Monitoring report form
(Version 05.1)

Complete this form in accordance with the Attachment "Instructions for filling out the monitoring report form" at the end of this form.

MONITORING REPORT		
Title of the project activity	Bundled Wind Power Project by EnKing International (EKIESL-CDM.August-11-02)	
UNFCCC reference number of the project activity	8000[1]	
Version number of the monitoring report	01	
Completion date of the monitoring report	03/11/2015	
Monitoring period number and duration of this monitoring period	Monitoring Period – First (01) Duration – 05/11/2012 to 31/10/2015	
Project participant(s)	EKI Energy Services Limited	
Host Party	India	
Sectoral scope(s)	1 : Energy industries (renewable - / non-renewable sources)	
Selected methodology(ies)	AMS-I.D. ver. 17 - Grid connected renewable electricity generation	
Selected standardized baseline(s)	Not Applicable	
Estimated amount of GHG emission reductions or net GHG removals by sinks for this monitoring period in the registered PDD	27414	
Total amount of GHG emission reductions or net GHG removals by sinks achieved in this monitoring period	GHG emission reductions or net GHG removals by sinks reported up to 31 December 2012	GHG emission reductions or net GHG removals by sinks reported from 1 January 2013 onwards
	1362	24682

[1] https://cdm.unfccc.int/Projects/DB/PJR%20CDM1351851197.01/view

SECTION A. Description of project activity

A.1. Purpose and general description of project activity

The project activity uses renewable energy (wind) as a clean fuel to generate electrical energy. The total installed capacity of the project is 5.45 MW, which comprises 8 no. Wind Turbine Generator (WTG); 7 no. of machines of 600 KW (make Suzlon Energy Limited); 1 no. of machines of 1250 KW (make Suzlon Energy Limited).

The wind power generated from the project activity will be displacing 9,638 MWh of power from NEWNE grid, and thereby reducing the Greenhouse Gas emissions from the generation-mix of power plants connected to the NEWNE regional grid, which is mainly dominated by thermal/fossil fuel based power plant. The project activity is a green field project activity & can generate electricity using Wind energy which displaces approximately 9,180 tonnes of CO2 equivalent at the regional grid NEWNE of India, as respective WTGs will sell the power generated to the local grid. The further information of the project WTGs are:

WTG internal ID of bundled project	Investor's Name	Capacity In MW	Connected with Grid	Generated Power use
WTG1	Anamika Conductors Ltd	1 X 600 KW	NEWNE	Jaipur Discom
WTG2	M/s Choudhary Exports	1 X 600 KW	NEWNE	Ajmer Discom
WTG3	Delhi Rajasthan Transport Co Ltd	1 X 600 KW	NEWNE	Jaipur Discom
WTG4	Link Enterprises	1 X 1250 KW	NEWNE	Jaipur Discom
WTG5	Mangala Power Projects	1 X 600 KW	NEWNE	Jaipur Discom
WTG6	Manju Sanghi	1 X 600 KW	NEWNE	Jodhpur Discom
WTG7	Sarayu Investment Pvt Ltd	1 X 600 KW	NEWNE	Jaipur Discom
WTG8	Vitesse Pvt Ltd	1 X 600 KW	NEWNE	Jaipur Discom

Purpose of the project activity:
The main purpose of the project activity is to generate electrical energy through sustainable means using wind power resources, to utilize the generated output for selling it to RVPNL/concerned Discom and to contribute to climate change mitigation efforts.

Pre-project Scenario:
In the absence of the project activity, the equivalent amount of electricity would have been generated from the connected / new power plants in the NEWNE grid. The grid is predominantly coal based and therefore is a major source of carbon dioxide emissions in India1. The main emission source in the preproject scenario is the power plants connected to the NEWNE grid and main GHG involved is CO2.

Baseline scenario:
As the project activity is the installation of a new grid-connected renewable power plant/unit, the baseline scenario is the following as per applied methodology: Electricity delivered to the grid by the project activity would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources, as reflected in the combined margin (CM) calculations described in the "Tool to calculate the emission factor for an electricity system".
Hence, pre-project scenario and baseline scenario are the same.

Total Emission Reductions during the first monitoring period is 26044 tCO_2.

A.2. Location of project activity

WTG ID	Investor's Name	Capacity In MW	Latitude	Longitude
TEJ 07	Anamika Conductors Ltd	1 X 600 KW	N 27° 01' 09.9"	E 70° 43' 29.2"
TEJ 01	Choudhary Exports	1 X 600 KW	N 27° 01' 28.1"	E 70° 44' 24.7"
TEJ 31 N	Delhi Rajasthan Transport Co Ltd	1 X 600 KW	N 27° 03' 08. 0"	E 70° 44' 14. 1"
AK 160	Link Enterprises	1 X 1250 KW	N 26° 42' 26.3"	E 71° 08' 17.5"
TEJ 30	Mangala Power Projects	1 X 600 KW	N 27° 03' 09. 3"	E 70° 44' 24. 7"
TEJ 17	Manju Sanghi	1 X 600 KW	N 27° 02' 41.2"	E 70° 42'41.5 "
TEJ-47	Sarayu Investment Pvt Ltd	1 X 600 KW	N 27° 02' 23.2"	E 70° 42' 54.0"
TEJ-15	Vitesse Pvt Ltd	1 X 600 KW	N 27° 01' 28.5"	E 70° 43' 50.8"

A.3. Parties and project participant(s)

Party involved ((host) indicates a host Party)	Private and/or public entity(ies) project participants (as applicable)	Indicate whether the Party involved wishes to be considered as project participant (yes/no)
India (host)	EKI Energy Services Limited	No

A.4. Reference of applied methodology and standardized baseline

Type I – Renewable energy projects
Category D – Electricity Generation for a System
Sectoral Scope: 1 Energy Industries (renewable-/non-renewable sources)

Title: AMS I.D, Grid Connected Renewable Electricity Generation[2], Version 17, EB 61, sectoral scope 01

Reference: Appendix B of the simplified modalities & procedures for small scale CDM project activities

The methodology also refers to latest approved versions of "Tool to calculate the emission factor for an electricity system, version 02.2.1"

A.5. Crediting period of project activity

Renewable from 05/11/2012 to 04/11/2019

A.6. Contact information of responsible persons/entities

Manish Dabkara
EKI Energy Services Limited
M +91 9907534900
T +91 0731 4289086
E manish@enkingint.org
W www.enkingint.org

Above entity / person is PP & CDM Consultant.

[2] http://cdm.unfccc.int/methodologies/SSCmethodologies/approved.html

SECTION B. Implementation of project activity

B.1. Description of implemented registered project activity

The project activity uses renewable energy (wind) as a clean fuel to generate electrical energy. The total installed capacity of the project is 5.45 MW, which comprises 8 no. Wind Turbine Generator (WTG); 7 no. of machines of 600 KW (make Suzlon Energy Limited); 1 no. of machines of 1250 KW (make Suzlon Energy Limited).

The wind power generated from the project activity will be displacing 9,638 MWh of power from NEWNE grid, and thereby reducing the Greenhouse Gas emissions from the generation-mix of power plants connected to the NEWNE regional grid, which is mainly dominated by thermal/fossil fuel based power plant. The project activity is a green field project activity & can generate electricity using Wind energy which displaces approximately 9,180 tonnes of CO2 equivalent at the regional grid NEWNE of India, as respective WTGs will sell the power generated to the local grid.

The further information of the project WTGs are:-

WTG internal ID of bundled project	Investor's Name	Capacity In MW	Connected with Grid	Generated Power use
WTG1	Anamika Conductors Ltd	1 X 600 KW	NEWNE	Jaipur Discom
WTG2	M/s Choudhary Exports	1 X 600 KW	NEWNE	Ajmer Discom
WTG3	Delhi Rajasthan Transport Co Ltd	1 X 600 KW	NEWNE	Jaipur Discom
WTG4	Link Enterprises	1 X 1250 KW	NEWNE	Jaipur Discom
WTG5	Mangala Power Projects	1 X 600 KW	NEWNE	Jaipur Discom
WTG6	Manju Sanghi	1 X 600 KW	NEWNE	Jodhpur Discom
WTG7	Sarayu Investment Pvt Ltd	1 X 600 KW	NEWNE	Jaipur Discom
WTG8	Vitesse Pvt Ltd	1 X 600 KW	NEWNE	Jaipur Discom

Purpose of the project activity:
The main purpose of the project activity is to generate electrical energy through sustainable means using wind power resources, to utilize the generated output for selling it to RVPNL/concerned Discom and to contribute to climate change mitigation efforts.

The project is a renewable energy project with maximum output capacity of 5.45 MW and is well below the specified limits of 15 MW of maximum output capacity as per Appendix B of the simplified modalities and procedures for small-scale project activities. Hence it qualifies for the mentioned type and category.
Wind power technology details – The technology employed, converts wind energy to electrical energy. In wind power generation, energy of wind is converted into mechanical energy and subsequently into electrical energy. The project activity is the installation of an environmentally safe and sound technology since there are no GHG emissions associated with the electricity generation. The technical specifications of the WTGs have been provided as below. There is no transfer of technology involved in the project activity. The project activity consists of Suzlon Energy Limited make 8 WTGs, in which 7 WTGs are of 600 kW & 1 WTG of 1,250 kW.

Technical details of the Machines

- Technical details for 600 kW Machine manufactured by Suzlon Energy Limited

SR. NO.	PARAMETERS	DETAILS (600 kW)
1	**Operating Data**	
	Cut-in Wind Speed	4 m/s
	Rated Wind Speed	13 m/s
	Cut-off wind speed	25 m/s
2	**Rotor**	
	Type	3 Blades, Upwind / Horizontal axis
	Rotor Diameter	52 m
	Rotor Swept Area	2124 m^2
	Rotor Blade Material	Epoxy bonded fibre glass
3	**Gear Box**	
	Type	1 Planetary stage / 2 Helical stages
	Ratio	1:63.6
	Nominal Load	660 kW
	Type of Cooling	Forced oil cooling lubrication system
4	**Generator**	
	Type	Single Speed Induction Generator (Asynchronous)
	Rated Voltage	690 V AC (phase to phase)
	Rated Power	600 kW
	Insulation	Class H
	Cooling System	Air Cooled
5	**Tower**	
	Type	Lattice tower
	Tower Height	73 m
	Hub Height (including foundation)	Approximately 75 m
6	**Braking System**	
	Aerodynamic Braking	3 independent systems with blade pitching
	Mechanical Braking	Hydraulic fail safe disk brake system
7	**Yaw System**	
	Type	Active electrical yaw motor
	Bearing	Polyamide slide bearing with gear ring & automatic gearing system
	Protection	Cable twist sensor, proximity sensor
8	**Wind Class**	II a
9	**Quality System**	ISO 9001:2000

- Technical details for 1,250 kW Machine manufactured by Suzlon Energy Limited

SR. NO.	PARAMETERS	DETAILS (1,250 kW)
1	**Operating Data**	
	Cut-in Wind Speed	3.5 m/s
	Rated Wind Speed	14 m/s
	Cut-off wind speed	25 m/s
2	**Rotor**	
	Type	3 Blades, Upwind / Horizontal axis
	Rotor Diameter	64 m
	Rotor Swept Area	3217 m^2
	Rotor Blade Material	Epoxy bonded fibre glass
3	**Gear Box**	
	Type	1 Planetary stage / 2 Helical stages
	Ratio	1:74.9
	Nominal Load	1390 kW
	Type of Cooling	Forced oil cooling lubrication system
4	**Generator**	
	Type	Dual Speed Induction Generator (Asynchronous)
	Rated Voltage	690 V AC (phase to phase)
	Rated Power	1250 kW
	Insulation	Class H
	Cooling System	Air Cooled
5	**Tower**	
	Type	Tubular tower
	Tower Height	72 m
	Hub Height (including foundation)	74.5 m
6	**Braking System**	
	Aerodynamic Braking	3 independent systems with blade pitching
	Mechanical Braking	Hydraulic fail safe disk brake system
7	**Yaw System**	
	Type	Active electrical yaw motor
	Bearing	Polyamide slide bearing with gear ring & automatic gearing system
	Protection	Cable twist sensor, proximity sensor
8	**Wind Class**	II
9	**Quality System**	ISO 9001:2000

B.2. Post-registration changes

B.2.1. Temporary deviations from registered monitoring plan, applied methodology or applied standardized baseline

Not Applicable

B.2.2. Corrections

Not Applicable

B.2.3. Changes to start date of crediting period

Not Applicable

B.2.4. Inclusion of a monitoring plan to the registered PDD that was not included at registration

Not Applicable

B.2.5. Permanent changes from registered monitoring plan, applied methodology or applied standardized baseline

Not Applicable

B.2.6. Changes to project design of registered project activity

Not Applicable

B.2.7. Types of changes specific to afforestation or reforestation project activity

Not Applicable

SECTION C. Description of monitoring system

The O & M Contractor for the project activity is Suzlon Energy Ltd.

The O & M activities are as follows:
Routine Maintenance Labour Work involves making available suitable manpower for operation and maintenance of the equipment and covers periodic preventive maintenance, cleaning and upkeep of the equipment including –

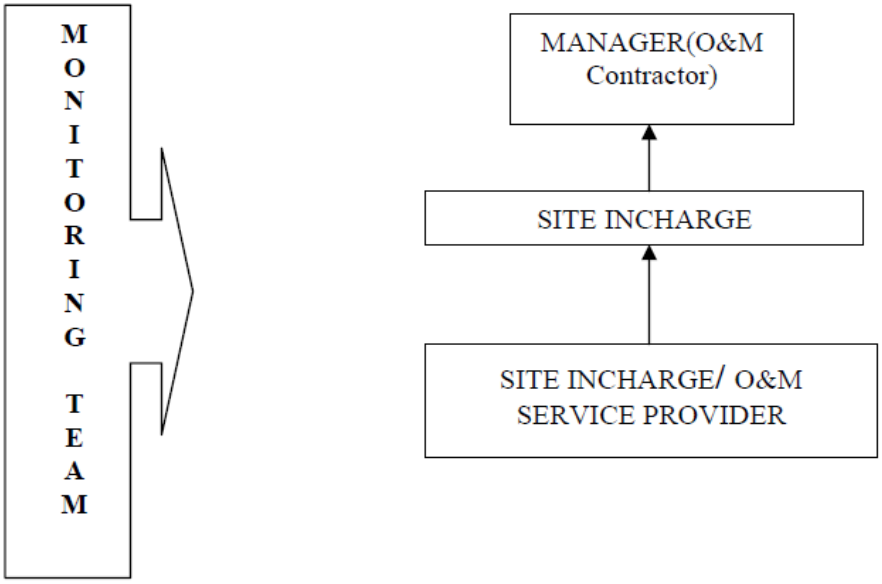
a) Tower Torquing
b) Blade Cleaning
c) Nacelle Torquing and Cleaning
d) Transformer Oil Filtration
e) Control Panel & LT Panel Maintenance
f) Site and Transformer Yard Maintenance
While as per manufacturers recommendations the WTGs are operated & maintained to achieve optimal performance throughout the life time of the WTG.

1. Data archiving
Generation reports, joint meter reading, calibration reports, other documents as well as copy of invoices are maintained at the promoter's office for cross verification at any given time. The data will be kept for two years after the end of the crediting period or the last issuance of CERs for this project activity, whichever occurs later.

2. Emergency Preparedness –
The identified emergencies are:
1. Fire / explosion at office, guest house, canteen and WTG panel
2. Emergency at height fall
3. Calamities
4. Communicable diseases
5. Food poisoning
6. Snake Bite
7. Road Accident
8. Electrical short circuit at panel / HT Yard
9. Oil Spillage

Out of above emergencies Fire / explosion at office, guest house, canteen may cause unintended emissions during the project operations. This emergency is handled by O & M contractor / Investor representative as below:
1. On receiving information quickly rush to the emergency spot with fire extinguisher & operate the fire extinguisher to bring the fire under control.
2. If the fire is out of control inform Site/ Section in charge to inform fire brigade for further control & help. Moreover, sudden mechanical failure of WTG including metering equipments may also occur during project operation this will be tackled by the onsite Team.
The team is equipped with necessary skills & equipment to handle such situations. The fault in the metering system is determined by the State Utility/representative of Project Investors (O & M contractor) during the regular inspection of the system or during the periodic testing or monthly meter reading matching. The malfunctioning of the electrical and metering system is tackled by Project Investors & the
SEB as per the Power Purchase Agreement.

The operational and management structure



Organizational Structure for monitoring

Designation	Responsibilities
MANAGER(O&M Contractor)	Holds complete control over monitoring aspects pertaining to the project including review of the reports and performance of the project activity.
SITE INCHARGE	• Recording • Verification • Storage of Data
SITE INCHARGE/ O&M SERVICE PROVIDER	• Operation and Maintenance • Storage of data • Data Recording

Also if the Main metering system, Back up Metering system or any component thereof is found to outside the acceptable limits of accuracy or otherwise not functioning properly, it shall be repaired, re-callibrated or replaced as soon as possible by the RVPNL/concerned Discom or representative of Project Investors.

3. Monitoring Methods and Procedures -
The electricity exported and imported from the grid by the WTG is recorded on monthly basis by Investor

representatives (O&M Contractors). A monthly joint meter reading of the energy meters (main /check) would be carried out by SEB officials and O&M contractors (representatives of the project promoter) for the complete wind farm.
Following the joint meter readings, the O&M Contractors provide the readings of the WTG's net generation to RVPNL. The net electricity generation from each WTG is determined as follows:

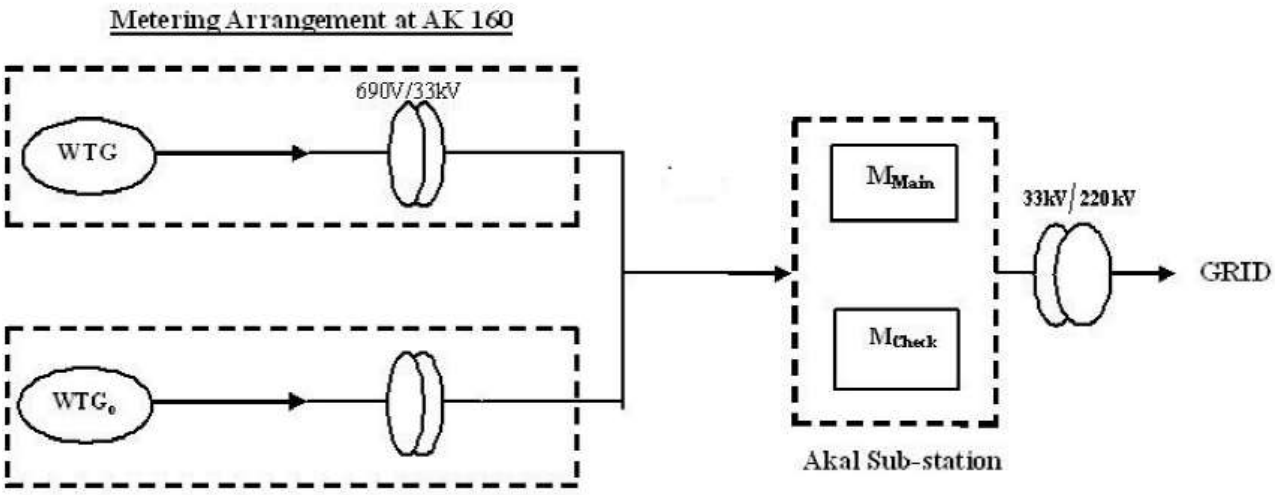
$$\text{Export from WTG} = \frac{\text{Generation at WTG controller}}{\text{Total generation at all WTG controllers for the feeder}} \times \text{Export from main/check meter}$$

$$\text{Import from WTG} = \frac{\text{Generation at WTG controller}}{\text{Total generation at all WTG controllers for the feeder}} \times \text{Import from main/check meter}$$

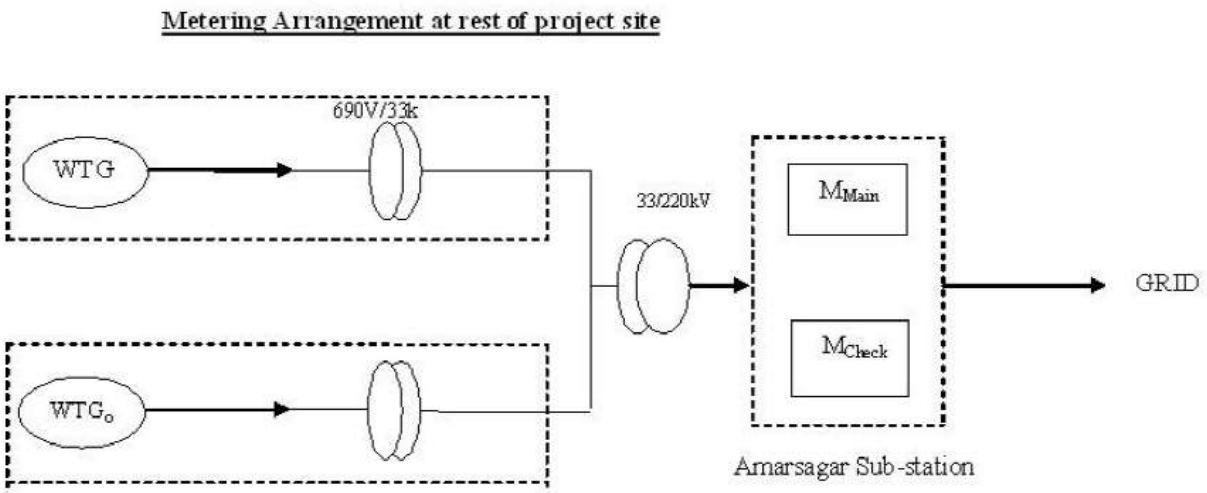
$$\text{Net electricity export from WTG} = \text{Export from WTG} - \text{Import from WTG}$$

Connectivity and Metering Details of Project WTGs:
The diagram for monitoring of the electricity generated and supplied by the project site at AK 160 of Link Enterprises and rest of all is different and are provided under:

Metering Arrangement at AK 160



Metering Arrangement at rest of the project site



Metering System	
WTG	Project Activity WTGs
WTG_o	Other Project Activity WTGs
M_{Main}	Sub-station – The 33 or 220kV line transfer from Developer Sub-station to Grid sub-station. (This Main Meter has been used for apportioning purpose)
M_{check}	Sub-station – The 33 or 220kV line transfer from Developer Sub-station to Grid sub-station. (This Check Meter has been used for apportioning purpose)

WTG No.	Investors Name	UID No.	Site/Village	Suzlon Sub-station/Pooling Station	RVPN Sub-station
WTG1	Anamika Conductors Ltd	TEJ 07	Tejuva	220kV Mokla	220 kV Amarsagar
WTG2	Choudhary Exports	TEJ 01	Tejuva	220kV Mokla	220 kV Amarsagar
WTG3	Delhi Rajasthan Transport Co Ltd	TEJ 31	Habur	220kV Mokla	220 kV Amarsagar
WTG4	Link Enterprises	AK 160	Chord	33/220kV Akal	400 kV Akal
WTG5	Mangala Power Projects	TEJ 30	Habur	220kV Mokla	220 kV Amarsagar
WTG6	Manju Sanghi	TEJ 17	Habur	220kV Mokla	220 kV Amarsagar
WTG7	Sarayu Investment Pvt Ltd	TEJ 47	Bhatia Khadin	220kV Mokla	220 kV Amarsagar
WTG8	Vitesse Pvt Ltd	TEJ 15	Habur	220kV Mokla	220 kV Amarsagar

4. Procedures to deal with Data Uncertainty

Main and check meters for the project activity are of 0.2 accuracy class. Accuracy tests will be carried out at least once in a year (as per PPA) to ensure that the meters are working within their permissible limit of error. The following actions would be carried out for determination of emission reductions:

 By default main meter readings are considered in the credit notes and for emission reduction calculations. If the main meter is found to be erroneous, the check meter readings would be used in the credit notes and for emission reduction calculations. The main meter would be calibrated or replaced with a new calibrated energy meter.

 If the check meter is found to be erroneous, the main meter readings would by default be considered.

The check meter would be calibrated or replaced with a new calibrated energy meter.
- If both meters are found to be erroneous, and then emission reductions will be adjusted to account for the error percentage reported for the respective period. Both energy meters would be calibrated or replaced with new calibrated energy meters.
- In the event of delay calibration: Guidelines for Assessing Compliance with the Calibration Frequency Requirements (EB 52, annex 60) will be applied appropriately to confirm the conservativeness of metering and emission reductions

SECTION D. Data and parameters

D.1. Data and parameters fixed ex ante or at renewal of crediting period

Data/parameter:	EF_{CM} (ie,$EF_{CO2, grid, y}$)
Unit	tCO_2/MWh
Description	CO_2 emission factor of the NEWNE grid in year y (t CO_2/MWh) / Emission factor
Source of data	CO_2 Baseline Database for the Indian Power Sector, Version 7, CEA (http://www.cea.nic.in/reports/planning/cdm_co2/user_guide_ver7.pdf)
Value(s) applied)	0.9529
Choice of data or measurement methods and procedures	The Combined Margin Emission Factor has been calculated as a weighted sum of Operating Margin emission factor and Build Margin emission factor taking the weight age value as 0.75 and 0.25 respectively as per the "Tool to calculate the emission factor for an electricity system" and on the basis of the data available at the time of PDD submission from the publicly available official database on emission factors for all regional grids in India.
Purpose of data	To determine Baseline emissions.
Additional comments	This value is fixed ex-ante

Data/parameter:	EF_{OM}
Unit	tCO_2/MWh
Description	Operating margin CO_2 emission factor in year y (tCO_2/MWh)
Source of data	CO_2 Baseline Database for the Indian Power Sector, Version 7, CEA (http://www.cea.nic.in/reports/planning/cdm_co2/user_guide_ver7.pdf)
Value(s) applied)	For NEWNE Grid –0.9842
Choice of data or measurement methods and procedures	The data has been sourced from the Central Electricity Authority (CEA) Carbon Dioxide database. The link to the database is provided below: http://www.cea.nic.in/reports/planning/cdm_co2/user_guide_ver7.pdf
Purpose of data	To determine Baseline emissions.
Additional comments	This parameter is fixed ex-ante

Data/parameter:	EF_{BM}
Unit	tCO_2/MWh
Description	Build margin CO_2 emission factor in year y (tCO_2/MWh)
Source of data	CO_2 Baseline Database for the Indian Power Sector, Version 7, CEA (http://www.cea.nic.in/reports/planning/cdm_co2/user_guide_ver7.pdf).
Value(s) applied)	For - NEWNE Grid – 0.8588
Choice of data or measurement methods and procedures	The data has been sourced from the Central Electricity Authority (CEA) Carbon Dioxide database. The link to the database is provided below: (http://www.cea.nic.in/reports/planning/cdm_co2/user_guide_ver7.pdf).
Purpose of data	To determine Baseline emissions.
Additional comments	This parameter is fixed ex-ante

D.2. Data and parameters monitored

Data/parameter:	EG_{BLy}
Unit	MWh / year (measured in kWh / year , then converted to MWh / year by multiplication factor 1000)
Description	Quantity of net electricity supplied to the NEWNE grid as a result of the implementation of the CDM project activity in year *y* (MWh)
Measured/calculated/default	Calculated
Source of data	Break up of Net Export units
Value(s) of monitored parameter	Refer the Emission Reduction Excel Sheet
Monitoring equipment	Energy Meter
Measuring/reading/recording frequency:	Monthly
Calculation method (if applicable):	The net electricity supplied by the project activity will be calculated by deducting the electricity import from electricity exported by the project activity which will be measured during the monitoring period. $EG_{BL,\ y} = EG_{y,export} - EG_{y,import}$ Where, $EG_{BL,\ y}$ = The net electricity supplied by the project $EG_{y,export}$ = Electricity exported by the project to the grid $EG_{y,import}$ = Electricity imported by the project from the grid
QA/QC procedures:	The RVPN/Discom will seal the main metering system and the backup metering system in the presence of representatives of Project Investor. When the Main metering system and/or Back up metering system and or any component thereof is found to be outside the acceptable limits of accuracy or otherwise not functioning properly, it shall be repaired, recalibrated or replaced as soon as possible by the project investor or developer or by the RVPN/Discom at project investor or developer cost. RVPN/Discom will test the metering system for accuracy at least once in a year. Any meter seal(s) shall be broken only by the authorized officer of RVPN's/Discom's in presence of representative of project investor/developer whenever the Main or Backup metering system is to be inspected, tested, adjusted, repaired or replaced. As calibration frequency has not been defined by PPA or RERC guideline, on a conservative approach the meters will be calibrated at-least once in 3 years (as per paragraph 17 (c) of General Guidelines to SSC CDM methodologies, Version 17). The parameter can be also cross checked with the electricity sales invoices issued by PP to state utility.
Purpose of data:	To determine baseline emissions
Additional comments:	The data will be kept both in electronic and paper form for two years after the end of the crediting period or the last issuance of CERs for this project activity, whichever occurs later. .

Data/parameter:	$EG_{y,\ Export}$
Unit	kWh /year
Description	Quantity of Electricity exported to RVPNL/concerned Discom facility
Measured/calculated/default	Measured
Source of data	Break up of Net Export units
Value(s) of monitored parameter	Refer the Emission Reduction Excel Sheet

Monitoring equipment	Energy Meter
Measuring/reading/recording frequency:	Monthly
Calculation method (if applicable):	The monthly Joint Meter Readings are taken by the RVPN, Discom and concerned PP (or representative of PP) based on the monthly joint energy meter readings taken from common meter at the substation end and monthly electricity readings recorded from the individual WTG PLC controller. Since power generated from other WTGs in the wind firm is also fed into the concerned/applicable connected substation (where WTG of Project investor is also connected), the electricity (import/export/transmission losses) by each individual WTGs/investor is determined based on apportioning approach. The electricity readings are monitored on continuous basis & accumulated at both the end of measurement, i.e. the individual WTG controller panel and substation common meter. The hourly measurements from the WTG controller panel are recorded (manual/ automatic) and consolidated monthly values are used for the calculation. On the other hand, at the substation, monthly joint meter readings are taken by the RVPNL/concerned Discom in presence of the representative of PP and/or O&M contractor is used for the calculation and preparation of monthly joint meter reading report. The meters used at the substation are 3 Phase, 4 Wire; bi-directional energy meters which measure import and export reading of electricity separately. In the event that the main metering system is not in service as a result of maintenance, repair or testing then the backup metering system will be used.
QA/QC procedures:	The RVPN/Discom will seal the main metering system and the backup metering system in the presence of representatives of Project Investor. When the Main metering system and/or Back up metering system and or any component thereof is found to be outside the acceptable limits of accuracy or otherwise not functioning properly, it shall be repaired, recalibrated or replaced as soon as possible by the project investor or developer or by the RVPN/Discom at project investor or developer cost RVPN/Discom will test the metering system for accuracy at least once in a year. Any meter seal(s) shall be broken only by the authorized officer of RVPN's/Discom's in presence of representative of project investor/developer whenever the Main or Backup metering system is to be inspected, tested, adjusted, repaired or replaced. As calibration frequency has not been defined by PPA or RERC guideline, on a conservative approach the meters will be calibrated at-least once in 3 years (as per paragraph 17 (c) of General Guidelines to SSC CDM methodologies, Version 17). The parameter can be also cross checked with the electricity sales invoices issued by PP to state utility.
Purpose of data:	To determine baseline emissions
Additional comments:	The data will be kept both in electronic and paper form for two years after the end of the crediting period or the last issuance of CERs for this project activity, whichever occurs later.

Data/parameter:	$EG_{y, Import}$
Unit	kWh /year
Description	Quantity of Electricity imported from RVPNL/concerned Discom facility.
Measured/calculated/default	Measured
Source of data	Break up of Net Export units
Value(s) of monitored parameter	Refer the Emission Reduction Excel Sheet
Monitoring equipment	Energy Meter
Measuring/reading/recording frequency:	Monthly

Calculation method (if applicable):	The monthly Joint Meter Reading Readings are taken by the RVPN, Discom and concerned PP (or representative of PP) based on the monthly joint energy meter readings taken from common meter at the substation end and monthly electricity readings recorded from the individual WTG PLC controller. Since power generated from other WTGs in the wind firm is also fed into concerned/applicable connected substation (where WTG of Project invester is also connected), the electricity (import/export/transmission losses) by each individual WTGs/investor is determined based on apportioning approach. The electricity readings are monitored on continuous basis & accumulated at both the end of measurement, i.e. the individual WTG controller panel and substation common meter. The hourly measurements from the WTG controller panel are recorded (manual/ automatic) and consolidated monthly values are used for the calculation. On the other hand, at the substation, monthly joint meter readings are taken by the RVPNL/concerned Discom, in presence of the representative of the PP and/or O&M contractor, is used for the calculation and preparation of monthly joint meter reading report. The meters used at the substation are 3 Phase,4 Wire, bi-directional energy meters which measure import and export reading of electricity separately. In the event that the main metering system is not in service as a result of maintenance, repair or testing then the backup metering system will be used.
QA/QC procedures:	The RVPN/Discom will seal the main metering system and the backup metering system in the presence of representatives of Project Investor. When the Main metering system and/or Back up metering system and or any component thereof is found to be outside the acceptable limits of accuracy or otherwise not functioning properly, it shall be repaired, recalibrated or replaced as soon as possible by the project investor or developer or by the RVPN/Discom at project investor or developer cost, RVPN/Discom will test the metering system for accuracy at least once in a year. Any meter seal(s) shall be broken only by the authorized officer of RVPN's/Discom's in presence of representative of project investor/developer whenever the Main or Backup metering system is to be inspected, tested, adjusted, repaired or replaced. As calibration frequency has not been defined by PPA or RERC guideline, on a conservative approach the meters will be calibrated at-least once in 3 years (as per paragraph 17 (c) of General Guidelines to SSC CDM methodologies, Version 17). The parameter can be also cross checked with the electricity sales invoices issued by PP to state utility
Purpose of data:	To determine baseline emissions
Additional comments:	The data will be kept both in electronic and paper form for two years after the end of the crediting period or the last issuance of CERs for this project activity, whichever occurs later.

D.3. Implementation of sampling plan

Not Applicable

SECTION E. Calculation of emission reductions or GHG removals by sinks

E.1. Calculation of baseline emissions or baseline net GHG removals by sinks

Emission reductions are calculated as follows:
$ER_y = BE_y – PE_y – LE_y$

Where:
ER_y = Emission reductions in year y (tCO2/y)

BE_y = Baseline Emissions in year y (tCO2/y)
PE_y = Project emissions in year y (tCO2/y)
LE_y = Leakage emissions in year y (tCO2/y)

As per methodology , PEy = LEy = 0

Thus, $ER_y = BE_y – PE_y – LE_y$
$ER_y = BE_y – 0 – 0$ (as, $PE_y = LE_y = 0$)
$ER_y = BE_y$

Also, Baseline Emissions in year y = (Net Electricity supplied to the grid due to project activity in year y in MWh/year)*(Emission Factor for NEWNE in year y in tCO2/MWh)

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

As explained above
as, $ER_y = BE_y =$ 26044 tCO2/annum

E.2. Calculation of project emissions or actual net GHG removals by sinks

As per methodology its Zero

E.3. Calculation of leakage

As per methodology its Zero

E.4. Summary of calculation of emission reductions or net GHG removals by sinks

Item	Baseline emissions or baseline net GHG removals by sinks (t CO_2e)	Project emissions or actual net GHG removals by sinks (t CO_2e)	Leakage (t CO_2e)	GHG emission reductions or net GHG removals by sinks (t CO_2e) achieved in the monitoring period		
				Up to 31/12/2012	From 01/01/2013	Total amount
Total	26044	0	0	1362	24682	26044

E.5. Comparison of actual emission reductions or net GHG removals by sinks with estimates in registered PDD

Item	Values estimated in ex ante calculation of registered PDD	Actual values achieved during this monitoring period
Emission reductions or GHG removals by sinks (t CO_2e)	27414	26044

E.6. Remarks on difference from estimated value in registered PDD

Since PLF was low thus actual emission reductions are less.

Appendix 1. Contact information of project participants and responsible persons/entities

Project participant and/or responsible person/ entity	☒ Project participant ☒ Person/entity responsible for completing the CDM-MR-FORM
Organization name	EKI Energy Services Limited
Street/P.O. Box	Maharani Road
Building	325 Prem Trade Center
City	Indore
State/region	Madhya Pradesh
Postcode	452007
Country	India
Telephone	+91 731 4289086
Fax	+91 731 4289086
E-mail	manish@enkingint.org
Website	www.enkingint.org
Contact person	Manish Dabkara
Title	CEO
Salutation	Mr.
Last name	Dabkara
Middle name	
First name	Manish
Department	CDM Services
Mobile	+91 9907534900
Direct fax	+91 731 4289086
Direct tel.	+91 731 4289086
Personal e-mail	manish@enkingint.org