

1ST PERIODIC MONITORING REPORT OF WIND POWER PROJECT IN MAHARASHTRA, INDIA – ANDHRA LAKE PHASE - II



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

CLP Wind Farms (India) Private Limited (CLPWF), now onwards referred as the Project Proponent (PP), has developed a green-field wind based electricity generation project at Andhra Lake, Pune District, in the State of Maharashtra.

Project Proponent plans to eventually establish 113.6 MW wind farm in three phases. Currently Phase – I of 56.0 MW capacity and Phase-II of 50.4 MW capacity has been commissioned. Phase-III of 7.2 MW is under development. Project activity under this MR refers to development of 50.4 MW (Andhra Lake Phase - II) and will be referred as the Project in this PDD.

The Project would install 63 number of Enercon (India) Limited (EIL) make E-53 Wind Turbine Generators (WTGs) to generate electrical power for export to the distribution licensee. In the baseline scenario, the similar quantum of electricity would have been generated by the operation of grid- connected power plants and by the addition of new generation sources that would have led to emission of Green House Gases (GHGs).

Detailed locations and commissioning dates of the Project are provided in section 1.7 of this report. Total emissions reductions generated by the Project during this monitoring period are 177,746 tCO₂ e.

1.2 Sectoral Scope and Project Type

The project activity is considered under “grid-connected electricity generation from renewable sources” (Sectoral Scope) that generates electricity in excess of 15 MW (limit for small scale project). Therefore as per the scope of the project activity enlisted in the “list of sectoral scopes and related approved baseline and monitoring methodologies”, the project activity is categorized in Scope Number 1. Details of the same are listed below:

Scope Number : 1

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

Project Type : Project

Methodology : ACM0002 - Consolidated baseline methodology for grid-connected electricity generation from renewable sources (Version 12.3.0)

The Project is neither a grouped nor an AFOUL project.

1.3 Project Proponent

The project proponent details are as follows;

Organization name	CLP Wind Farms (India) Private Limited
Contact person	Mr. Dipjay Sanchania
Title	Head – CDM

Address	15 th Floor, Oberoi Commerz, Off. Western Express Highway, Goregaon (E), Mumbai 400 063 India
Telephone	+ 91 22 6758 8888
Email	carbon@clpindia.in

1.4 Other Entities Involved in the Project

Organization name	Not Applicable
Contact person	Not Applicable
Title	Not Applicable
Address	Not Applicable
Telephone	Not Applicable
Email	Not Applicable

1.5 Project Start Date

19/08/2011, being the date of commissioning of first WEG installed under the project activity.

1.6 Project Crediting Period

Crediting Period: 10 years 0 months (renewable twice)

Start Date of Crediting Period: 19/08/2011

End Date of Crediting Period: 18/08/2021

The Project Proponent confirms that the Project is also registered under CDM¹ on 04/10/2012 and they will claim emissions reductions from the Project only in one mechanism for a particular period to avoid double counting.

1.7 Project Location

Site : Andhra Lake
District : Pune
State : Maharashtra
Host Party : India

The Project activity is located in the Khed and Maval taluk of Pune district in Maharashtra. The nearest airport and railway station is in Pune city. The coordinates of individual WEGs of this site are as below:

¹ <http://cdm.unfccc.int/Projects/DB/LRQA%20Ltd1348755977.79/view>

Serial No	WTG Loc no	Date of commissioning	Latitude (North)			Longitude (East)		
			Degree	Minutes	Seconds	Degree	Minutes	Seconds
1	19	7-Jan-12	18	51	3.1	73	38	32
2	20	7-Jan-12	18	51	12.8	73	38	32.3
3	21	7-Jan-12	18	51	17.5	73	38	29.6
4	22	7-Jan-12	18	51	23	73	38	33.7
5	23	7-Jan-12	18	51	22.8	73	38	22.5
6	24	7-Jan-12	18	51	29	73	38	22.3
7	25	7-Jan-12	18	51	33.6	73	38	22
8	26	7-Jan-12	18	51	41.4	73	38	28.7
9	27	7-Jan-12	18	51	45.9	73	38	27.7
10	28	7-Jan-12	18	51	53.6	73	38	30.6
11	29	7-Jan-12	18	51	59.9	73	38	24.9
12	30	7-Jan-12	18	52	5.1	73	38	21.9
13	31	7-Jan-12	18	52	7.8	73	38	20.3
14	32	7-Jan-12	18	52	15.6	73	38	18.2
15	33	7-Jan-12	18	52	20.8	73	38	16.9
16	34	7-Jan-12	18	52	25.6	73	38	14.5
17	35	9-Feb-12	18	52	32.7	73	38	10.9
18	36	9-Feb-12	18	52	33.6	73	38	1.3
19	96	19-Aug-11	18	58	1.3	73	31	58.1
20	97	19-Aug-11	18	58	7.4	73	31	55.6
21	107	7-Jan-12	18	59	39.2	73	35	7.4
22	108	7-Jan-12	18	59	29	73	35	13.5
23	109	7-Jan-12	18	59	24.1	73	35	17
24	110	7-Jan-12	18	59	20.1	73	35	21.7
25	111	7-Jan-12	18	59	14.1	73	35	25.9
26	112	7-Jan-12	18	59	10.8	73	35	29.5
27	113	7-Jan-12	18	59	7.9	73	35	33.4
28	115	7-Jan-12	18	59	1.5	73	35	47.3
29	116	7-Jan-12	18	58	57.8	73	35	53
30	117	7-Jan-12	18	58	51.7	73	36	1.2
31	118	7-Jan-12	18	58	47.8	73	36	4.2
32	119	7-Jan-12	18	58	43	73	36	8.1
33	120	7-Jan-12	18	58	37.9	73	36	10
34	121	7-Jan-12	18	58	34.2	73	36	13.9
35	122	7-Jan-12	18	58	29	73	36	19.1
36	123	9-Feb-12	18	58	25.6	73	36	21.7
37	124	9-Feb-12	18	58	21.6	73	36	26.8

Serial No	WTG Loc no	Date of commissioning	Latitude (North)			Longitude (East)		
			Degree	Minutes	Seconds	Degree	Minutes	Seconds
38	190	13-Feb-12	18	48	24	73	33	38.2
39	191	13-Feb-12	18	48	28.9	73	33	36.1
40	193	13-Feb-12	18	48	40.6	73	33	42.7
41	194	13-Feb-12	18	48	47.5	73	33	46.3
42	195	13-Feb-12	18	48	48	73	33	35.5
43	196	13-Feb-12	18	48	54.2	73	33	34.1
44	197	13-Feb-12	18	48	58.5	73	33	31.1
45	198	13-Feb-12	18	49	4.1	73	33	30.6
46	199	22-Mar-12	18	49	8	73	33	27.4
47	200	22-Mar-12	18	49	12.9	73	33	26.3
48	201	3-Mar-12	18	49	17.8	73	33	27.2
49	202	22-Mar-12	18	49	24.1	73	33	26.8
50	203	22-Mar-12	18	49	29.2	73	33	24.9
51	204	3-Mar-12	18	49	31.5	73	33	16.4
52	205	3-Mar-12	18	49	36.5	73	33	14.4
53	206	3-Mar-12	18	49	41.8	73	33	16.2
54	207	3-Mar-12	18	49	48.1	73	33	16.8
55	208	3-Mar-12	18	49	52.8	73	33	16.1
56	209	3-Mar-12	18	49	58.3	73	33	16.4
57	210	22-Mar-12	18	50	4	73	33	14.1
58	211	22-Mar-12	18	50	6.4	73	33	9.2
59	212	22-Mar-12	18	50	9.9	73	33	4.4
60	213	22-Mar-12	18	50	14.7	73	32	58.2
61	214	22-Mar-12	18	50	20.2	73	32	52.8
62	500	7-Jan-12	18	50	54.4	73	38	29.4
63	511	12-Dec-11	18	59	33.3	73	35	10.3

1.8 Title and Reference of Methodology

The approved consolidated baseline and monitoring methodology ACM0002 (Version 12.3.0, EB67), has been used to determine the baseline emissions and emission reduction due to the project activity. The details of the methodology are mentioned below:

Title of the baseline and monitoring methodology: "Consolidated Baseline Methodology for grid connected electricity generation from renewable sources"

Reference: ACM0002, Version 12.3.0,

Sectoral scope: 1

It has been referred from the list of approved methodologies for CDM project activities on the UNFCCC CDM website (<http://cdm.unfccc.int/methodologies/PAmethodologies/approved.html>).

The approved methodology also draws upon:

- Version 06.0.0 (EB 65, Annex 21, 25th November 2011) of the “Tool for the demonstration and assessment of additionality”; and
- Version 02.2.1 (EB 63, Annex 19, 29th September 2011) of the “Tool to calculate the emission factor for an electricity system”
- Guidance on assessment of investment analysis (Annex 05, EB 62)

1.9 Other Programs

The Project is a CDM registered Project activity and its CDM details are as follows,

Project Title: Wind power project in Maharashtra, India – Andhra Lake Phase - II

CDM Registration Number: 7491

Crediting Period Start Date: 30 Sept 2013

Emission Reduction Claimed Till Date: No claim made till date

Further, the net GHG Emission reductions or removals generated by the project activity will not be used for compliance with an emission trading program or to meet binding limits on GHG Emissions.

2 IMPLEMENTATION STATUS

2.1 Implementation Status of the Project Activity

- **Implementation Status:**
All the WEGs of the Project are commissioned and the Project is fully implemented. The commissioning dates of the individual WEGs have been provided in section 1.7.
- **Events that may impact the GHG emission reductions or removals and monitoring:**
No such events took place during this 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.

2.2 Deviations

2.2.1 Methodology Deviations

There are no deviations related to methodology.

2.2.2 Project Description Deviations

There are no deviations related to Project Description.

2.3 Grouped Project

Not Applicable

3 DATA AND PARAMETERS

3.1 Data and Parameters Available at Validation

Data / Parameter	EF _{grid, CM, y}	
Data unit	tCO2/MWh	
Description	Combined Margin CO2 emission factor for NEWNE grid	
Source of data	Estimated figure based on 75% of OM and 25% of BM values	
Value applied:	0.9487 tCO2/MWh	
Justification of choice of data or description of measurement methods and procedures applied	Calculated as per CEA sourced data with 3 years vintage data and option of ex ante calculation based on 75% of OM and 25% of BM values approach. Computed once during PDD finalization.	
	Combined Margin Estimation for NEWNE Grid (tCO2e / MWh)	
	Generation Weighted Average OM (EFgrid, OM,y)	0.9942
	BM (EFgrid, BM, y)	0.8123
	Combined Margin (EFCO2)	0.9487
Purpose of the data	Baseline Emission calculation	
Comments	Build margin emission factor is fixed ex-ante throughout the crediting period.	

Data / Parameter	EF _{OM, y}		
Data unit	tCO ₂ e/MWh		
Description	Operating Margin emission factor for NEWNE grid		
Source of data	Referred from CO ₂ Baseline Database for the Indian Power Sector prepared by Central Electricity Authority, Version 6.0.		
Value applied:	Calculated it as CEA sourced data 3 years vintage data (2007-08, 2008-09 and 2009-10) and option of ex ante calculation based on Simple Operating Margin Method. Computed once during PDD finalization. Year	Simple operating margin of NEWNE regional grid (tCO ₂ e/MWh)	Net electricity generation in the year (GWh)

	2007-08	0.9999	401,642
	2008-09	1.0006	421,8063
	2009-10	0.9777	458,043
	Generation weighted average Operating Margin emission factor in the last three years		0.9942
Justification of choice of data or description of measurement methods and procedures applied	Data is taken as per the methodology, guidelines and tools mentioned in section 1.8 of this monitoring report.		
Purpose of the data	Baseline Emission calculation		
Comments	Operating margin emission factor is fixed ex-ante throughout the crediting period.		

Data / Parameter	$EF_{BM,y}$
Data unit	tCO ₂ /MWh
Description	Build Margin emission factor for NEWNE grid
Source of data	Referred from CO ₂ Baseline Database for the Indian Power Sector prepared by
Value applied:	0.8123
Justification of choice of data or description of measurement methods and procedures applied	Calculated as per CEA sourced data for the year 2009-10.
Purpose of the data	Baseline Emission calculation
Comments	Build margin emission factor is fixed ex-ante throughout the crediting period.

3.2 Data and Parameters Monitored

Data / Parameter	$EG_{export,y}$
Data unit	MWh/yr
Description	Quantity of electricity exported by the Project to the grid in year y
Source of data	Joint Meter Reading Sheets and generation reports issued by Maharashtra State Electricity Distribution Co. Ltd. (MSEDCL) for all the feeders to which WTGs of the project activity are connected. $EG_{export,y}$ will be summation of readings of individual Joint Meter Reading Sheets.
Description of measurement methods and procedures to be applied	Quantity of electricity exported by the Project to the grid is calculated using the sum of readings taken at the main/check meter installed at the interconnection points. The WTGs of CLPWF are connected to the main meter of accuracy class 0.2s at the substation. Data monitoring takes place at the substation on a

	continuous basis and is recorded on monthly basis. On the basis of these readings taken, a generation report would be issued by MSEDCL
Frequency of monitoring/recording	Monthly
Value applied:	187,437.37
Monitoring equipment	The PP has installed approved ABT meters with accuracy class of 0.2 s with online metering features at the metering point (Main Meter). Check meter with separate CT/PT of class 0.2s is also installed. The WTGs of CLPWF are connected to the main meter of accuracy class 0.2s at the substation. Data monitoring takes place at the substation on a continuous basis and is recorded on monthly basis. On the basis of these readings taken, a generation report is issued by MSEDCL. Pls refer Annex 01 to know - Type, Accuracy Class, Serial number & Change in Meter information
QA/QC procedures to be applied	The readings from main and check meters installed at the interconnection point is checked every month at the time of metering of electricity generation. In case the meters are found to be operating beyond the permissible limits, it is to be immediately sent for calibration. The frequency of meter testing is once in 5 years. It would be prudent to note that the meter testing and calibration is not within the control of the Project Proponent.
Purpose of data	Baseline Emissions calculation
Calculation method	Measured Value
Comment	The data will be kept for two years after the end of the crediting period or the last issuance of CERs for this Project activity, whichever occurs later.

Data / Parameter	$EG_{import,y}$
Data unit	MWh/yr
Description	Quantity of electricity imported by the Project from the grid in year y
Source of data	Joint Meter Reading Sheets and generation reports issued by Maharashtra State Electricity Distribution Co. Ltd. (MSEDCL) for all the feeders to which WTGs of the project activity are connected. $EG_{import,y}$ will be summation of readings of individual Joint Meter Reading Sheets.
Description of measurement methods and procedures to be applied	Quantity of electricity imported by the Project to the grid is calculated using the sum of readings taken at the main/check meter installed at the interconnection points. The WTGs of CLPWF are connected to the main meter of accuracy class 0.2s at the substation. Data monitoring takes place at the substation on a

	continuous basis and is recorded on monthly basis. On the basis of these readings taken, a generation report would be issued by MSEDCL
Frequency of monitoring/recording	Monthly
Value applied:	79.12
Monitoring equipment	The PP has installed approved ABT meters with accuracy class of 0.2 s with online metering features at the metering point (Main Meter). Check meter with separate CT/PT of class 0.2s is also installed. The WTGs of CLPWF are connected to the main meter of accuracy class 0.2s at the substation. Data monitoring takes place at the substation on a continuous basis and is recorded on monthly basis. On the basis of these readings taken, a generation report is issued by MSEDCL. Pls refer Annex 01 to know - Type, Accuracy Class, Serial number & Change in Meter information
QA/QC procedures to be applied	The readings from main and check meters installed at the interconnection point is checked every month at the time of metering of electricity generation. In case the meters are found to be operating beyond the permissible limits, it is to be immediately sent for calibration. The frequency of meter testing is once in 5 years. It would be prudent to note that the meter testing and calibration is not within the control of the Project Proponent.
Purpose of data	Baseline Emissions calculation
Calculation method	Measured value
Comment	The data will be kept for two years after the end of the crediting period or the last issuance of CERs for this Project activity, whichever occurs later.

Data / Parameter	$EG_{\text{facility},y}$
Data unit	MWh/yr
Description	Quantity of net electricity generation supplied by the project plant/unit to the grid in year y
Source of data	Joint Meter Reading Sheets and generation reports issued by Maharashtra State Electricity Distribution Co. Ltd. (MSEDCL) for all the feeders to which WTGs of the project activity are connected.
Description of measurement methods and procedures to be applied	Net electricity supplied will be calculated as the difference of electricity exported to and imported from the grid measure using the readings taken at the main/check meter installed at the interconnection point. $EG_{\text{facility},y} = EG_{\text{export},y} - EG_{\text{import},y}$ Joint Meter Reading Sheets and generation report issued by Maharashtra State Electricity Distribution Co. Ltd. (MSEDCL) on a

	monthly basis shall be used for this purpose.
Frequency of monitoring/recording	Monthly
Value applied:	187,358.25
Monitoring equipment	Not applicable as it is a calculated value
QA/QC procedures to be applied	The value of this parameter can be cross checked with all the invoices generated for the sold electricity during the year y.
Purpose of data	Baseline Emissions calculation
Calculation method	Measured value
Comment	The data will be kept for two years after the end of the crediting period or the last issuance of CERs for this Project activity, whichever occurs later.

Data / Parameter	EG _{All_controller,i,y}
Data unit	MWh
Description	Sum of Electricity generation measured by controllers of project and non-project WTGs connected to feeder i during period y
Source of data	Controllers meter readings of individual WTGs monitored at the Central Monitoring Station (CMS)
Description of measurement methods and procedures to be applied	This parameter is used for calculation of EG_{facility,y} in cases where there are other (non-project) WTGs connected to the same feeder and also in cases when the start/end dates of monitoring period do not match with the start/end dates of Joint Meter Reading Sheets / Generation reports issued by MSEDCL. This parameter is the sum of electricity generated by WTGs connected to a particular feeder and will be measured by the inbuilt controller meters (also called LCS meters) located in each WTGs on a continuous basis. The readings will be recorded at the Central Monitoring Station (CMS) on a daily basis. O&M contactor will have the responsibility of monitoring this parameter.
Frequency of monitoring/recording	Continuous monitoring and monthly compilation
Value applied:	216,099.404 ²
Monitoring equipment	LCS meters
QA/QC procedures to be applied	The LCS meters do not require calibration as the energy readings of electricity generated at the LCS meter is cross verified by the energy calculated by inverting system installed in the WTGs. In

- ² Feeder 8 of the project has 2 project WTGS (WTGs 96 and 97) and non-project WTGs (which were in Andhra Lake I). The JMR and invoice is issued for entire Feeder. Controller reading of 2 project WTGs are used along with controller reading of entire Feeder 8, to arrive at apportioning based on the JMR value. At all points of time, the JMR value was the base reference, and the balance non-project controller generation was attributed in Andhra Lake I (verification already completed). There is no double counting at any point of time.

	case there is any mismatch in the energy values recorded by the LCS meter and the energy values calculated by the inverting system; the machine will stop working and generate the error report. The project proponent does not have any control over the LCS meter readings of other project developers and therefore the values certified by the MSEDCL will be directly used for the purpose of calculating the electricity exports to the grid.
Purpose of data	Baseline emissions calculations
Calculation method	Measured value
Comment	The data will be kept for two years after the end of the crediting period or the last issuance of CERs for this Project activity, whichever occurs later.

Data / Parameter	$EG_{WTG\_controller,i,y}$
Data unit	MWh
Description	Sum of Electricity generation measured by controllers of all the project WTGs that are connected to feeder i during period y
Source of data	Controllers meter readings of project activity WTGs monitored at the Central Monitoring Station (CMS)
Description of measurement methods and procedures to be applied	This parameter would be used for calculation of $EG_{facility,y}$ in cases where there are other (non-project) WTGs connected to the same feeder and also in cases when the start/end dates of monitoring period do not match with the start/end dates of Joint Meter Reading Sheets / Generation reports issued by MSEDCL. This parameter is the sum of electricity generated by project WTGs connected to a particular feeder i and will be measured by the inbuilt controller meters (also called LCS meters) located in each WTGs on a continuous basis. The readings will be recorded at the Central Monitoring Station (CMS) on a daily basis. O&M contactor will have the responsibility of monitoring this parameter.
Frequency of monitoring/recording	Continuous monitoring and monthly compilation
Value applied:	161,893.304
Monitoring equipment	LCS meters
QA/QC procedures to be applied	The LCS meters do not require calibration as the energy readings of electricity generated at the LCS meter is cross verified by the energy calculated by inverting system installed in the WTGs. In case there is any mismatch in the energy values recorded by the LCS meter and the energy values calculated by the inverting system; the machine will stop working and generate the error report. The project proponent does not have any control over the LCS meter readings of other project developers and therefore the values certified by the MSEDCL will be directly used for the purpose of calculating the electricity exports to the grid.
Purpose of data	Baseline emissions calculations

Calculation method	Measured value
Comment	The data will be kept for two years after the end of the crediting period or the last issuance of CERs for this Project activity, whichever occurs later.

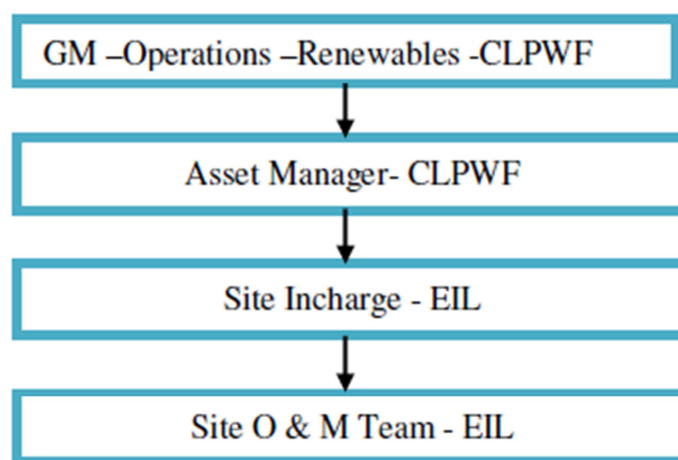
3.3 Monitoring Plan

The approved large scale methodology ACM0002 (Version 12.3.0), stipulates the monitoring of the net electricity generation supplied by the project plant/unit to the grid.

The monitoring plan has been formulated according to the approved consolidated monitoring methodology in ACM0002 Version 12.3.0.

CLPWF has entered into a comprehensive Operation and Maintenance agreement with the manufactures of the WTGs for a period of 10 years, which is extendable at renegotiated terms. The contractor EIL, under the O&M contract with CLPWF would be responsible for the operation and maintenance of the Project activity for the entire crediting period. The O&M personnel will be qualified engineers and will be trained at the WTG manufacturing facility of EIL for operating and ensuring best performance of the WTGs.

The authority and responsibility of project management as well as registration, monitoring, measurement and reporting lies with the PP. CLPWF has formulated a Project Team to ensure proper and continuous monitoring of the performance of turbines and generation of power. The operation and management structure implemented by the PP for the purpose of the Project activity is illustrated below:



The Project activity essentially involves generation of electricity from wind, the employed WTG can only convert wind energy into electrical energy and cannot use any other input fuel for electricity generation.

Frequency of meter reading: The meters installed at the metering point will have 15 minutes block online reading. However, the main/check meter reading at the metering point will be undertaken jointly by the representative of the MSEDCL and authorized officials of the PP on 1st day of every month for the preceding month.

Data archiving

Data will be archived electronically. The data would be archived two years after crediting period or last issuance whichever is later.

Calibration of Meters

The readings from main and check meters installed at the interconnection point will be checked every month at the time of metering of electricity generation. In case the meters are found to be operating beyond the permissible limits, it shall be immediately sent for calibration. The frequency of meter testing will be once in 5 years.

Apportioning of electricity: In case dates of monitoring period do not match with the dates of Joint Meter Reading Sheets / Generation reports issued by Maharashtra State Electricity Distribution Co. Ltd. (MSEDCL)

Apportioning will be carried out based on ratio of generation data recorded using LCS meters installed at the WTG. The LCS meters do not require calibration as the energy readings of electricity generated at the LCS meter is cross verified by the energy calculated by inverting system installed in the WTGs.

The emission reductions of that particular period (from the date of registration of the project till the end of the month) will be calculated based on percentage generation of that particular period at WTG using LCS data multiplied with the total units generated in the month as per the Joint Meter Reading Sheets / Generation report issued by Maharashtra State Electricity Distribution Co. Ltd. (MSEDCL).

The sample calculation is furnished below:

Generation from CLPWF WTGs for the monitoring period = A (From LCS data) Generation from CLPWF WTGs for the billing period = B (From LCS data)

Net energy exported from CLPWF WTGs for the billing period = C (JMR/Generation share report by MSEDCL)

Net energy export used for calculation of emission reduction for the monitoring period = $(C * A/B)$

4 QUANTIFICATION OF GHG EMISSION REDUCTIONS AND REMOVALS

4.1 Baseline Emissions

Baseline emissions include only CO₂ emissions from electricity generation in fossil fuel fired power plants that are displaced due to the project activity. The baseline emissions for the monitoring period are calculated as follows:

$$BE_y = EG_{PJ,y} * EF_{grid,CM,y} \text{-----Equation 6 of ACM0002}$$

Thus,

$$\begin{aligned} BE_y &= 187,358 * 0.9487 \text{ tCO}_2\text{e} \\ &= 177,746 \text{ tCO}_2\text{e} \end{aligned}$$

4.2 Project Emissions

The project activity involves harnessing of wind energy and its conversion to electricity. Hence according to ACM0002 Version 12.3.0, there will be no project emissions in the project activity $PE_y = 0$

4.3 Leakage

As per ACM0002 Version 12.3.0, no leakage has been considered for the calculation of emission factor.

4.4 Net GHG Emission Reductions and Removals

According to the approved methodology ACM0002 (Version 12.3.0) Emission Reductions are calculated as

$$ER_y = BE_y - PE_y \text{-----Equation 6 of ACM0002}$$

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,

$$\begin{aligned} ER_y &= 177,746 - 0 \\ &= 177,746 \end{aligned}$$

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)
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2011	882	0	0	882
2012	89,458	0	0	89,458
2013	87,406	0	0	87,406
Total	177,746	0	0	177,746

Annex 01 - Type, Accuracy Class, Serial number & Change in Meter information

Main Meter					
Feeder No.	Meter identification-S No.	Line details (KV)	Meter Make & Class	Date of Calibration	Due date (5 years frequency)
1	13099002	33 KV	Elster & 0.2S	12 Nov 2011	12 Nov 2016
2	13098999	33 KV	Elster & 0.2S	12 Nov 2011	12 Nov 2016
3	13099003	33 KV	Elster & 0.2S	12 Nov 2011	12 Nov 2016
5	13098998	33 KV	Elster & 0.2S	12 Sept 2011	11 Sept 2016
8	13098996	33 KV	Elster & 0.2S	01 Aug 2011	31 July 2016

Check Meter					
Feeder No.	Meter identification-S No.	Line details (KV)	Meter Make & Class	Date of Calibration	Due date (5 years frequency)
1	13099006	33 KV	Elster & 0.2S	12 Nov 2011	12 Nov 2016
2	13099007	33 KV	Elster & 0.2S	12 Nov 2011	12 Nov 2016
3	13099000	33 KV	Elster & 0.2S	12 Nov 2011	12 Nov 2016
5	13099001	33 KV	Elster & 0.2S	12 Sept 2011	11 Sept 2016
8	13098997	33 KV	Elster & 0.2S	01 Aug 2011	31 July 2016

There is no replacement of Energy Meter either at Main / Check meter.