MONITORING REPORT

(Version 1)

Date: 6th July, 2009

75MW wind power project in Maharashtra by Essel Mining Industries Limited

Reference No: UNFCCC 1115

Monitoring Period: 1st February 2008 to 31st January 2009

Essel Mining Industries Limited

18th Floor Industry House

10 Camac Street

Kolkata - 700 017

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1. General Information:

1.1 Project Activity:

The project activity includes planning, installing and operating of a 75MW wind power project which has been set up in three stages at Dhule and Nandurbar districts of Maharashtra, India. The project activity involves generation of clean electrical energy by harnessing the kinetic energy of wind.

In the absence of the project activity, an equivalent amount of electricity would have been generated from the power plants connected to the grid, majority of whom are based on fossil fuels. The entire power generated is being exported to the state grid maintained by Maharashtra State Electricity Board (MSEB) grid which is a part of the Western Regional Grid.

1.2 Project Commissioning / Start date of commercial operation:

The commissioning details are given below:

Stages	Capacity	Commissioning dates
Stage I	15MW	▪ 6 WTGs on 25th March 05 ▪ 6 WTGs on 31st March 05
Stage II	30MW	▪ 8 WTGs on 20th September 05 ▪ 15 WTGs on 29th September 05 ▪ 1 WTG on 30th September 05
Stage III	30MW	▪ 4 WTGs on 9th December 05 ▪ 7 WTGs on 5th January 06 ▪ 13 WTGs on 7th February 06

1.3 Details of Wind Turbine Generators:

Table for detailed description of the turbine

Serial No	Location No	Generator No	Date of Commissioning
Stage I			
1	K14	478673	25-Mar-05
2	K17	479432	31-Mar-05
3	K21	479433	31-Mar-05
4	K24	479247	31-Mar-05
5	K33	479249	31-Mar-05
6	K34	478680	25-Mar-05
7	K35	479157	25-Mar-05
8	K36	478702	25-Mar-05
9	K37	478861	25-Mar-05
10	K38	478862	25-Mar-05

11	K39	479158	31-Mar-05
12	K40	478930	31-Mar-05
Stage II			
13	K219	64016841	29-Sep-05
14	K220	64017874	29-Sep-05
15	K221	64018485	29-Sep-05
16	K222	64015302	29-Sep-05
17	K216	64020221	29-Sep-05
18	K168	64019647	29-Sep-05
19	K227	64015942	29-Sep-05
20	K167	5134897	20-Sep-05
21	K209	5136457	20-Sep-05
22	K212	5136465	20-Sep-05
23	K215	64011924	20-Sep-05
24	K201	64015940	29-Sep-05
25	K203	64019648	29-Sep-05
26	K204	64018482	29-Sep-05
27	K205	470663	29-Sep-05
28	K218	64017529	30-Sep-05
29	K206	5136502	29-Sep-05
30	K46	5136502	20-Sep-05
31	K48	64017874	29-Sep-05
32	K50	64015302	29-Sep-05
33	K112	5136461	20-Sep-05
34	K176	64017129	29-Sep-05
35	K107	64014828	20-Sep-05
36	K79	480645	20-Sep-05
Stage III			
37	K356	64021776	9-Dec-05
38	K362	64021435	9-Dec-05
39	K364	64021773	9-Dec-05
40	K365	64021434	9-Dec-05
41	K352	64021431	5-Jan-06
42	K353	64022374	5-Jan-06
43	K354	64021775	5-Jan-06
44	K360	64021432	5-Jan-06
45	K363	64022375	5-Jan-06
46	K366	64021774	5-Jan-06
47	K368	64022239	5-Jan-06
48	K355	64026133	7-Feb-06
49	K370	64027704	7-Feb-06
50	K371	64022243	7-Feb-06
51	K372	64022244	7-Feb-06
52	K374	64022377	7-Feb-06
53	K377	64026127	7-Feb-06
54	K378	64022241	7-Feb-06
55	K379	64026703	7-Feb-06

56	K381	64020225	7-Feb-06
57	K382	64026704	7-Feb-06
58	K385	64025701	7-Feb-06
59	K386	64026128	7-Feb-06
60	K388	64021777	7-Feb-06

1.4 Crediting period:

The crediting period is from 1st February 2008 to 31st January 2018.

1.5 Monitoring Period:

The monitoring period is chosen from 1st February 2008 to 31st January 2009 (both days included)

1.6 Monitoring Protocol:

1.6.1 Table below for detailed description of the Monitoring Protocol:

Data / Parameter:	**EGy**
Data unit:	MWh/yr
Description:	Net Electricity supplied to MSEB (MSEDCL) facility
Source of data to be used:	Invoices raised to MSEB / MSEB (MSEDCL) monthly energy certificates
Description of measurement methods and procedures to be applied:	Continuous measurement and monthly recording of exported and imported electricity. The monitoring of EGGEN,y and EGAUX,y would be as per the details provided in the Article 11 of the Power Purchase Agreement signed between the MSEB and EMIL. Calculated as the difference between total export and import of electricity by the WTGs.
QA/QC procedures to be applied:	Uncertainty level of data: Low This data can be verified with the invoices raised to MSEB (MSEDCL) by EMIL and payment against the invoice.
Any comment:	EMIL has outsourced the operations and monitoring the performances of the WTGs to Suzlon Energy who sends daily performance report to EMIL. Records to be archived for 12years from the start of the crediting period either on paper or in electronic media.

Data / Parameter:	**EFy**
Data unit:	tCO2/MWh
Description:	Combine Margin CO2 emission factor for western regional grid
Source of data to be used:	Computed from data sourced from Website of Central Electricity Authority of India. Estimated figure based on 75% of OM and 25% of BM values
Value applied	0.940 tCO2/MWh
Justification of the choice of data or description of measurement methods and procedures actually	Calculated as per ACM0002 with 3years vintage data and option of ex ante calculation based on "75% of OM and 25% of BM values approach". Computed once during PDD finalization (ex-ante).

applied :	
Any comment:	EF_y has been fixed for the entire crediting period. Records to be archived for 12years from the start of the crediting period either on paper or in electronic media.

1.6.2 Net Electricity supplied to MSEB (MSEDCL), EG_y:

As per the monitoring plan of registered PDD, the project participants need to monitor the following parameter on continuous basis to measure the net electricity **EG_y** supplied from the project activity:

EG_{GEN} = Total electricity generation by the wind turbines (MWh/y)

EG_{AUX} = Auxiliary consumption of the wind turbines (MWh/y)

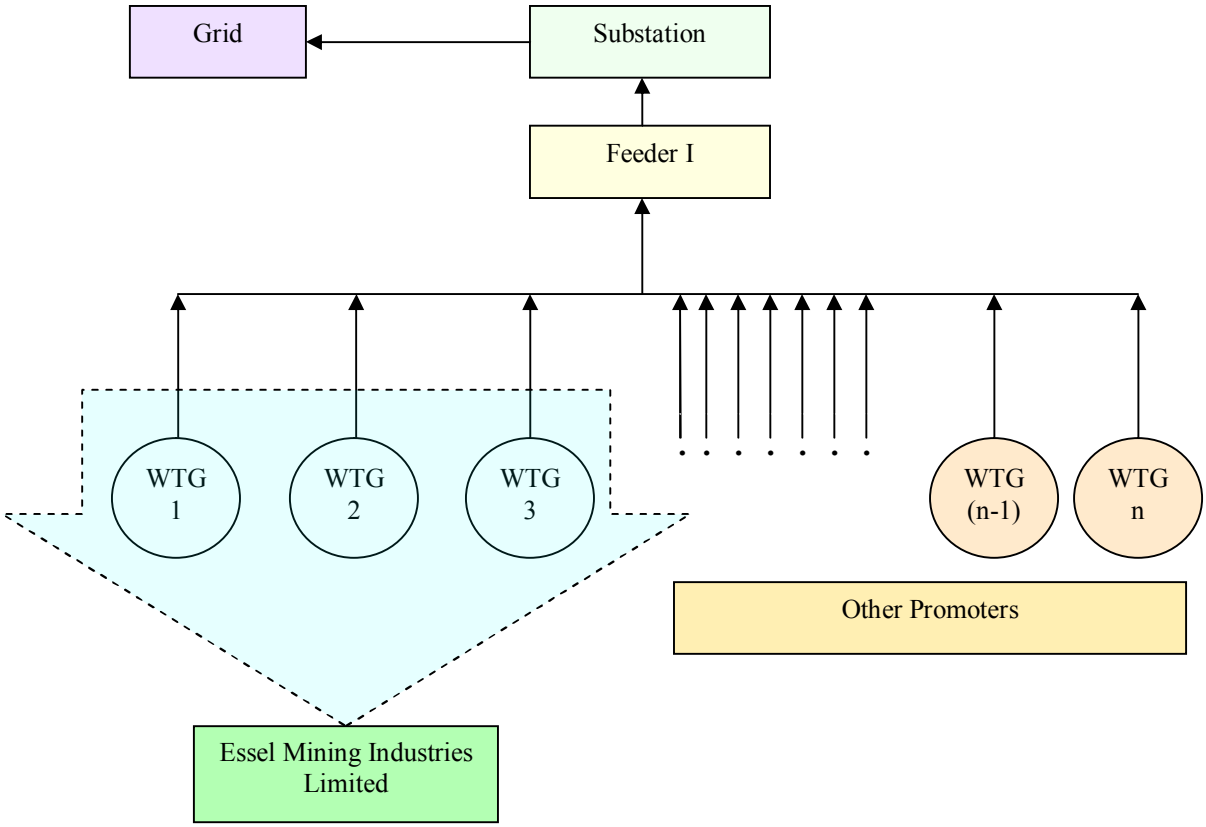
The net electricity supply is calculated as the difference between total electricity generation and auxiliary consumption of wind turbines.

$$\mathbf{EG_y = EG_{GEN,y} - EG_{AUX,y}}$$

The monitoring of $EG_{GEN,y}$ and $EG_{AUX,y}$ would be as per the details provided in the Article 11 of the Power Purchase Agreement signed between the MSEB and EMIL.

As per Article 11, section 11.05 of PPA, *"Wherever more than one Power Producer(s) are delivering energy produced by them using common evacuation system and through the common Metering equipment, then they shall identify a common agency responsible for joint meter reading with MSEB. The Joint Meter Reading taken at the common evacuation system shall be supported by meter readings of individual power producers using such common evacuation system. Based on this breakup, limited to energy delivered, the power generated from individual power plant shall be certified by MSEB".*

Diagrammatic Representation:



Analytical representation:

$EG_{GEN,y}$

Let us assume there are 'n' WTGs,

The *power generated from individual power plant (meter readings of individual power producers hereafter referred to as* controller generation of each WTG) be X_i.

Therefore,

Controller generation for WTG 1 = X_1

Controller generation for WTG 2 = X_2

Controller generation for WTG n = X_n

Now, $X_1 + X_2 + X_3 + ….. + X_n = X$ (say)

Let the energy delivered (*Joint Meter Reading taken at the common evacuation system)* be Y

then as per article 11 of the PPA,

Y_i, electricity generation of each WTG at (S/s feeder) is equal to the ratio of respective controller generation at that WTG and total controller generation of all WTGs connected to the feeder (*common evacuation system)* multiplied by the total net generation (S/s feeder) Therefore,

$Y_i = (X_i/X)*Y$

The operation and maintenance of the wind farm has been outsourced to Suzlon. All the WTGs at the site are monitored from the Central Monitoring Station (CMS) at the wind farm, where electricity

generation from each WTG is continuously monitored. The CMS at the wind farm reports to the main CMS at Pune, where the daily generation report is prepared and sent to EMIL by the respective CRM (Customer Relationship Management) manager.

The electricity generation reports on joint meter reading are generated by MSEDCL and sent to EMIL through Suzlon (O&M service provider) on monthly basis. Upon receipt of reports, EMIL generates invoices on sale of electricity and sends to MSEDCL via Suzlon. Thereafter, MSEDCL makes payments against the invoices within 3 months directly to EMIL.

1.6.3 Emission Factor, EF_y:

The CO_2 emission factor has been calculated at the beginning of the crediting period as per the guidance provided in the Approved Consolidated Methodology ACM0002 and is kept fixed for the entire crediting period.

1.7 Details of the monitoring equipments / energy meters at substation:

Table for detailed description of energy meters

Serial No	Meter No	Accuracy Class	Substation	Dates of Calibration	
1	4890617	0.2	Sakri	16/04/2007	27/05/2008
2	4890618	0.2	Sakri	16/04/2007	27/05/2008
3	4725791	0.2	Jamde	16/04/2007	27/05/2008
4	4725799	0.2	Jamde	16/04/2007	27/05/2008
5	4725806	0.2	Jamde	16/04/2007	27/05/2008
6	4738079	0.2	Jamde	16/04/2007	27/05/2008
7	4862465	0.2	Jamde	16/04/2007	27/05/2008
8	4863433	0.2	Jamde	16/04/2007	27/05/2008
9	4890567	0.2	Jamde	16/04/2007	27/05/2008
10	4738077	0.2	Jamde	16/04/2007	27/05/2008

2. Monitored Results:

The details of the net electricity generated from the project activity for the monitoring period is as given in table below:

Table for details of Monitored Results

Serial No	Month	Total Generation by the Wind Turbines (kWh)	Auxiliary Consumption by the Wind Turbine (kWh)	Net Electricity Exported by the Wind Turbines (kWh)
1	February, 2008	3639868	74089	**3565779**
2	March, 2008	4656887	82449	**4574438**
3	April, 2008	10248878	33637	**10215241**
4	May, 2008	25175594	41	**25175553**
5	June, 2008	15669066	14566	**15654500**
6	July, 2008	16610367	8241	**16602126**
7	August, 2008	15550148	2640	**15547508**
8	September, 2008	7188263	59999	**7128264**
9	October, 2008	1933460	107008	**1826452**
10	November, 2008	1900730	89659	**1811071**
11	December, 2008	1815551	90193	**1725358**
12	January, 2009	1855734	88568	**1767166**
Total		**106244546**	**651090**	**105593456**

3. Computation of Emission Reduction:

Baseline Emissions:

Carbon dioxide emission factor as per the baseline adopted (t CO_2/ MWh) = **0.940**

Net electrical energy displaced in the Western Regional Electricity grid (kWh) = **105593456**

Baseline emissions (tonnes of CO_2 equivalent) = **99258**

Project Emissions:

Project Emissions (tonnes of CO_2 e) = NIL

Emission Reductions:

Baseline emissions – Project emissions = **99258**

4. Summary of Emission Reduction:

Monitoring Period	Emission Reduction
1st February 2008 - 31st January 2009	**99258**