

**MONITORING REPORT FORM (F-CDM-MR)**
Version 02.0**MONITORING REPORT**

Title of the project activity	13.25 MW Wind Power Generation by RMTL, In Kutch, Gujarat
Reference number of the project activity	2247
Version number of the monitoring report	1.1
Completion date of the monitoring report	05/12/2012
Registration date of the project activity	25/03/2009
Monitoring period number and duration of this monitoring period	Monitoring period : 2 Duration: 01/11/2010 – 31/03/2012 (First and last day included)
Project participant(s)	Ratnamani Metals and Tubes Ltd (RMTL) Switzerland- Emergent Ventures India Pvt. Ltd.
Host Party(ies)	India
Sectoral scope(s) and applied methodology(ies)	Sectoral scope 1 : Energy industries (renewable - / non-renewable sources) Methodology: AMS ID 'Grid connected renewable electricity generation' Scope 1 Version 13, EB 36
Estimated amount of GHG emission reductions or net anthropogenic GHG removals by sinks for this monitoring period in the registered PDD	33,937
Actual GHG emission reductions or net anthropogenic GHG removals by sinks achieved in this monitoring period	28,177

**SECTION A. Description of project activity****A.1. Purpose and general description of project activity**

The purpose of the project activity is to generate clean and green energy to help combat green house gas emissions from conventional sources of energy.

The project proponent has installed wind turbines having a total capacity of 13.25 MW. Eight wind turbines of 1.5MW each and one wind turbine of 1.25 MW have been installed in two sites- Suthri and Vanku, in Kutch region of Gujarat state in India.

Brief description of the installed technology and equipment:**Technical Specifications of the WTGs**

Wind Turbine Generator Type	1.5 MW
Make	Suzlon
Rotor	
Rotor Diameter	82.0 m
Cut-in wind speed	4m/s
Rated wind speed	14m/s
Rotor swept area	5281 m ²
Rotational Speed	16.30 rpm
Rotor material	GRP
Regulation	Pitch
Gear Box	
Type	3 Stage gear box, 1 planetary & 2 helical
Manufacturer	Winergy
Nominal load	1650 kW
Type of cooling	Oil cooling system
Gear ratio	95.09
Generator	
Type	Asynchronous generator 4 pole
Rotational Speed	1511 rpm
Rated output	1500 kW
Operational Voltage	690 V
Frequency	50 Hz
Insulation class	Class “H”
Protection	IP 54
Cooling system	Air cooled
Safety system	
Aerodynamic brake	3 times Independent systems pitch regulation
Mechanical brake	Spring powered disc brakes, hydraulically released, fail safe
Control unit	Microprocessor controlled, indicating actual operating conditions, UPS back up system
Yaw Drive System	
Yaw bearing	Polyamide slide bearing
Wind Turbine Generator	1.25 MW



Type	
Make	Suzlon, S.64
Rotor	
Rotor Diameter	64 m
Cut-in wind speed	3 m/s
Rated wind speed	14 m/s
Rotor blades	3 no.
Rotor swept area	3217 m ²
Rotational Speed	13.9 rpm
Rotor material	GRP
Regulation	Pitch regulated
Gear Box	
Type	3 Stage gear box, 1 planetary & 2 helical
Manufacturer	Winergy
Nominal load	1390 kW
Type of cooling	Oil cooling system
Gear ratio	74.917:1
Generator	
Type	Asynchronous generator 4 pole
Rotational Speed	1006/ 1506 rpm
Rated output	250/1250 kW
Rated Voltage	690 V
Frequency	50 Hz
Insulation class	Class “H”
Protection	IP 56
Cooling system	Air cooled
Safety system	
Aerodynamic brake	3 Independent systems with blade pitch
Mechanical brake	Spring powered disc brakes, hydraulically released, fail safe
Control unit	Microprocessor controlled, indicating actual operating conditions, UPS back up system
Yaw Drive System	4 active electrical yaw motors
Yaw bearing	Polyamide slide bearing

Commissioning details of the WTGs for the project activity:

WTG No.	Capacity (MW)	Date of Commissioning
SEL/1250/05-06/0139	1.25	31/03/2006
SEL/1500/06-07/0361	1.5	21/03/2007
SEL/1500/06-07/0360	1.5	22/03/2007
SEL/1500/06-07/0383	1.5	22/03/2007
SEL/1500/06-07/0384	1.5	22/03/2007
SEL/1500/06-07/0359	1.5	29/03/2007
SEL/1500/06-07/0358	1.5	30/03/2007
SEL/1500/06-07/0382	1.5	31/03/2007
SEL/1500/06-07/0362	1.5	30/06/2007
Total	13.25	

Total emission reductions achieved in this monitoring period is 28,177 tCO₂e.

A.2. Location of project activity

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Village: Arikhana, Kamand, Suthri

District: Kutch

State: Gujarat

Country: India

Host party for this project activity is India.

WTG Number	Capacity (MW)	Village Location	Latitude (N) (Deg min sec)	Longitude (E) (Deg min sec)
SEL/1250/05-06/0139	1.25	Vanku	N23 07 30.2	E68 49 42.2
SEL/1500/06-07/0361	1.5	Kamand	N23 03 10.0	E68 52 10.5
SEL/1500/06-07/0360	1.5	Arikhana	N23 03 28.0	E68 52 03.1
SEL/1500/06-07/0383	1.5	Suthri	N23 02 35.3	E68 52 19.6
SEL/1500/06-07/0384	1.5	Suthri-old	N23 02 56.6	E68 52 32.1
SEL/1500/06-07/0359	1.5	Arikhana	N23 02 40.5	E68 53 41.5
SEL/1500/06-07/0358	1.5	Suthri	N23 03 05.9	E68 52 56.6
SEL/1500/06-07/0382	1.5	Suthri-old	N23 00 02.6	E68 55 34.7
SEL/1500/06-07/0362	1.5	Suthri	N23 02 55.0	E68 54 19.6
Total	13.25			

Outage details for the project activity can be referred from section B.1 of the monitoring report.





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 if the Party involved wishes to be considered as project participant (Yes/No)
Government of India (Host Party)	Ratnamani Metals and Tubes Ltd (RMTL)	No
Switzerland	Emergent Ventures India Pvt. Ltd.	No

A.4. Reference of applied methodology

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Methodology: AMS ID ‘Grid connected renewable electricity generation’ Scope 1
Version 13, EB 36

“Tool to calculate the emission factor for an electricity system”

Version 01, EB 35

A.5. Crediting period of project activity

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Fixed crediting period was chosen at the time of registration

Start date of the crediting period: 25/03/2009.¹

There is no change in the start date of crediting period from the registered PDD.

Start date of crediting period: 25/03/2009

Crediting period: 10 years

¹ <http://cdm.unfccc.int/Projects/DB/RWTUV1222760737.24/view>



Crediting period: 25/03/2009 – 24/03/2019

SECTION B. Implementation of project activity

B.1. Description of implemented registered project activity

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During this monitoring period, the project activity was operated and monitored in accordance with the applicable baseline and monitoring methodology.

The commissioning dates for the project activity can be referred from A.1 of the monitoring report.

For the description of installed technology refer section A.1

The outage details for the project activity are as follows:

WTG NO.	Month	Down time (Hrs)
SEL/1250/05-06/0139	Nov 2010	59.60
	Dec 2010	23.50
	Jan 2011	30.20
	Feb 2011	3.60
	March 2011	7.50
	April 2011	1.60
	May 2011	6.60
	June 2011	40.20
	July 2011	30.80
	Aug 2011	120.30
	Sep 2011	61.30
	Oct 2011	34.90
	Nov 2011	65.10
	Dec 2011	6.70
	Jan 2012	23.41
	Feb 2012	20.90
	March 2012	401.80

WTG NO.	Month	Down time (Hrs)
SEL/1500/06-07/0359	Nov 2010	109.50
	Dec 2010	60.40
	Jan 2011	21.80
	Feb 2011	14.40
	March 2011	31.30
	April 2011	15.70
	May 2011	7.20
	June 2011	37.20
	July 2011	45.60
	Aug 2011	23.30
	Sep 2011	96.70
	Oct 2011	15.30
	Nov 2011	17.80
	Dec 2011	36.20
	Jan 2012	64.50



	Feb 2012	68.10
	March 2012	42.50

WTG NO.	Month	Down time (Hrs)
SEL/1500/06-07/0382	Nov 2010	0
	Dec 2010	3
	Jan 2011	48.50
	Feb 2011	68.80
	March 2011	15.90
	April 2011	17.30
	May 2011	0.30
	June 2011	7.80
	July 2011	7.30
	Aug 2011	24.90
	Sep 2011	79.50
	Oct 2011	9.30
	Nov 2011	34.80
	Dec 2011	16.50
	Jan 2012	43.10
	Feb 2012	26.90
	March 2012	10.10

WTG NO.	Month	Down time (Hrs)
SEL/1500/06-07/0362	Nov 2010	170.60
	Dec 2010	31.50
	Jan 2011	40.60
	Feb 2011	17.20
	March 2011	7.50
	April 2011	14.00
	May 2011	0.20
	June 2011	1.60
	July 2011	11.40
	Aug 2011	18.70
	Sep 2011	52.20
	Oct 2011	21.30
	Nov 2011	26.80
	Dec 2011	13.00
	Jan 2012	29.50
	Feb 2012	0.80
	March 2012	17.90

WTG NO.	Month	Down time (Hrs)
SEL/1500/06-07/0383	Nov 2010	189.60
	Dec 2010	179.83
	Jan 2011	134.90
	Feb 2011	21.30
	March 2011	2.60
	April 2011	77.40
	May 2011	27.50
	June 2011	10.00



	July 2011	19.30
	Aug 2011	25.50
	Sep 2011	92.90
	Oct 2011	97.80
	Nov 2011	73.30
	Dec 2011	97.20
	Jan 2012	84.40
	Feb 2012	95.10
	March 2012	62.30

WTG NO.	Month	Down time (Hrs)
SEL/1500/06-07/0360	Nov 2010	205.90
	Dec 2010	213.20
	Jan 2011	38.50
	Feb 2011	9.30
	March 2011	8.00
	April 2011	78.40
	May 2011	10.60
	June 2011	50.90
	July 2011	55.30
	Aug 2011	13.20
	Sep 2011	215.60
	Oct 2011	15.30
	Nov 2011	21.70
	Dec 2011	51.90
	Jan 2012	381.20
	Feb 2012	82.60
	March 2012	42.40

WTG NO.	Month	Down time (Hrs)
SEL/1500/06-07/0361	Nov 2010	61.80
	Dec 2010	10.10
	Jan 2011	15.70
	Feb 2011	7.60
	March 2011	3.20
	April 2011	14.30
	May 2011	17.80
	June 2011	10.60
	July 2011	13.50
	Aug 2011	28.10
	Sep 2011	34.80
	Oct 2011	29.90
	Nov 2011	122.80
	Dec 2011	78.30
	Jan 2012	76.50
	Feb 2012	87.10
	March 2012	76.80

WTG NO.	Month	Down time (Hrs)
SEL/1500/06-07/0384	Nov 2010	57.60



	Dec 2010	37.40
	Jan 2011	26.00
	Feb 2011	6.90
	March 2011	1.40
	April 2011	3.00
	May 2011	26.90
	June 2011	7.90
	July 2011	20.60
	Aug 2011	35.60
	Sep 2011	24.60
	Oct 2011	34.50
	Nov 2011	15.30
	Dec 2011	74.40
	Jan 2012	52.40
	Feb 2012	83.20
	March 2012	32.20

WTG NO.	Month	Down time (Hrs)
SEL/1500/06-07/0358	Nov 2010	91.40
	Dec 2010	94.00
	Jan 2011	60.50
	Feb 2011	87.80
	March 2011	7.50
	April 2011	17.40
	May 2011	30.00
	June 2011	15.70
	July 2011	40.00
	Aug 2011	92.20
	Sep 2011	84.10
	Oct 2011	8.10
	Nov 2011	17.10
	Dec 2011	90.10
	Jan 2012	212.50
	Feb 2012	84.80
	March 2012	36.40

B.2. Post registration changes**B.2.1. Temporary deviations from registered monitoring plan or applied methodology**

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No temporary deviation have been applied during this current monitoring period

B.2.2. Corrections

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No corrections to the project information or parameters fixed at the time of validation have been approved during this monitoring period or submitted with this monitoring report.

B.2.3. Permanent changes from registered monitoring plan or applied methodology

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No permanent changes from the registered monitoring plan or applied methodologies have been approved during this monitoring period or submitted with this monitoring report.

B.2.4. Changes to project design of registered project activity

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No change in project design is applicable to the current monitoring period. PDD notification was requested during the previous periodic verification and it was approved by EB on 27/07/2011.²

B.2.5. Changes to start date of crediting period

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Not applicable

B.2.6. Types of changes specific to afforestation or reforestation project activity

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Not applicable

SECTION C. Description of monitoring system

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The project proponent has proposed a detailed procedure to ensure proper monitoring for the purpose of CDM activity.

The methodology requires monitoring of the electricity generation from the project activity. Analysis of daily power generation reports, performance report and monthly meter reading is handled by project proponent on a regular basis. The metering system includes one energy meter (ABT meter), for each line (line-1 and line-2). The energy meters are sealed in the presence of the representatives of the power producer and GETCO. The State Electricity Board personnel take readings of power generation every month; this data is used for the billing purposes.

The meter reading taken jointly at the appointed date and time is signed by the representatives of the GUVNL/ GETCO and the O&M service provider every month. The project proponent ensures that the meters are repaired, re-calibrated or replaced immediately in case they are found to be outside the acceptable limits of accuracy or not functioning properly. The meters are calibrated at least once in three years as per the registered PDD.

The proponent keeps complete and accurate records and all other data required for the purpose of proper administration and operation of the windmills. The proponent also maintains an accurate and up-to-date operating log at the wind mill sites. The data will be kept for at least 2 years after the end of the crediting period or the last issuance of CERs for the project activity, whichever occurs later.

Data collection procedures

The data that bears relevance to the energy generation from the project- the meter readings, are taken monthly by the representative of GEDA and the PP (currently Suzlon personnel- the O&M service provider) for calculating (as represented in the registered PDD) and reporting the Wind energy share certificate. This is then forwarded to the owner of each WTG linked to the substation to credit their share. The service provider maintains all records as required and can forward the same to the PP if requested.

The web linked central monitoring system (CMS) of Suzlon downloads daily data of all the WTGs and this information is made available to the PP through their website. PP may request all other supporting documentation about their project to be presented to them in case of any aberrations.

² <http://cdm.unfccc.int/Projects/DB/RWTUV1222760737.24/view>

Organizational structure, roles and responsibilities:

To ensure trouble free operations and efficient generations through all the wind turbines, PP has entered into a comprehensive long term Operation and Maintenance agreement with the manufactures of the turbines. The contractor Suzlon Infrastructure Services Limited, under the O&M contract with Ratnamani Metals and Tubes Ltd (RMTL) is responsible for the operation and maintenance of the project activity.

The operation and maintenance team manages the farm, repairs in case of breakdown and ensures security on site. They have established emergency procedures. They also update the PP if any problems arise on site.

Emergency preparedness:

The metering system also includes a back up meter apart from main meter. In case of any failure or error in the main meter, the reading from back up meter will be considered for monitoring.

Metering diagram can be referred from annex-2.

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

Data/Parameter	$EF_{grid,CM,y}$
Unit	tCO ₂ / MWh
Description	Combined Margin for WR grid
Source of data	Central Electricity Authority ,India
Value(s) applied	0.898
Purpose of data	For the calculation of baseline emission, project emission (if any), leakage emission (if any) Central Electricity Authority (India) is a government body and data published is in line with the methodological requirement. http://www.cea.nic.in/planning/c%20and%20e/user_guide_ver3.pdf
Additional comment	Fixed ex ante in the registered PDD

Data/Parameter	$EF_{grid,OM,y}$
Unit	tCO ₂ / MWh
Description	Operating Margin for WR grid
Source of data	Central Electricity Authority ,India
Value(s) applied	1.00
Purpose of data	Central Electricity Authority (India) is a government body and data published is in line with the methodological requirement. http://www.cea.nic.in/planning/c%20and%20e/user_guide_ver3.pdf
Additional comment	Fixed ex ante in the registered PDD

Data/Parameter	EF _{grid, BM,y}
Unit	tCO ₂ / MWh
Description	Build Margin for WR grid
Source of data	Central Electricity Authority ,India
Value(s) applied	0.59
Purpose of data	Central Electricity Authority (India) is a government body and data published is in line with the methodological requirement. http://www.cea.nic.in/planning/c%20and%20e/user_guide_ver3.pdf
Additional comment	Fixed ex ante in the registered PDD

D.2. Data and parameters monitored

Data/Parameter	GEN
Unit	kWh per annum
Description	Net electricity supplied by WTGs per annum in the project activity
Measured/Calculated /Default	Measured Refer annex 2 for the metering arrangement
Source of data	Monthly certificates issued by GEDA/ Electricity meter installed by State Electricity Board at uploading station connected to WTGs
Value(s) of monitored parameter	31,377,989 kWh (cumulative figure for the complete project activity, for current monitoring period)
Monitoring equipment	Energy meter Please refer annex 1 for energy meter details
Measuring/Reading/ Recording frequency	Meter readings for measuring this parameter are taken monthly.
Calculation method (if applicable)	-
QA/QC procedures	These meters are the property of state electricity boards and calibration of the meters is carried out by them as per UNFCCC requirements.
Purpose of data	Baseline emission calculation
Additional comment	-

D.3. Implementation of sampling plan

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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

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Calculations have been done as per the methodology and formula presented in the registered PDD.

Baseline emission:

$$BE = GEN * CM / 1000$$

Where;

BE = Baseline emission in tCO₂/MWh

GEN = Net electricity supplied by WTGs per annum in the project activity in kWh

CM = Combined margin of WR grid in tCO₂/MWh

Sample calculation for the month of October 2011:

$$\begin{aligned} \text{BE} &= 745,319 \text{ (kWh)} / 1000 * 0.898 \text{ (tCO}_2\text{/MWh)} \\ &= 669 \text{ (tCO}_2\text{e)} \end{aligned}$$

The cumulative baseline emissions for the monitored period are:

$$\text{BE} = 28,177 \text{ tCO}_2\text{e}$$

The detailed worksheet of baseline emissions is as below:

Month	Period	Net Electricity supplied by WTGs in the project activity	Baseline emissions BE
		kWh	tCO ₂ e
Nov-10	01/11/10 - 30/11/10	1054813	947
Dec-10	01/12/10 - 31/12/10	1357876	1219
Jan-11	01/01/11 - 31/01/11	1516885	1362
Feb-11	01/02/11 - 28/02/11	995362	894
Mar-11	01/03/11 - 31/03/11	1304270	1171
Apr-11	01/04/11 - 30/04/11	1537338	1381
May-11	01/05/11 - 31/05/11	4482932	4026
Jun-11	01/06/11 - 30/06/11	4862379	4366
Jul-11	01/07/11 - 31/07/11	3698918	3322
Aug-11	01/08/11 - 31/08/11	2572409	2310
Sep-11	01/09/11 - 30/09/11	1159699	1041
Oct-11	01/10/11 - 31/10/11	745319	669
Nov-11	01/11/11 - 30/11/11	696146	625
Dec-11	01/12/11 - 31/12/11	1758158	1579
Jan-12	01/01/12 - 31/01/12	1147090	1030
Feb-12	01/02/12 - 29/02/12	1419499	1275
Mar-12	01/03/12 - 31/03/12	1068897	960
Total	Total	31,377,989	28,177

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

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There is no emission due to the project activity and hence,

$$\text{Emission reduction, ER} = \text{BE} - \text{PE} = \text{BE} - 0 = \text{BE}$$

E.3. Calculation of leakage

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As the energy generating equipment is not transferred from another activity or the existing equipment is transferred to another activity, hence leakage is not to be considered.

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

Time Period	Baseline emissions or baseline net GHG removals by sinks (tCO ₂ e)	Project emissions or actual net GHG removals by sinks (tCO ₂ e)	Leakage (tCO ₂ e)	Emission reductions or net anthropogenic GHG removals by sinks (tCO ₂ e)
Nov-10	947	0	0	947
Dec-10	1219	0	0	1219
Jan-11	1362	0	0	1362
Feb-11	894	0	0	894
Mar-11	1171	0	0	1171
Apr-11	1381	0	0	1381
May-11	4026	0	0	4026
Jun-11	4366	0	0	4366
Jul-11	3322	0	0	3322
Aug-11	2310	0	0	2310
Sep-11	1041	0	0	1041
Oct-11	669	0	0	669
Nov-11	625	0	0	625
Dec-11	1579	0	0	1579
Jan-12	1030	0	0	1030
Feb-12	1275	0	0	1275
Mar-12	960	0	0	960
Total	28,177	0	0	28,177

E.5. Comparison of actual emission reductions or net anthropogenic 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 (tCO ₂ e)	33,937 ³	28,177

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

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Item	Values estimated in ex-ante calculation of registered PDD	Actual values reached during the monitoring period	Difference (%)
Emission reductions (tCO ₂ e)	33,937	28,177	-16.97

³ Emission reductions for the current monitoring period (517 days) based on annual average over the crediting period of reductions estimated in the PDD (23,960 tCO₂e).



The emission reductions are 16.97 % less than the estimated emission reductions as per registered PDD. This is because of slightly less capacity utilization factor (CUF) achieved than registered PDD.

**Annex -1****Substation meter detail:**

Site	Meter Serial no	Type	Accuracy class	Calibration Frequency	Date of Calibration	Calibration result	Latest calibration Validity	Is this prior to start of monitoring period	Does it cover the eligibility for the monitoring period
Vanku (66kv substation) ⁴	GJ-2123-A	ER 300 P	0.2S	once in 3 years	17/07/2012 22/10/2008	Within limits of error	16/07/2015	Yes	Yes
	GJ-2150-A		0.2S		17/07/2012 22/10/2008	Within limits of error	16/07/2015	Yes	Yes
Suthari Substation	GJ-2104-A	ER 300 P	0.2S	once in 3 years	08/03/2010 01/01/2009 14/08/2008	Within limits of error	07/03/2013	Yes	Yes
	GJ-2110-A	ER 300 P	0.2S		08/03/2010	Within limits of error	07/03/2013	Yes	Yes

⁴ # Maximum permissible error of 0.2% has been considered for non calibrating period from October 2011 to March 2012 for Vanku site as the energy meters Sr. No. GJ-2123-A and GJ-2150-A were not calibrated during this period. This is in line with GUIDELINES FOR ASSESSING COMPLIANCE WITH THE CALIBRATION FREQUENCY REQUIREMENTS Annex: 60, EB52.

**33 kV yard meter:**

Loc. No.	Year 2009				Year 2010			
	Placed on	Meter No.	Accuracy class	Calibration date	Placed on	Meter No.	Accuracy class	Calibration date
M64	05/12/2009	GJB01348	0.5 S	30/11/2009	not changed	GJB01348	0.5 S	Not calibrated
M80	01/09/2009	GJB01709	0.5 S	01/09/2009	not changed	GJB01709	0.5 S	Not calibrated
M81	31/07/2009	GJB01624	0.5 S	20/07/2009	not changed	GJB01624	0.5 S	Not calibrated
M82	03/08/2009	GJB00664	0.5 S	30/07/2009	not changed	GJB00664	0.5 S	Not calibrated
M98	17/09/2009	GJU04500	0.5 S	12/09/2009	not changed	GJU04500	0.5 S	Not calibrated
M123	03/08/2009	GJB01306	0.5 S	31/07/2009	not changed	GJB01306	0.5 S	Not calibrated
M143	31/07/2009	GJB01627	0.5 S	20/07/2009	not changed	GJB01627	0.5 S	Not calibrated
M147	21/08/2009	GJU03892	0.5 S	17/06/2009	20/07/2010	GJU03902	0.5 S	15/07/2010
V12	10/06/2009	GJU00856	0.5 S	13/01/2009	15/07/2010	GJB00128	0.5 S	06/07/2010

Loc. No.	Year 2011				Year 2012			
	Placed on	Meter No.	Accuracy class	Calibration date	Placed on	Meter No.	Accuracy class	calibration date ⁵
M64	21/02/2011	GJU04461	0.5 S	21/02/2011	Not changed	GJU04461	0.5 S	12/02/2012
M80	21/02/2011	GJB00659	0.5 S	21/02/2011	Not changed	GJB00659	0.5 S	12/02/2012
M81	08/06/2011	GJU03912	0.5 S	08/06/2011	Not changed	GJU03912	0.5 S	-
M82	08/06/2011	RJU00250	0.5 S	08/06/2011	Not changed	RJU00250	0.5 S	-
M98	21/02/2011	GJB01697	0.2 S	21/02/2011	Not changed	GJB01697	0.2 S	12/02/2012
M123	08/02/2011	GJB01071	0.2 S	08/02/2011	Not changed	GJB01071	0.2 S	10/02/2012
M143	08/02/2011	GJB00796	0.2 S	- ⁶	Not changed	GJB00796	0.2 S	10/02/2012

⁵ For locations M81, M82, M147 and V12 calibration certificates for year 2012 are not required during this monitoring period as the calibration done in year 2011 covers the current monitoring period completely.

⁶ The Calibration certificate at the time of installation of energy meter no. GJB 00796, at location M 143, on date 08/02/2011 could not be made available by PP to DOE for verification. Since the errors of the energy meters are within the permissible limits as per the latest available calibration certificate dated 10/02/2012. So PP has considered maximum permissible error of 0.2 % for the non calibrated period from Feb 2011 to Feb 2012. This is in line with GUIDELINES FOR ASSESSING COMPLIANCE WITH THE CALIBRATION FREQUENCY REQUIREMENTS Annex: 60, EB52.

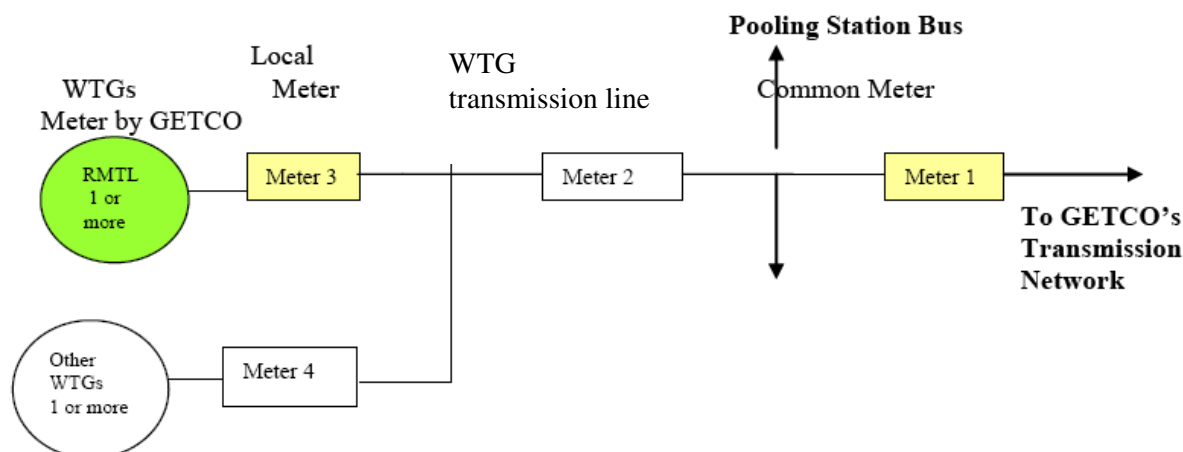


M147	06/06/2011	GJB01294	0.2 S	06/06/2011	Not changed	GJB01294	0.2 S	-
V12	not changed	GJB00128	0.5 S	15/06/2011	Not changed	GJB00128	0.5 S	-

Annex-2

MONITORING INFORMATION

Metering arrangement for Wind Farm



Metering of wind power is done as under:

- Joint meter reading is taken at Meter-1 by representative of GETCO (Gujarat Energy Transmission Company, GEDA (Gujarat Energy Development Agency) and O&M service provider (on behalf of individual wind farm owners). Meter-1 (M-1) is the meter at the substation. Let us assume total generation recorded for particular month is 'X' units.
- Joint meter reading is taken at Local Meter-3 by representative of GEDA (Gujarat Energy Development Agency) and O&M service provider (on behalf of individual wind farm owners). Let us assume total generation recorded for particular month is 'Y1' units.
- Similarly joint meter reading for other wind farm owners is also taken. Let us assume generation of individual owner recorded for particular month are 'Y2, Y3.....Yn' units.
- GEDA distributes 'X' to individual wind farm owners using following formula and issues monthly certificates.

'Y1'

- For RMTL (project promoter): Units generated = 'X' x $\frac{\text{'Y1'}}{\text{'Y1+Y2+Y3....+Yn'}}$
 - In other words, total 'X' units are shared in proportion to generation by individual wind turbine / wind farms.



History of the document

Version	Date	Nature of revision
02.0	EB 66 13 March 2012	Revision required to ensure consistency with the "Guidelines for completing the monitoring report form" (EB 66, Annex 20).
01	EB 54, Annex 34 28 May 2010	Initial adoption.
Decision Class: Regulatory Document Type: Form Business Function: Issuance		