EF_{grid, BM, y}$)	0.9495	Combined Margin ($EF_{grid,CM,y}$)	0.9770
Combined Margin Estimation for Indian Integrated Grid (tCO ₂ /MWh)									
Generation Weighted Average OM ($EF_{grid, OM,y}$)	0.9862								
BM ($EF_{grid, BM, y}$)	0.9495								
Combined Margin ($EF_{grid,CM,y}$)	0.9770								
Purpose of Data	Baseline Emission calculation								

Comments	Combined margin emission factor is fixed ex-ante throughout the crediting period
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4.2 Data and Parameters Monitored

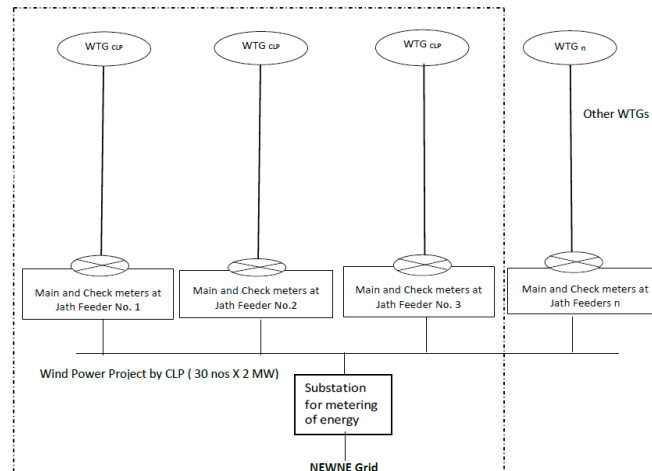
Data / Parameter	EG _{PJ,y}
Data unit	MWh
Description	Quantity of net electricity generation supplied by the project (Wind) plant/unit to the grid in year y
Source of data	Monthly electricity share certificates/note or Credit Note or Joint Meter Reading Report
Description of measurement methods and procedures to be applied	The value of net electricity generation supplied to the grid is as per the Monthly electricity share certificates/note or Credit Note or Joint Meter Reading Report (issued by MSEDCL), which can be cross checked from the invoice raised to DISCOM. This document forms the basis for calculation of the emission reductions. Net electricity supplied to the grid has been calculated as the difference between the measured values of “export” and “import” of electricity, recorded through the dedicated SEB energy meter (electronic tri-vector bidirectional) installed at the delivery point of the electricity (i.e. at the connected substation). 2 meters – main and check are installed at each feeder and total 8 feeders have been installed in this project. In case of failure of main meter, values from check meter are utilized. Net electricity generated and supplied by the project 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. For, apportioning procedure refer section 4.3 of the MR.
Frequency of monitoring/recording	Continuous monitoring, hourly measurement and monthly recording
Value monitored	104,214.33
Monitoring equipment	The net electricity supplied by the project activity to the grid has been calculated based on electricity export and import by the WTGs which are measured by export-import energy meters. Details of the energy meters are provided in section 4.3 below.

QA/QC procedures to be applied	- The energy meter reading is taken on monthly basis - Energy meters are calibrated once in a three year and faulty meters will be duly replaced immediately. - 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 has been cross checked against the invoice raised by the CLPWFPL towards the DISCOM
Purpose of the data	Baseline Emissions calculation
Calculation method	O&M contractor apportioned the electricity export and import data based on individual WTGs controller reading, summation of all controller reading of WTGs connected under the common feeder and joint meter reading (based on billing meter) and provide month wise “Energy Breakup Report” which contains electricity export, import. Detailed calculation procedure is mentioned in section 3.3.
Comments	This data has been used to calculate the baseline emissions. Additionally, the data will be archived for crediting period+2 years.

4.3 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, formed 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.

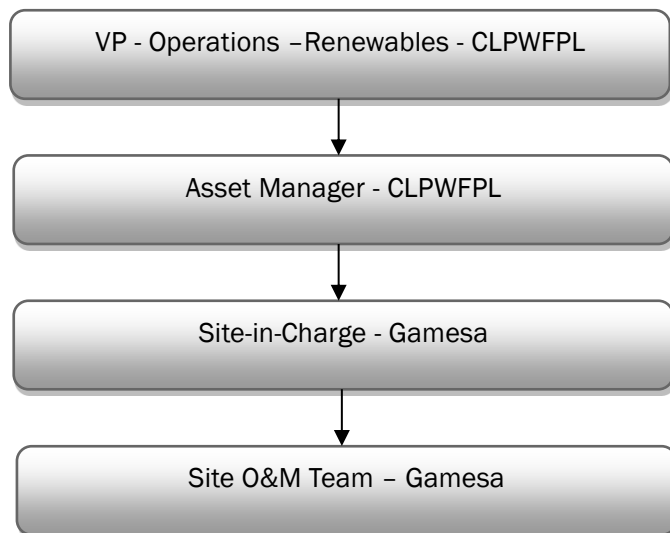
The monitoring shall include all the equipment's that contribute towards reduction in GHG emissions. Since the project activity focuses mainly on the generation of renewable power, it is important to monitor all the equipment's involved in the metering of all the necessary instruments.

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

Monitoring roles and responsibilities

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

The Project activity is operated by Gamesa (O&M contractor for the project activity) and managed by the PP. The operational and maintenance contract for the project activity is with Gamesa, which is an ISO 9001 certified company. Gamesa follows the documentation practices to ensure the reliability and availability of the data for all the activities as required from the identification of the site, wind resource assessment, logistics, finance, construction, commissioning and operation of the wind power project. The data for the project is compiled by the O&M Contractor and subsequently stored by the PP. The roles and responsibilities for the project are described as below;



Personnel Training:

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

Training and maintenance requirements:

O&M operator has provided 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 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.

Data Recording:

The state utility and representative of concerned Power Producer / developer shall jointly read the metering system every month at the delivery point.

Meter readings taken jointly signed by the representatives of state utility and of concerned power producer/developer. If Power Producer/ Developer's representative is not present for joint meter reading then the meter reading taken by state utility shall be considered as final; provided a signed copy of the meter reading is sent to the Power Purchase / Developer within twenty four (24) hours of such reading of the main metering system or back up metering system as the case may be.

Reading and Correction of Meters:

For energy accounting, O&M operator has provided ABT compliant meters at the interface points. Interface metering is in line to the Central Electricity Authority (Installation and Operation Meters) Regulation, 2006. If 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 have been undertaken at least once in 3 years and faulty meters will be duly replaced immediately. Calibration has been done by an authorized agency or reputed laboratory.

Internal Audit

The Project Proponent (PP) maintains necessary records on GHG data pertaining to both baseline emission and project emission. The scope of the Internal Audit (IA) carried out by PP reflects the details of plant performance, power generation, export and all the necessary monitoring parameters included in the PDD.

Apportioning Procedure for (Wind) Power Project connected to Indian Integrated grid (same is now part of integrated Indian grid)

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

In case of Indian Integrated grid, multiple WTGs have been connected to the feeder, one of which is be part of the project activity and rest of which are 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.

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 Integrated 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 will be 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 will be 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.

Data Recording and Archiving:

O&M operator kept complete and accurate records of operating log at the Power Plant. The data has been archived electronically as well as in log books at the power plant and kept for two years after the end of the crediting period or the last issuance of VERs 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 from:

- 1) 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.

Meter Calibration Details:

Sl. No.	Feeder No	Meter Identification No	Meter Make	Accuracy Class	Calibration Date	Calibration Validity Till
1	Feeder-1	02814124 (Main Meter)	Elester	0.2s	19/11/2019	18/11/2022
					20/08/2020	19/08/2023
		15687856 (Check Meter)	Elester	0.2s	27/06/2018	26/06/2021
					20/08/2020	19/08/2023
2	Feeder-2	15687858 (Main Meter)	Elester	0.2s	27/06/2018	26/06/2021
					20/08/2020	19/08/2023
		15687860 (Check Meter)	Elester	0.2s	27/06/2018	26/06/2021
					20/08/2020	19/08/2023
3	Feeder-3	15687862 (Main Meter)	Elester	0.2s	27/06/2018	26/06/2021
					20/08/2020	19/08/2023
		12853657 (Check Meter)	Elester	0.2s	27/06/2018	26/06/2021
					20/08/2020	19/08/2023
4	Feeder-4	13813553 (Main Meter)	Elester	0.2s	27/06/2018	26/06/2021
					20/08/2020	19/08/2023
		16351040 (Check Meter)	Elester	0.2s	27/06/2018	26/06/2021
					20/08/2020	19/08/2023
5	Feeder-6	16636465 (Main Meter)	Elester	0.2s	27/06/2018	26/06/2021
					20/08/2020	19/08/2023
		16636468 (Check Meter)	Elester	0.2s	27/06/2018	26/06/2021
					20/08/2020	19/08/2023
6	Feeder-7	15456640 (Main Meter)	Elester	0.2s	27/06/2018	26/06/2021
					20/08/2020	19/08/2023
		16351020 (Check Meter)	Elester	0.2s	27/06/2018	26/06/2021
					20/08/2020	19/08/2023
7	Feeder-9	16351021 (Main Meter)	Elester	0.2s	27/06/2018	26/06/2021
					20/08/2020	19/08/2023
		16351022 (Check Meter)	Elester	0.2s	27/06/2018	26/06/2021
					20/08/2020	19/08/2023
8	Feeder-8	16636473 (Main Meter)	Elester	0.2s	27/06/2018	26/06/2021
					20/08/2020	19/08/2023
		02814125	Elester	0.2s	27/06/2018	26/06/2021

Sl. No.	Feeder No	Meter Identification No	Meter Make	Accuracy Class	Calibration Date	Calibration Validity Till
		(Check Meter)			20/08/2020	19/08/2023

Calibration frequency of the meter is once in three years. There was not any significant period of shut-down or break-down period during this monitoring period.

5 QUANTIFICATION OF GHG EMISSION REDUCTIONS AND REMOVALS

5.1 Baseline Emissions

As per the equation 6 of the methodology ACM 0002 (Version 16.0),

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

Where:

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

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

$EF_{grid, CM, y}$: Combined Margin (CM) Emission Factor of Indian Integrated Grid (tCO₂e/MWh)

Baseline Emission (BE_y):

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

$$\begin{aligned} \text{Thus, } BE_y &= 104,214.33 \text{ MWh} * 0.9770 \text{ tCO}_2\text{e/MWh} \\ &= 101,816 \text{ tCO}_2 \text{ (after rounding down)} \end{aligned}$$

5.2 Project Emissions

Since the project activity is a renewable energy project which generates electricity using wind power and hence does not result in project emissions as per the applicable methodology ACM0002, version 16.

5.3 Leakage

As per ACM0002 Version 16.0.0, no leakage has been considered for the calculation of emission factor

5.4 Net GHG Emission Reductions and Removals

According to the approved methodology ACM0002 (Version 16) Emission Reductions are calculated as

$$ER_y = BE_y - PE_y$$

Where:

ER_y Emission reductions in year y (tCO₂e/yr)

BE_y Baseline Emissions in year y (tCO₂e/yr)

PE_y Project Emissions in year y (tCO₂e/yr)

Thus,

$$ER_y = 101,816 - 0 \text{ tCO}_2\text{e}$$

$$= 101,816 \text{ tCO}_2\text{e}$$

Year	Baseline emissions or removals (tCO ₂ e)	Project emissions or removals (tCO ₂ e)	Leakage emissions (tCO ₂ e)	Net GHG emission reductions or removals (tCO ₂ e)
2021 (01/10/2021 to 31/12/2021)	10,608	0	0	10,608
2022 (01/01/2022 to 31/12/2022)	91,208	0	0	91,208
Total	101,816	0	0	101,816

<u>Ex-ante emissions reductions/removals</u>	<u>Achieved emissions reductions/removals</u>	<u>Percent difference</u>	<u>Justification for the difference</u>
148,198	101,816	31.30%	The actual emission reductions for the current monitoring period is 31.30% lower than estimated emission reductions. Availability of wind during low wind season is a natural phenomenon which is beyond the control of project proponent.