



Monitoring report form for CDM project activity
(Version 07.0)

MONITORING REPORT

Title of the project activity	Wind Power Project by EON Electric limited in Rajasthan	
UNFCCC reference number of the project activity	8374 ¹	
Version number of the PDD applicable to this monitoring report	05	
Version number of this monitoring report	04	
Completion date of this monitoring report	20/08/2019	
Monitoring period number	02	
Duration of this monitoring period	01/03/2015 - 31/07/2019 (both days included)	
Monitoring report number for this monitoring period	02	
Project participants	Advance Metering Technology Limited (AMTL)	
Host Party	India	
Applied methodologies and standardized baselines	Methodology: AMS I.D version-17, Grid connected renewable electricity generation Standardized Baseine: Not applicable	
Sectoral scopes	Sectoral Scope 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 ₂ e	23,245 tCO ₂ e
Amount of GHG emission reductions or net anthropogenic GHG removals estimated ex ante for this monitoring period in the PDD	36,534 tCO ₂ e	

¹ https://cdm.unfccc.int/Projects/DB/KBS_Cert1353665846.75/view

SECTION A. Description of project activity

A.1. General description of project activity

The project activity involves setting up of 3 numbers of 1.5 MW (S82) Wind Turbine Generators (WTGs) by Advance Metering Technology Limited at villages Baroda Gaon and Chord of Jaisalmer district in Rajasthan, India. The total installed capacity of the project activity is 4.5 MW and Suzlon Energy Limited is the supplier of WTGs for this project activity. The net electricity generated from this project activity is being sold to state electricity board, which is part of NEWNE grid.

The purpose of the project activity is to generate electricity using wind energy and to supply the net electricity generated to NEWNE regional grid through long-term power purchase agreement with Jodhpur Vidyut Vitaran Nigam Limited (JVVNL). The project activity contributes in reducing the GHG emission by displacing the equivalent amount of electricity from NEWNE grid, as in absence of the project activity the equivalent electricity would have been generated from the grid connected power plant of NEWNE grid, thereby resulting GHG emission to atmosphere as the grid is dominated by fossil fuel based thermal power plants.

The Suzlon Energy Limited make 1.5 MW WTGs (S82) is based its technology on speed control and variable pitch, while incorporating the latest technologies to extract the maximum amount of energy from the wind and to do it as efficiently as possible. The hub height of WTGs is 78.5 meter and the rotor diameter is 82 meters. The design lifetime of the project activity is of 25 years.

The details of commissioning is given in table below

Unique ID	Village	Tehsil	Date of commissioning
AK187	Chord	Jaisalmer	10/01/2012
AK 188	Chord	Jaisalmer	10/01/2012
AK 325	Baroda Gaon	Fatehgarh	24/01/2012

The construction of project activity started on 09/12/2011, the power purchase agreement signed on 26/12/2011 and all the WTGs were commissioned by 24/01/2012. All the WTGs were operational during current monitoring period i.e. from 01/03/2015 to 31/07/2019, the net electricity wheeled during this verification period is 24,397 MWh, which results to a net emission reduction of 23,245 tCO₂e.

A.2. Location of project activity

The project site is located at Chord and Baroda Goan villages in district Jaisalmer of Rajasthan state of India. The nearest railway station is in Jaisalmer town at 10 – 15 km and nearest airport is in Jodhpur 268 km. Project site is well connected by district and village roads to the nearest town. National Highway No 15 is just passing near the site. The details of the WTGs physical location and geo-coordinates are given below:

Unique ID	Latitude	Longitude	Physical Address
AK187	26° 48' 36.864" N	71° 09' 25.981" E	Chord, Jaisalmer, Rajasthan
AK188	26° 43' 6.591" N	71° 09' 33.057" E	
AK325	26° 43' 18.912" N	71° 09' 19.758" E	Baroda Gaon, Fatehgarh, Rajasthan

A.3. Parties and project participants

Party involved	Project participants	Indicate whether the Party involved wishes to be considered as project participant (yes/no)
India (Host)	Advance Metering Technology Limited	No

A.4. References to applied methodologies and standardized baseline

The methodology applied:

Reference: AMS I.D, version 17 (EB 61, annex 17)

Title: Grid Connected Renewable Electricity Generation

Sectoral Scope: 01 Category D: Grid connected renewable electricity generation²

Tool: "Tool to calculate the emission factor for an electricity system", Version 02.2.1³

"Guidelines on the Assessment of Investment Analysis", Version 05

A.5. Crediting period type and duration

This project activity has considered renewable crediting period of 7 years. The start date of the crediting period is 31/12/2012 and crediting period is from 31 December 2012 - 30 December 2019.

SECTION B. Implementation of project activity

B.1. Description of implemented project activity

The project activity is implemented and operated as per registered PDD. The project activity consists of three number WTG's of 1.5 MW capacities totalling to 4.5MW capacity and selling the net generated electricity to Jodhpur Vidyut Vitaran Nigam Limited is a part of NEWNE grid. There has been no major downtime of equipment, overhaul times or exchange of equipment's in the project activity during the current monitoring period.

Advance Metering Technology Limited has procured the Wind Energy Generators (WEGs) from Indian company M/s Suzlon Energy Ltd. The technology is a clean and safe technology since there are no GHG emissions associated with the electricity generation. A direct grid-connected high speed horizontal axis generator, in combination with the multiple-stage combined spur / planetary gearbox delivers harmonics-free and grid-friendly power. The technical details of the WEG are as follows:

Capacity	1500 kW
Make	Suzlon
Model	S82
Rotor Diameter	82 m
Hub Height	78.5 m (variable)
Cut-in wind speed	4 m/s
Rated wind speed	14 m/s
Cut-out wind speed	20 m/s
Survival wind speed	52.5 m/s
Swept area	5281 m ²
Blade type	3 blade horizontal axis
Rotational speed	15.6/18.4 rpm
Generator	Asynchronous 4/6 poles
Rated output	690/1500 kW
Rotational speed	1511 rpm
Frequency	50 Hz
Gearbox	Integrated (1 planetary & 2 helical)

² <https://cdm.unfccc.int/methodologies/DB/W3TINZ7KKWCK7L8WTFQQOFQQH4SBK>

³ <https://cdm.unfccc.int/Reference/tools/index.html>

Yaw system	4 electrical driven planetary gear box
Bearings	Polyamide slide bearings
Braking	Aerodynamic brake, 3 independent systems with blade pitching Mechanical brake, Hydraulic fail-safe disc brake system
Control unit	Programmable microprocessor-based; high speed data communication, active multilevel security, sophisticated operating software, advance data collection remote monitoring & control option, UPS back up, Real time operation indication

B.2. Post-registration changes

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

No temporary deviation taken place from registered monitoring plan or applied approved methodology during current monitoring period.

B.2.2. Corrections

No correction applied in fixed parameter mentioned in registered PDD during current monitoring period

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

No change in start date of crediting period

B.2.4. Inclusion of monitoring plan

There is no inclusion of monitoring plan to the registered PDD.

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

No changes from registered monitoring plan or applied methodology

B.2.6. Changes to project design

There is no change in project design of registered project activity during current monitoring period.

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

Not applicable as the project activity is not an afforestation or reforestation project activity.

SECTION C. Description of monitoring system

As the baseline emission factor has been ex-ante calculated, the main monitoring objects are the electricity delivered to the NEWNE grid.

Metering: Joint Metering is done on monthly basis by representative of Suzlon and RVPNL officials who seal and maintain meters at the outgoing line of the sub-station. As each WTG owner bills separately, thus the reading is apportioned on the basis of individual controller reading as agreed upon in Power Purchase Agreements solely for billing purposes.

Each WTG is equipped with an integrated electronic meter. These meters are connected to the Central Monitoring Station (CMS) of the entire wind farm. The generation data of individual machine can be monitored as a real-time entity at CMS. After cross checking with their online

database of project owners, it is sent to RVPNL for billing. The detailed procedure is specified below.

1. The joint reading at common metering point at substation is carried out once in a month. The readings are jointly taken by PP's and Suzlon's representative and officials from state electricity utility (RVPNL).
2. The copy of JMR is submitted to sub divisional office of the asst. Engineer of state electricity utility (RVPNL). The copy of JMR is signed by respective authorities of the state electricity utility (RVPNL).
3. The State Electricity Utility (RVPNL), having reviewed the authorized JMR copy, submits the same to the representative of PP (O & M provider - Suzlon). Based on this authorized JMR copy O & M provider prepares the electricity Breakup sheets by apportioning. The electricity Breakup sheets indicated the net electricity supplied by the Individual WTGs to the Grid, to which the respective feeder is connected.
4. The electricity Breakup sheet is prepared by O & M provider based on the LCS Controller Reading of the investor connected to the individual feeder. Then it is submitted to the state electricity Utility office (RVPNL) and other copy to the PP.
5. Based on the electricity Breakup sheets the PP raises invoices to the State Electricity Utility (RVPNL).
6. The State Electricity utility (RVPNL) verifies the net export mentioned by the PP in the Invoice raised against the electricity Breakup sheets provided by the PP representative (O & M provider) to the State Electricity Utility (RVPNL). Having conducted this audit only the State Electricity Utility (RVPNL) will release the Payment to PP. The net electricity supplied to the grid ($EG_{BL,y}$) by the project activity is referred from monthly Joint meter readings recorded by the state electricity board representative (RVPNL/DISCOM) and the plant personnel /O&M service provider (Suzlon) and the Electricity break up sheets provided by O&M provider (Suzlon). The main billing meter at the substation records total export & import of the wind farm. Net export and import by a WTG (of the project participant in this case) is then calculated by Suzlon by using the following formulae as given below.

This is a billable reading against which the invoice is raised to the State Electricity Utility (RVPNL) .

$$\begin{aligned}
 EG_{\text{export, total}} &= (EG_{\text{farm export}}) * (EG_{\text{generated}} / EG_{\text{farm gross}}) \\
 EG_{\text{import, total}} &= (EG_{\text{farm import}}) * (EG_{\text{generated}} / EG_{\text{farm gross}}) \\
 \text{Net exported electricity} &= EG_{BL,y} = EG_{\text{export}} - EG_{\text{import}}
 \end{aligned}$$

Where,

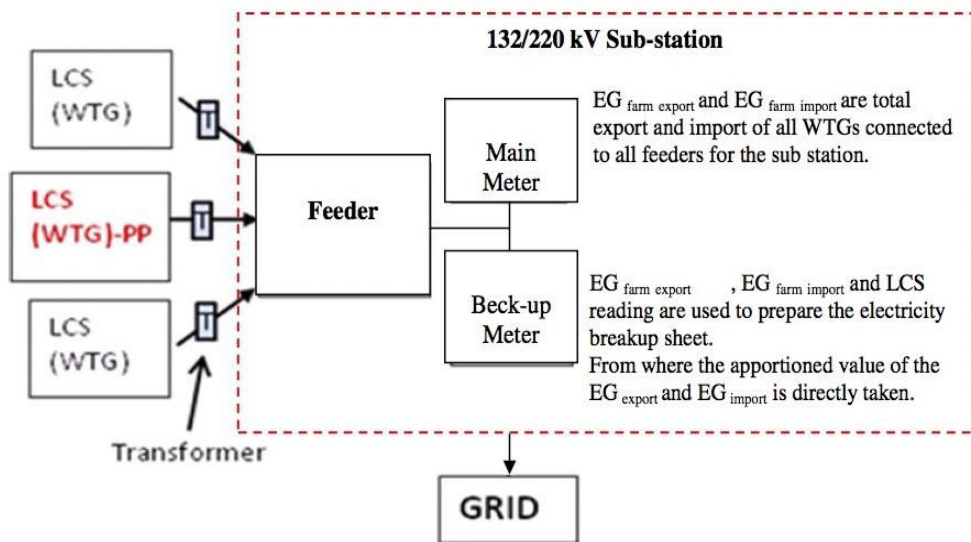
$EG_{\text{farm export}}$ = Total export of all WTGs connected to all feeders for the substation. It is recorded in JMR.

$EG_{\text{farm import}}$ = Total import of all WTGs connected to all feeders for the substation. It is recorded in JMR.

$EG_{\text{farm gross}}$ = Total electricity generated by all the WTGs connected to all feeder for the substation.

$EG_{\text{farm, export}}$ and $EG_{\text{farm, import}}$ are recorded monthly by representatives of State Electricity board (RVPNL/DISCOM) and O&M provider (Suzlon). The parameter $EG_{\text{farm gross}}$ is recorded by O&M provider (Suzlon) and reported in monthly generation report for respective owner of WTG and thus $EG_{\text{farm gross}}$ data is not available to PP. Hence the parameter $EG_{\text{farm gross}}$ is not mentioned in data to be monitored. PP doesn't have any role or control on preparation of electricity break up sheets. Such representation of apportioning calculation during verification is not possible. Thus Joint Meter Readings and Electricity break up sheet is the source for the parameters mentioned in data to be monitored. The below schematic diagram shows single WTG of project activity, similarly all WTGs of project activity along with WTGs of other than project activity are connected to

respective feeders. There are many feeders connected to substation and metering locations, feeder arrangement is completely under purview of state electricity board.



Metering arrangement at the substation

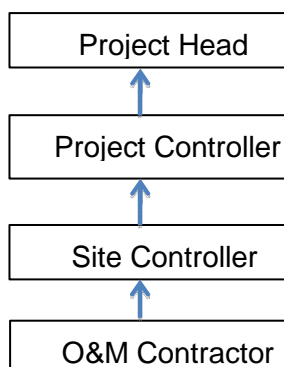
Data Uncertainty: Main Meter installed at the sub-station is of 0.2s accuracy class. The State Electricity Board (RVPNL) maintains it; hence authenticity of its output is checked periodically. A Back-up meter of same accuracy supplements the main meter and is referred both for data certainty and in case of meter failure. LCS installed at WTG are maintained and operated by Suzlon as accepted by State Electricity Board.

Data Archiving: Each WTG is equipped with a self-calibrated electronic meter (Local controller system or LCS). These meters record hourly data of wind speed, WTG generation, rotor RPM, reactive and active electricity consumption by WTG. The hourly meter readings are recorded and compiled at the end of each day. These readings are also compiled on monthly basis. The Individual LCS is connected to the Central Monitoring Station (CMS) of the wind farm through a wireless radio frequency network (SCADA). The LCS data of individual machine can be monitored as a real-time entity at CMS, which helps in efficient operation of individual WTG and reduces the risk of breakdown of WTG. CMS also keeps a record of the total generation by WTG from the time of its commissioning till present. The snapshot of generation on the last day of every calendar month will be kept as a record both in electronic as well as printed (paper) form.

The electricity generated is transmitted to substation, which has a back up meter on the incoming line of substation and main meter on the outgoing line. The reading of main meter is used for billing purpose and for apportioning of individual generation of a WTG. The data from main and back meter will also be kept as record of the net electricity supplied by the WTG and archived for at least for two years after the crediting period is over.

QA-QC Procedure: The meters at substation will be calibrated and sealed periodically by RVPNL personnel. If any meter is found to be faulty it will be replaced by RVPNL. Backup meter is also installed at the sub-station, which acts as a fail-safe mechanism in event of main meter failure. The billing of electricity is done against the main electricity meter at outgoing line of the sub-station. The WTG provider maintains LCS of WTG only as a general practice followed by State electricity board in the state of Rajasthan.

O&M management structure: The project proponents have signed an “Operation and Maintenance” agreement with the supplier of the wind turbines for the operation of the wind turbines. The O & M management structure is as follows:



Designation	Responsibilities
Project Head	Overall performance monitoring Project execution
Project Controller	Operation Verification Site visit to check authenticity of data Take corrective action wherever necessary Storage of data
Site Controller	Operation, monitoring, verification of data Data recording, data storage The offices will ensure continuous monitoring, hourly measurement and monthly recording of energy generated. Check meter reading is to be considered when main meter to be defective or stopped
O&M Contractor	Operation and maintenance Data recording

SECTION D. Data and parameters

D.1. Data and parameters fixed ex ante

Data / Parameter:	EF_{grid, OM, y}
Unit:	tCO ₂ /MWh
Description:	Operating Margin CO ₂ emission factor for the NEWNE Grid in year y
Source of data:	CEA's "Baseline Carbon Dioxide Emission Database Version 7.0"
Value(s) applied:	0.9842
Choice of data or measurement methods and procedures	Calculated in line with "Tool to calculate the emission factor for an electricity system (Version 02.2.1)" using data from Central Electricity Authority of India's (CEA) "Baseline Carbon Dioxide Emission Database Version 7.0". The value used is calculated ex-ante as generation based weighted average of last three years of the operating margin provided in the CEA database. Weighted average = $\sum_{i=1}^n (\text{Net generation in operating margin in year } i * \text{Simple operating margin in year } i) / \sum_{i=1}^n (\text{Net generation in operating margin of year } i)$
Purpose of data:	To calculate emission factor of grid
Additional comment:	This data is fixed ex - ante for the entire crediting period.

Data / Parameter:	EF_{grid, BM, y}
Unit:	tCO ₂ /MWh
Description:	Build Margin CO ₂ emission factor for the NEWNE Grid in year y
Source of data:	CEA's "Baseline Carbon Dioxide Emission Database Version 7.0"

Value(s) applied:	0.8588
Choice of data or measurement methods and procedures	Calculated in line with “ <i>Tool to calculate the emission factor for an electricity system (Version 02.2.1)</i> ” using data from Central Electricity Authority of India’s (CEA) “ <i>Baseline Carbon Dioxide Emission Database Version 7.0</i> ”. The value is calculated ex-ante as most recent build margin provided by the CEA.
Purpose of data:	To calculate emission factor of grid
Additional comment:	This data is fixed ex - ante for the entire crediting period.

Data / Parameter:	EF_{grid, CM, y}
Unit:	tCO ₂ /MWh
Description:	Combined margin CO2 emission factor for the NEWNE Grid in year y
Source of data:	Central Electricity Authority (CEA) of India Database
Value(s) applied:	0.9528
Choice of data or measurement methods and procedures	This has been calculated based on Operating Margin (OM) and Build Margin (BM) published by Central Electricity Authority (CEA) of India.
Purpose of data:	The purpose of data to calculate baseline emission.
Additional comment:	This has been calculated as per “Tool to calculate the emission factor for an electricity system, Version – 02.2.1” considering Operating Margin (OM) and Build Margin (BM) weight age ratio of 75:25 as this is a wind energy based project and this is fixed ex-ante. “CO2 Baseline Database for the Indian Power Sector, Version 7.0, January 2012” published by CEA is used to determine the value of this parameter.

D.2. Data and parameters monitored

Data / Parameter:	EG_{BL,y}
Unit:	MWh
Description:	Quantity of net electricity supplied to the NEWNE grid as a result of the implementation of the CDM project activity during the monitoring period
Measured/Calculated / Default:	Calculated
Source of data:	Monthly joint meter reading report
Value(s) of monitored parameter:	26101.67
Monitoring equipment:	The value is calculated
Measuring/ Reading/ Recording frequency:	Monthly recording
Calculation method (if applicable):	Net electricity delivered to the grid by the project activity in a given month = EG _{export} – EG _{import} . The RVPN, Discom and concerned Power Producer / Developer jointly read the Metering System every month at the delivery point (refer Reading & Correction of meters) Please refer Section C for detailed information – Data Uncertainty and Apportioning in case of a mismatch in dates of verification period and Joint Meter Reading (JMR) start and end Dates.
QA/QC procedures:	Data crosschecked with the actual sale receipts/invoices
Purpose of data:	To calculate baseline emission
Additional comment:	Data will be kept for crediting period +2 years

Data / Parameter:	EG_{export}
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Unit:	MWh
Description:	Total electricity export by the project activity to connected grid substation during monitoring period
Measured/ Calculated / Default:	Calculated based on measured value
Source of data:	Export data will be sourced from the Suzlon (O&M provider) energy meters. Same can be cross checked by the Joint Meter Reading authorized by Rajasthan Vidyut Prasar Nigam Limited (RVPNL).
Value(s) of monitored parameter:	26776.98
Monitoring equipment:	Though this parameter is calculated however it is dependent on parameter $EG_{farm, export}$, which is monitored, and there was delay in calibration (please refer parameter $EG_{farm, export}$ for further details). Therefore, the error has been applied on this parameter in accordance with Para 283 (a & b) of VVS version 7.
Measuring/ Reading/ Recording frequency:	Continuous monitoring, monthly recording
Calculation method (if applicable):	The Joint Meter Reading taken by representatives of State Electricity board (RVPNL/DISCOM) and O&M provider (Suzlon) at the substation is apportioned based on the generation from the WTG owned by individual project participants. PP doesn't have any role or control on preparation of electricity break up sheets.
QA/QC procedures:	The monthly break up sheets provided by O&M service provider (Suzlon) is being archived. All meters at the substation used for monitoring are calibrated periodically in the presence of State Electricity Board (RVPNL/DISCOM) officials as per state electricity board procedure. (PP do not have any control on calibration schedule of substation meters) Also, each WEG is equipped with an integrated self-calibrating electronic meter. These meters are connected to the Central Monitoring Station (CMS) of Suzlon.
Purpose of data/parameter	To calculate baseline emission
Additional comment:	Data will be kept for crediting period +2 years

Data / Parameter:	EG_{import}
Unit:	MWh
Description:	Quantity of electricity imported from the NEWNE grid during the current monitoring period.
Measured/ Calculated / Default:	Calculated based on measured value
Source of data:	Import data will be sourced from the energy meters.
Value(s) of monitored parameter:	140.12
Monitoring equipment:	Though this parameter is calculated however it is dependent on parameter $EG_{farm, import}$, which is monitored, and there was delay in calibration (please refer parameter $EG_{farm, import}$ for further details). Therefore, the error has been applied on this parameter in accordance with Para 283 (a & b) of VVS version 7.
Measuring/ Reading/ Recording frequency:	Continuous monitoring, monthly recording
Calculation method (if applicable):	The Joint Meter Reading taken by representatives of State Electricity board (RVPNL/DISCOM) and O&M provider (Suzlon) at the substation is apportioned based on the generation from the WTG owned by individual project participants. PP doesn't have any role or control on preparation of electricity break up sheets. Please refer Section C for detailed information – Data Uncertainty and Apportioning.

QA/QC procedures:	The monthly electricity break up sheets provided by O&M service provider will be archived. All meters at the substation used for monitoring are calibrated periodically in the presence of State Electricity Board (RVPNL/DISCOM) officials as per state electricity board procedure. (PP do not have any control on calibration schedule of substation meters) Also, each WEG is equipped with an integrated self-calibrating electronic meter. These meters are connected to the Central Monitoring Station (CMS) of Suzlon.
Purpose of data/parameter	To calculate baseline emission
Additional comment:	Data will be kept for crediting period +2 years

Data / Parameter:	EG_{farm export}
Unit:	MWh
Description:	Total export of all WTGs (Including CDM project WTGs and non-CDM project WTGs) connected to all feeders for the sub-station during the current monitoring period.
Measured/ Calculated / Default:	Measured
Source of data:	This is recorded monthly as Joint Meter Reading by representatives of State Electricity board (RVPNL/DISCOM) and O&M provider (Suzlon) at the substation
Value(s) of monitored parameter:	41181.586
Monitoring equipment:	Tri-vector Meter of accuracy class 0.2s Serial Number: MSB10311 (Main Meter), MSB10312 (Check Meter)
Measuring/ Reading/ Recording frequency:	Continuous monitoring, monthly recording
Calculation method (if applicable):	The value of total export from the all wind turbines is monitored through main meter & check meter at the substation.
QA/QC procedures:	The meters are of high accuracy class (0.2s). These are sealed by State Electricity Board (RVPNL). All meters at the substation used for monitoring are calibrated periodically in the presence of State Electricity Board (RVPNL/DISCOM) officials as per state electricity board procedure. The State Electricity utility (RVPN) shall be responsible for calibration of the meters. (PP does not have any control on calibration schedule of substation meters) Meter type: Electronic tri-vector meter Accuracy class: 0.2s Calibration frequency: once in a year
Purpose of data/parameter	To calculate baseline emission
Additional comment:	Data will be kept for crediting period +2 years

Data / Parameter:	EG_{farm import}
Unit:	MWh
Description:	Total import of all WTGs (Including CDM project WTGs and non-CDM project WTGs) connected to all feeders for the sub-station during the current monitoring period.
Measured/ Calculated / Default:	Measured
Source of data:	This is recorded monthly as Joint Meter Reading by representatives of State Electricity board (RVPNL/DISCOM) and O&M provider (Suzlon) at the substation
Value(s) of monitored parameter:	16784.662
Monitoring equipment:	Tri-vector Meter of accuracy class 0.2s Serial Number: MSB10311 (Main Meter), MSB10312 (Check Meter)

Measuring/ Reading/ Recording frequency:	Continuous monitoring, monthly recording
Calculation method (if applicable):	The value of total export from the all wind turbines is monitored through main meter & check meter at the substation.
QA/QC procedures:	<p>The meters are of high accuracy class (0.2s). These are sealed by State Electricity Board (RVPNL). All meters at the substation used for monitoring are calibrated periodically in the presence of State Electricity Board (RVPNL/DISCOM) officials as per state electricity board procedure. The State Electricity utility (RVPN) shall be responsible for calibration of the meters. (PP does not have any control on calibration schedule of substation meters)</p> <p>Meter type: Electronic tri-vector meter Accuracy class: 0.2s Calibration frequency: once in a year.</p>
Purpose of data/parameter	To calculate baseline emission
Additional comment:	Data will be kept for crediting period +2 years
Data / Parameter:	EG_{generated}
Unit:	MWh
Description:	Summation of electricity generated by WTGs of project activity, as measured at the individual controller (LCS) of each WTG during the monitoring period. This summation is carried out on WTGs of project activity.
Measured/Calculated / Default:	Measured
Source of data:	Monthly Generation Report
Value(s) of monitored parameter:	26591.314
Monitoring equipment:	Digital energy meter (LCS)
Measuring/ Reading/ Recording frequency:	<p>Monitoring interval: Continuous Measurement interval: Hourly Recording interval: Monthly</p>
Calculation method (if applicable):	Monthly generation report is prepared by the Suzlon on the basis of controller reading at the WTG.
QA/QC procedures:	The wind farm (SCADA), thus ensuring real time monitoring and high reliability of the data. These meters would be maintained by the technology supplier as per the operation and maintenance contract with the PP. These LCS meters do not require calibration as the energy readings of electricity generated at the LCS meter is cross verified by the energy calculated by inverting system installed in the WTGs. In case there is any mismatch in the energy values recorded by the LCS meter and the energy values calculated by the inverting system; the machine will stop working and generate the error report.
Purpose of data/parameter	To calculate baseline emission
Additional comment:	Data will be kept for crediting period +2 years

D.3. Implementation of sampling plan

Not applicable

SECTION E. Calculation of emission reductions or net anthropogenic removals**E.1. Calculation of baseline emissions or baseline net removals**

Baseline Emissions:

Formula for Baseline Emissions (BE_y):

$$BE_y = EG_{BL,y} \times EF_{CO_2,grid,y}$$

Emission Factor of the NEWNE grid = 0.9528 (t CO₂/ MWh)

The monitoring period is from 01/03/2015 to 31/07/2019, in order to do calculation under monitoring period.

Baseline emission from 1st March 2015 to 31st July 2019:

$$BE_y = (24,396.924) \times 0.9528$$

$$= 23,245.38 \text{ tCO}_2\text{e}$$

$BE_y = 23,245 \text{ tCO}_2\text{e}$ (rounded down)

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

The Project activity does not envisage any fossil fuel consumption.
Therefore, the parameter $PE_y = 0$

E.3. Calculation of leakage emissions

There are no leakage, therefore $LE_y = 0$

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

	Baseline GHG emissions or baseline net GHG removals (t CO ₂ e)	Project GHG emissions or actual net GHG removals (t CO ₂ e)	Leakage GHG emissions (t CO ₂ e)	GHG emission reductions or net anthropogenic GHG removals (t CO ₂ e)		
				Before 01/01/2013	From 01/01/2013	Total amount
Total	23,245	0	0	0	0	23,245

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 ₂ e)	Amount estimated ex ante for this monitoring period in the PDD (t CO ₂ e)
23,245	36,534

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

As per the CDM registered PDD, the amount of CERs generated annually is 8,262 tCO₂e. Therefore, the amount of estimated ex ante for this monitoring period is identified as explained below.

The total number of days in this monitoring period is 1,614 days.

Hence, the amount of estimated ex ante for this monitoring period = $8262 * (1,614/365)$
= 36,534 tCO₂e

E.6. Remarks on increase in achieved emission reductions

The actual emission reduction achieved during current monitoring period is -36.37% lower than the estimated emission reduction in registered PDD for corresponding monitoring period (1614 days), which is due to machine unavailability.

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

Not Applicable

Document information

<i>Version</i>	<i>Date</i>	<i>Description</i>
07.0	31 May 2019	Revision to: <ul style="list-style-type: none"> • 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: <ul style="list-style-type: none"> • 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: <ul style="list-style-type: none"> • 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: <ul style="list-style-type: none"> • 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 <i>F-CDM-MR</i> to <i>CDM-MR-FORM</i>; • 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.

<i>Version</i>	<i>Date</i>	<i>Description</i>
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