

WIND ENERGY PROJECT IN HARAPANAHALLI, KARNATAKA

Document Prepared By: CLP Wind Farms (India) Private Limited

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Prepared By	CLP Wind Farms (India) Private Limited
Contact	Dipjay Sanchania Off Western Express Highway Level 15, Oberoi Commerz Goregaon (E), Mumbai – Maharashtra T: +91-22-6758 8888 F: +91-22-6758 8811 E: carbon@clpindia.in Web link : www.clpindia.in

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1 PROJECT DETAILS

1.1 Summary Description of the Implementation Status of the Project

CLP Wind Farms (India) Private Limited (CLPWFPL) has implemented a wind power project of capacity 39.6 MW comprising of 24 number of Wind Turbine Generators (WTGs), each with rated capacity of 1650 kW. The project area is spread across 4 villages - Harakanalu, Arsanahalu, Hyarada, Dasanahalli which are part of Harapanahalli Taluk of Davangere District in the State of Karnataka. The electricity generated from the Project activity is sold to the local electricity distribution company in the state.

The Project activity is a new facility (Greenfield) and it plans to utilize wind energy to generate electricity and supply it to distribution licences which is a part of the Southern Grid of India. In the absence of Project activity, quantity of the electricity that would be delivered by the Project activity to the Southern grid would be sourced from the existing grid-connected power plants and future capacity additions to meet the growing electricity requirements. Hence, generation mix of Southern grid is considered as the baseline scenario.

The first WTG under this project has stated commissioning since 21-January-2011 and has been under operation since then except for regular shutdowns considering O&M requirements. A comprehensive list of WTGs commissioning dates are provided under Appendix 1.

The total GHG emission reductions or removals generated in this monitoring period, i.e. 21-January-2011 to 31-May-2013 (inclusive both days) is 225,307 tCO₂.

1.2 Sectoral Scope and Project Type

As per the categorization by UNFCCC, the project activity falls under: "[Grid-connected electricity generation from renewable sources](#)" Sectoral Scope 1

Methodology applied is ACM 0002 of version 12.3.0

The project is not a grouped project activity.

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 Maharashtra 400 063
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

The project start date for this project is 21-January-2011. This is the day on which the first WTG was commissioned under the Project activity.

1.6 Project Crediting Period

Project has begun generating GHG emission reductions from 21-January-2011. Hence, crediting period for VCS begins on 21-January-2011 and ends on 20-January-2021 i.e. 10 years crediting period which can be renewed for maximum 2 times.

1.7 Project Location

The project activity is located at Karnataka State of India. The project is implemented in Villages Harakanalu, Arsanahalu, Hyarada, Dasanahalli of Taluka Harapanahalli in District Davangere of Karnataka State in India.

The geo- coordinates and commissioning date of WTG under the project activity are provided in the Appendix 1.

1.8 Title and Reference of Methodology

The methodology applied for the project is ACM 0002 of version 12.3.0 titled "[Grid-connected electricity generation from renewable sources](#)" ACM0002 draws upon the following tools which have been used in the VCS PD:

- Tool to calculate the emission factor for an electricity system (Version 02)
- Tool for demonstration and assessment of additionality (Version 6.0.0)

1.9 Other Programs

- Emission Trading Programs and Other Binding Limits: The project is not a part of any emission trading program.

- Other Forms of Environmental Credit: The project proponent hereby confirms that the project has not sought or received any other GHG related environmental credit.
- Participation under Other GHG Programs:

The project has participated as CDM projects titled “Wind Energy Project in Harapanahalli, Karnataka” and UNFCCC No: 6390.

The project link is: <http://cdm.unfccc.int/Projects/DB/LRQA%20Ltd1339417262.04/view>

Further, PP will claim the carbon credits from only one GHG programme during a monitoring period which will ensure that there will be no double counting of emission reductions.

2 IMPLEMENTATION STATUS

2.1 Implementation Status of the Project Activity

The Project Activity envisages implementation of a 39.6 MW wind power project consisting of 24 Wind Turbine Generators (WTGs) of individual capacity 1.65 MW in Karnataka state of India by CLP Wind Farms (India) Private Limited. The project has been commissioned. A comprehensive list of WTGs commissioning dates are provided under Appendix 1.

The project has been under operation since commissioning without any major breakdowns. Though normal breakdowns due to O&M measures are continuously being worked upon by the dedicated O&M contractor for the projects WTGs. There has been no events that may have an impact on the GHG emissions or removals during the current monitoring period.

Further, there are no changes to the project participant for the project activity during the monitoring period.

2.2 Deviations

2.2.1 Methodology Deviations

There has not been any methodology deviation during the aforesaid monitoring period (21-January-2011 to 31-May-2013).

2.2.2 Project Description Deviations

There has not been any project description deviation applied during the current monitoring period (1-January-2011 to 31-May-2013).

2.3 Grouped Project

The project is not a grouped project.

3 DATA AND PARAMETERS

3.1 Data and Parameters Available at Validation

Data / Parameter	W_{OM}
Data unit	%
Description	Weightage of operating margin emissions factor
Source of data	"Tool to calculate the emission factor for an electricity system" (Version 2)
Value applied:	0.75
Justification of choice of data or description of measurement methods and procedures applied	Default values used as per the "Tool to calculate the emission factor for an electricity system" Version 2
Purpose of the data	Baseline Emission calculation
Comments	-

Data / Parameter	W_{BM}
Data unit	%
Description	Weightage of build margin emissions factor
Source of data	"Tool to calculate the emission factor for an electricity system" (Version 2)
Value applied:	0.25
Justification of choice of data or description of measurement methods and procedures applied	Default values used as per the "Tool to calculate the emission factor for an electricity system" Version 2
Purpose of the data	Baseline Emission calculation
Comments	-

3.2 Data and Parameters Monitored

Data / Parameter	$EG_{\text{facility},y}$
Data unit	MWh/year
Description	Quantity of net electricity generation supplied by the project plant/unit to the grid in year y
Source of data	Form- B of Karnataka Power Transmission Corporation Limited (KPTCL)
Description of measurement methods and procedures to be applied	Monitoring: These values are monitored through the main meter readings at two outgoing feeders or from check meters as per emergency preparedness procedure. ¹ Archiving: Paper/Electronic

¹ Details of monitoring equipment, the meters used to monitor the data/parameter including type, accuracy class, and serial number of equipment, are provided in Appendix 1 .

	Responsibility: The plant management shall be responsible for the regular recording of data. This parameter accounts for the project imports and export, hence showing the net (export – import) electricity supplied to the grid. Note1: In case during verification, the time period time period during start and end of each crediting period does not match with the BESCOM's billing cycle, the electricity export and import shall be calculated using apportioning formula as detailed under section 3.3 below. Note 2: At anytime during the crediting period, if there are additional WTGs (which are not a part of this project activity) connected with the bulk meter(s) at Haraknal sub-station, the apportioning mechanism listed in section 3.3 would be used.
Frequency of monitoring/recording	Continuous monitoring and monthly recording
Value applied:	229,508.52
Monitoring equipment	The main and check meters shall be calibrated and maintained by BESCOM as per their own schedule and this frequency of meter calibration is not within the control of the Project Proponent. Accuracy class of Main meter and Check meter: 0.2 Frequency of testing: once in a quarter of a calendar year Responsibility: BESCOM will test and calibrate the meters.
QA/QC procedures to be applied	Cross check measurement results with records for sold electricity (Invoices raised by PP)
Purpose of data	Baseline Emissions calculations
Calculation method	The net electricity generated by the project is calculated as the difference between export and import values as recorded at the metering points.
Comment	The data will be archived both in electronic and paper format for crediting period + 2 years.

Data / Parameter	EF _{grid,CM,y}
Data unit	tCO ₂ /MWh
Description	Combined CO ₂ emission factor of Southern Grid
Source of data	Central Electricity Authority:CO2 Emission Database CEA CO₂ Baseline database Version 10 (http://www.cea.nic.in/reports/planning/cdm_co2/cdm_co2.htm)
Description of measurement methods and procedures to be applied	Calculated as per "Tool to calculate the emission factor for an electricity system, version 02.0.0" as 3-year generation weighted average using data for the years 2011-2012, 2012-2013 and 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.

Frequency of monitoring/recording	Annually
Value applied:	0.9817
Monitoring equipment	Not applicable
QA/QC procedures to be applied	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	Calculation of Baseline emissions
Calculation method	Calculated as per "Tool to calculate the emission factor for an electricity system, version 02"
Comment	The data will be archived both in electronic and paper format for crediting period + 2 years.

Data / Parameter	EF _{grid,OM,y}
Data unit	tCO ₂ /MWh
Description	Operating margin CO ₂ emission factor of Southern Grid
Source of data	Central Electricity Authority:CO2 Emission Database CEA CO ₂ Baseline database Version 10 (http://www.cea.nic.in/reports/planning/cdm_co2/cdm_co2.htm)
Description of measurement methods and procedures to be applied	Calculated as per "Tool to calculate the emission factor for an electricity system, version 02" as 3-year generation weighted average using data for the years 011-2012, 2012-2013 and 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.
Frequency of monitoring/recording	Annually
Value applied:	0.9887
Monitoring equipment	Not applicable
QA/QC procedures to be applied	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	Calculation of Baseline emissions
Calculation method	Calculated as per "Tool to calculate the emission factor for an electricity system, version 02"
Comment	The data will be archived both in electronic and paper format for crediting period + 2 years.

Data / Parameter	EF _{grid,BM,y}
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Data unit	tCO ₂ /MWh
Description	Build margin CO2 emission factor of Southern grid
Source of data	Central Electricity Authority:CO2 Emission Database CEA CO2 Baseline database Version 10 (http://www.cea.nic.in/reports/planning/cdm_co2/cdm_co2.htm)
Description of measurement methods and procedures to be applied	0.9609
Frequency of monitoring/recording	CEA has Calculated it as per 'Tool to calculate the emission factor for an electricity system', version 02 for the year 2012-13. The build margin is calculated in this database as the average emissions intensity of the 20% most recent capacity additions in the grid based on net generation and option of ex ante calculation.
Value applied:	Baseline Emission calculation
Monitoring equipment	This database is an official publication of Government of India for the purpose of baseline emission calculation. It is based on most recent data available to the Central Electricity Authority and hence considered authentic. As the calculation of baseline emission has been done ex ante its value will remain fixed for the entire crediting period.
QA/QC procedures to be applied	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	Calculation of Baseline emissions
Calculation method	Calculated as per "Tool to calculate the emission factor for an electricity system, version 02"
Comment	The data will be archived both in electronic and paper format for crediting period + 2 years.

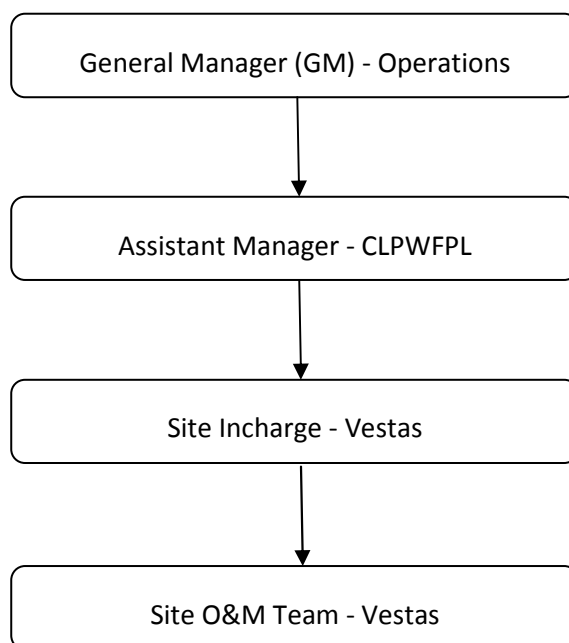
3.3 Monitoring Plan

Vestas Wind Technology India Private Limited is O&M contractor for the project activity. O&M contractor will be responsible for the maintaining all the monitoring data on behalf of state utility in respect of the project activity.

The Monitoring and Verification procedures define a project specific standard against which the project's performance (i.e. GHG emissions) and compliance with all relevant criteria will be monitored and verified. It includes developing suitable data collection methods and techniques for data interpretation, for monitoring and verifying GHG emissions with specific focus on technical/efficiency/performance parameters. It also allows scope for review, scrutiny and benchmarking against established norms for monitoring and verification.

The Monitoring & Verification protocol provides a range of data estimation, measurement and collection options and techniques, in each case indicating preferred options consistent with good practice to allow Asset Manager, Site Incharge and the Site O&M team to apply the most practical and cost effective measurement approaches to the proposed project activity. The aim is to enable this project to have clear, credible and accurate monitoring, evaluation and verification procedures.

The operation and management structure implemented by the project proponent for the purpose of the project activity is illustrated below:



In present project activity, the electricity being generated by 24 wind turbines is monitored at the dedicated Haraknal substation located at Harapanahalli. In the substation, there are two meters namely- Check Meter and Main Meter (static type Trivector meter, Accuracy class: 0.2).

Every month BESCO Official visits the substation in the presence of O&M team of wind turbine Supplier (Vestas) and the Main meter reading is taken jointly and recorded by BESCO. The said meter readings are reported by the Field Officer to the concerned distribution circle who in turn informs to the consumption circle, which is authorized to prepare the Bill and give the credit for the energy generated by the wind turbines.

The Haraknal sub-station has the provision for 4 feeders of which two are currently in operation. At the time of commissioning, 13 nos of WTGs were connected to Feeder 1 and the remaining 11 WTGs of the project activity were connected to Feeder 2 at the Haraknal Substation.

Currently the Haraknal sub-station handles only 24 WTGs which are owned by CLPWFL. The meter readings are taken at the sub-station every 24 hours. A 33 kV reference meter is also present which is generally used by KPTCL for comparison. Since the capacity of the wind farm is higher, there is a possibility of more machines (WTGs) being installed and hence the bulk meter may have (in future) more machines connected to it. If this scenario occurs, the following apportioning mechanism will be used:

Apportioning mechanism

The net electricity recorded at the substation is apportioned to individual WTGs based on the generation at the WTG as per the formula given below:

Electricity exported by WTG to Grid, $EG_{exp, y}$ = (% generation of individual WTG connected to feeder) x (Electricity Export recorded at substation),

Where,

% generation of individual WTG connected to feeder = (Controller reading @ Individual WTG)/
(Sum of Controller reading of all WTGs connected on feeder)

Similarly, electricity imported by the WTG from the grid, $EG_{imp, y}$ = (% generation of individual WTG connected to feeder) x (Electricity Import recorded at substation)

$$EG_{facility, y} = EG_{exp, y} - EG_{imp, y}$$

Emergency Preparedness

In case of Main meter failure or errors, the grid officials would immediately replace the meter with a calibrated meter. There will be two meters provided at the pooling station: a Main Meter and a Check Meter.

Specific Calculation Procedure (For the time period during start and end of each crediting period):
For the time period during start and end of each crediting period, the following apportioning formula would be used to estimate the electricity generation for calculating emission reductions:

X = No. of days between start/end date of crediting period and date of BESCO's billing cycle

Y = Total no. of days in a particular month for which Form B reading has been taken

Z = No. of units as per Form B for that particular month

$$\text{Electricity Generation} = (X/Y) * Z$$

OR alternatively the daily readings taken by the technology supplier at the site will be referred for calculating the generation for X days.

Extract from Article 7 of the Power Purchase Agreement signed with BESCO:

Meter Test Checking:

All the main and check meters shall be tested for accuracy once in a quarter of a calendar year with reference to a portable standard meter which shall be of an accuracy class of 0.1%. The portable standard shall be owned by the BESCOM at its own cost and expense and tested and certified at least once every year against an accepted laboratory standard meter in accordance with electricity standards. The meters shall be deemed to be working satisfactorily if the errors are within specifications for meters of 0.2 accuracy class. The consumption registered by the main meters alone will hold good for the purpose of billing as long as the error in the main meter is within the permissible limits.

(i) If during the quarterly tests, the main meter is found to be within the permissible limit of error and the corresponding check meter is beyond the permissible limits, then billing will be as per the main meter as usual. The check meter shall however, be calibrated immediately.

(ii) If during the quarterly tests, the main meter is found to be beyond permissible limits of error, but the corresponding check meter is found to be within permissible limits of error, then the billing for the month up to the date and time of such test shall be as per the check meter. There will be a revision in the bills for the period from the previous calibration test up to the current test based on the readings of the check meter. The main meter shall be calibrated immediately and billing for the period thereafter till the next monthly meter reading shall be as per the calibrated main meter.

(iii) If the during quarterly tests, both main meters and the corresponding check meters are found to be beyond the permissible limits of error, both the meters shall be immediately calibrated and the correction applied to the reading registered by the main meter to arrive at the correct reading of energy supplied for billing purposes for the period from the last month's meter reading up to the current test. Billing for the period thereafter till the next monthly meter reading shall be as per the calibrated main meter.

(iv) If during any of the monthly meter readings, the variation between the main meter and the check meter is more than that permissible for meters of 0.2% accuracy class, all the meters shall re-tested and calibrated immediately.

The O&M service provider would be responsible for maintenance of the necessary spare parts and consumables for the maintenance of the WTGs such as anemometers, wind vanes and sensors, oil filters, batteries, auxiliary motors and pumps, WTG controllers, slip rings, limit switches and sensors, detergents & solvents etc. The service provider would also be responsible for supply of necessary main components of the WTG such as main gearboxes, blades, generators, towers, hubs, main shafts & bearings, ground and top controller and hydraulic systems. The service provider would also ensure that occupational health and safety procedures are adhered to during the operation & maintenance activities.

Meter details are mentioned below. Calibration Details of billing meters for the project activity are provided in the Appendix 1. Further, calibration details and Dates of calibration for the 33 kV meters are mentioned in Appendix 1.

Main Meter				
Line No.	Meter identification-S No.	Line details (KV)	Meter Make & Class	Meter Calibration Date (Doc. Identification No.)
1	RR No: HARA-01 Sr. No: 08001755	220KV	Make - L & T / Class - 0.2S	26-Feb-2011 (DVG/RTSD/WF/10-11/765-68 dated:1-Mar-2011)

Check Meter				
Line No.	Meter identification-S No.	Line details (KV)	Meter Make & Class	Meter Calibration Date (Doc. Identification No.)
1	RR No: HARA-01 Sr. No: 08038195	220KV	Make - L & T / Class - 0.2S	26-Feb-2011 (DVG/RTSD/WF/10-11/765-68 dated:1-Mar-2011)

4 QUANTIFICATION OF GHG EMISSION REDUCTIONS AND REMOVALS

4.1 Baseline Emissions

As per para 38 of ACM0002 version 12.3.0, Baseline emissions include only CO₂ emissions from electricity generation in fossil fuel fired power plants that are displaced due to the project activity. The methodology assumes that all project electricity generation above baseline levels would have been generated by existing grid-connected power plants and the addition of new grid-connected power plants. The baseline emissions are to be calculated as follows:

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

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 VCS project activity in year y (MWh/yr)

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)

Baseline Emissions

As per the equation 6 of the methodology ACM 0002 (Version 12.3.0),

$$BE_y = EG_{PJ, y} * EF_{grid, CM, y} \quad (1)$$

Where:

- BE_y : Baseline emissions in year y (tCO_2e/yr)
- $EG_{PJ, y}$: 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)
- $EF_{grid, CM, y}$: Combined margin CO_2 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" (tCO_2e/MWh)

Thus,

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

Values for 2011

Meter Reading for Period*	Break-up of Energy		
	Export kWh	Import kWh	Net
January-11	1,189,995.24	958.33	1,189,036.91
February-11	2,313,900.00	32,996.00	2,280,904.00
March-11	4,869,158.09	53,666.61	4,815,491.48
April-11	3,315,000.00	63,250.00	3,251,750.00
May-11	7,240,000.00	23,000.00	7,217,000.00
June-11	16,576,780.00	5,761.50	16,571,018.50
July-11	15,620,000.00	-	15,620,000.00
August-11	13,170,000.00	-	13,170,000.00
September-11	9,435,000.00	11,500.00	9,423,500.00
October-11	4,410,000.00	69,000.00	4,341,000.00
November-11	9,925,000.00	-	9,925,000.00
December-11	9,011,940.00	23,046.00	8,988,894.00
Total	97,076,773.33	283,178.44	96,793,594.89

Values for 2012

Meter Reading for Period*	Break-up of Energy		
	Export kWh	Import kWh	Net
January-12	4,295,000.00	51,750.00	4,243,250.00
February-12	6,120,000.00	34,500.00	6,085,500.00
March-12	4,376,230.00	51,853.50	4,324,376.50
April-12	3,552,880.00	57,615.00	3,495,265.00
May-12	9,520,920.00	23,046.00	9,497,874.00
June-12	15,025,000.00	-	15,025,000.00
July-12	16,715,000.00	-	16,715,000.00
August-12	13,650,000.00	5,750.00	13,644,250.00
September-12	9,050,000.00	23,000.00	9,027,000.00
October-12	7,660,000.00	17,250.00	7,642,750.00
November-12	4,925,130.00	40,330.50	4,884,799.50
December-12	8,475,000.00	28,750.00	8,446,250.00
Total	103,365,160.00	333,845.00	103,031,315.00

Values for 2013

Meter Reading for Period*	Break-up of Energy		
	Export kWh	Import kWh	Net
January-13	6,290,000.00	34,500.00	6,255,500.00
February-13	5,269,440.00	34,569.00	5,234,871.00
March-13	4,745,000.00	74,750.00	4,670,250.00
April-13	4,630,000.00	46,000.00	4,584,000.00
May-13	8,962,040.00	23,046.00	8,938,994.00
Total	29,896,480.00	212,865.00	29,683,615.00

Year	Net Export (MWh)	Baseline Emission Factor (tCO ₂ /MWh)	Total (tCO ₂ e)
2011	96,793.59	0.9817	96,793.59
2012	103,074.86	0.9817	103,074.86
2013	29,683.62	0.9817	29,683.62
Total	229508.52	-	225307

4.2 Project Emissions

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

4.3 Leakage

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

4.4 Net GHG Emission Reductions and Removals

As per equation number (11) of the applied methodology, emission reductions are calculated as follows:

$$ER_y = BE_y - PE_y \quad (7)$$

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)

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)
2011	95,022	-	-	95,022
2012	101,145	-	-	101,145
2013	29,140	-	-	29,140
Total	225,307			225,307

APPENDIX 1: COMMISSIONING AND CALIBRATION DETAILS FOR THE PROJECT ACTIVITY

Commissioning Details:

Serial No	WTG ID	Commissioning date	Latitude	Longitude
1	H 28	21-January-2011	14°50' 00.1" N	75°48' 46.3" E
2	H 29	21-January-2011	14°50' 17.2" N	75°48' 37.5 "E
3	H 30	21-January-2011	14°50' 26.2" N	75°48' 44.1 "E
4	H 31	21-January-2011	14°50' 37.6" N	75°48' 37.3 "E
5	H 32	21-January-2011	14°50' 42.2" N	75°48' 22.1 "E
6	H 33	21-January-2011	14°50' 50.3" N	75°48' 17.2 "E
7	H 34	21-January-2011	14°50' 47.4" N	75°48' 35.7 "E
8	H 35	21-January-2011	14°51' 00.5" N	75°48' 33.2 "E
9	H 15	25-February-2011	14°48' 20.5" N	75°50' 36. 5"E
10	H 16	25-February-2011	14°48' 31.6" N	75°50' 25 .8"E
11	H 17	25-February-2011	14°48' 42.6" N	75°50' 21 .2"E
12	H 18	25-February-2011	14°48' 50.1" N	75°50' 24 .4"E
13	H 19	25-February-2011	14°48' 36.9" N	75°49' 47 .5"E
14	H 20	25-February-2011	14°48' 47.8" N	75°49' 43 .2"E
15	H 21	25-February-2011	14°49' 07.4" N	75°49' 42 .0"E
16	H 22	25-February-2011	14°49' 16.4" N	75°49' 46 .1"E
17	H 23	25-February-2011	14°49' 24.1" N	75°49' 42 .5"E
18	H 24	25-February-2011	14°49' 19.3" N	75°49' 22 .7"E
19	H 25	25-February-2011	14°49' 37.0" N	75°49' 14 .7"E
20	H 26	25-February-2011	14°49' 50.4" N	75°49' 12 .6"E
21	H 27	25-February-2011	14°49' 43.7" N	75°48' 50 .4"E
22	H 36	25-February-2011	14°51' 13.9" N	75°48' 08 .0"E
23	H 37	25-February-2011	14°51' 24.7" N	75°47' 59 .6"E
24	H 38	25-February-2011	14°51' 33.0" N	75°47' 5 4.5"E

Meter details: -

Main Meter			
Line No.	Meter identification- S No.	Line details (KV)	Meter Make & Class
1	RR No: HARA-01 Sr. No: 11068937	220KV	Make - L & T / Class - 0.2S
F # 2	RR NO: HARA-02 Sr. No: 10058936	33KV	Make - L & T / Class - 0.2S
F # 1	RR NO: HARA-03 Sr. No: 10059285	33KV	Make - L & T / Class - 0.2S
Check Meter			
Line No.	Meter identification- S No.	Line details (KV)	Meter Make & Class
1	RR No: HARA-01 Sr. No: 11068943	220KV	Make - L & T / Class - 0.2S
F # 2	RR NO: HARA-02 Sr. No: 10058921	33KV	Make - L & T / Class - 0.2S
F # 1	RR NO: HARA-03 Sr. No: 10059240	33KV	Make - L & T / Class - 0.2S

Meter identification- S No.	(220KV) - Main Meter: RR No: HARA-01 Sr. No: 11068937 - Check Meter:- RR No: HARA-01 Sr. No: 11068943	(33KV); Feeder 2 - Main Meter:- RR NO: HARA-02 Sr. No: 10058936 - Check Meter :- RR NO: HARA-02 Sr. No: 10058921	(33KV); Feeder 1 - Main Meter:- RR NO: HARA-03 Sr. No: 10059285 - Check Meter:- RR NO: HARA-03 Sr. No: 10059240
1st Meter re-calibration Date (Doc. Identification No.)	27-Jun-2011 (DVG/RTSD/WF/11-12/177-81 dated: 1-Jul-2011)	15-Sep-2011 (AEE//NCE/HT/MT/CTA/11-12)	15-Sep-2011 (AEE//NCE/HT/MT/CTA/11-12)
2nd Meter re-calibration Date (Doc. Identification No.)	5-Sep-2011 (DVG/RTSD/WF/11-12/281-86 dated: 1-Oct-2011)	30-Mar-2012 (AEE//NCE/HT/MT/CTA)	30-Mar-2012 (AEE//NCE/HT/MT/CTA)

3rd Meter re-calibration Date (Doc. Identification No.)	22-Dec-11	28-Jun-2012 (AEE//NCE/HT/MT/CTA)	28-Jun-2012 (AEE//NCE/HT/MT/CTA)
4th Meter re-calibration Date (Doc. Identification No.)	28-May-2012 (AEE//NCE/HT/MT/CTA)	13-Aug-2012 (AEE//NCE/HT/MT/CTA)	13-Aug-2012 (AEE//NCE/HT/MT/CTA)
5th Meter re-calibration Date (Doc. Identification No.)	13-Aug-2012 (AEE (E)/NCE/CTA/12-13/14993-94 date: 12-Sep-2012)	22-Nov-2012 (AEE//NCE/HT/MT/CTA)	22-Nov-2012 (AEE//NCE/HT/MT/CTA)
6th Meter re-calibration Date (Doc. Identification No.)	22-Nov-2012 (EE (E)/NCE/CTA/12-13/15790-91 date: 10-Dec-2012)	23-Feb-2013 (AEE//NCE/HT/MT/CTA)	23-Feb-2013 (AEE//NCE/HT/MT/CTA)
7th Meter re-calibration Date (Doc. Identification No.)	23-Feb-2013 (AEE (E)/ NCE/CTA/12-13/16408-09 dated: 28-Mar-2013)	9-Jul-2013 (AEE//NCE/CTA/13-14)	9-Jul-2013 (AEE//NCE/CTA/13-14)
8th Meter re-calibration Date (Doc. Identification No.)	9-Jul-2013 (AEE//NCE/CTA/13-14)	14-Mar-2014 (AEE//NCE/CTA/13-14)	14-Mar-2014 (AEE//NCE/CTA/13-14)