MONITORING REPORT FOR 2ND PERIODIC VERIFICATION

"POSITIVE CLIMATE CARE 4.67 MW BUNDLED GRID CONNECTED WIND POWER PROJECT ACTIVITY IN JAISALMER, RAJASTHAN, INDIA"

Monitoring Period: 01-July-2009 to 01-October-2012
(incl. of both days)

Document Prepared By: POSITIVE CLIMATE CARE PRIVATE LIMITED

Project Title	Positive Climate Care 4.67 MW Bundled Grid connected Wind Power Project Activity in Jaisalmer, Rajasthan, India
Version	2
Report ID	PCC/MR/RAJ/4.67
Date of Issue	12-February-2013
Project ID	499
Monitoring Period	01-July-2009 to 01-October-2012 (incl. of both days)
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1 PROJECT DETAILS

1.1 Summary Description of Project

The project activity involves the development and operation of grid connected wind based electricity generation facilities involving installation of 7 wind electric generators (WEGs) that includes 3 machines of individual capacity 1.25 MW each and 4 machines of 0.23 MW each with aggregate installed capacity of 4.67 MW located at District Jaisalmer in the states of Rajasthan. The generated electricity is being supplied to the State Electricity Utility Rajasthan Vidyut Prasaran Nigam Limited -RVPNL (RRVPNL –Rajasthan Rajya Vidyut Prasaran Nigam Limited). The Rajasthan State grid forms part of the NEWNE Regional Grid of India that depends mainly on fossil fuels and this project contributes to reduced greenhouse gas emissions caused by reliance on fossil fuels.

All the WEGs are connected to the grid interconnection point; supplying the generated electricity to the Jaipur DISCOM through power purchase and wheeling & banking agreement. Project promoters, M/s.Rajesh constructions Co. Pvt. Ltd. and M/s. Savla Twisters Pvt. Ltd. have Power Purchase Agreement with DISCOM, whereas M/s. Vijay Industries and M/s. Saurabh Agrotech Pvt. Ltd.' WEGs are supplying electricity to DISCOM under a Wheeling and Banking Agreement. The electricity generated by the WEGs are measured in the metering points to which the WEG/group of WEG are connected. By virtue of the fact that all the WEGs are in same geographic location and the individual project supply electricity to the RVPNL, they are bundled as one single Project.

The list of project proponents (PP), capacity of WEGs, their location and respective project commissioning date is tabulated below:

Table 1: Details of the project activity

S. No.	Name of Project Proponent	Location	WTG make and Capacity	Project commissioning Date
1.	**Rajesh Construction Co. Pvt. Ltd.**	Village – Akal, District – Jaisalmer, State - Rajasthan	Suzlon Energy Ltd, 1250 KW	October 31st, 2003
			Suzlon Energy Ltd, 1250 KW	
2.	**Savla Twisters Pvt. Ltd**	Village –Soda-Mada, District – Jaisalmer, State - Rajasthan	Suzlon Energy Ltd, 1250 KW	April 30th, 2004
3.	**Vijay Industries**	Village –Themdarai, Near Gorera side, District – Jaisalmer, State - Rajasthan	Enercon (India) Ltd, 230 KW	March 29th, 2003
			Enercon (India) Ltd, 230 KW	
4.	**Saurabh Agrotech Pvt. Ltd.**	Village –Themdarai, Near Hansuwal side,	Enercon (India) Ltd, 230 KW	March 29th, 2003

		District – Jaisalmer, State – Rajasthan	Enercon (India) Ltd, 230 KW	

This report gives details on voluntary emission reductions achieved by the project activity during second periodic verification period i.e. 01/07/2009 to 01/10/2012 (including both days). The project has supplied MWh of electricity to NEWNE Grid, which has resulted into emission reductions of **17756 tCO2e** during above period.

The project activity titled 'Positive Climate Care 4.67 MW Bundled Grid connected Wind Power Project Activity in Jaisalmer, Rajasthan, India' is approved under Voluntary Carbon Standard (VCS), 2007.1. The project details can be referred from the web link at:

https://vcsregistry2.apx.com/mymodule/ProjectDoc/EditProjectDoc.asp?id1=339

1.2 Sectoral Scope and Project Type

Sectoral Scope	:	01 Energy Industries (renewable/non-renewable sources)
Project Type	:	Type I – Renewable Energy Projects
Project Category	:	I.D. – Grid connected renewable electricity generation
Approved Baseline Methodology	:	AMS I.D. (Version 14)
Approved Monitoring Methodology	:	AMS I.D. (Version 14)

The project activity is not a grouped project.

1.3 Project Proponent

Contact Information of the project proponent:

This project activity is owned by M/s. Rajesh Construction Company Private Limited, M/s. Savla Twisters Private Limited, M/s Vijay Industries and M/s Saurabh Agrotech Private Limited. M/s Vijay Industries and M/s Saurabh Agrotech Private Limited are sister concerns. The contact details of the project participants are given below:

Organization:	**M/s Rajesh Construction Company Private Limited (formerly Rajesh Construction Co. Ltd.)**
Street/P.O.Box:	M.I.D.C. Cross Road "B", Off Andheri Kurla Road,
Building:	R B House,
City:	Andheri (E), Mumbai
State/Region:	Maharashtra
Postfix/ZIP:	400059
Country:	India
Represented by:	**Mr. Jignesh P. Waghela**
Title:	Mr.

Salutation:	General Manager Finance
Last Name:	Waghela
Middle Name:	Pravinbhai
First Name:	Jignesh
Direct FAX:	+91-22-67100622
Direct tel:	+91-22-67359900
Personal E-Mail:	jignesh.waghela@rajeshlifespaces.com

Organization:	**M/s Savla Twisters Pvt. Ltd.**
Street/P.O.Box:	202 A,
Building:	"PASHAKA", Ring Road
City:	Surat
State/Region:	Gujarat
Postfix/ZIP:	395002
Country:	India
Represented by:	**Mr. Dimpesh S. Savla**
Title:	Mr.
Salutation:	Director
Last Name:	Savla
Middle Name:	S.
First Name:	Dimpesh
Direct FAX:	+91-261-2334052
Direct tel:	+91-261-2334051
Personal E-Mail:	dimpeshsavla@yahoo.co.in

Organization:	**M/s Vijay Industries**
Street/P.O.Box:	D-47
Building:	Hanuman Nagar, Vaishali Nagar
City:	Jaipur
State/Region:	Rajasthan
Postfix/ZIP:	302021
Country:	India
Represented by:	**Mr. Deepak Data**
Title:	Mr.
Salutation:	Partner
Last Name:	Data
First Name:	Deepak
Direct FAX:	+91-141-2554975
Direct tel:	+91-141-2554974

Personal E-Mail:	mukesh@data.in

Organization:	**M/s Saurabh Agrotech Pvt. Ltd.**
Street/P.O.Box:	Plot 20-21 & 22
Building:	Old Industrial Area
City:	Alwar
State/Region:	Rajasthan
Postfix/ZIP:	301001
Country:	India
Represented by:	**Mr. Babu Lal Data**
Title:	Mr.
Salutation:	Director
Last Name:	Data
Middle Name:	Lal
First Name:	Babu
Direct FAX:	+91-141-2554975
Direct tel:	+91-141-2554974
Personal E-Mail:	mukesh@data.in

Roles/responsibilities for the project proponent:
The roles/responsibilities of the project proponents are detailed under section 3.3.

1.4 Other Entities Involved in the Project

M/s Positive Climate Care Private Limited acts as Project Consultant. The contact details are given below:

Organization	**M/s Positive Climate Care Private Limited**
Street/P.O.Box:	407
Building:	The Gajraj, C-68, Sarojini Marg, C-Scheme
City:	Jaipur
State/Region:	Rajasthan
Postfix/ZIP:	302001
Country:	India
Tele –Fax:	+91-141-2370888
URL:	www.positiveclimatecare.com
Represented by:	**Ms. Meenakshi Jain**
Title:	Miss

Salutation:	Chief Managing Director
Last Name:	Jain
First Name:	Meenakshi
Department:	Carbon Emissions Solutions
Mobile Number:	+91-9413203573
Direct Telephone:	+91-141-2370888
Personal E-mail:	meenakshi@positiveclimatecare.com; jain.minaxi@gmail.com

1.5 Project Start Date

According to the policy announcement dated 10th September 2008 from the VCS Association, the project start date will be considered as the date the project activity began reducing or removing GHG emissions. The first WTG of the project activity was commissioned on 29th March 2003, which is also the start date of the present project activity.

1.6 Project Crediting Period

Project Crediting Period Start Date	:	1st April 2006
Project Crediting Period End Date	:	31st March 2016
Total Number of Years	:	10 Years

1.7 Project Location

The project activity is located at District Jaisalmer in the state of Rajasthan. The nearest railway station is Jaisalmer Junction and the nearest airport is at Jodhpur.

The geographical coordinates and location details of all the WEGs associated with the project activity are given below:

Table 2: Location details of individual WEGs

S. No.	Project Promoter	WEG Capacity (MW)/ Location number	North - Latitude	East - Longitude
1.	**Rajesh Construction Co. Pvt. Ltd.**	1.25 (Suzlon)/ J-137	N26° 46' 37.5"	E71° 05' 33.5"
		1.25 (Suzlon)/ J-132	N26° 46' 52.0"	E71° 05' 41.5"
2.	**Savla Twisters Pvt. Ltd**	1.25 (Suzlon)/ J-224	N26° 40' 55.1"	E70° 52' 49.6"
3.	**Vijay Industries**	0.23 (Enercon)/ VIKL-01 (VI-01 as per commissioning certificate)	N26° 45' 24.5"	E70° 53' 25.7"
		0.23 (Enercon)/ VIKL-02 (VI-02 as per	N26° 45' 30.5"	E70° 53' 25.8"

		commissioning certificate)		
4.	**Saurabh Agrotech Pvt. Ltd.**	0.23 (Enercon)/ SAPL-01 (SAL-1 as per commissioning certificate)	N26° 45' 48.5"	E70° 53' 27.1"
		0.23 (Enercon)/ SAPL-02 (SAL-2 as per commissioning certificate)	N26° 45' 52.4"	E70° 53' 25.4"

1.8 Title and Reference of Methodology

Project has applied approved methodology available for small-scale CDM project at UNFCCC website under Appendix B of the simplified modalities and procedures for small-scale CDM project activities:

Project Type I: Renewable Energy Projects
Title of Methodology: Grid connected renewable electricity generation
Reference: I.D./Version 14
Scope: 1
EB48

2 IMPLEMENTATION STATUS

2.1 Implementation Status of the Project Activity

The project activity has already been implemented and all the machines mentioned above have been commissioned and are in operation.

Information on events that may impact the GHG emission reductions or removals and monitoring: There have been no events, which has affected the GHG emission reductions and monitoring. Overall the project is running successfully.

2.2 Project Description Deviations

There are no deviations from the monitoring plan in the project activity.

2.3 Grouped Project

The project is not a grouped project activity.

3 DATA AND PARAMETERS

3.1 Data and Parameters Available at Validation

Data Unit / Parameter:	**$EF_{OM,y}$**
Data unit:	tCO_2/MWh

Description:	Operating Margin emission factor for NEWNE Grid
Source of data:	Referred from CO2 Baseline Database for the Indian Power Sector, User Guide, Version 4 dated October 2008, released by the Central Electricity Authority, Ministry of Power, Government of India
Value applied:	1.0090
Purpose of the data:	The data is used for calculating emissions factor.
Any comment:	This database is an official publication of Government of India for the purpose of CDM baselines. It is based on most recent data available to the Central Electricity Authority and hence considered authentic. As the calculation of baseline emission has been done ex ante its value will remain fixed for the entire crediting period.

Data Unit / Parameter:	**$EF_{BM,y}$**
Data unit:	tCO_2/MWh
Description:	Build Margin emission factor for NEWNE grid.
Source of data:	Referred from CO2 Baseline Database for the Indian Power Sector, User Guide, Version 4 dated October 2008, released by the Central Electricity Authority, Ministry of Power, Government of India
Value applied:	0.5977
Purpose of the data:	The data is used for calculating emissions factor.
Any comment:	This database is an official publication of Government of India for the purpose of CDM baselines. It is based on most recent data available to the Central Electricity Authority and hence considered authentic. As the calculation of baseline emission has been done ex ante its value will remain fixed for the entire crediting period.

Data Unit / Parameter:	**EF_y**
Data unit:	tCO_2/MWh
Description:	Combined margin CO2 emission factor for the proposed project activity.

Source of data:	Computed using the following formulae: $EF_y = 0.75 \times EF_{OM,y} + 0.25 \times EF_{BM,y}$
Value applied:	0.9062 tCO_2/MWh
Purpose of the data:	The data is used for calculating emissions reductions.
Any comment:	The calculation is done as ex ante.

3.2 Data and Parameters Monitored

Data / Parameter:	**EG_y**
Data unit:	kWh
Description:	The Total Net Electricity supplied to the DISCOM(s).
Source of the data:	Calculated as the difference between total export and import of electricity by the WTGs.
Description of measurement methods and procedures to be applied:	The Joint Meter Reading taken at common evacuation system together with meter readings of individual WTG controller readings. Based on this break up, limited to total energy export, the power purchase from the individual WTGs is calculated for the purpose of payment. The total net electricity generated from the project activity is calculated as the summation of the annual net electricity generation of the wind turbines in the project activity.
Frequency of monitoring/recording:	Monthly
Value monitored:	01.07.2009 – 31.12.2009 = 3499584 01.01.2010 – 31.12.2010 =5366928 01.01.2011 – 31.12.2011 = 5492513 01.01.2012 – 01.10.2012 = 5234661 Total = **19593686** (see Annex-1)
Monitoring equipment:	Main and Backup meters (Meter details are given in section 3.3)
QA/QC procedures to be applied:	The generated electricity is measured through a two-step procedure wherein the first metering is carried out at the controller of the machine. The second metering is carried out at grid interconnection point wherein the Joint Meter Reading (JMR) is carried out on first day of every month in presence of the representatives of the project proponent & the state electricity utility (RVPNL/DISCOM).

	This JMR is used for calculation of the amount of electricity pumped into the grid against which the utility makes the payment to the project proponent. The meter located at the grid sub-station are sealed, maintained and calibrated by the state electricity utility. The electronic controllers are self-calibrated to ensure and maintain online system diagnostics.
Calculation method:	Formula to arrive net electricity export to grid is given by: Net Export kWh = Export kWh – Import kWh
Any comment:	The data will be archived in paper and electronically for two years after the end of the last crediting period.

Data Unit / Parameter:	**EG_{Export}**
Data unit:	kWh
Description:	The Total Electricity Exported by the WEG units.
Source of the data used:	As reported in monthly electricity joint meter readings for the WEGs of the project by the DISCOM.
Description of measurement methods and procedures applied:	The electricity exported by the each individual WEG of the project activity is measured using the export meter installed at the Grid substation (GSS). The total exported electricity units from the project activity are calculated as the summation of the monthly measured exported electricity data of the wind turbines in the project activity.
Frequency of monitoring/recording:	Monthly
Value monitored:	01.07.2009 – 31.12.2009 = 3518516 01.01.2010 – 31.12.2010 = 5415661 01.01.2011 – 31.12.2011 = 5531648 01.01.2012 – 01.10.2012 = 5253161 Total = 19718986 (see Annex-1)
Monitoring equipment:	Main and Backup meters
QA/QC procedures to be applied:	Annual calibration of all the meters is undertaken at required intervals and faulty meters are duly replaced immediately.
Calculation method:	Measured value

Any comment:	The data will be archived on paper and electronically for two years after the end of the last crediting period.

Data Unit / Parameter:	**EG_{Import}**
Data unit:	kWh
Description:	The Total Electricity Imported by the WEG units.
Source of the data used:	As reported in monthly electricity joint meter readings for the WEGs of the project by the DISCOM.
Description of measurement methods and procedures applied:	The electricity imported by the each individual WEG of the project activity is measured using the import meter installed at the GSS. The total imported electricity units from the project activity are calculated as the summation of the monthly measured imported electricity data of the wind turbines in the project activity.
Frequency of monitoring/recording:	Monthly
Value of data applied for the purpose of calculating emission reductions	01.07.2009 – 31.12.2009 = 18932 01.01.2010 – 31.12.2010 = 48733 01.01.2011 – 31.12.2011 = 39135 01.01.2012 – 01.10.2012 = 18500 Total = **125300** (see Annex-1)
Monitoring equipment:	Main and Backup meters
QA/QC procedures to be applied:	Annual calibration of all the meters is undertaken at required intervals and faulty meters are duly replaced immediately.
Calculation method:	Measured value
Any comment:	The data will be archived in paper and electronically for two years after the end of the last crediting period.

Data / Parameter:	**$EG_{y\ Controller}$**
Data unit:	kWh/ year
Description:	Electricity Generation at WTG measured and as reported in the joint meter reading reports signed by representatives of state electricity board.
Source of the data used:	Controller reading as provided in joint meter reading reports signed by representatives of state electricity board for each WTG.

Description of measurement methods and procedures applied:	As per standard operating procedure manual of the technology supplier/ O & M contractor.
QA/QC procedures to be applied:	The electronic controllers are self-calibrated to ensure and maintain online system diagnostics.
Any comment:	The data will be archived on paper and electronically for two years after the end of the last crediting period

3.3 Description of the Monitoring Plan

As per the requirements of the methodology, monitoring shall consist of metering the net electricity generated by the renewable technology. The project activity leads to mitigation of GHG due to the substitution of fossil fuel generated power in the baseline with zero GHG emitting wind based power project. The monitoring of the emission reduction will be carried out by measuring the net electricity supplied to the grid by the project activity with the help of electronic meters installed at GSS.

Calibration / Maintenance of Measuring and Analytical Equipments

1. The generated electricity is purchased by the state electricity utility (Jaipur/Jodhpur DISCOM) through RVPNL grid of Rajasthan. The meters are therefore calibrated, sealed and managed by the state electricity utility (RVPNL/DISCOM).

2. The primary recording of the electricity fed to the state utility grid is carried out jointly at the incoming feeder of the state power utility (RVPNL). Individual WTGs are connected to feeder, which is further connected to Grid substation via transformers. For billing purposes, readings are taken from Electricity Board (EB) meters installed at feeder and then apportioning of the electricity is done for individual WTG.

3. The joint measurements are carried out once in a month in presence of both parties (the developer's representative and officials of the state power utility).

   - The RVPNL/DISCOM and the developer's representative jointly read the Metering System on the first (1^{st}) day of every month at the interconnection point.

   - As per the monitoring methodology, the electricity generated by wind turbines is metered by Electronic Meter. There are two energy meters installed at the grid substation. These energy meters are the export import meters. Since, these meters are installed at the receiving end; they thus absorb the losses from the generation point (wind machine controller) until the grid interconnection point (substation). These losses include the line losses from point of generation to the point of metering and the transformer losses (losses due to stepping up of generation voltage to meet grid discipline and transmission losses until interconnection point).

   - In the event that the main metering system is not in service as a result of maintenance, repairs or testing, then the backup metering system is used during the period the main metering system is not in service.

   - Meter readings taken jointly at the appointed date and time are signed by the representatives of RVPNL/DISCOM and the developer.

4. The RVPNL/DISCOM seals the main metering system and the backup metering system in the presence of representatives of Power Producer/Developer.

5. 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 is repaired, re-calibrated or replaced as soon as possible by the Power Developer or by the RVPNL/DISCOM.

6. RVPNL/DISCOM ensures that metering system is tested for accuracy at least once in a year and report furnished along with joint meter reading.

7. Any meter seal(s) can be broken only by authorized officer of RVPNL's / DISCOM's in the presence of representatives of Power Producer/Developer, whenever the main metering system or the backup metering system is to be inspected, tested, adjusted, repaired or replaced.

8. The monitoring at WEG end: each WEG is equipped with an integrated electronic controller meter. These meters are connected to the Central Monitoring Station (CMS) of the entire wind farm through a wireless Radio Frequency (RF) network (SCADA). The generation data of individual machine can be monitored as a real-time entity at CMS. The snapshot of generation on the last day of every calendar month is kept as a record both in electronic as well as printed (paper) form.

9. Calibration of Controllers: In case of both the EPC contractors, Suzlon & Enercon, the individual WTG has installed panel meters and no calibration is required for these meters as there is a quality procedure incorporated in software itself.

   Suzlon- SCS Controller is a micro-processor based intelligent controller which has been specially designed for control of wind turbines. It uses a Woodward Multi-function Relay that has three current inputs from CT and three direct voltage inputs (690 Volts). The analog values of current/ voltage is converted into digital signal internally using A/D Converters at very high sampling rate. A software program reads these values and displays instantaneous parameters such as voltage, current, power factor, kVAh, kVArh and kWh. These instantaneous values are then time integrated and displayed / stored. Woodward relay is having no display and needs special protocol to view energy readings as this relay is communicating digital signal through special communication protocol, hence, it is not possible to calibrate, Moreover, turbine cannot run without this relay hence it cannot be removed for calibration during operation.

   Enercon- The individual WEG come with installed panel meters and no calibration has been carried out for these meters. There is quality procedure incorporated in software, which react to deviations higher than range of 10 units. Main processor unit of WEG compares the converter output & energy meter out put if difference is greater than 20kw for 1 hour, machine stops with fault status 62:07- diff. P-actual/Kwh measurement. Replacement of the WEGs panel meter with new one solves the problem.

10. Calibration of Meters:

    Reference: Calibration reports in respect of Main and Backup metering equipment.

Table 3: Calibration details of Meters

Rajesh Constructions Co. Pvt. Ltd., 2.5 MW			
S. No.	**Reference Reports** (Feeder – SEL-06)	**Main meter** (Sr. No. – RJU02415)	**Backup meter** (Sr. No. – RJU00336)
1.	Joint inspection/test report of windfarm power plant in respect of Main and backup metering equipment	Dated – 29.01.2009	Dated – 29.01.2009
2.	Calibration Certificate of AC 3PH, 4WIRE static energy meter	Dated – 16.04.2010 (Certificate No. EMTR/CAL/03/180)	Dated – 16.04.2010 (Certificate No. EMTR/CAL/03/181)
3.	Reading/ Assessment Report during Calibration done by YMPL in respect of Main and backup meter	Dated – 12.03.2011	Dated – 12.03.2011
4.	Calibration Certificate	On 12.07.2011, 6.25 MW load get shifted from 33kx devikot (Rural feeder) to new metering point by SEL-80 (Meter No. MSB 10311) Calibration certificate Dated- 15.03.2012 (Certificate No. C&I/CAL/S/12-03/103)	Dated - 15.03.2012 (Certificate No. C&I/CAL/S/12-03/111) (Meter. No. MSB 10312)

Savla Twisters Pvt. Ltd., 1.25 MW			
S. No.	**Reference Reports** (Feeder – SEL-07)	**Main meter** (Sr. No. – RJB 00102)	**Backup meter** (Sr. No. – RJB00257)
1.	Joint inspection/test report of windfarm power plant in respect of Main and backup metering equipment	Dated – 30.01.2009	Dated – 30.01.2009
2.	Calibration Certificate of AC 3PH, 4WIRE static energy meter	Dated - 22.04.2010 (Certificate No. EMTR/CAL/03/297) Calibrated on: 23.04.2010	Dated - 22.04.2010 (Certificate No. EMTR/CAL/03/298) Calibrated on: 23.04.2010
3.	Reading/ Assessment Report during Calibration done by YMPL in respect of Main and backup meter	Dated – 10.03.2011	Dated – 10.03.2011
4.	Calibration Certificate	Dated- 14.03.2012 (Certificate No. C&I/CAL/S/12-03/075)	Dated- 14.03.2012 (Certificate No. C&I/CAL/S/12-03/074)

Vijay Industries - 0.46 MW			
S. No.	**Reference Reports** (Themdarai- Amarsagar GSS)	**Main meter-1** (Sr. No. – TNU 00946)	**Main meter-2** (Sr. No. – TNU 00945)

1.	Joint inspection/test report of windfarm power plant in respect of Main and backup metering equipment	Dated – 29.01.2009	Dated – 29.01.2009
2.	Certificate of Calibration	Dated – 06.04.2010 (Certificate No. YMPL/174032/29112) Date of Calibration: 30.03.2010	Dated – 06.04.2010 (Certificate No. YMPL/174032/29111 Date of Calibration: 30.03.2010
3.	Certificate of Calibration	Dated – 26.03.2011 (Certificate No. YMPL/201745/34197)	Dated – 26.03.2011 (Certificate No. YMPL/201745/34199)
4.	Certificate of Calibration	Dated – 28.03.2012 (Certificate No. YMPL/214135/41756) Date of Calibration: 19.03.2012	Dated – 28.03.2012 (Certificate No. YMPL/214135/41759) Date of Calibration: 19.03.2012

Saurabh Agrotech Pvt. Ltd. - 0.46 MW			
S. No.	**Reference Reports** (Themdarai- Amarsagar GSS)	**Main meter-1** (Sr. No. – TNU 00946)	**Main meter-2** (Sr. No. – TNU 00945)
1.	Joint inspection/test report of windfarm power plant in respect of Main and backup metering equipment	Dated – 29.01.2009	Dated – 29.01.2009
2.	Certificate of Calibration	Dated – 06.04.2010 (Certificate No. YMPL/174032/29112) Date of Calibration: 30.03.2010	Dated – 06.04.2010 (Certificate No. YMPL/174032/29111 Date of Calibration: 30.03.2010
3.	Certificate of Calibration	Dated – 26.03.2011 (Certificate No. YMPL/201745/34197)	Dated – 26.03.2011 (Certificate No. YMPL/201745/34199)
4.	Certificate of Calibration	Dated – 28.03.2012 (Certificate No. YMPL/214135/41756) Date of Calibration: 19.03.2012	Dated – 28.03.2012 (Certificate No. YMPL/214135/41759) Date of Calibration: 19.03.2012

Class of Accuracy= 0.2s

The copy of these reports has been provided to Verifier.

Operation & Management structure to Monitor Emission Reductions

To ensure trouble free operations and efficient generations through all the wind turbines, PPs have entered into a comprehensive Operation and Maintenance agreement with the manufactures of the turbines for a period of 10 years. The contractor Suzlon & Enercon, under the O&M contract with PPs, are responsible for the operation and maintenance of the project activity for the entire crediting period.

The authority and responsibility of project management as well as registration, monitoring, and supervising O & M activities lies with PPs. PPs have formulated a Project Team to ensure proper

and continuous monitoring of the performance of turbines and generation of power. The wind power project abides and will abide by all regulatory and statutory requirements as prescribed under the state and central laws and regulations. The project team is delegated with the responsibility of monitor and document the electricity generated and also safekeeping of the recorded data. The project team is also responsible for calculation of actual creditable emission reduction in the most transparent and relevant manner. The same has been outlined as follows:

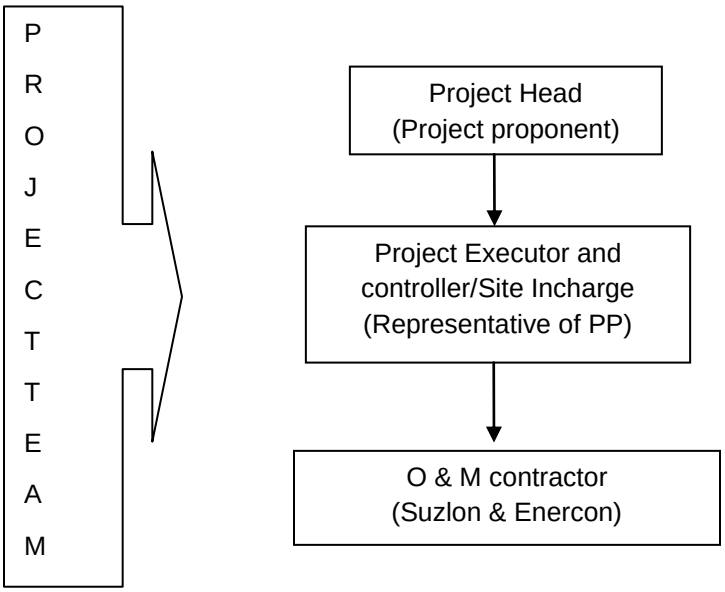

Figure 1: Project Monitoring Team

Roles & Responsibilities of Project monitoring team are as follows:

Designation	Responsibilities
Project Head (Project proponent)	• Registration • Project Execution
Project Executor and Controller (Representative of PP at Jaipur office of O&M contractor)	• Recording • Verification • Storage of Data
Site Incharge (Representative of PP at Jaisalmer office of O&M contractor)	• Operation, Monitoring and Verification of Data • Data Recording • Storage of data
Operation and Maintenance Contractor	• Suzlon Infrastructure Services Limited (for Rajesh Construction Co. Pvt. Ltd. (2.5 MW), Savla Twisters Pvt. Ltd. (1.25 MW.) • Enercon India Ltd. (for Vijay Industries (0.46 MW) & Saurabh Agrotech Pvt. Ltd.(0.46 MW)

PP's representatives maintain an accurate and up-to-date operating log at the project site with records of:

i. 24 Hours logs of real and reactive power generation, frequency, transformer tap position, bus voltage(s), Main meter and other meter readings and any other data mutually agreed.

ii. Any unusual conditions found during operation/inspections.

Procedure adopted by Suzlon/Enercon to get Joint meter reading/ Credit report is summarised below:

Initially, joint readings of all Energy Meters fixed at Substation are taken at 01st of every month with RVPNL, DISCOM & the PP's representatives-Suzlon / Enercon personnel. Then, JMR Readings are prepared in formats specified by DISCOM. These reading are signed and audited from representatives of RVPNL, DISCOM and Suzlon/Enercon personnel.

Then Customer wise generation bifurcation & Individual Credit Reports are prepared. Break up sheet provides the value of Export, Import and Net Export of energy. Afterwards, these Credit Reports are handed over to Project Proponent who in turn raises the invoices and submit to DISCOM for payment.

In case of Vijay Industries and Saurabh Agrotech (Enercon WTG), Enercon personnel raise the invoices to DISCOM on behalf of Investors.

The apportioning of the electricity in break up sheet is done as per the following method-

Break up of Energy Export (in break up sheets)

$$= \frac{\text{EB meter Export (JMR)}}{\text{Total generation from all Controllers of WTGs connected to Feeder}} \text{ X Individual Controller Reading}$$

Break up of Energy Import (in break up sheets)

$$= \frac{\text{EB meter Import (JMR)}}{\text{Total generation from all Controllers of WTGs connected to Feeder}} \text{X Individual Controller Reading}$$

Net Export = Export - Import

4 QUANTIFICATION OF GHG EMISSION REDUCTIONS AND REMOVALS

4.1 Baseline Emissions

The baseline emissions are estimated as the product of the electricity generated by the project activity and the ex-ante Emission factor of the regional electricity grid.

$$\mathbf{BE_y = EG_y \text{ X } EF_y}$$

Where,

EF_y is the ex-ante baseline emission factor for the year y
EG_y is the net electricity generation for the year y

The baseline emission factor for the project activity has been calculated ex ante under section 2.4 of the approved PD as 0.9062 tCO2e /MWh.

4.2 Project Emissions

Being a renewable and clean energy project, the project emissions (PEy) during operation are **considered zero**.

4.3 Leakage

Leakage emissions are **considered zero**, as there is neither transfer of energy generating equipment from another activity nor the existing equipment are transferred to another activity.

4.4 Summary of GHG Emission Reductions and Removals

The emission reduction ER_y by the project activity during a given year y is the difference between baseline emissions (BE_y), project emissions (PE_y) and emissions due to leakage (L_y), as follows:

$$\mathbf{ER_y = BE_y - PE_y - L_y}$$

Where
ERy = Emission reductions in year y (tCO2 /y)
BEy = Baseline Emission in year y (tCO2 /y)
PEy = Project Emission in year y (tCO2 /y)
LEy = Leakage Emission in year y (tCO2 /y)

As for wind power project activity the leakages & project emissions are considered as zero, the emission reductions of the project activity are equal to the baseline emissions.
Hence, $ER_y = BE_y = EG_y$ X EF_y

= 19593.686 (MWh) X 0.9062 (tCO2e /MWh)
= 17756 tCO2e

Thus, the project activity has achieved 17756 tCO2e Emission Reductions (ERy) during the monitoring period 01/07/2009 – 01/10/2012.

Table 4: Project Proponent wise Actual Emission Reductions

Emission Reduction achieved by the Project Activity							
S. No.	**Project Promoter**	**Net Electricity generation (kWh)**	**Baseline emission factor tCO_2/MWh**	**Baseline Emissions (BE_y) (tCO_2e)**	**Project Activity Emission (PE_y) (tCO_2e)**	**Leakage (L_y) (tCO_2e)**	**Net emission Reductions (ER_y) (tCO_2e)**
1.	**Rajesh Construction Co. Pvt. Ltd. (2.5 MW)**	10234882	0.9062	9274	0	0	9274

2.	**Savla Twisters Pvt. Ltd. (1.25 MW)**	5008399	0.9062	4539	0	0	4539
3.	**Vijay Industries (0.46 MW)**	2189022	0.9062	1984	0	0	1984
4.	**Saurabh Agrotech Pvt. Ltd. (0.46 MW)**	2161384	0.9062	1959	0	0	1959
Total VCUs							**17756**

Table 5: Vintage –wise Actual Emission Reductions

Emission Reduction achieved by the Project Activity							
Sl. No.	**Period of measurement**	**Net Electricity generation (kWh)**	**Baseline emission factor tCO_2/MWh**	**Baseline Emissions (BE_y) (tCO_2e)**	**Project Activity Emission (PE_y) (tCO_2e)**	**Leakage (L_y) (tCO_2e)**	**Net emission Reductions (ER_y) (tCO_2e)**
1.	1st July 2009 to 31st December 2009	3499584	0.9062	3171	0	0	3171
2.	1st January 2010 to 31st December 2010	5366928	0.9062	4864	0	0	4864
3.	1st January 2011 to 31st December 2011	5492513	0.9062	4977	0	0	4977
4.	1st January 2012 to 1st October 2012	5234661	0.9062	4744	0	0	4744
Total VCUs							**17756**

Table 6: Project Proponent and Vintage wise Actual Emission Reduction

Vintage Year / Project Proponent	2009	2010	2011	2012	Total VCUs
Rajesh Construction Co. Pvt. Ltd. (2.5 MW)	1789	2432	2465	2588	9274
Savla Twisters Pvt. Ltd. (1.25 MW)	744	1304	1368	1123	4539
Vijay Industries (0.46 MW)	320	567	570	527	1984
Saurabh Agrotech Pvt. Ltd. (0.46 MW)	318	561	574	506	1959
Grand Total of project activity					**17756**

The Total Emission Reduction from the project activity between July 1st, 2009 and October 1st, 2012 is 17756 VCUs.

5 ADDITIONAL INFORMATION

ANNEX-I MONTHLY OPERATING DATA

Rajesh Construction Co. Pvt. Ltd., 1.25 x 2 = 2.5 MW									
Year	**Month**	**Export (kWh)**	**Error**	**Corrected Export**	**Import (kWh)**	**Error**	**Corrected Import**	**Net Export (kWh)**	**Corrected Net Export**
2009	July	451824		451824	2437		2437	449387	449387
	August	545330		545330	688		688	544642	544642
	September	465178		465178	1596		1596	463582	463582
	October	138114		138114	3896		3896	134218	134218
	November	182288		182288	2864		2864	179424	179424
	December	205399		205399	1831		1831	203568	203568
Total (i)		**1988133**		**1988133**	**13312**		**13312**	**1974821**	**1974821**
2010	January	177796		177796	1635		1635	176161	176161
	February	190987	0.20%	190605	1870	0.20%	1874	189117	188731
	March	213949	0.20%	213521	3393	0.20%	3400	210556	210121
	April	318293	0.20%	317656	3241	0.20%	3247	315052	314409
	May	462943		462943	1711		1711	461232	461232
	June	467503		467503	2370		2370	465133	465133
	July	231506		231506	3262		3262	228244	228244
	August	177459		177459	3369		3369	174090	174090
	September	111437		111437	4003		4003	107434	107434
	October	150180		150180	4244		4244	145936	145936
	November	92775		92775	3480		3480	89295	89295
	December	125135		125135	2412		2412	122723	122723
Total (ii)		**2719963**		**2718517**	**34990**		**35007**	**2684973**	**2683510**
2011	January	136460		136460	1927		1927	134533	134533
	February	124986		124986	2405		2405	122581	122581

	March	156738		156738	3167		3167	153571	153571
	April	207234		207234	3407		3407	203827	203827
	May	551314		551314	1415		1415	549899	549899
	June	530065		530065	1462		1462	528603	528603
	July	343764		343764	1440		1440	342324	342324
	August	206611		206611	1426		1426	205185	205185
	September	215765		215765	191		191	215574	215574
	October	116131		116131	3472		3472	112659	112659
	November	58560		58560	4243		4243	54317	54317
	December	99905		99905	2607		2607	97298	97298
Total (ii)		**2747533**		**2747533**	**27162**		**27162**	**2720371**	**2720371**
2012	January	119645		119645	2560		2560	117085	117085
	February	139795		139795	1652		1652	138143	138143
	March	226432	0.20%	225979	1971	0.20%	1975	224461	224004
	April	188148		188148	1458		1458	186690	186690
	May	348451		348451	503		503	347948	347948
	June	747381		747381	291		291	747090	747090
	July	643769		643769	225		225	643544	643544
	August	320428		320428	1050		1050	319378	319378
	September	134154		134154	1856		1856	132298	132298
Total (iv)		**2868203**		**2867750**	**11566**		**11570**	**2856637**	**2856180**
Grand Total (i+ii+iii+iv)		**10323832**		**10321933**	**87030**		**87051**	**10236802**	**10234882**

Savla Twisters Pvt. Ltd - 1.25 MW									
Year	**Month**	**Export (kWh)**	**Error**	**Corrected Export**	**Import (kWh)**	**Error**	**Corrected Import**	**Net Export (kWh)**	**Corrected Net Export**
2009	July	171240		171240	492		492	170748	170748
	August	231567		231567	113		113	231454	231454
	September	213874		213874	381		381	213493	213493
	October	55794		55794	1269		1269	54525	54525
	November	73040		73040	1326		1326	71714	71714
	December	79640		79640	878		878	78762	78762
Total (i)		**825155**		**825155**	**4459**		**4459**	**820696**	**820696**
2010	January	84628		84628	615		615	84013	84013
	February	86825	0.20%	86651	773	0.20%	775	86052	85877
	March	96417	0.20%	96224	1068	0.20%	1070	95349	95154
	April	136265	0.20%	135992	832	0.20%	834	135433	135159
	May	259436		259436	450		450	258986	258986
	June	283320		283320	316		316	283004	283004
	July	152345		152345	1016		1016	151329	151329
	August	93276		93276	959		959	92317	92317
	September	58078		58078	1126		1126	56952	56952
	October	83258		83258	1550		1550	81708	81708
	November	44692		44692	1028		1028	43664	43664
	December	71628		71628	838		838	70790	70790
Total (ii)		**1450168**		**1449529**	**10571**		**10576**	**1439597**	**1438953**
2011	January	69729		69729	561		561	69168	69168
	February	74130		74130	789		789	73341	73341
	March	96655		96655	946		946	95709	95709
	April	131394		131394	817		817	130577	130577

	May	265870		265870	158		158	265712	265712
	June	283822		283822	270		270	283552	283552
	July	194162		194162	309		309	193853	193853
	August	114394		114394	693		693	113701	113701
	September	122846		122846	274		274	122572	122572
	October	72824		72824	1466		1466	71358	71358
	November	28331		28331	1808		1808	26523	26523
	December	64494		64494	1281		1281	63213	63213
Total (iii)		**1518651**		**1518651**	**9372**		**9372**	**1509279**	**1509279**
2012	January	61072		61072	1325		1325	59747	59747
	February	75674		75674	730		730	74944	74944
	March	112045	0.20%	111821	817	0.20%	819	111228	111002
	April	109904		109904	705		705	109199	109199
	May	172999		172999	302		302	172697	172697
	June	232348		232348	97		97	232251	232251
	July	263416		263416	155		155	263261	263261
	August	145292		145292	543		543	144749	144749
	September	72465		72465	844		844	71621	71621
Total (iv)		**1245215**		**1244991**	**5518**		**5520**	**1239697**	**1239471**
Grand Total (i+ii+iii+iv)		**5039189**		**5038326**	**29920**		**29927**	**5009269**	**5008399**

Vijay Industries - 0.46 MW									
Year	**Month**	**Export (kWh)**	**Error**	**Corrected Export**	**Import (kWh)**	**Error**	**Corrected Import**	**Net Export (kWh)**	**Corrected Net Export**
2009	July	76508		76508	80		80	76428	76428
	August	97437		97437	24		24	97413	97413
	September	89385		89385	44		44	89341	89341
	October	24910		24910	176		176	24734	24734
	November	31780		31780	179		179	31601	31601
	December	33777		33777	65		65	33712	33712
Total (i)		**353797**		**353797**	**568**		**568**	**353229**	**353229**
2010	January	33234		33234	80		80	33154	33154
	February	35642	0.20%	35571	117	0.20%	117	35525	35453
	March	41084	0.20%	41002	160	0.20%	160	40924	40842
	April	58814	0.20%	58696	120	0.20%	120	58694	58576
	May	105442		105442	56		56	105386	105386
	June	118350		118350	44		44	118306	118306
	July	63537		63537	176		176	63361	63361
	August	48415		48415	175		175	48240	48240
	September	28454		28454	193		193	28261	28261
	October	34245		34245	183		183	34062	34062
	November	24930		24930	155		155	24775	24775
	December	35039		35039	130		130	34909	34909
Total (ii)		**627186**		**626915**	**1589**		**1590**	**625597**	**625325**
2011	January	33089		33089	75		75	33014	33014
	February	31188		31188	106		106	31082	31082
	March	38682		38682	71		71	38611	38611
	April	51233		51233	77		77	51156	51156

	May	108813		108813	23		23	108790	108790
	June	139347		139347	59		59	139288	139288
	July	68638		68638	52		52	68586	68586
	August	41552		41552	141		141	41411	41411
	September	44677		44677	41		41	44636	44636
	October	33181		33181	220		220	32961	32961
	November	14177		14177	267		267	13910	13910
	December	26146		26146	142		142	26004	26004
Total (iii)		**630723**		**630723**	**1274**		**1274**	**629449**	**629449**
2012	January	29858		29858	122		122	29736	29736
	February	34195		34195	62		62	34133	34133
	March	47142	0.20%	47048	111	0.20%	111	47031	46936
	April	48824		48824	72		72	48752	48752
	May	84523		84523	38		38	84485	84485
	June	133438		133438	22		22	133416	133416
	July	113864		113864	12		12	113852	113852
	August	60718		60718	102		102	60616	60616
	September	29252		29252	160		160	29092	29092
Total (iv)		**581814**		**581720**	**701**		**701**	**581113**	**581018**
Grand Total (i+ii+iii+iv)		**2193520**		**2193155**	**4132**		**4133**	**2189388**	**2189022**

Saurabh Agrotech Pvt. Ltd. - 0.46 MW									
Year	**Month**	**Export (kWh)**	**Error**	**Corrected Export**	**Import (kWh)**	**Error**	**Corrected Import**	**Net Export (kWh)**	**Corrected Net Export**
2009	July	78169		78169	82		82	78087	78087
	August	94560		94560	23		23	94537	94537
	September	83571		83571	41		41	83530	83530
	October	26790		26790	190		190	26600	26600
	November	33816		33816	191		191	33625	33625
	December	34525		34525	66		66	34459	34459
Total (i)		**351431**		**351431**	**593**		**593**	**350838**	**350838**
2010	January	33977		33977	82		82	33895	33895
	February	36181	0.20%	36109	119	0.20%	119	36062	35989
	March	40849	0.20%	40767	159	0.20%	159	40690	40608
	April	58192	0.20%	58076	118	0.20%	118	58074	57957
	May	102815		102815	55		55	102760	102760
	June	120308		120308	44		44	120264	120264
	July	62839		62839	174		174	62665	62665
	August	47161		47161	170		170	46991	46991
	September	27359		27359	185		185	27174	27174
	October	33393		33393	179		179	33214	33214
	November	23681		23681	147		147	23534	23534
	December	34216		34216	127		127	34089	34089
Total (ii)		**620971**		**620701**	**1559**		**1560**	**619412**	**619141**
2011	January	32437		32437	74		74	32363	32363
	February	30477		30477	104		104	30373	30373
	March	38294		38294	70		70	38224	38224
	April	50518		50518	76		76	50442	50442

	May	107796		107796	23		23	107773	107773
	June	139077		139077	59		59	139018	139018
	July	68810		68810	52		52	68758	68758
	August	41547		41547	141		141	41406	41406
	September	44546		44546	41		41	44505	44505
	October	33229		33229	221		221	33008	33008
	November	15297		15297	288		288	15009	15009
	December	32713		32713	178		178	32535	32535
Total (iii)		**634741**		**634741**	**1327**		**1327**	**633414**	**633414**
2012	January	33242		33242	136		136	33106	33106
	February	34449		34449	62		62	34387	34387
	March	47429	0.20%	47334	112	0.20%	112	47317	47222
	April	45770		45770	67		67	45703	45703
	May	75411		75411	34		34	75377	75377
	June	128915		128915	22		22	128893	128893
	July	101835		101835	11		11	101824	101824
	August	62345		62345	104		104	62241	62241
	September	29399		29399	161		161	29238	29238
Total (iv)		**558795**		**558700**	**709**		**709**	**558086**	**557991**
Grand Total (i+ii+iii+iv)		**2165938**		**2165573**	**4188**		**4189**	**2161750**	**2161384**

SUMMARY				
Project Promoter	**Export (kWh)**	**Import (kWh)**	**Net Export (kWh)**	**VCUs (tCO_2e)**
Rajesh Construction Company Private Limited (2.5 MW)	10321933	87051	10234882	**9274**
Savla Twisters Pvt. Ltd (1.25 MW)	5038326	29927	5008399	**4539**
Vijay Industries (0.46 MW)	2193155	4133	2189022	**1984**
Saurabh Agrotech Pvt. Ltd. (0.46 MW)	2165573	4189	2161384	**1959**
Total	**19718986**	**125300**	**19593686**	**17756**