Monitoring report form for CDM project activity
(Version 07.0)

MONITORING REPORT		
Title of the project activity	1.5 MW Wind Power Project in Maharashtra by M/s. Allgrow ventures	
UNFCCC reference number of the project activity	4992[1]	
Version number of the PDD applicable to this monitoring report	04	
Version number of this monitoring report	01	
Completion date of this monitoring report	30-07-2020	
Monitoring period number	01	
Duration of this monitoring period	01-09-2011 to 31-12-2012 (Inclusive of both the dates)	
Monitoring report number for this monitoring period	01	
Project participants	M/s. Allgrow Ventures	
Host Party	India	
Applied methodologies and standardized baselines	AMS-I.D. ver. 16 - Grid connected renewable electricity generation[2]	
Sectoral scopes	1 : Energy industries (renewable - / non-renewable sources)	
Amount of GHG emission reductions or net anthropogenic GHG removals achieved by the project activity in this monitoring period	Amount achieved before 1 January 2013	Amount achieved from 1 January 2013
	0 tCO_2e	3,210 tCO_2e
Amount of GHG emission reductions or net anthropogenic GHG removals estimated ex ante for this monitoring period in the PDD	3,324 tCO_2e	

[1] https://cdm.unfccc.int/Projects/DB/RWTUV1310469722.91/view

[2] https://cdm.unfccc.int/methodologies/DB/W3TINZ7KKWCK7L8WTXFQQOFQQH4SBK

SECTION A. Description of project activity

A.1. General description of project activity

The project activity is a wind based power project with a main objective of mitigating the greenhouse gas effect. The project activity generates electrical power using wind energy, through operation of wind Turbine Generator (WTG) in village Adwadi, Nashik District, Maharashtra state in India. The total installed capacity of the proposed project activity is 1.5 MW, which comprises of 1 nos. of Wind Turbine Generator (WTG) of 1500 kW. The electricity produced by the project activity reduces the associated emissions with thermal power generation in the NEWNE Grid of the country which is dominated by fossil fuel based electricity.

The electricity generated through the power project is evacuated to Maharashtra State Electricity Board (MSEB).The power generated at 690 Volts and it is stepped up to 132 KV to the nearest substation . The proposed project activity can replace approximately 2486 tonnes of CO2 equivalent annually.

The owner of the WTG is M/s Allgrow Ventures, A proprietorship firm, has a vast experience in the construction business. Proprietor Mrs. Giselle D. Mehta with its Group Company M/S. Allegro Ventures India Pvt is also successfully operating one more 1.25 MW wind mill in Bellary district, Karnataka, which was also considered for the CDM.

Purpose of the Project Activity:
The main purpose of the proposed project activity is to generate the electricity by using wind power resource and export the same to the state electricity board, which is dominating by fossil fuel based electricity. Share of different energy sources in Maharashtra Electricity is given below[3]:

Region	Ownership Sector	Modewise Breakup							
		Thermal			Total Thermal	Nuclear	Hydro (Renewable)	RES** (MNRE)	Grand Total
		Coal	Gas	Diesel					
Maharastra	State	6546.00	912.00	0.00	7458.00	0.00	2638.83	217.73	10314.56
	Private	1650.00	180.00	0.00	1830.00	0.00	444.00	1707.30	3981.30
	Central	1787.00	2617.28	0.00	4404.28	852.06	0.00	0.00	5256.34
	Sub-Total	**9983.00**	**3709.28**	**0.00**	**13692.28**	**852.06**	**3082.83**	**1925.03**	**19552.20**

Table 1 (Energy Mix of Maharashtra)

The table clearly depicts the facts that coal has the highest share in state's energy mix with 51%, while the share of renewable energy (except large Hydro) is only 9.8%. Therefore we can summarize the purpose of the project activity as:

- To reduce the state's dependency on fossil fuels and further reduction in GHG emission.
- To promote small scale renewable projects, as a corporate responsibility towards environment.
- Apart from this the proposed project activity also contributes to the sustainable development of the region, socially, environmentally and economically:

Sustainable Development: Proposed CDM project activity has following sustainable development aspects:

Social well-being: The project activity provides direct and indirect job opportunities to the local population during an Erection & operation of the windmill. Employment generation helps poverty

[3] Annual Report (Ministry of Power: 2007-2008)

alleviation of Local community; infrastructure development for the project also improves the living standard of local population.

Environmental well-being: The purpose of the project activity is the electricity generation by wind energy, which replaces burning of fossil fuels in the power plants connected to the electricity grid. Thus the project activity reduces GHG emissions in the atmosphere. As there is no end products in term of waste in use of wind energy so there is no problem of solid waste disposal which is a main problem in the use of other source of power generation. The project activity is an environment friendly electricity generation system with no significant impact on the environment.

Economic well-being: The proposed project activity creates job opportunities for local people during construction and operation period. The generated electricity is fed into the NEWNE2 grid this generation of electricity by the project activity, which improves availability of electricity to the NEWNE grid.

Technological well-being: The proposed project activity use 1500 KW WTG so the project has demonstrated the success of large capacity wind electricity generators (WEG) in the region and promotes them. In view of the above, the project participants consider that the project activity profoundly contributes to the sustainable development.

A.2. Location of project activity

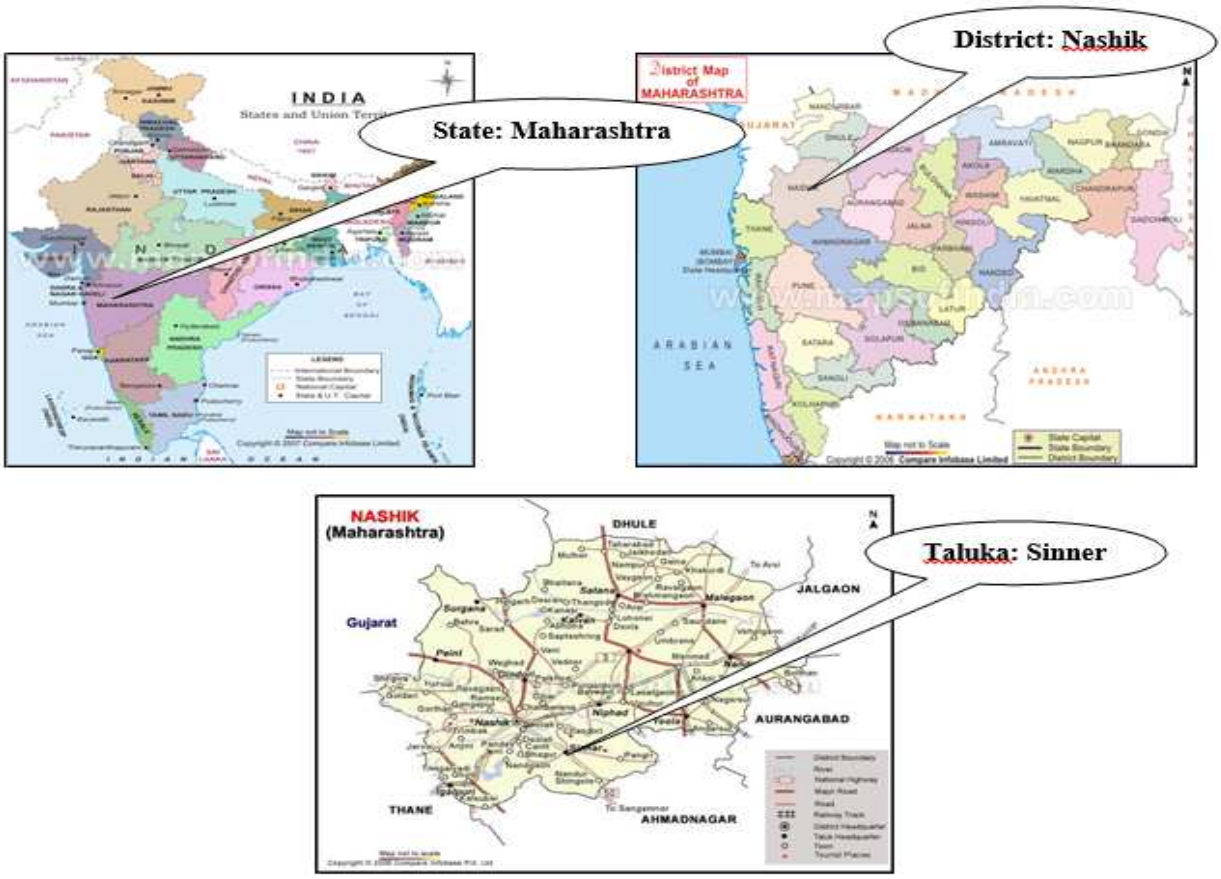
The Information regarding the project location is mentioned below:

Village: Adwadi
Taluka: Sinner
District: Nashik
State: Maharashtra
Country: India

The site below has been identified as ideally suited for wind power generation based on the studies and data analysis carried out by the wind turbine manufacturer M/s Suzlon Energy Ltd. The location details of the site are:

Owner	Installed Capacity (MW)	Village/Taluka	Location Number	Latitude	Longitude
M/s Allgrow Ventures	1.5	Adwadi/Sinner	AD09	N19°43‟8.33””	E73°54‟5.42””

The map of the project location has been given below:



A.3. Parties and project participants

Parties involved	Project participants	Indicate if the Party involved wishes to be considered as project participant (Yes/No)
Government of India (host Party)	M/s. Allgrow Ventures (Proprietorship Firm)	No

A.4. References to applied methodologies and standardized baselines

The proposed project activity is small type of project activity which is less than the 15 MW for small- scale CDM project activities, the proposed project activity falls under the following type and category:

Project type : Type I – Renewable Energy Projects
Category : I.D – Grid connected renewable electricity generation
Reference : AMS I.D, Version 16[4], in effect from 11/06/2010, Scope: 01,

The methodology also refers to the "Tool to calculate the emission factor for an electricity system, version 2.0."

A.5. Crediting period type and duration

The crediting period for this project activity is fixed crediting period. The duration for this crediting period is 01-September-2011 to 31-August-2021.

[4] https://cdm.unfccc.int/filestorage/S/J/I/SJI52M6QXGKFNOZABTHDYPU789EV3C/EB54_repan07_AMS-I.D_ver16.pdf?t=WUV8cWU5b2R4fDATf9pjB4ky4P2EJPUo6-fp

SECTION B. Implementation of project activity

B.1. Description of implemented project activity

The proposed project activity consists of WTG of 1500 kW, manufactured by M/s Suzlon Energy Limited & installed in Nashik district in Maharashtra. The technology as well as service provider for WTG is M/s Suzlon Energy Limited. The project is a clean renewable energy project that uses wind energy for electricity generation without GHG emissions associated with the conventional electricity generation.

Technical details for the project activity has been given below:

Rotor	
Diameter	82.0 m
Cut in Speed	4 m /s
Cut out speed	20 m /s
Rated wind speed	14 m/s
Swept area	5278 m2
Rotation speed	16.30 rpm
Regulation	Pitch
Generator	
Type	Asynchronous , 4 poles
Output	1500 kw
Rotation speed	1511 rpm
Operating voltage	690 V
Frequency	50 HZ
Cooling systems	Air cooling
Gear Box	
Type	3 stage gear box
Rotation	95.09
Cooling systems	Oil cooling
Nominal load	1650 kw
Yaw Machine	
Drive system	4 active electrical yaw motors
Bearing	Polyamide slide bearings
Safety system	
Aerodynamic breaks	3 times independent pitch regulation
Mechanical breaks	Spring powered disc brake, hydraulically released fail safe
Control unit	Microprocessor Controlled indicating operating conditions with UPS backup system
Tower	
Type	Free standing, lattice type, hot dip galvanized

B.2. Post-registration changes

B.2.1. Temporary deviations from the registered monitoring plan, applied methodologies, standardized baselines or other methodological regulatory documents

There are no deviations from the registered monitoring plan or applied methodology.

B.2.2. Corrections

There are no corrections.

B.2.3. Changes to the start date of the crediting period

No. There has been no change in the start date of the monitoring period.

B.2.4. Inclusion of monitoring plan

There has been no change in the monitoring plan.

B.2.5. Permanent changes to the registered monitoring plan, or permanent deviation of monitoring from the applied methodologies, standardized baselines, or other methodological regulatory documents

There are no any permanent changes from registered monitoring plan or applied methodology.

B.2.6. Changes to project design

There are no changes to project design of registered project activity.

B.2.7. Changes specific to afforestation or reforestation project activity

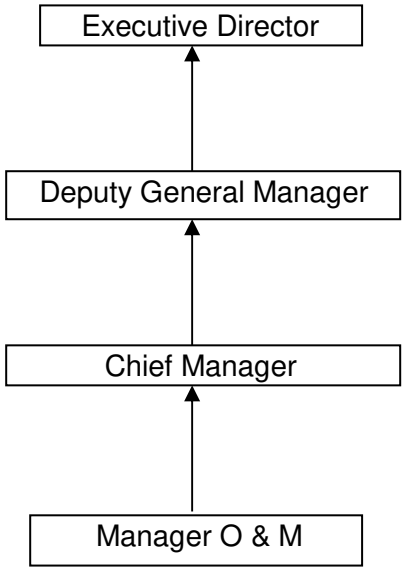
Not Application.

SECTION C. Description of monitoring system

The monitoring plan for the propose project activity is developed as per the procedure for AMS 1D small scale project activity. The monitoring plan has been implemented by the project proponent.

The parameter needs to be regularly monitored to calculate the emission reduction is the net electricity supplied to the grid. Therefore the procedure to monitor and metering of electricity is done according to the procedure given below:

The authority and responsibility of Project management as well as registration, monitoring measurement and reporting lies with Project Proponents. Project Proponents have envisaged a Project Team to ensure proper and continuous monitoring of the performance of WTGs and generation of Power. The same has been outlined below:



Responsibilities:

Executive Director:

- To be responsible for overall project management.

Deputy General Manager:

- To be responsible for generation data, CDM related monitoring Internal verification and presenting the same to the Executive director
- To verify if the monitored data is normal.

- To calculate the emission reductions regularly and write the monitoring report with the help of CDM consultant.

Chief Manager:

To conduct the monitoring task strictly based on the monitoring manual and registered PDD. To record required monitored parameters. To report the monitoring results to the Dy. General Manager.

Manager 0&M:

- The O&M personal are qualified engineers and are trained at the WTG manufacturing facility of Suzlon Infrastructure Ltd for operating and ensuring best performance of the WTGs.

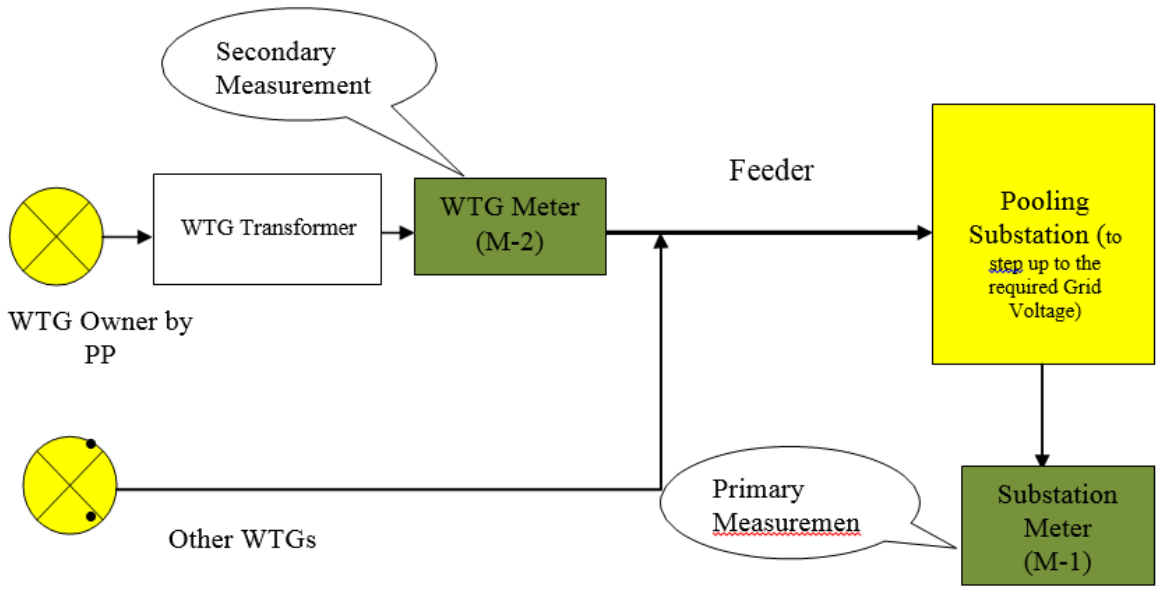
Metering and Data Archiving:

The general conditions set out for metering, recording, meter readings, meter inspections, Test & Checking and communication are as per the PPA (Power Purchase Agreement) with MSEDCL.

1. **Metering Arrangement:**

    - The proposed CDM project activity requires evacuation facilities for sale to grid and the evacuation facility is essentially maintained by the state utility MSEDCL.
    - The project activity has therefore envisaged two independent measurements of generated electricity from the wind turbines – primary and secondary measurement.
        - Primary Measurement, Meter (M-1); at the pooling sub-station recording Gross Electricity by all wind mills connected to that substation.
        - Secondary Measurement, Meter (M-2) on the generator cables recording gross electricity generation by the wind mill.

General Layout of metering system in wind site has been mentioned below:



- The primary measurement of the electricity fed to the state utility grid is carried out jointly at the incoming feeder of the state power utility, MSEDCL which is located at the sub -station.

Representatives of MSEDCL and the PP should be present during recording of the meter readings.

- The primary measurement is done through main meter which is located at the substation. Also a check meter is installed to measure the delivery of wind energy during periods when the main meter or its related accessories have failed or developed a fault.

- If during any of the monthly meter readings, the variation between the main meter and the check meter is more than the permissible limit of error of 0.5%, all the meters are retested and calibrated immediately by MSEDCL.

- Secondary monitoring is done at individual WEG level. Each WEG is equipped with SCADA based monitoring system which is connected to the Central Monitoring Station (CMS) of the wind farm maintained by Suzlon Energy Limited and provide the continuous data, which also can be seen through the online connected monitor. The generation data of individual machine can be monitored as a real-time entity at CMS. Using data stored in CMS; hourly, daily and monthly reports can be generated if required.

- Wherever, more than one Power Producer(s) are delivering energy produced by them using the common evacuation system and through the common metering equipment, then they identify a common agency (EPC contractor) responsible for JMR with MSEDCL. The joint meter reading taken at common evacuation system is supported by meter readings of individual power producers using such common evacuation system. Based on this break up, limited to total energy delivered, the power generated from the individual WEGs are certified by MSEDCL. The calculation of the breakup is done according to the formula as below:

$EG_{BL,Y}=EG_{Export,1} – EG_{Import,1} - EG_{Transmission\ Loss,1}$

Net Electricity Exported = Electricity Export – Electricity Import- Transmission Loss

Electricity Export ($EG_{Export,1}$) and Import($EG_{Import,1}$) are recorded monthly at the meter at project site .

For Calculation of Transmission losses below mentioned procedure is followed:

Z= %of line losses

X= Cumulative of all the exported energies from all the metering points connected to the sub-station.

i.e. $X= EG_{Export,1}+EG_{Export,2}$

Y= Substation Bulk meter (M-1) readings

Z= [(X-Y)/X]*100

$EG_{Transmission\ Loss,1} = Z^* EG_{Export,1}$

2. Metering Equipment, Measurement and Recording:

Metering equipment are bidirectional electronic tri-vector meters of accuracy class 0.5% required for the Project (both Main and check meters). The meters are electronic tri vector meters and provide continuous and real time data. Hence hourly measurement is possible from the meters, however the monthly measurement is done through Joint Metering procedure as described below.Joint Metering Procedure: The joint reading at metering point is carried out once in a month in presence of authorized representative of project owner and MSEDCL. Joint

meter reading is furnished to Superintending Engineer for further processing. Wherever more than one project owners are delivering the energy through common power evacuation facility and through common metering equipment, there Joint meter reading is supported by the meter readings of individual meters installed at wind energy generator. Based on Joint Meter Reading and individual meter reading a break of electricity generated from individual wind energy generator is prepared and certified by MSEDCL. Billing records are maintained by project owner.

3. Meter Test Checking:

All the main and check meters are tested for accuracy annually with reference to a portable standard meter which is of an accuracy class of 0.1%. The portable standard meter is owned by the Corporation 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 are deemed to be working satisfactorily if the errors are within specifications for meters of 0.5% accuracy class. The consumption registered by the main meters alone holds well for the purpose of billing as long as the error in the main meter is within the permissible limits.

a) If during the annual 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 is done as per the main meter as usual. The check meter should, however, be calibrated immediately.

b) If during the annual 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 are as per the check meter. There should 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 should be calibrated immediately and billing for the period thereafter till the next monthly meter reading should be as per the calibrated main meter.

c) If during the annual tests, both the main meters and the corresponding check meters are found to be beyond the permissible limits of error, both the meters should 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 should be as per the calibrated main meter.

d) 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 0.5 % accuracy class, all the meters should be re-tested and calibrated immediately.

e) In the event that the main/check meter error is found at the time of the meter calibration after the issuance of CERs during the crediting period, the correction of the meter error for the CER calculation is incorporated in the next issuance of the CERs.

f) In the event that the date of registration is in the middle of the month, while the JMR is issued on monthly basis at the end of the month. The CERs are estimated based on meter readings at the receiving station for the period from the start date of the project registration and the end of the month.

4. Records:

O&M Contractor Suzlon Energy Ltd. maintains an accurate and up to date operating log at the wind farm. All the records are preserved for 2 years beyond the crediting period.

5. Billing:

O&M Contractor Suzlon Energy Ltd. maintains an accurate and up to date operating log at the wind farm. All the records are preserved for 2 years beyond the crediting period.

Operation and Maintenance:

The project proponents have signed an "Operation and Maintenance" agreement with M/s Suzlon Infrastructure Services Ltd for the operation and maintenance of wind turbines.

SECTION D. Data and parameters

D.1. Data and parameters fixed ex ante

<table>
<tr><td>Data/Parameter</td><td>OM</td></tr>
<tr><td>Unit</td><td>tCO2/MWh</td></tr>
<tr><td>Description</td><td>Simple Operating margin grid emission factor</td></tr>
<tr><td>Source of data</td><td>CEA published data,</td></tr>
<tr><td>Value(s) applied</td><td>1.0086</td></tr>
<tr><td>Choice of data or measurement methods and procedures</td><td>The value has been calculated as per the, 3-year generation-weighted average of Net Generation in OM and Simple Operating Margin (tCO2/MWh) (incl. Imports).

<table>
<tr><td>Year</td><td>Net Generation in Operating Margin (GWh)</td><td>Simple Operating Margin (tCO2/MWh) (incl. Imports)</td></tr>
<tr><td>2005-2006</td><td>359,271</td><td>1.0195</td></tr>
<tr><td>2006-2007</td><td>379,471</td><td>1.0083</td></tr>
<tr><td>2007-2008</td><td>401,642</td><td>0.9992</td></tr>
</table>

The detailed calculation is shown in the baseline section above.
http://www.cea.nic.in/reports/planning/cdm_co2/cdm_co2.htm</td></tr>
<tr><td>Purpose of data/parameter</td><td>Operating Margin is used to calculate the Combined margin</td></tr>
<tr><td>Additional comments</td><td>The calculation has been done ex-ante</td></tr>
</table>

Data/Parameter	BM
Unit	tCO2/MWh
Description	Build margin grid emission factor
Source of data	CEA published data,
Value(s) applied	0.5977
Choice of data or measurement methods and procedures	The value applied is taken from the CEA reviews. http://www.cea.nic.in/reports/planning/cdm_co2/cdm_co2.htm
Purpose of data/parameter	Operating Margin is used to calculate the Combined margin
Additional comments	The calculation has been done ex-ante

D.2. Data and parameters monitored

Data/Parameter	EG_{Export}
Unit	kWh/year
Description	Electricity Exported to grid by WTG
Measured/calculated/ default	Measured
Source of data	Certificate of Energy Delivered at MSEDCL Grid issued by MSEDCL
Value(s) of monitored parameter	3858.43
Monitoring equipment	Energy Meters
Measuring/reading/recording frequency	Monthly
Calculation method (if applicable)	The Gross Electricity supplied to the grid is measured, through joint meter reading, which is done at the end of each month by the buyer of the electricity i.e. Maharashtra State Electricity Distribution Licensee (MSEDCL), and the PP representative, to ascertain the exact amount of electricity exported. The metering system comprises of two sets of meters – meters on the generator cables recording gross electricity generation (M-2) and meters in the sub-station recording net electricity generation from all the WTGs connected to the grid (M-1) (Kindly refer the diagram of Metering arrangement in Section B.7.2) To ensure the continued and reliable measurement, each Main Meter has its backup meter also. The gross electricity export to the grid is measured through the primary monitoring which is the meter on generator cable i.e. Meter (M-2).
QA/QC procedures	The project employs Class 0.2S high accuracy monitoring and control equipment that measures, record, report, monitor and control of various key parameters of the plant. These monitoring and controls are the part of the Control System of the Wind Power Project. All meters are calibrated annually and sealed as per the industry practices. Training is provided to the operators of the project for safe, efficient operations of the plant and handling emergency situations. Hence, high quality is ensured with the above parameter.
Purpose of data/parameter	To calculate net energy generated
Additional comments	The Joint Meter Readings can be cross checked by Control Room Data and the invoices raised by PP towards MSEDCL.

Data/Parameter	EG_{Import}
Unit	kWh/year
Description	Electricity Imported from grid by WTG.
Measured/calculated/ default	Measured
Source of data	Certificate of Energy Delivered at MSEDCL Grid issued by MSEDCL.
Value(s) of monitored parameter	315
Monitoring equipment	Energy Meter
Measuring/reading/recording frequency	Monthly

Calculation method (if applicable)	The Gross Electricity import from the grid is measured, through joint meter reading, which is done at the end of each month by the buyer of the electricity i.e. Maharashtra State Electricity Distribution Licensee (MSEDCL) and the PP representative, to ascertain the exact amount of electricity exported. The metering system comprisse of two sets of meters – meters on the generator cables recording gross electricity generation (M-2) and meters in the sub-station recording net electricity generation from all the WTGs connected to the grid (M-1) (Kindly refer the diagram of Metering arrangement in Section B.7.2) To ensure the continued and reliable measurement, each Main Meter has its backup meter also. The electricity imported by the WTG is measured through the primary monitoring which is the meter on generator cable i.e. Meter (M-2).
QA/QC procedures	The project employs Class 0.2S high accuracy monitoring and control equipment that measures, record, report, monitor and control of various key parameters of the plant. These monitoring and controls are the part of the Control System of the Wind Power Project. All meters are calibrated annually and sealed as per the industry practices. Training is provided to the operators of the project for safe, efficient operations of the plant and handling emergency situations. Hence, high quality is ensured with the above parameter.
Purpose of data/parameter	To calculate net energy generated
Additional comments	The Joint Meter Readings can be cross checked by Control Room Data and the invoices raised by PP towards MSEDCL.

Data/Parameter	$EG_{BL,y}$
Unit	kWh/year
Description	Net Electricity generated by WTG and exported to grid
Measured/calculated/ default	Calculated
Source of data	Certificate of Energy Delivered at MSEDCL Grid, issued by MSEDCL
Value(s) of monitored parameter	3543.43
Monitoring equipment	Energy meter
Measuring/reading/recording frequency	Monthly

Calculation method (if applicable)	The net electricity supplied to the grid is calculated, by joint meter reading done by MSEDCL and the PP representative every month. The formula used to calculate net electricity supplied to the grid is: $EG_{BL,Y}=EG_{Export,1} – EG_{Import,1} - EG_{Transmission\ Loss,1}$ Where EG Export and EG Import are the measured value from the WTG meter as explained in above table and $EG_{transmission}$ loss is calculated from the apportioning method. Joint Meter Reading is done at the end of each month with the buyer of the electricity i.e. Maharashtra State Electricity Distribution Licensee (MSEDCL), to ascertain the exact amount of electricity exported. MSEDCL monitors through state-of-the-art sealed and tested meters. The metering system comprises of two sets of meters – meters on the generator cables recording gross electricity generation and meters in the sub-station recording net electricity generation from all the WTGs connected to the grid. Apportioning method is applied to calculate the net electricity supplied to the grid by each WTG and then a "Certificate of Energy Delivered at MSEDCL Grid" is issued by MSEDCL. The electricity sale invoices are generated on the basis of this certificated only. The net metered electricity generation data of WTG is used to calculate and monitor the greenhouse gas emission reductions from the project.
QA/QC procedures	The project employs Class 0.2S high accuracy monitoring and control equipment that measures, record, report, monitor and control of various key parameters of the plant. These monitoring and controls are the part of the Control System of the Wind Power Project. All meters are calibrated annually and sealed as per the industry practices. Training is provided to the operators of the project for safe, efficient operations of the plant and handling emergency situations. Hence, high quality is ensured with the above parameter.
Purpose of data/parameter	To calculate emission reductions
Additional comments	The Joint Meter Readings can be cross checked by Control Room Data and the invoices raised by PP towards MSEDCL.

D.3. Implementation of sampling plan

Sampling is not applicable for this project activity.

SECTION E. Calculation of emission reductions or net anthropogenic removals

E.1. Calculation of baseline emissions or baseline net removals

Baseline Emission -

According to the paragraph 11 of the 16th version of AMS ID, the baseline emissions are the product of electrical energy baseline $EG_{BL,\ y}$ expressed in MWh of electricity produced by the renewable generating unit multiplied by the grid emission factor.

$BE_y = EG_{BL,y} X EF_{CO2,\ grid.y}$

Where,
BEy = Baseline Emissions in year y (tCO_2)
EGBL, y = Quantity of net electricity supplied to the grid as a result of the implementation of the CDM project activity in the year y (MWh)
$EF_{CO2,grid,y}$ = CO_2 Emission Factor of the grid in year y (tCO_2/MWh)

Further it says that Emission factor must be calculated in a transparent and conservative manner as follows:

The Emission Factor can be calculated in a transparent and conservative manner as follows:

a) Combined margin (CM), consisting of the combination of operating margin (OM) and build margin (BM) according to the procedures prescribed in the approved methodology "Tool to calculate the emission factor for an electricity system". OR
b) The weighted average emissions (in tCO2equ/MWh) of the current generation mix.

Option (a) has been considered to calculate the grid emission factor as per the „Tool to calculate the emission factor for an electricity system" as per the methodology as data is available from an official source. The emission factor EF_{CO2} of the grid is represented as a combination of the Operating Margin and the Build Margin. Considering the emission factors for these two margins as OM and BM then the $EF_{CO2,grid,y}$ is given by:

EF_{CO2} = wOM * OM + wBM * BM

With respective weight factors wOM and wBM (where wOM + wBM = 1); as per recommendations of ACM0002 for a wind project, the weightage for operating margin has been taken as, wOM = 0.75 and that for build margin, wBM = 0.25 has been considered.

Baseline Emission factor = (1.0086)* 0.75 + (0.5977)* 0.25
= 0.9059 tCO_2/MWh

Baseline Emissions:

$BE_y = EG_{BL,y} * EF_{CO2, grid.y}$

BE_y = 3543.43 * 0.9059

BE_y = 3,210 tCo_2e (Round down Value)

E.2. Calculation of project emissions or actual net removals

Project Emission (PE_Y) in tCO_{2eq}. / Year = 0

Energy generated by project activity is from wind energy which is a renewable form of energy. So the generation of energy is not associated with GHGs emission.

E.3. Calculation of leakage emissions

Leakage Emission (LE_Y) in $tCO_{2eq.}$/year = 0

A consideration of the leakage effects generated by the project activity is not required as per the provisions of Type 1D Grid connected renewable electricity generation,

E.4. Calculation of emission reductions or net anthropogenic removals

	Baseline GHG emissions or baseline net GHG removals (t CO_2e)	Project GHG emissions or actual net GHG removals (t CO_2e)	Leakage GHG emissions (t CO_2e)	GHG emission reductions or net anthropogenic GHG removals (t CO_2e)		
				Before 01/01/2013	From 01/01/2013	Total amount
Total	3,210	0	0	3,210	0	3,210

E.5. Comparison of emission reductions or net anthropogenic removals achieved with estimates in the registered PDD

Amount achieved during this monitoring period (t CO_2e)	Amount estimated ex ante for this monitoring period in the PDD (t CO_2e)

Amount achieved during this monitoring period (t CO_2e)	Amount estimated ex ante for this monitoring period in the PDD (t CO_2e)
3,210	3,324

E.5.1. Explanation of calculation of "amount estimated ex ante for this monitoring period in the PDD"

The explanation regarding calculation of estimated ex ante for this monitoring period is mentioned below:

Start date of the monitoring Period	01-09-2011
End date of monitoring period	31-11-2012
Number of days in monitoring period	488
Annual estimated reductions as per the PDD	2486
Estimated emission reductions for this monitoring period	(488*2486)/365
Hence, Estimated emission reductions for this monitoring period	3,324
Actual emission reductions for this monitoring period	3,210
Percentage deviation of actual reductions as compared to estimated reductions for this monitoring period	-4%

E.6. Remarks on increase in achieved emission reductions

It is to be noted here that as per the estimated emission reduction to be achieved from the project activity for the current monitoring period is 3,324 tCO_2e, whereas actual emission reductions achieved are 3,210 tCO_2e, which is approximately 4% lower than the estimated emission reductions. The generation of electricity depends upon many other climatic conditions, which are not within the control of the project participant. The higher generation during the current verification period is due to certain natural conditions. Hence, it is acceptable.

E.7. Remarks on scale of small-scale project activity

The project activity remained within the limit of small scale project activity in each year of the crediting period as the emission reductions are less than the limit of small scale CDM Project activity.

Document information

Version	*Date*	*Description*
07.0	31 May 2019	Revision to: • Ensure consistency with version 02.0 of the "CDM project standard for project activities" (CDM-EB93-A04-STAN); • Add a section on remarks on the observance of the scale limit of small-scale project activity during the crediting period; • Add "changes specific to afforestation or reforestation project activity" as a possible post-registration changes; • Clarify the reporting of net anthropogenic GHG removals for A/R project activities between two commitment periods; • Make editorial improvements.
06.0	7 June 2017	Revision to: • Ensure consistency with version 01.0 of the "CDM project standard for project activities" (CDM-EB93-A04-STAN); • Make editorial improvements.
05.1	4 May 2015	Editorial revision to correct version numbering.
05.0	1 April 2015	Revisions to: • Include provisions related to delayed submission of a monitoring plan; • Provisions related to the Host Party; • Remove reference to programme of activities; • Overall editorial improvement.
04.0	25 June 2014	Revisions to: • Include the Attachment: Instructions for filling out the monitoring report form (these instructions supersede the "Guideline: Completing the monitoring report form" (Version 04.0)); • Include provisions related to standardized baselines; • Add contact information on a responsible person(s)/ entity(ies) for completing the CDM-MR-FORM in A.6 and Appendix 1; • Change the reference number from *F-CDM-MR* to *CDM-MR-FORM*; • Editorial improvement.
03.2	5 November 2013	Editorial revision to correct table in page 1.
03.1	2 January 2013	Editorial revision to correct table in section E.5.
03.0	3 December 2012	Revision required to introduce a provision on reporting actual emission reductions or net GHG removals by sinks for the period up to 31 December 2012 and the period from 1 January 2013 onwards (EB 70, Annex 11).
02.0	13 March 2012	Revision required to ensure consistency with the "Guidelines for completing the monitoring report form" (EB 66, Annex 20).
01.0	28 May 2010	EB 54, Annex 34. Initial adoption.

Version	Date	Description

Decision Class: Regulatory
Document Type: Form
Business Function: Issuance
Keywords: monitoring report