



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	100.5 MW Wind Power Project in Madhya Pradesh, India	
GS reference number of the project activity	GS3969	
Version number of the monitoring report	1.1	
Completion date of the monitoring report	01/07/2017	
Monitoring period number and duration of this monitoring period	Monitoring Period: 01 Duration: 01/01/2015 to 31/03/2016 (Both days included)	
Project participant(s)	Orange Mamatkhedha Wind Private Limited	
Host Party	India	
Sectoral scope(s)	Sectoral Scope 1: Energy Industries(renewable – /non-renewable sources)	
Selected methodology(ies)	ACM0002 "Grid-connected electricity generation from renewable sources" Version 16.0	
Selected standardized baseline(s)	NA	
Estimated amount of GHG emission reductions or net GHG removals by sinks for this monitoring period in the registered PDD	219,810 tCO ₂ e	
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
	NA	214,170 tCO ₂ e

SECTION A. Description of project activity

A.1. Purpose and general description of project activity

The project activity is a 100.5 MW wind power project, promoted by Orange Mamatkhedha Wind Private Limited (OMWPL). The purpose of the project activity is to generate clean electricity with utilization of wind energy. The project consists of 67 Wind Turbine Generators (WTGs) of 1.5 MW class ReGenV87 make.

The electricity generated by the project is exported to the NEWNE electricity grid. The project activity is therefore displaces an equivalent amount of electricity which would have otherwise been generated by fossil fuel dominant electricity grid and there by reduces the associated CO₂ emissions.

A.2. Location of project activity

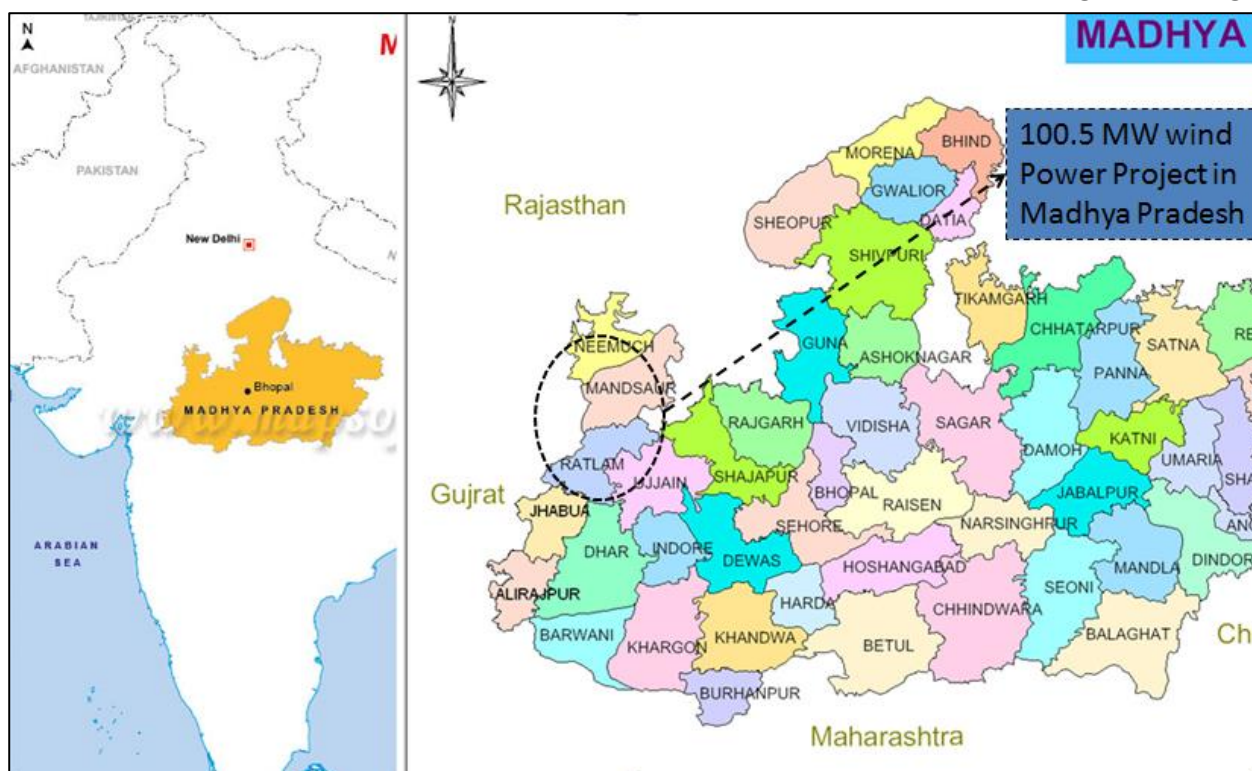
OMWPL has installed WTGs at Bagiya, Kansar, Mawta, Nandwell, Ranigaon, Thikriya, Bhandariya, Bhepur, Chandakhedi, Dehari, Dhandhoda, Garoda, Karju and Sagwali, villages of Ratlam & Mandsaur districts of Madhya Pradesh in India.

Geographical coordinates of the all WTGs are given below:

S. No	WTG ID	Latitude N	Longitude E
1	RM_01	23° 44' 28.075"	74° 58' 17.419"
2	RM_02	23° 46' 2.550"	74° 57' 0.942"
3	RM_03	23° 45' 50.778"	74° 56' 56.742"
4	RM_04	23° 45' 44.175"	74° 56' 52.646"
5	RM_05	23° 45' 31.851"	74° 56' 53.004"
6	RM_06	23° 45' 20.438"	74° 56' 52.126"
7	RM_07	23° 45' 13.024"	74° 56' 51.705"
8	RM_08	23° 45' 5.869"	74° 56' 50.400"
9	RM_09	23° 44' 48.409"	74° 56' 53.869"
10	RM_10	23° 44' 40.539"	74° 56' 51.258"
11	RM_11	23° 44' 33.286"	74° 56' 47.552"
12	RM_12	23° 45' 41.015"	74° 58' 44.783"
13	RM_13	23° 45' 29.701"	74° 59' 0.506"
14	RM_16	23° 45' 0.957"	74° 59' 7.999"
15	RM_18	23° 44' 53.801"	74° 58' 49.207"
16	RM_19	23° 44' 40.957"	74° 58' 53.907"
17	RM_20	23° 44' 30.029"	74° 58' 36.282"
18	RM_21	23° 44' 16.855"	74° 58' 12.264"
19	RM_22	23° 44' 10.581"	74° 58' 20.178"
20	RM_25	23° 44' 45.641"	75° 0' 49.350"
21	RM_26	23° 45' 8.242"	74° 59' 40.994"
22	RM_28	23° 44' 21.253"	75° 0' 46.839"
23	RM_29	23° 44' 13.059"	75° 0' 50.582"
24	RM_33	23° 45' 57.626"	74° 58' 12.594"
25	RM_34	23° 45' 15.104"	74° 59' 42.831"
26	RM_36	23° 45' 18.452"	74° 59' 29.123"
27	RM_37	23° 45' 35.434"	74° 57' 10.526"

28	RM_38	23° 45' 49.225"	74° 57' 22.745"
29	RM_39	23° 45' 45.789"	74° 56' 18.906"
30	RM_41	23° 45' 55.547"	74° 56' 25.826"
31	RM_42	23° 45' 23.728"	74° 57' 10.318"
32	RM_43	23° 47' 32.845"	74° 59' 21.058"
33	RM_44	23° 47' 29.747"	74° 58' 12.750"
34	RM_45	23° 47' 36.152"	74° 58' 6.070"
35	RM_48	23° 47' 39.118"	74° 58' 44.623"
36	RM_49	23° 47' 43.316"	74° 59' 23.990"
37	RM3_01	23° 50' 29.519"	74° 57' 14.203"
38	RM3_02	23° 50' 37.583"	74° 57' 11.973"
39	RM3_03	23° 50' 45.583"	74° 57' 15.470"
40	RM3_08	23° 50' 32.270"	74° 58' 39.328"
41	RM3_09	23° 50' 21.832"	74° 58' 37.456"
42	RM3_10	23° 50' 6.553"	74° 59' 14.328"
43	RM3_11	23° 50' 25.804"	74° 59' 32.992"
44	RM3_12	23° 50' 48.892"	74° 59' 48.864"
45	RM3_13	23° 50' 46.517"	74° 59' 20.122"
46	RM3_14	23° 51' 3.231"	74° 59' 30.267"
47	RM3_16	23° 51' 6.901"	74° 58' 44.060"
48	RM3_17	23° 51' 23.579"	74° 58' 21.783"
49	RM3_18	23° 51' 31.349"	74° 58' 18.175"
50	RM3_19	23° 51' 1.759"	74° 58' 16.979"
51	RM3_22	23° 51' 51.604"	74° 58' 0.138"
52	RM3_23	23° 51' 25.764"	74° 59' 13.401"
53	RM3_28	23° 52' 5.757"	74° 58' 51.263"
54	RM3_30	23° 52' 22.990"	74° 58' 41.855"
55	RM3_32	23° 51' 59.161"	74° 59' 53.317"
56	RM3_33	23° 52' 14.671"	75° 0' 15.699"
57	RM3_34	23° 52' 24.199"	75° 0' 11.174"
58	RM3_35	23° 50' 51.456"	74° 58' 50.107"
59	RM3_39	23° 51' 51.292"	75° 0' 0.743"
60	RM3_40	23° 51' 1.443"	74° 59' 57.136"
61	RM3_41	23° 49' 57.904"	74° 59' 28.398"
62	RM3_42	23° 49' 42.687"	74° 59' 32.712"
63	RM3_43	23° 53' 28.641"	74° 58' 41.490"
64	RM3_44	23° 53' 41.388"	74° 58' 41.630"
65	RM3_45	23° 53' 52.021"	74° 58' 44.457"
66	RM3_46	23° 54' 1.191"	74° 58' 44.809"
67	RM3_48	23° 54' 27.171"	74° 58' 42.683"

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



A.3. Parties and project participant(s)

Party involved ((host) indicates a host Party)	Private and/or public entity(ies) project participants (as applicable)
India	Orange Mamatkhedha Wind Private Limited

A.4. Reference of applied methodology and standardized baseline

Title: Consolidated baseline and monitoring methodology for “Grid-connected electricity generation from renewable sources”

References: Approved consolidated baseline methodology ACM0002 “Grid-connected electricity generation from renewable sources” (Version 16.0, EB 81¹)

A.5. Crediting period of project activity

Type of Crediting Period: Renewable

Start date of the crediting period: 01/01/2015 (Retroactive crediting start date)

Length of the current crediting period: 7 years

¹<http://cdm.unfccc.int/methodologies/DB/EY2CL7RTEHRC9V6YQHLAR6MJ6VEU83>

A.6. Contact information of responsible persons/entities

Monitoring report prepared by:

Kosher Climate India Private Limited (the party is not a project proponent)

First Floor, #945, 21st cross, 5th main,

Sector- 7, HSR Layout, Bangalore,

Karnataka-560 102, India

SECTION B. Implementation of project activity**B.1. Description of implemented registered project activity**

The project activity comprises of 67 WTGs of ReGen's V87model 1500kW.

All the WTGs have been commissioned. The technical details of the WTGs are given below:

POWER	
Rated power	1500 kW
Cut-in wind speed (10 min. mean)	3 m/s
Rated Wind Speed (10 min. mean)	approx 12.5 m/s
Cut-out wind speed (10 min. mean)	22 m/s
Survival wind speed	52.5 m/s
Generator	Variable Speed, Multi-pole Synchronous with Permanent Magnet Excitation
ROTOR	
Diameter	86.7 m
Swept area	5325 sq.m
Speed range (variable)	9 to 17.3 rpm
TOWER AND FOUNDATION	
Hub height	85 m
Design	Tubular, Four sections
Foundation type	Floating foundation
CONTROL AND SAFETY SYSTEMS	
Control of output	Pitch Regulation
Speed control	Variable, Micro-controller based
Low Voltage Ride Through (LVRT)	3 seconds
Primary brake system	Aerodynamic Brake, Single Pitch Control/triple redundant
Pitch System	Electromechanical, Maintenance Free Toothed Belt Drive (Patented)
Remote Monitoring	VPN, Visualization via web-browser
TYPE CLASSES	
Wind turbine type class	GL III A

SECTION C. Description of monitoring system

The project proponent has entered into agreement with the WTG Suppliers (ReGen) for the operation and maintenance of WTGs. The WTG supplier has dedicated and technically well-equipped O&M team for day to day Operation and maintenance of each WTG. O&M contractor will provide a monthly report, which includes generation data, major breakdown events and machine availability.

Monthly Generation Data for the Monitoring Period:

Month	Export (kWh)	Import (kWh)	Net Generation (kWh)
Jan-15	5050000	20000	5030000
Feb-15	5976000	12000	5964000
Mar-15	7552000	8000	7544000
Apr-15	17896000	4000	17892000
May-15	24884000	8000	24876000
Jun-15	21270000	8000	21262000
Jul-15	41404000	2000	41402000
Aug-15	21478000	0	21478000
Sep-15	15906000	4000	15902000
Oct-15	8806000	22000	8784000
Nov-15	8792000	36000	8756000
Dec-15	7136000	24000	7112000
Jan-16	6676000	28000	6648000
Feb-16	13302000	8000	13254000
Mar-16	13320000	12000	13308000
Total	219448000	196000	219121000

Key Reasons for Downtime during the Current Monitoring Period:

Month	General Maintenance (hrs)	Unscheduled breakdown (hrs)	Grid Error (hrs)	Other reasons (hrs)
Jan-15	228.6	161.1	18.7	0
Feb-15	472.66	79.31	4.32	0
Mar-15	483.8	113.6	0.86	0
Apr-15	804.59	125.77	0	0
May-15	1640.93	2005.5	0	0
Jun-15	1161.14	2358.4	0	0
Jul-15	101.25	732.82	0	741.2
Aug-15	61.5	1066.18	0	90.14
Sep-15	55.52	549.28	0.75	0
Oct-15	291.97	225	195.88	3.2
Nov-15	40.09	110.74	6.59	322.79
Dec-15	283.39	825.16	2.5	1824
Jan-16	824.59	880.5	267.5	979.47
Feb-16	320.61	634.81	271.22	141.61
Mar-16	181.04	431.85	18.71	272.77
Total	10599.11	10874.46	1033.35	4375.18

The project activity has entered a power purchase agreement for a period of 25 years with the MP Power Management Company Limited (MPPMCL). The electricity is fed in the regional grid and monitored in the presence of MP Power Transmission Company Limited (MPPTCL). Monitoring consists of metering the net electricity supplied to the grid ($EG_{\text{facility},y}$). This parameter is based on the monthly JMRs (share certificates) undertaken by MPPTCL and ReGen which is continuously

through energy meter. The PP will then raise monthly electricity sales invoices to MPPMCL based on the JMR reading. All the meters used in the project activity will be calibrated on an annual basis.

The monitored data will be reported by the PP to CDM Team/the CDM consultant on a monthly basis for the calculation and estimation of emission reductions. This data will be checked against invoices raised.

Data storage and Archiving

In accordance with the methodology all the data collected during the crediting period will be archived electronically and kept for at least two years after the end of crediting period. 100% of the data is monitored and the meters owned by DISCOM/PP are calibrated at regular intervals to ensure low uncertainty in the monitored data.

SECTION D. Data and parameters

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

Data / Parameter	$EF_{OM, y}$
Unit	tCO ₂ e/MWh
Description	Operating Margin Emission Factor of NEWNE Grid
Source of data	Central Electricity Authority: "CO2 Emission Database CEA CO2 Baseline database Version 10" published by Central Electricity Authority (CEA), Ministry of Power, Government of India. http://cea.nic.in/reports/others/thermal/tpece/cdm_co2/user_guide_ver10.pdf
Value(s) applied	0.9862
Choice of data or Measurement methods and procedures	Operating Margin Emission Factor has been calculated by the Central Electricity Authority using the Simple OM approach in accordance with the procedures prescribed in the approved " <i>Tool to calculate the emission factor for an electricity system</i> "
Purpose of data	The data is used to calculate baseline emission reductions.
Additional comment	The operating margin emission factor is a 3-year generation-weighted average (2011-14) Data calculated to be 0.9862. The operating Margin is calculated ex ante and fixed during the crediting period

Data / Parameter	$EF_{BM, y}$
Unit	tCO ₂ e/MWh
Description	Build Margin Emission Factor of NEWNE Grid
Source of data	Central Electricity Authority: "CO2 Emission Database CEA CO2 Baseline database Version 10" published by Central Electricity Authority (CEA), Ministry of Power, Government of India. http://cea.nic.in/reports/others/thermal/tpece/cdm_co2/user_guide_ver10.pdf
Value(s) applied	0.9495
Choice of data or Measurement methods and procedures	Build Margin Emission Factor has been calculated by the Central Electricity Authority with the approved " <i>Tool to calculate the emission factor for an electricity system</i> ".
Purpose of data	The data is used to calculate baseline emission reductions.
Additional comment	The Build Margin would be calculated ex ante and fixed during the crediting period. For ex ante calculation the most recent data (2013-14) available has been used and the build margin thus calculated is 0.9495.

Data/parameter:	$EF_{CM, y}$
Unit	tCO ₂ e/MWh
Description	Combined Margin Emission Factor of NEWNE Grid
Source of data	Central Electricity Authority: "CO ₂ Emission Database CEA CO ₂ Baseline database Version 10" published by Central Electricity Authority (CEA), Ministry of Power, Government of India. http://cea.nic.in/reports/others/thermal/tpece/cdm_co2/user_guide_ver10.pdf
Value(s) applied)	0.9770
Choice of data or measurement methods and procedures	Combined Margin Emission Factor has been calculated with the approved "Tool to calculate the emission factor for an electricity system" as weighted average of 75% of OM (three years average) and 25% of BM for the latest year.
Purpose of data	The data is used to calculate baseline emission reductions.
Additional comments	-

D.2. Data and parameters monitored for Emission Reduction

(Copy this table for each piece of data and parameter)

Data/parameter:	EG _{facility,y}		
Unit	MWh		
Description	Quantity of net electricity supplied to the grid during the year y.		
Measured/calculated/default	Measured		
Source of data	Share Certificate Issued by ReGen and JMR (Joint Meter Reading)		
Value(s) of monitored parameter	219,212 MWh		
Monitoring equipment	The electricity exported & imported are measured by Energy meter installed at substation. Two sets of energy meters (main & check) installed. The details are the meters are given below:		
	Details	Main meter	Check meter
	Meter Number	MPC65127	MPC65126
	Make	Secure	Secure
	Accuracy class	0.2S	0.2S
	Location	Substation	Substation
	Last calibration	11/02/2016 (valid upto 10/02/2017)	11/02/2016 (valid upto 10/02/2017)
Measuring/reading/recording frequency:	Measuring Frequency: Continuous Frequency of Recording: Monthly		
Calculation method (if applicable):	Net Electricity is calculated difference between export & import which is measured by energy meter.		
QA/QC procedures:	The net electricity is crosschecked with the invoice copies.		
Purpose of data:	Calculation of baseline emission		
Additional comments:	-		

D.3. Sustainable Development Parameters monitored

No	1
Indicator	Air quality
Mitigation measure	In order to reduce dust emissions during the construction phase, the following dust suppression measures stipulated and implemented:

		- Spraying water and covering material trucks' body to minimize dust; - Reuse of water for sprinkling of unpaved roads. - Imposition of speed controls for vehicles and unpaved site roads; - Well-maintained diesel-powered mechanical equipment to avoid black smoke emissions; - Shut-down of diesel-powered mechanical equipment or trucks inside the worksites when they are not in operation.
Chosen parameter		CO ₂ emission reduction and reduction in dust generation
Baseline situation of parameter		According to latest official data CO ₂ emissions due to electricity generation in 2014 are: 764.2 tons/GWh There was no project related activity and hence no resultant dust due to construction or project's vehicle movements.
Value for the current monitoring period		214,170 tCO₂ emission reductions achieved during the reported monitoring period. The applied OM & BM for the project are as following: Operating Margin: 0.9862 tCO₂/MWh Build Margin: 0.9495 tCO₂/MWh The applied Combined margin for the project activity is 0.9770 tCO₂/MWh. This high emission factor signifies the fact that the electricity being fed in the Indian grid (earlier NEWNE) is highly carbon intensive. Every MWh of electricity generated by the project activity prevents further emissions. Dust generation is controlled through strict practice of control measures at site. The project makes positive impact on this parameter. It results in emission reductions hence is helping in climate change mitigation
Future target for parameter		Continuation of strict control measures for prevention of dust generation. Optimal operation of wind power project to generate clean energy and associated emission reductions.
Way of monitoring	How	Project logbook, O&M policy and interview with O&M team.
	When	Yearly once
	By who	Project/Plant Manager

No		2
Indicator		Quality of employment
Mitigation measure		None
Chosen parameter		Training provided to employees & O&M staffs
Baseline situation of parameter		No training & workshops conducted
Value for the current monitoring period		Trainings & workshops were conducted to the O&M staffs by management of ReGen. 1) HSE Training Record 2) Regular Drill Record 3) Handling of Equipment Training 4) Soft Skill Training The records of training & workshops are to be submitted to DOE The training programmes help in making the workforce efficient and skilled at their job. This not only helps the company but adds to growth of individual employees. Thus the project has a positive impact on the parameter.
Future target for parameter		Continuation of regular trainings/workshops for employees & O&M staffs
Way of monitoring	How	Training Records (HSE & HR) & Employee feedback forms
	When	Yearly once
	By who	O & M Contractor

No		3
Indicator		Livelihood of the poor
Mitigation measure		None

Chosen parameter		Health Camps, Knowledge and information dissemination regarding natural disasters.																				
Baseline situation of parameter		No activity except Government facilities																				
Value for the current monitoring period		PP conducted survey during construction phase of the project in the villages near project locations to check the requirement of facilities by the villages. From the survey, PP has identified several scope of developmental activities such as health camps, furniture, sports kits and toilet requirements in government schools, drinking water requirements etc. PP has started implementing the CSR activities. During the monitoring period the CSR activities like: 1) Distribution of furniture to schools (Chairs, stools and benches) 2) Construction of Toilets at school for both Girls and boys 3) Health camp at the villages of Maota, The complete list of CSR activities done in the project area is submitted to DOE. The following activities were carried out during the current monitoring period: <table><tr><th>Villages covered</th><th>Activities</th><th>Lakhs</th></tr><tr><td rowspan="2">Behpur, Garoda, Karju, Dehri, Bhandariya, Sagwali</td><td>Furniture distribution in Schools</td><td>4.15</td></tr><tr><td>Stationary (Books and Note books distribution in Schools</td><td>2.62</td></tr><tr><td>Mandsaur city</td><td>Development of drinking water facilities at district Ayurveda hospital</td><td>2.2</td></tr><tr><td>Behpur, Garoda, Karju, Dehri, Bhandariya, Sagwali, Mawta, Riyawan, Nandwel, Ranipur, Thikriya</td><td>Furniture distribution in Schools</td><td>15.5</td></tr><tr><td>Karju</td><td>Toilets at Temple and school</td><td>2.05</td></tr><tr><td>Total</td><td></td><td>26.52</td></tr></table> The project has positive impact on this parameter as there were no socially oriented CSR activities before the project activity. Thus the project has positive impact on the indicator.	Villages covered	Activities	Lakhs	Behpur, Garoda, Karju, Dehri, Bhandariya, Sagwali	Furniture distribution in Schools	4.15	Stationary (Books and Note books distribution in Schools	2.62	Mandsaur city	Development of drinking water facilities at district Ayurveda hospital	2.2	Behpur, Garoda, Karju, Dehri, Bhandariya, Sagwali, Mawta, Riyawan, Nandwel, Ranipur, Thikriya	Furniture distribution in Schools	15.5	Karju	Toilets at Temple and school	2.05	Total		26.52
Villages covered	Activities	Lakhs																				
Behpur, Garoda, Karju, Dehri, Bhandariya, Sagwali	Furniture distribution in Schools	4.15																				
	Stationary (Books and Note books distribution in Schools	2.62																				
Mandsaur city	Development of drinking water facilities at district Ayurveda hospital	2.2																				
Behpur, Garoda, Karju, Dehri, Bhandariya, Sagwali, Mawta, Riyawan, Nandwel, Ranipur, Thikriya	Furniture distribution in Schools	15.5																				
Karju	Toilets at Temple and school	2.05																				
Total		26.52																				
Future target for parameter		Health Camps, Knowledge and information dissemination regarding natural disasters are done by PP based on the requirement in the project location.																				
Way of monitoring	How	CSR records and photographic evidence.																				
	When	Yearly once																				
	By who	Project Coordinator																				

No	4
Indicator	Access to affordable and clean energy services
Mitigation measure	None
Chosen parameter	Net electricity supplied to grid
Baseline situation of parameter	No electricity is generated
Value for the current monitoring period	219,212 MWh net electricity is supplied to NEWNE grid by the project activity. The project helps in improving Indian grid power deficit by feeding its entire electricity to the national grid, which in-turn supplies electricity to households and industries alike. The generation of electricity from wind power project is not dependent on any fossil fuel availability and prices, hence, the price of electricity from such projects are fixed. By reducing the power deficit and stabilizing the price of power, the project makes a positive impact on the current parameter.
Future target for parameter	Annual supply of 1804 lakh units of electricity to grid by the project activity
Way of monitoring	Monitored through energy meter. Net electricity will be calculated by

monitoring		DISCOM and O&M operator on monthly basis and provided in the share certificate.
	When	Continuously monitored & recorded monthly
	By who	DISCOM and O&M operator

No	5	
Indicator	Quantitative employment and income generation	
Mitigation measure	None	
Chosen parameter	1. Cost spent for O&M 2. Number of O&M staffs involved in the project	
Baseline situation of parameter	No employment generation	
Value for the current monitoring period	The total number of O&M staffs employed by the ReGen and Orange for the operation & maintenance of the project activity are around 50. This includes 18 number of O&M team of ReGen, 3 personnel of Orange and 29 number of security staff employed at project site. The cost of O&M is over 14 lakhs per WTG which works at 938 lakhs for the project per year, which helps in creating service based jobs in the project region. However, it is to be noted that in the reported monitoring period, the there is no amount paid to the O&M as the cost of first 2 years of O&M is inclusive in the supply order. The parameter has a positive impact as the project results in direct employment and income generation.	
Future target for parameter	Continued employment of O&M staff and security. Explore opportunity to engage more villagers. The project security staffs are local villagers and hence the project has also generated employment and income for local villagers.	
Way of monitoring	How	Plant employment records
	When	Yearly once
	By who	O & M Contractor

No	6	
Indicator	Technology transfer and technological self-reliance	
Mitigation measure	None	
Chosen parameter	The chosen parameter is: Activities that build usable and sustainable know-how in a region/country for a technology, where know-how was previously lacking. The penetration of wind energy technology is prominent in India and there is no technology transfer involved for the project activity.	
Baseline situation of parameter	No training or workshops conducted	
Value for the current monitoring period	Trainings & workshops where conducted to the O&M staffs by management of ReGen. The records of training & workshops are be submitted to DOE 1) HSE Training Record 2) Regular Drill Record 3) Handling of Equipment Training 4) Soft Skill Training The parameter has a neutral (0) impact for this monitoring period as in most the training sessions non-employees were not present.	
Future target for parameter	Continuation of regular trainings/workshop open to broader audience.	
Way of monitoring	How	Lists of people who attended workshops, seminars, trainings during the year will be maintained as records.
	When	Once every monitoring period
	By who	O & M Contractor

No	7	
Indicator	Soil Erosion	
Mitigation measure	- General soil erosion and sediment control measures would include: - Keep open areas of excavation to a minimum and construction activities restricted to dry months to avoid heavy rainfalls; - Using existing roads and lanes used by land owner. - Stockpiles of materials placed away from drainage lines and formed with sediment control structures placed immediately down slope; - Construction debris and excavated material were cleared up at regular intervals - Excavated material stock piled and used for backfilling of foundations, platforms etc. - Minimization of traffic in construction zones and use of a dedicated parking area, i.e. site compound; - Re-vegetation taken up as necessary after construction, in order to reduce the risk of soil erosion. Specific mitigation measures followed in the operational phase of the project: Waste oil generated shall be stored separately in containers in a secured location in the maintenance room. The storage location and the containers are properly marked. The waste / used waste oil from the WTGs to be disposed off to a CPCB/SPCB authorized vendor. A hazardous waste inventory is maintained as per the provisions of the Hazardous Waste (Management, Handling and Trans-boundary Movement) Rules, 2008.	
Chosen parameter	Any change in top soil around the establishment of project.	
Baseline situation of parameter	No project related soil erosion in absences of no project activity.	
Value for the current monitoring period	The O&M log book records all the parameters as listed: 1) Hazardous waste generated, disposed, any spillages 2) Waste oil generated, disposed, any spillages 3) Leakage of any diesel or waste oil The same O&M HSE log book is submitted to DOE This parameter has a neutral (0) impact as there has been no incidences of oil leakage or inappropriate disposal of hazardous or waste oil during the monitoring period.	
Future target for parameter	Regular review of mitigation measures proposed under monitoring plan and revision as per grievance expressed (if any)	
Way of monitoring	How	Project O&M HSE logbook, or interview with maintenance staff.
	When	Yearly once
	By who	Project/Plant Manager , O & M Contractor

No	8
Indicator	Maintenance of Landscape visual impact
Mitigation measure	Detailed ESIA study conducted to understand if any of the location needs to be altered. Locals were consulted where ever a WTG location or access road was in vicinity to a settlement. The WTGs are painted with non-reflect paints and are not glary. Re-vegetation taken up as necessary after construction, in order to reduce the risk of soil erosion.
Chosen parameter	Aesthetics
Baseline situation of parameter	There was no project activity and hence no resultant visual or landscape impact of the same.
Value for the current	No significant visual impact observed and no grievances received.

monitoring period		Vegetation has been grown where ever possible in the project's land. Apart from this the project proponent has planted a number of trees to improve the landscape visual impact. The parameter has a neutral (0) impact as there are no grievances received or registered. The WTGs are spread across the terrain and hence have minimalistic presence.
Future target for parameter		Minimalistic visual impact/No stakeholders' complaints
Way of monitoring	How	Project Grievance register, or interview with local villagers
	When	Yearly once
	By who	Project/Plant Manager, O & M Contractor

No		9
Indicator		Bird & Bat Deaths
Mitigation measure		1. During the siting activity it was ensured that there are no water bodies beside WTGs. 2. Water pits are not allowed around the WTGs. 3. None of the area of WTGs erection or transmission lines are under sensitive or under areas of conservation importance 4. The transmission lines wherever required has reflectors 5. Storm water control around within 100m of every WTG
Chosen parameter		Bird carcass count
Baseline situation of parameter		No action taken
Value for the current monitoring period		The O&M team maintains a Bird strike register. As per the record, there are no observed carcasses in vicinity of the WTGs. The dead of birds by other reasons including prey and accidents has been observed however as this is not caused by the project's WTGs and its ancillary; it is not recorded. The impact of parameter is neutral as there is no impact observed during the current monitoring period. The DoE has been provided with details of observations.
Future target for parameter		Strictly follow the control measures to prevent & control any bird strikes
Way of monitoring	How	Bird Strike register, or interview with local villager
	When	Yearly once
	By who	Project/Plant Manager, O & M Contractor

D.4. Implementation of sampling plan

No sampling process is involved, hence not applicable. The details of sampling any of carried out during the course of verification will be included.

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

As per the applied approved methodology ACM0002 (Version 16.0) Emission Reductions are calculated as follows:

$$ER_y = BE_y - PE_y - LE_y \quad (11)$$

Where:

ER_y =Emission reductions in year y (t CO₂e/yr)
 BE_y =Baseline emissions in year y (t CO₂/yr)
 PE_y =Project emissions in year y (t CO₂e/yr)

LE_y = Leakage emission in year y (t CO₂e/yr)

However, LE_y has been neglected as per the guidelines of the methodology.

Hence as per PDD, emission reduction is calculated as below:

$$ER_y = BE_y - PE_y$$

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

Baseline Emissions for the amount of electricity supplied by project activity, BE_y is calculated as

$$BE_y = EG_{PJ,y} \cdot EF_{grid,CM,y} \quad (6)$$

Where,

BE_y = Baseline emissions in year y (tCO₂/yr)

$EG_{PJ,y}$ = Quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the CDM project activity in year y (MWh/yr).

$EF_{grid,CM,y}$ = Combined margin CO₂ emission factor for grid connected power generation in year y calculated using the latest version of the "Tool to calculate the emission factor for an electricity system" (tCO₂/MWh)

For this monitoring period, the emission reduction is calculated as below:

$$= 219,212 \text{ (MWh)} \times 0.977 \text{ (tCO}_2\text{/MWh)}$$

$$= 214,170 \text{ tCO}_2 \text{ (rounded down)}$$

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

As mentioned in the PDD, the project activity involves the generation of electricity from the installation of wind turbines. Hence, as per ACM0002, Version 16.0 there is no project emission for windmill projects. Therefore, project emissions are zero.

E.3. Calculation of leakage

As per PDD, No leakage emissions are considered in the project activity. Hence leakage emission is considered as 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 ₂ e)	Project emissions or actual net GHG removals by sinks (t CO ₂ e)	Leakage (t CO ₂ e)	GHG emission reductions or net GHG removals by sinks (t CO ₂ e) achieved in the monitoring period		
				Up to 31/12/2012	From 01/01/2013	Total amount
Total	214,170	0	0	NA	214,170	214,170

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 (01.01.2015 to 31.03.2016)
Emission reductions or GHG removals by sinks (t CO ₂ e)	219,810	214,170

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

The actual achieved emission reduction for this monitoring period is slightly less than estimated value in the PDD. .

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	Orange Mamatkheda Wind Private Limited
Street/P.O. Box	301B, 3rd Floor,
Building	D-21 Corporate Park, Sector 21
City	Dwaraka
State/region	New Delhi
Postcode	110077
Country	India
Telephone	011- 30501110
Fax	
E-mail	info@orangerenewable.net
Website	www.orangerenewable.net
Contact person	Pavan Kumar Gupta
Title	Senior Engineer
Salutation	Mr
Last name	Gupta
Middle name	Kumar
First name	Pavan
Department	Business Development
Mobile	9560540654
Direct fax	
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Personal e-mail	pavangupta@orangerenewable.net

Project participant and/or responsible person/ entity	☐ Project participant ☒ Person/entity responsible for completing the CDM-MR-FORM
Organization name	Kosher Climate India Private Limited
Street/P.O. Box	First Floor, #945, 21 st cross, 5 th main
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City	Bangalore
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Country	India
Telephone	+91 80 25720814
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Document information

<i>Version</i>	<i>Date</i>	<i>Description</i>
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 <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 (EB70, 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	28 May 2010	EB 54, Annex 34. Initial adoption.
Decision Class: Regulatory Document Type: Form Business Function: Issuance Keywords: monitoring report		