

CHAKALA WIND POWER PROJECT IN MAHARASHTRA

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1 PROJECT DETAILS

1.1 Summary Description of the Implementation Status of the Project

Bindu Vayu Urja Private Limited (BVUPL) is entering into the renewable energy sector with an objective to build wind power assets in India. BVUPL has set up 39MW wind power project in Chakla Vilage in the state of Maharashtra. The project activity comprises of 26 Wind Electric Generators (WEGs) with a capacity of 1.5 MW each.

The project activity will help to reduce the supply demand gap in the state and also helps in contributing to the sustainable development by using wind energy as the source of power generation and reduction of GHG Emissions. In the project site, there are other wind projects owned by other customers connected to the same substation. There is an apportioning procedure which is approved by the state nodal agency for apportioning the electricity to each and every customer.

The start date of current monitoring period is 30th December-2011. This is because the first WTG was commissioned as on the said date and last machine under the project activity was commissioned on 22nd Febuary-2012.

The total GHG emission reductions or removals generated in this monitoring period are 76,534 tCO_{2e}.

1.2 Sectoral Scope and Project Type

As per the categorization by UNFCCC, the project activity falls under 'Scope 1, Sectoral Scope: Energy industries (renewable/non-renewable) .

Methodology applied is ACM 0002 of version 13.0.0

The project is not a grouped project activity

1.3 Project Proponent

Organization name	M/s Bindu Vayu Urja Private Limited
Contact person	Mr. Vikram Kailas
Title	Managing Director
Address	8001, Q-City, S.No: 109,Nanakramguda, Gachibowli, Hyderabad, Andhra Pradesh-500032
Telephone	+91-40- 3376 0100
Email	Vikram.Kailas@mytrah.com

1.4 Other Entities Involved in the Project

Not Applicable.

1.5 Project Start Date

The project start date for this project is said to be 30/12/2011. This is because the first WTG was commissioned as on the said date.

1.6 Project Crediting Period

The crediting period for the project activity is considered from 30th December 2011 to 29th December 2021, for 10 years

1.7 Project Location

The wind power project is located in Chakla village, Nandurbar District, Maharashtra State, India. The geo- coordinates of the project location is as follows.

The location of WTGs is as given below:

Sr. No	Loc. No.	Longitude (E)	Latitude (N)
1	C-38	21° 15' 30"	74° 19' 48 "
2	C-39	21° 15' 17.2"	74° 19' 39.4 "
3	C-40	21° 15' 13.6"	74° 19' 19.7 "
4	C-41	21° 14' 58.2"	74° 19' 26.7 "
5	C-42	21° 15' 48.2"	74° 19' 15 "
6	C-43	21° 15' 35.7"	74° 19' 10.5 "
7	C-44	21° 15' 23.9"	74° 19' 3.2 "
8	C-45	21° 15' 10.5"	74° 18' 59.2 "
9	C-46	21° 14' 57.1"	74° 19' 0.1 "
10	C-47	21° 15' 46.2"	74° 18' 41.2 "
11	C-48	21° 15' 33.2"	74° 18' 37.7 "
12	C-49	21° 15' 20"	74° 18' 36.1 "
13	C-50	21° 15' 6.6"	74° 18' 38 "
14	C-51	21° 15' 47.8"	74° 18' 13.7 "
15	C-52	21° 15' 33.4"	74° 18' 10.2 "
16	C-53	21° 15' 56.1"	74° 18' 24.4 "
17	C-54	21° 14' 43.8"	74° 18' 30.9 "
18	C-55	21° 15' 35.4"	74° 17' 45.6 "
19	C-56	21° 15' 23.3"	74° 17' 52 "
20	C-57	21° 15' 15.5"	74° 18' 19 "
21	C-58	21° 15' 1.1"	74° 18' 9 "
22	C-59	21° 14' 41.2"	74° 17' 53.4 "
23	C-60	21° 14' 29.6"	74° 18' 6.5 "

24	C-63	21° 14' 31"	74° 17' 41.1 "
25	C-64	21° 14' 23"	74° 17' 48.3 "
26	C-66	21° 14' 48.5"	74° 16' 37.2 "

The geographical location of the project site is as shown below:



1.8 Title and Reference of Methodology

Title: "Consolidated baseline methodology for Grid-Connected electricity generation from renewable source".

Reference: ACM0002, (Version 13.0.0, EB67).

ACM0002 draws upon the following tools which have been used in the PDD:

- Tool to calculate the emission factor for an electricity system – Version 02.2.1 (EB 63 annex 19)
- Tool for the demonstration and assessment of additionality – Version 6.0.0 (EB 65 annex 21).

1.9 Other Programs

The project is registered under Clean Development Mechanism (CDM) of UNFCCC with 10 years of crediting period (UNFCCC Reference No: 9472)¹ of the project.

Crediting Period of the project under CDM starts on 02nd January 2013, the date on which the project activity has been submitted to UNFCCC and ends on 1st January 2023.

¹ <http://cdm.unfccc.int/Projects/DB/BVQI1356940326.49/view>

2 IMPLEMENTATION STATUS

2.1 Implementation Status of the Project Activity

The first machine under the project activity was commissioned on 30th December 2011 and last machine under the project activity was commissioned on 22nd February 2012. The project activity consists of 26 machines (1.5 MW each) of Suzlon make S-82-1.5 MW, totaling to a capacity of 39 MW. The commissioning schedule of the project activity is shown below.

S.No	Make	WEG-HTSC No.	Commissioned on
1	Suzlon	C-38	30/12/2011
2	Suzlon	C-39	30/12/2011
3	Suzlon	C-40	30/12/2011
4	Suzlon	C-41	30/12/2011
5	Suzlon	C-42	22/02/2012
6	Suzlon	C-43	30/12/2011
7	Suzlon	C-44	30/12/2011
8	Suzlon	C-45	30/12/2011
9	Suzlon	C-46	30/12/2011
10	Suzlon	C-47	15/02/2012
11	Suzlon	C-48	12/01/2012
12	Suzlon	C-49	15/02/2012
13	Suzlon	C-50	03/01/2012
14	Suzlon	C-51	20/01/2012
15	Suzlon	C-52	20/01/2012
16	Suzlon	C-53	22/02/2012
17	Suzlon	C-54	30/12/2011
18	Suzlon	C-55	30/12/2011
19	Suzlon	C-56	30/12/2011
20	Suzlon	C-57	12/01/2012
21	Suzlon	C-58	30/12/2011
22	Suzlon	C-59	15/02/2012
23	Suzlon	C-60	15/02/2012
24	Suzlon	C-63	12/01/2012
25	Suzlon	C-64	13/01/2012
26	Suzlon	C-66	15/02/2012

The S82-1.5 MW is designed to withstand extreme conditions and operate effectively with low maintenance cost. Wind power generation is an environmentally safe and sound technology that has no harmful emissions during its entire lifetime operations.

Technical specifications of the WTGs are detailed below:

OPERATING DATA	
Rated power	1500 kW
Cut-in wind speed	4 m/s
Rated wind speed	14 m/s
Cut-off wind speed	20 m/s
Survival wind speed	52.5 m/s
Lifetime of the wind turbines	20 years

ROTOR DATA	
Type	3 Blades, Upwind / Horizontal axis
Diameter	82 m
Rotational speed at rated power	15.6 to 18.4 rpm
Rotor blade material	Epoxy bonded fiber glass
Swept area	5281 m ²
Power regulation	Active pitch regulated with Suzlon Flexi Slip System
GEARBOX	
Type	1 planetary stage / 2 helical stages
Ratio	1 : 95.09
Nominal load	1650 kW
Type of cooling	Forced oil cooling lubrication system
GENERATOR	
Type	Single speed induction generator with slip rings, variable rotor resistance via Suzlon Flexi slip system
Speed at rated power	1511 rpm
Rated power	1500 kW
Rated voltage	690 V AC
Frequency	50 Hz
Insulation	Class H
Enclosure	IP 54 / IP 23 (slip ring unit)
Cooling system	Air cooled
TOWER	
Type	Tubular tower (corrosion proof painting on inner and outer surface) with welded steel plates.
Tower Height	76 m
Hub height (including foundation)	Approximately 78.5 m
BRAKING SYSTEM	
Aerodynamic braking	3 Independent systems with blade pitching
Mechanical braking	Hydraulic fail safe disk brake system
YAW SYSTEM	
Type	Active electrical yaw motor
Bearing	Polyamide Slide bearing with gear ring & automatic greasing system
Protection	Cable twist sensor, proximity sensor
PITCH SYSTEM	
Type	3 independent blade pitch control with battery backup for each blade
Operating range	-5 ° to +90 °
Resolution	0.1 to 10 Deg

The project has supplied 80,334.24 MWh of electricity to the grid in the monitoring period, which indicates that the project has performed reasonably well during the monitoring period. Referring to the data available, it can be inferred that there has not been any major event that may impact

the GHG emission reductions or removals and monitoring of the project activity. There is no other changes in the project activity.

As a part of regular maintenance, the machines are stopped for mechanical and electrical maintenance and for visual inspection in the current monitoring period. The shutdown details have been included under Appendix 1.

2.2 Deviations

2.2.1 Methodology Deviations

There is no methodology deviation for the project activity.

2.2.2 Project Description Deviations

There have been no deviations from the description of the project activity

2.3 Grouped Project

Not Applicable.

3 DATA AND PARAMETERS

3.1 Data and Parameters Available at Validation

Data Unit / Parameter:	EF _{grid,OM,y}
Data unit:	tCO _{2e} /MWh
Description:	Operating margin emission factor of NEWNE Regional Electricity Grid
Source of data:	"Last 3 years average from CO ₂ Baseline Database for Indian Power Sector", version 7 published by the Central Electricity Authority, Ministry of Power, Government of India.
Value applied:	0.9851
Justification of choice of data or description of measurement methods and procedures applied	Operating Margin Emission Factor has been calculated by the Central Electricity Authority using the simple OM approach in accordance with ACM0002
Purpose of the data:	Calculation of baseline emission.
Any comment:	The operating Margin is calculated ex ante and it will remain same throughout the crediting period.

Data Unit / Parameter:	EF _{grid,BM,y}
Data unit:	tCO _{2e} /MWh
Description:	Build margin Emission Factor emission factor of NEWNE Regional Electricity grid
Source of data:	"The value for most recent year BM from CO2 Baseline Database for Indian Power Sector" version 7 published by the Central Electricity Authority, Ministry of Power, Government of India
Value applied:	0.8587
Justification of choice of data or description of measurement methods and procedures applied	Build Margin Emission Factor has been calculated by the Central Electricity Authority in accordance with ACM0002
Purpose of the data:	Calculation of baseline emission
Any comment:	The Build Margin would be calculated ex ante and fixed during the crediting period. For ex ante calculation the most recent data available has been used and the build margin thus calculated is 0.8587.

Data Unit / Parameter:	EF _{grid,CM,y}
Data unit:	tCO _{2e} /MWh
Description:	Combined margin emission factor of NEWNE Regional Electricity grid
Source of data:	"CO2 Baseline Database for Indian Power Sector" version 7 published by the Central Electricity Authority, Ministry of Power, Government of India.
Value applied:	0.9527
Justification of choice of data or description of measurement methods and procedures applied	Combined Margin Emission Factor has been calculated by the Central Electricity Authority in accordance with CDM methodology: ACM0002, and Tool to Calculate the emission Factor for an Electricity System.
Purpose of the data:	Calculation of baseline emission
Any comment:	The combined margin would be calculated ex-ante and fixed for the entire crediting period and the combined margin thus calculated is 0.9527.

3.2 Data and Parameters Monitored

Data Unit / Parameter:	EG_{pi,y}
Data unit:	MWh/yr
Description:	Net Electricity exported to the grid by the project activity in the year y.
Source of data:	Monthly Joint Meter Readings
Description of measurement methods and procedures to be applied:	Net electricity supplied/ Delivered is calculated based on the difference between calculated values of “export” and calculated value “import” on the MSEDCL energy meter at the common evacuation point and the percentage transmission loss incurred in the transmission line between the project and the interconnection point (i.e. sub-station). The meter reading is taken by MSEDCL official in presence of BVUPL officials. Refer to section 3.3 of MR for more details on apportioning and accounting of transmission loss percentage. All the meters is tri-vector meters, capable of measuring both export and import of electricity. The meters have an accuracy class of 0.2s.
Frequency of monitoring/recording:	Recording frequency: Monthly. This parameter is calculated by apportioning approach by using the measured parameters
Value applied:	80334.24
Monitoring equipment:	Energy meters of 0.2s accuracy class. The details of energy meters used have been included under section 3.3.
QA/QC procedures to be applied:	The quantity of net electricity supplied is cross-verified from the invoices raised on MSEDCL by the project proponent and the readings available from the meter available at site. The meters are calibrated annually as per the metering code by MSEDCL. The PP has no control over the calibration of the meters.
Purpose of the data	Calculation of Baseline emissions
Calculation method:	Net quantity of electricity exported by the project is calculated as the net of sum of export from individual meters, sum of import from individual

	meters and line losses
Any comment:	Date will be archived for crediting period plus two years after the end of Crediting period

Data Unit / Parameter:	EG _{exp,y}
Data unit:	MWh/year
Description:	Electricity exported from each WEG of the project activity during the year y.
Source of data:	Monthly Joint Meter Readings.
Description of measurement methods and procedures to be applied:	Delivered/Net electricity supplied to the MSEDCL is calculated based on the difference between measured values of “export” and “import” on the MSEDCL meter and the percentage transmission loss incurred in the transmission line between the project and the interconnection point (i.e. sub-station). The meter reading is taken by MSEDCL officials in presence of BVUPL officials. The measurement is done once a month. Refer to section 3.3 of MR for more details on apportioning and accounting of transmission loss percentage. All the meters are tri-vector meters, capable of measuring both export and import of electricity. The meters have an accuracy class of 0.2s
Frequency of monitoring/recording:	Recording frequency: Monthly. This parameter is calculated by apportioning approach by using the measured parameters
Value applied:	80670.37
Monitoring equipment:	The details of energy meters used have been included under 3.3 Monitoring Report
QA/QC procedures to be applied:	The quantity of net electricity supplied is cross-verified from the invoices raised on MSEDCL by the project proponent and the readings available from the meter available at site. The meters are calibrated annually as per the metering code by MSEDCL. The PP has no control over the calibration of the meters.
Purpose of the data	Baseline Emission Calculation
Calculation method:	Not applicable

Any Comments:	Date will be archived for crediting period plus two years after the end of Crediting period.
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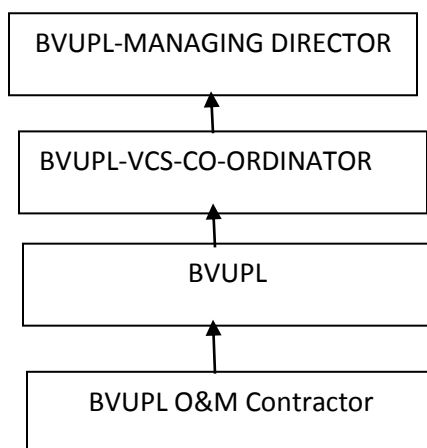
Data Unit / Parameter:	EG _{imp,y}
Data unit:	MWh/year
Description:	Electricity imported from the grid by the project activity during the year y.
Source of data:	Monthly Joint Meter Readings
Description of measurement methods and procedures to be applied:	The electricity imported from the grid. The meter reading is taken by MSEDCL officials in presence of BVUPL officials. The measurement is done once a month. Refer to section 3.3 of MR for more details on apportioning and accounting of transmission loss percentage. All the meters are tri-vector meters, capable of measuring both export and import of electricity. The meters have an accuracy class of 0.2s.
Frequency of monitoring/recording:	Recording frequency: Monthly. This parameter is calculated by apportioning approach by using the measured parameters
Value applied:	336.13
Monitoring equipment:	The details of energy meters used have been included under Section 3.3 Monitoring Report.
QA/QC procedures to be applied:	The quantity of net electricity supplied is cross-verified from the invoices raised on MSEDCL by the project proponent and the readings available from the Meter available at site. The meters are calibrated annually as per the metering Code by MSEDCL. The PP has no control over the calibration of the meters.
Purpose of the data	Calculation of Baseline emissions
Calculation method:	Not applicable
Any Comments:	Date is archived for crediting period plus two years after the end of Crediting period.

Data Unit / Parameter:	E _{WTG,i,y}
Data unit:	MWh/y

Description:	Quantity of Electricity generated by the individual WTGs of the PP in year y
Source of data:	WTG Controller meter reading
Description of measurement methods and procedures to be applied:	Each WTG of provided by Suzlon is equipped with a controller that continuously measures the electricity generated by the WTG. These reading are recorded online by the technology supplier. Refer to section 3.3 of MR for more details on the calculation procedure.
Frequency of monitoring/recording:	Recording frequency: Monthly. This parameter is calculated by apportioning approach by using the measured parameters
Value applied:	82866.39
Monitoring equipment:	LCS meter (controller meter)
QA/QC procedures to be applied:	The quantity of electricity generated by the individual WTG is cross-checked with the online tracking system provided by the technology supplier Calibration Frequency: The WTG controller does not require calibration as per the specification provided by the technology supplier
Purpose of the data	Calculation of Baseline emissions
Calculation method:	Not Applicable
Any comment:	-

3.3 Monitoring Plan

The organizational structure of this CDM project activity is as follows:-



Energy generated from the wind farm shall be recorded at the metering point at the HT end of the respective Pooling station which shall be considered as the energy for billing. The station may have more than one metering point depending on the No of feeders connected by No. of Wind

farms. This entire meter is termed as Feeder meter/s. The total energy recorded in the feeder meter/s shall be considered as the energy for billing.

The project proponent has entered into agreement with the WTG- Supplier – Suzlon Energy Limited for the operation and maintenance of WTGs. The WTG supplier has dedicated and technically well-equipped O&M team for day to day Operation and maintenance of each WTG. O&M contractor provides a monthly report, which includes wind data, generation data, major breakdown events and machine availability, which forms the basis for invoicing and emission reduction computation. Project Manager is responsible for recording of monthly Joint Meter Readings of export and import. Monthly power export and import data is sent regularly to VCS coordinator of BVUPL. All data will be archived for a period two years after crediting period.

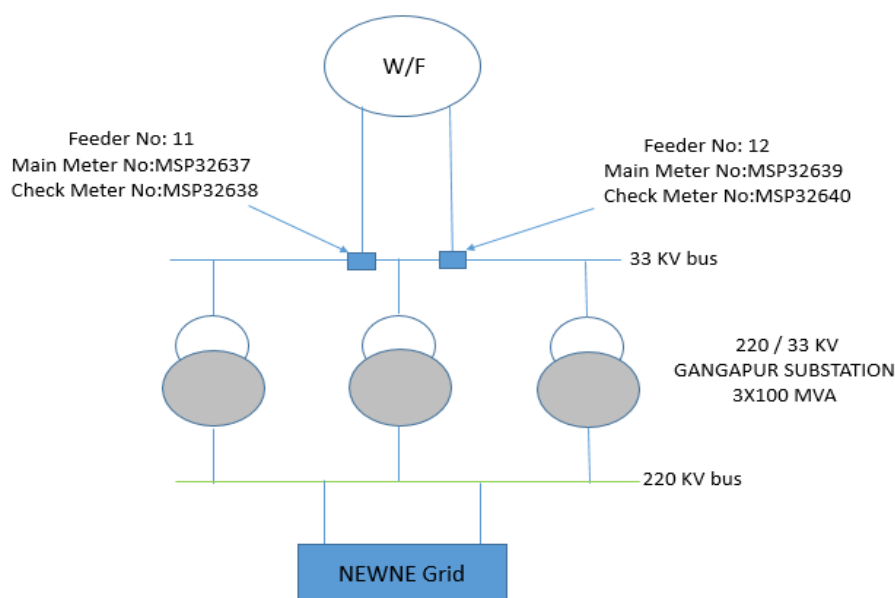
The details of energy meters are as follows:

Location No.	Feeder No.	Main Meter No.	Check Meter No.	Make	Calibration Date	Calibration Due Date
C38, C39, C40, C41, C42, C43, C44, C45, C46, C47, C48, C49, C50, C51, C52	11	MSP32637	MSP32638	Secure	22/08/2011 & 04/10/2012	4/10/2013
C53, C54, C55, C56, C57, C58, C59, C60, C63, C64, C66	12	MSP32639 (Old Meter)	MSP32640 (Old Meter)	Secure	22/08/2011	-
		14831484 (New Meter)	14796430 (New Meter)		26/07/2012	26/07/2013

Note: - Energy Metter no MSP32639 & MSP33640 has been replaced on 30/07/2012. New Meter no's is Main Meter no: 14831484 and Check Meter No: 14796430.

The single diagram for the project is provided below.

SCHEMATIC DRAWING FOR 255 MW WIND POWER PROJECT AT SITE GANGAPUR, DIST:- NANDURBAR ,STATE:-MAHARASHTRA



MONITORING INFORMATION

Energy generated from the wind farm is recorded at the metering point at the HT end of the respective Pooling station. This reading is considered as the energy for billing purposes. The WTGs of other PPs are also connected to the pooling station. The option for considering the meter reading is from Main meter in normal practice. In case of fault in the Main meter, the check Meter reading is considered. The meter reading is taken jointly by MSETCL (representative of state grid)/ MSEDCL and the company/ its representative every month.

The Main meter reading is jointly certified by the above entity. Using the above meter reading MSEDCL provides the credit note on generation through letter. The energy referred in the credit note is considered for raising invoice accordingly payment is received from MSEDCL.

All the meters are calibrated by MSEDCL once a year. Working model for sharing of energy (considered by SLDC) Following are the steps involved in this:-

1. Each WTG have provisions of recording meter reading which is Controller reading of WTG. This reading is taken by the representative of the company/Developer Suzlon Energy Limited alone. "The Controller is a microprocessor based intelligent device which has been specially designed for the control of wind turbines. It uses a Woodward Multi-function Reply that has three current inputs from CT and three direct voltage inputs (690 Volts). The analog values of current /voltage are converted to digital signal internally using AD convertors at very high sampling rates. A software program reads these values and displays instantaneous parameters such as voltage, current, power factor, kVAh, kVArh and kWh. These instantaneous values are then time integrated and displayed/stored. Woodward rely does not have a display and needs special protocol to view energy readings as this rely communicates digital signal through special communication protocol hence, it is not possible to calibrate. Moreover, turbine cannot run without this relay hence it cannot be removed for calibration during operation."

2. All the individual WTGs are connected to a metering point referred as feeder meter/s reading where metering is at Pooling SS of SEL. The meter at the substation measure both export and import of electricity by the project activity. This meter reading is jointly certified by STU and the company.

3. For measuring electricity Export the following procedure is followed:

Let us assume the following parameters:

The sum of the controller readings of all WTG = C

The electricity export as recorded by the substation meter = E

The electricity generation reading at WTGn = Xn

The electricity exported to grid by WTGn = $(Xn/C) * E$.

The electricity exported by all WTGs can be calculated using the above formula

The sum of electricity exported by all WTGs of a project proponent gives the electricity exported by that particular project proponent.

4. For measuring net electricity import the following procedure is followed:

Let us assume the following parameters:

The sum of the controller readings of all WTG = C

The electricity generation reading at WTGn = Xn

The electricity import as recorded by the substation meter = F

The electricity imported from the grid by WTGn = (Xn/C) * F

The electricity imported by all WTGs can be calculated using the above formula.

The sum of electricity imported by all WTGs of a project proponent gives the electricity imported by that particular project proponent.

Net electricity exported by project proponent = Electricity exported - Electricity imported

Calibration of WTG Controller: The Controller is a microprocessor based intelligent device which has been specially designed for the control of wind turbines. It uses a Woodward Multi-function Reply that has three current inputs from CT and three direct voltage inputs (690 Volts). The analog values of current /voltage are converted to digital signal internally using AD convertors at very high sampling rates. A software program reads these values and displays instantaneous parameters such as voltage, current, power factor, kVAh, kVARh and kWh. These instantaneous values are then time integrated and displayed/stored. Woodward rely does not have a display and needs special protocol to view energy readings as this rely communicates digital signal through special communication protocol hence, it is not possible to calibrate.

4 QUANTIFICATION OF GHG EMISSION REDUCTIONS AND REMOVALS

4.1 Baseline Emissions

The baseline emissions are the product of electrical energy baseline EGBL, y expressed in MWh of electricity produced by the renewable generating unit multiplied by the grid emission factor. Baseline emission factor is calculated as combined margin, consisting of a combination of operating margin (OM) and build margin (BM) factors.

$$BE_y = E_{GBL,y} * EF_{CO2,grid,y}$$

Where:

BE_y: Baseline Emissions in year y; t CO₂

EG_{BL, y}: Energy baseline in year y; kWh

EF_{CO2}: Emission Factor in year y; t CO₂e/kWh

As per the registered CDM PDD, combined margin emission factor is 0.9527 tCO₂ /MWh. Hence the baseline emissions for the project activity for the current monitoring period are as follows.

$$BE_y = E_{BL,y} * EF_{CO2} = 80334.24 * 0.9527 = 76534 \text{ tCO}_2.$$

4.2 Project Emissions

The proposed project activity is a wind power project and there are no emissions associated with the project. Hence the Project Emissions for the project activity is zero.

4.3 Leakage

The project activity is a Greenfield wind power project and there is no technology transfer with respect to this project activity. Hence the Leakage emissions for the project are zero.

4.4 Net GHG Emission Reductions and Removals

Year	Baseline emissions or baseline net GHG removals by sinks (t CO ₂ e)	Project emissions or actual net GHG removals by sinks (t CO ₂ e)	Leakage (t CO ₂ e)	Emission reductions or net anthropogenic GHG removals by sinks (t CO ₂ e)
30/12/2011-01/01/2013	76534	0	0	76534

There will be no double accounting of emission reduction despite of end date of previous month is the start date of consequent month. The reason for the same is that meter reading is taken at a particular time of the day (e.g. 11:30 AM). Hence the period 01/12/2012 to 01/01/2013 would denote reading till that time of 01/01/2013. These dates are also reflected in the Joint Meter Reading prepared by State Utility based on which ER calculation is done. Hence, it is clear that there would not be any double accounting of emission reduction

APPENDIX 1: SHUTDOWN DETAILS FOR THE MONITORING PERIOD:

S.No.	Location No.	Total Shutdown Hours (30th & 31st Dec 2011)	Total Shutdown Hours (1st Jan 2012 to 31st Dec 2012)	Total Shutdown Hours (1st Jan 2013)
1	C-38	26.2	314.7	0.8
2	C-39	38.7	387.5	1
3	C-40	32.4	321.4	0
4	C-41	28.6	331.9	0
5	C-42	0	261.7	0
6	C-43	21.8	292.5	0
7	C-44	29.9	309.1	0
8	C-45	28.6	311.2	0
9	C-46	35.3	314.1	0
10	C-47	0	318.1	0
11	C-48	0	1128	0
12	C-49	0	416	0
13	C-50	0	330.3	0
14	C-51	0	284.9	0
15	C-52	0	256.4	0
16	C-53	0	249.8	0
17	C-54	35.5	361.4	0
18	C-55	37.6	433	0
19	C-56	42.4	355.6	2.7
20	C-57	0	275.8	0
21	C-58	30.6	368.5	0
22	C-59	0	292.9	0
23	C-60	0	327.3	0
24	C-63	0	318.9	0
25	C-64	0	272.5	0.1
26	C-66	0	360.5	0