



Monitoring report form (Version 03.2)

Monitoring report

Title of the project activity	Vaayu India Wind Power Project in Andhra Pradesh
Reference number of the project activity	4677
Version number of the monitoring report	1.0
Completion date of the monitoring report	23/01/2014
Registration date of the project activity	25/04/2011
Monitoring period number and duration of this monitoring period	Third monitoring period, 26/12/2012 to 25/12/2013 (Including first and last day)
Project participant(s)	Vaayu (India) Power Corporation Private Limited (Private Entity)
Host Party(ies)	India
Sectoral scope(s) and applied methodology(ies)	Sectoral Scope: 1 Energy industries (renewable / non-renewable sources) Methodology applied: "Consolidated methodology for grid-connected electricity generation from renewable sources – ACM0002 - Version 11"
Estimated amount of GHG emission reductions or net anthropogenic GHG removals by sinks for this monitoring period in the registered PDD	92,971 tonnes of CO ₂ e
Actual GHG emission reductions or net anthropogenic GHG removals by sinks achieved in this monitoring period	104,621 tonnes of CO ₂ e.
Actual GHG emission reductions or net anthropogenic GHG removals by sinks achieved during the period up to 31 December 2012(if applicable)	448 tonnes of CO ₂ e.
Actual GHG emission reductions or net anthropogenic GHG removals by sinks achieved during the period from 1 January 2013 onwards (if applicable).	104,173 tonnes of CO ₂ e.

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

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Purpose of the project activity and the measures taken to reduce greenhouse gas emissions:

The purpose of the project activity is to utilize renewable wind energy for generation of electricity. In the absence of the project activity equivalent amount of electricity would have been generated from the existing grid connected power plants and planned capacity additions which are also largely fossil fuel based. Thus electricity generation from the project displaces the electricity generated from existing and planned power plant capacities in the southern grid whose emission intensities are represented by the Combined Margin Emission Factor of the Southern Grid, which predominantly uses fossil fuels and has grid emission of ~ 0.94515 tCO₂/MWh of electricity produced.

Vaayu (India) Power Corporation Private Limited (VIPCL) has installed 50.4 MW wind farm in the state of Andhra Pradesh in India. Enercon¹ (India) Limited ("Enercon") is the equipment supplier and the operations and maintenance contractor for the Project. The Project is owned by VIPCL. There are 63 Wind Energy Convertors ("WEC's") of Enercon E-53 make with rated capacity 800 KW each. The generated electricity will be supplied to Electricity Distribution Company (DISCOM) under a long-term power purchase agreement (PPA). The expected operational lifetime of the project is for 20 years.

Brief description of the installed technology and equipment:

The technical specifications of the Enercon E-53 make WECs with rated capacity 800 KW are given below:

Main Specifications E-53	
Turbine model	Enercon E- 53
Rated power	800 KW
Rotor diameter	53 m
Hub height	75 m
Turbine Type	Gearless horizontal axis wind turbine with variable rotor speed
Power regulation	Independent electromechanical pitch system for each blade.
Cut in wind speed	2.5 m/s
Rated wind speed	12 m/s
Cut out Wind speed	28-34 m/s
Extreme Wind Speed	59.5 m/s
Rated rotational speed	32 rpm
Operating range rot. speed	12-29 rpm
Orientation	Upwind
No of Blades	3
Blade Material	Fibre Glass Epoxy reinforced with integral lightning protection
Gear box type	Gear less
Generator type	Synchronous generator
Braking	Aerodynamic
Output Voltage	400 V
Yaw System	Active yawing with 4 electric yaw drives with brake motor and friction bearing
Tower	74 m concrete

Enercon (India) Ltd has secured and facilitated the technology transfer for wind based renewable energy generation from Enercon GmbH, has established a manufacturing plant at Daman in India, where along with

¹ With effect from 01/01/2013 name of Enercon (India) Limited has been changed to 'Wind World (India) Limited'

other components the "Synchronous Generators" using "Vacuum Impregnation" technology are manufactured.



Enercon E-53: Technology Diagram

Relevant dates for the project activity:

The first machine under the project activity was commissioned on 02/08/2010 and last machine was commissioned on 04/05/2011. The expected operational lifetime of the project is for 20 years. This is the third monitoring report associated with the project activity and the period covered under this monitoring report is from 26/12/2012 to 25/12/2013 (Including first and last day). The details of issuance of CERs for the previous monitoring periods are as follows:

Monitoring Period No.	Monitoring Period	CER Requested
First Issuance	25/04/2011 to 25/03/2012 (Inclusive of both days)	93,324
Second issuance	26/03/2012 to 25/12/2012 (Inclusive of both days)	70,047

Total emission reductions achieved in this monitoring period

This is the third monitoring report for the project activity. The total emission reductions achieved under the monitoring period 26/12/2012 to 25/12/2013 (Including first and last day) is 104,621 tCO₂e.

A.2. Location of project activity

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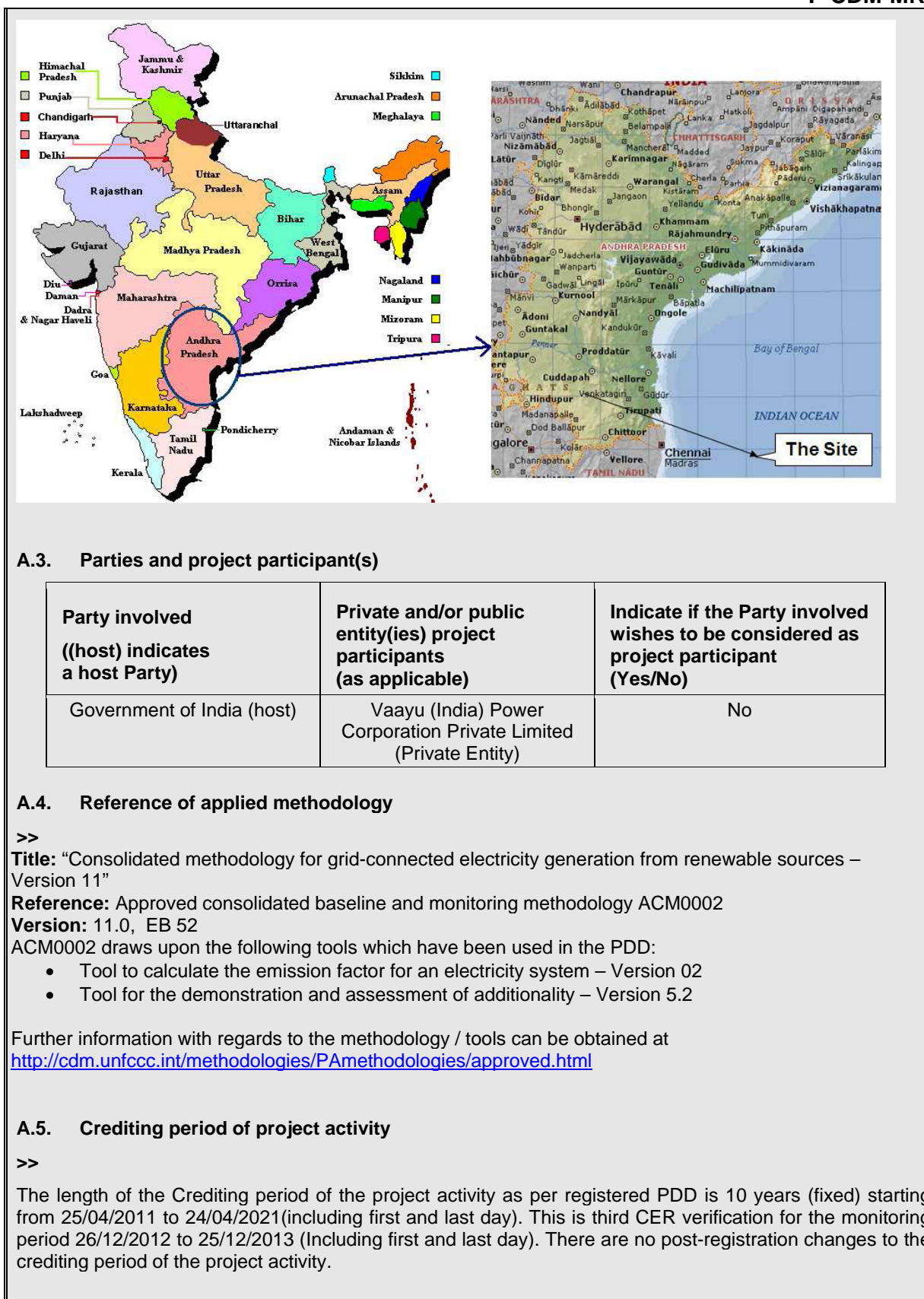
(a) *Host Party(ies);*
India

(b) *Region/State/Province, etc.;*
Andhra Pradesh State

(c) *City/Town/Community, etc.;*
Pethnikota, Tummalapenta, Itikyala, Abdullapuram, Chintalayapalli, Venkatampalli & Bhogasamudram villages in Kurnool district in Indian State of Andhra Pradesh.

(d) *Physical/ Geographical location.*

The detailed individual WECs location numbers and coordinates of project activity are provided in Appendix 1.



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

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The project start date is 05th December 2009. The first machine under the project activity was commissioned on 02/08/2010 and last machine was commissioned on 04/05/2011. During the monitoring period the project activity was operated and monitored in accordance with the applicable baseline and monitoring methodology ACM0002 (ver.11) and registered PDD.

The commissioning schedule of all the WECs under the project activity has been provided in Appendix 2.

There are no changes that have happened in project activity which may impact the applicability of the methodology. Enercon operation and maintenance activities are ISO certified and all the events are recorded in the log book available at the project site. Referring to the data available it can be inferred that there have not been any major special events for any of the machines that are included in the project activity. As a part of regular maintenance the machines are stopped for mechanical and electrical maintenance for 16 to 18 hours annually and for visual inspection for 6 to 7 hours quarterly.

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

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No deviations have been there in the applied methodology.

B.2.2. Corrections

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There are no corrections from the registered PDD during this monitoring period.

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

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The monitoring plan has been revised. The revision in monitoring plan was done to change in calibration/testing frequency from once each year to once in five years as calibration frequency for monitoring equipment which is not under control of PP. The revision for monitoring plan was approved by UNFCCC on 22/11/2012 (Link: <http://cdm.unfccc.int/Projects/DB/DNV-CUK1302613748.83/view>).

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

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There are no changes to project design of the registered project activity.

B.2.5. Changes to start date of crediting period

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There are no changes to the start date of the crediting period.

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

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Not applicable to the project activity.

SECTION C. Description of monitoring system

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Approved methodology ACM0002 Version 11, "Consolidated methodology for zero-emissions grid connected electricity generation from renewable sources", by CDM - Meth Panel is proposed to be used to monitor the emission reductions.

Monitoring System of Project Activity:

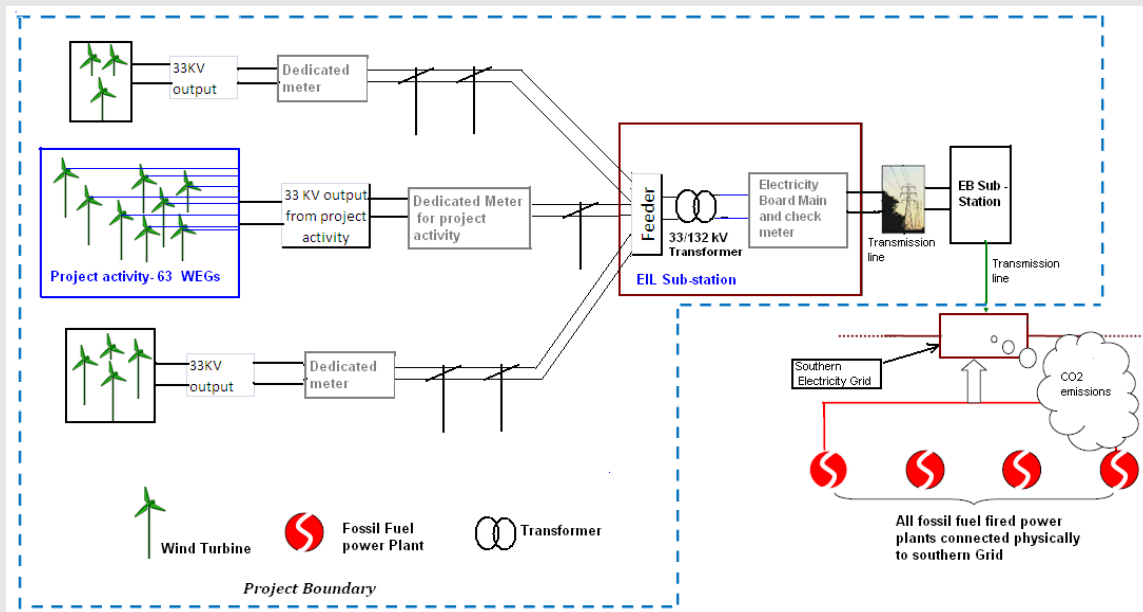
The PP has made clusters of Wind Energy Convertors (WEC's) at the project site for the purpose of metering. Each cluster has main and the check meter at 33 kV. All the clusters are exclusively connected to WECs of the project activity and no WECs of other project owners are connected to these clusters. Summation of meter reading for all the clusters (connecting 63 machines) will provide total electricity generated by the project activity.

The electricity supplied to the grid is metered from main and check meters at 33kV that are connected to the 63 turbines of the project activity. The electricity export and import for the project activity has been taken from the summation of the joint meter readings noted from the cluster meters (dedicated meters) connecting 63 turbines of the project activity.

In addition to this there are main and check meters at Enercon pooling substation (132kV). Transmission loss between metering point at 33kV and the metering point at 132kV at Enercon pooling substation is applied to the meter reading taken at meters connected at 33 KV for the project activity. Enercon pooling substation is connected to the machines of the project activity and the machines commissioned by the other project owners. Therefore transmission loss is applied to the project activity by the state utility as reflected in the JMR taken at 33kV level. The JMR is signed by the representatives of Enercon and the state utility.

METERING ARRANGEMENT:

A detailed line diagram of project activity is shown in below picture. Layout of Metering arrangement for project activity is as follows:-



Enercon is contracted for Operation and Maintenance of the project activity and provides the daily generation report to the Project proponent. The project proponent also maintains the records of daily generation report and joint meter report. The meter readings are noted in the form of joint meter report and are signed jointly by the representatives of Enercon and the state utility. From the above layout it is clear that the clusters meters (dedicated meters/ individual meters) of project activity and other customers are connected to the Enercon pooling sub-station (bulk metering point at 132 kV). Since the main and check meters (bulk meter) at 132 kV metering point at the ENERCON pooling substation is connected to the machines of the project activity and the machines commissioned by the other project developers, therefore in order to determine the net electricity supplied to the grid at 132 kV at the ENERCON substation, the state utility apply the apportioning of transmission loss to the meter reading recorded at the 33 KV. The total % of transmission loss for export between 132kV metering point at Enercon sub-station and all the WECs connected to sub-station is calculated by the state utility is endorsed / confirmed jointly by the representatives of Enercon and the state utility. The transmission loss applied to the project activity by the state utility is reflected in transmission loss calculation sheet signed by the representatives of Enercon and Discom.

Calculation of net electricity supplied to the grid by project activity:

Net Electricity exported to the grid is calculated by applying transmission loss to the meter readings taken at 33 kV metering point of the project activity.

The procedure for calculation of the transmission loss is as follows:

Each project developer has dedicated individual metering system at 33kV. Energy export ($X_{\text{Export}, N}$) and import ($X_{\text{Import}, N}$) is recorded for the individual developers at 33 KV metering point; Where N is number of project developers connected to 132 kV metering point of the ENERCON substation

Total % of transmission losses for export (Lep) are calculated as per following formula:

$$Lep (\%) = \frac{\{(X_{\text{Export},1} + X_{\text{Export},2} + X_{\text{Export},3} + \dots + X_{\text{Export},N}) - EGe\} * 100}{(X_{\text{Export},1} + X_{\text{Export},2} + X_{\text{Export},3} + \dots + X_{\text{Export},N})}$$

Where, EGe = Electricity export to the grid recorded at 132 kV (bulk meter) at the ENERCON pooling substation.

Value of Lep is calculated by state utility and would be sourced directly from the transmission loss calculation sheet.

Hence,

Electricity exported by project activity to grid after apportioning of transmission losses between 33kV metering point (Cluster meter) & 132kV metering point (Bulk meter)

$$EG_{\text{export}, y} = EG_{pe} * (1 - Lep (\%))$$

Where:

$EG_{\text{export}, y}$ = Electricity exported by project activity to grid after apportioning of transmission losses between 33kV metering point (Cluster meter) & 132kV metering point (Bulk metering point)

EG_{pe} = Electricity Export recorded at 33kV (JMR at 33kV metering point) cluster metering points connecting total 63 machines of the project activity.

Lep = Total percentage of Transmission loss for export between the metering point at 33 kV metering points (sum of all the WECs connected to Bulk metering point including non-project activity as well as project activity WECs) and the metering point at 132 kV at the ENERCON pooling substation.

The Joint meter reading noted at 33 KV metering location contains the following data:-

1. Electricity Export
2. Electricity Import

The electricity export and import by the project activity can be cross checked cross checked from the certified statement of electricity export and import signed by Discom/State Utility. It may be noted that energy export by the project activity will be import by the grid from the project activity and therefore electricity export by the project activity is denoted as import by the grid in the certified statement by the state utility. Similarly, energy import by the project activity will be export by the grid to the project activity and therefore electricity import by the project activity is denoted as export by the grid in the certified statement by the state utility.

Net Electricity supplied to the Grid is calculated as:

$$EG_{PJ,y} = EG_{\text{export}, y} - EG_{pi}$$

Where:

$EG_{PJ,y}$ = Net electricity supplied to the grid by the Project activity

$EG_{\text{export}, y}$ = Electricity exported by project activity to grid after apportioning of transmission losses between 33kV metering point (Cluster meter) & 132kV metering point (Bulk metering point)

EGpi= Electricity Import recorded at 33kV (JMR at 33kV metering point) cluster metering points connecting total 63 machines of the project activity

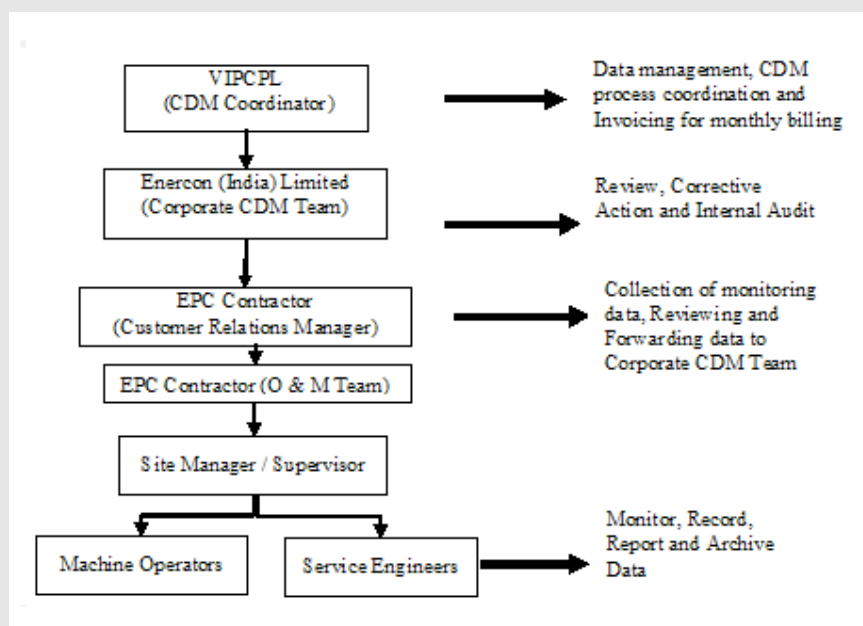
Metering Equipment: Metering system for the project activity consists of main and check meter. Both the meters are two-way trivector meters capable of recording import and export of electricity. The metering equipment is calibrated once in five years. Metering equipment is electronic trivector meter of 0.2s accuracy class.

Meter Readings: The monthly meter reading is taken jointly by the parties (Enercon and State utility) for every last month. At the conclusion of each meter reading an appointed representative of State Utility and Enercon sign a document indicating the number of Kilowatt-hours (kWh) indicated by the meter.

QA/QC Procedure: All the meters are calibrated/ tested once in five years. The calibration is done by the officials of the state utility. The accuracy of monitoring parameter is ensured by adhering to the calibration and testing of the metering equipment once in five years. Enercon provides the daily generation report to the Project proponent. In case the main meter(s) is found to operate outside the permissible limits, the main meter will be either replaced or calibrated immediately. Whenever a main meter goes defective, the consumption recorded by the Check meter will be referred.

The project proponent, Vaayu (India) Power Corporation Private Limited, keeping and monitoring the data for electricity generation and calibration reports post project implementation. Enercon (India) Limited is O&M contractor who has responsibility of maintaining electricity generation records, calibration records and maintenance of the WECs (Wind Energy Convertors). The project proponent also maintains the records of daily generation report and joint meter report.

The operational and management structure implemented for data monitoring is as follows:



Calibration Details: Metering system for the project activity consists of main and check meter. The metering equipment is calibrated once in five years. The details of calibration of meters installed at 33kV for measuring export and import by WECs installed phase wise are provided below:

SIN	Customer Name	Meter Type	Meter Serial No.	Accuracy Class	Calibration before monitoring period	Calibration Due date
1	Vaayu (India) Power Corporation Private Limited (Phase-1)	Main Meter	AP900318	0.2s	02/08/2010	01/08/2015
		Check Meter	AP900320	0.2s	02/08/2010	01/08/2015
2	Vaayu (India) Power Corporation Private Limited (Phase-2)	Main Meter	AP900327	0.2s	27/09/2010	26/09/2015
		Check	AP900328	0.2s	27/09/2010	26/09/2015

		Meter				
3	Vaayu (India) Power Corporation Private Limited (Phase-3)	Main Meter	AP900314	0.2s	30/03/2011	29/03/2016
		Check Meter	AP900315	0.2s	30/03/2011	29/03/2016
4	Vaayu (India) Power Corporation Private Limited (Phase-4)	Main Meter	AP900338	0.2s	27/09/2010	26/09/2015
		Check Meter	AP900339	0.2s	27/09/2010	26/09/2015
5	Vaayu (India) Power Corporation Private Limited (Phase-5)	Main Meter	AP900319	0.2s	30/09/2010	29/09/2015
		Check Meter	AP900321	0.2s	30/09/2010	29/09/2015
6	Vaayu (India) Power Corporation Private Limited (Phase-6)	Main Meter	AP900329	0.2s	02/12/2010	01/12/2015
		Check Meter	AP900330	0.2s	02/12/2010	01/12/2015
7	Vaayu (India) Power Corporation Private Limited (Phase-7)	Main Meter	AP900331	0.2s	31/12/2010	30/12/2015
		Check Meter	AP900332	0.2s	31/12/2010	30/12/2015

The controller meter (also known as Local Control System (LCS) meter) located in the WEC tower do not require calibration as the energy readings of electricity generated at the LCS meter is cross verified by the energy calculated by inverting system installed in the WECs. In case there is any mismatch in the energy values recorded by the LCS meter and the energy values calculated by the inverting system; the machine will stop working and generate the error report. The operations and maintenance staff will calibrate the meter immediately and correction factor will be determined.

Project participants (PP) contracted Enercon (India) Limited for operation and maintenance of all the WECs. Enercon (India) Limited has implemented the management structure for managing the monitored data. Enercon is an ISO 9001:2000 certified Quality Management system from Germanischer Lloyd.

Training and maintenance requirements:

Training on the machine is an essential pre-requisite, to ensure necessary safety of man and machine. Further, in order to maximize the output from the WEGs, it is extremely essential, that the engineers and technicians understand the machines and keep them in good health. In order to ensure, that Enercon's service staffs is deft at handling technical snags on top of the turbine, the necessity of ensuring that they are capable of climbing the tower with absolute ease and comfort has been established. The Enercon Training Academy provides need-based training to meet the training requirements of Enercon projects. The training is contemporary, which results in imparting focused knowledge leading to value addition to the attitude and skills of all trainees. This ultimately leads to creativity in problem solving.

SECTION D. Data and parameters

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

Data/Parameter	$EF_{grid,OM,y}$
Unit	tCO ₂ e/MWh
Description	Operating Margin Emission Factor of Southern Regional Electricity Grid
Source of data	<p>"CO₂ Baseline Database for Indian Power Sector", version 5 published by the Central Electricity Authority, Ministry of Power, Government of India.</p> <p>The "CO₂ Baseline Database for Indian Power Sector" is available at www.cea.nic.in/reports/planning/cdm_co2/cdm_co2.htm The detailed information is available in Appendix 3.</p>
Value(s) applied	0.98756
Purpose of data	Baseline emission calculations
Additional comment	None

Data/Parameter	$EF_{grid,BM,y}$
Unit	tCO ₂ e/MWh
Description	Build Margin Emission Factor of Southern Regional Electricity Grid
Source of data	“CO ₂ Baseline Database for Indian Power Sector” version 5 published by the Central Electricity Authority, Ministry of Power, Government of India. The “CO ₂ Baseline Database for Indian Power Sector” is available at www.cea.nic.in/reports/planning/cdm_co2/cdm_co2.htm The detailed information is available in Appendix 3.
Value(s) applied	0.81792
Purpose of data	Baseline emission calculations
Additional comment	None

Data/Parameter	$EF_{grid,CM,y}$		
Unit	tCO ₂ e/MWh		
Description	Combined Margin Emission Factor of Southern Regional Electricity Grid		
Source of data	The “CO ₂ Baseline Database for Indian Power Sector” version 5 published by the Central Electricity Authority, Ministry of Power, Government of India. The “CO ₂ Baseline Database for Indian Power Sector” is available at www.cea.nic.in/reports/planning/cdm_co2/cdm_co2.htm The detailed information is available in Appendix 3.		
Value(s) applied	In case of wind power projects default weights of 0.75 for $EF_{grid,OM}$ and 0.25 for $EF_{grid,BM}$ are applicable as per ACM0002. <table border="1" data-bbox="581 1012 1347 1054"> <tr> <td>Combined Margin Emission Factor (EF_y or EF_{CM,y})</td> <td>0.94515</td> </tr> </table>	Combined Margin Emission Factor (EF _y or EF _{CM,y})	0.94515
Combined Margin Emission Factor (EF _y or EF _{CM,y})	0.94515		
Purpose of data	Baseline emission calculations		
Additional comment	The value is calculated on ex-ante basis and it will remain same throughout the crediting period.		

D.2. Data and parameters monitored

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

Data/Parameter	$EG_{PJ,y}$
Unit	MWh (Mega-watt hour)
Description	Net electricity supplied to the grid by the Project activity
Measured/Calculated /Default	Calculated
Source of data	Net electricity supplied to the grid by the Project activity calculated using the formula described in Section C.
Value(s) of monitored parameter	110,692.822 MWh
Monitoring equipment	Calculated as per formulas better described under section C.
Measuring/Reading/Recording frequency	Monthly: The apportioning is done as per the procedure described in section C.
Calculation method (if applicable)	Calculated using formula $EG_{PJ,y} = EG_{\text{export},y} - EG_{pi}$ Refer section C for details and description of the above variables.
QA/QC procedures	QA/QC procedures have been implemented by Discom/State utility pursuant to the provisions of the power purchase agreement except or otherwise explicitly stated in the PDD.
Purpose of data	Baseline Emissions calculations
Additional comment	None

Data/Parameter	$EG_{\text{Export},y}$
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Unit	MWh (Mega-Watt hour)
Description	Electricity exported by project activity to grid after apportioning of transmission losses between 33kV metering point (Cluster meter) & 132kV metering point (Bulk metering point)
Measured/Calculated /Default	Calculated
Source of data	Electricity exported by project activity calculated using the formula described in Section C.
Value(s) of monitored parameter	110,777.622 MWh
Monitoring equipment	Calculated as per formulas better described under section C.
Measuring/Reading/ Recording frequency	Monthly: The apportioning is done as per the procedure described in section C.
Calculation method (if applicable)	Calculated using formulae $EG_{\text{export}, y} = EG_{pe} * (1 - Lep (\%))$ Refer section C for details and description of the above variables.
QA/QC procedures	Value of $EG_{\text{export}, y}$ can be crosschecked from certified statement given by state utility showing cost of export and import. It may be noted that energy export by the project activity will be import by the grid from the project activity and therefore electricity export by the project activity is denoted as import by the grid in the certified statement by the state utility. QA/QC procedures have been implemented by Discom/State utility pursuant to the provisions of the power purchase agreement except or otherwise explicitly stated in the PDD.
Purpose of data	Baseline Emissions calculations
Additional comment	None

Data/Parameter	EG_{pe}
Unit	MWh (Mega-Watt hour)
Description	Electricity Export recorded at 33kV (JMR at 33kV metering point) cluster metering points connecting total 63 machines of the project activity.
Measured/Calculated /Default	Measured
Source of data	Electricity export to the grid as per the joint meter reading recorded at cluster metering points.
Value(s) of monitored parameter	112,014.100 MWh
Monitoring equipment	<p>Vaayu (India) Power Corporation Private Limited (Phase-1) Main Meter Serial Number- AP900318 Check Meter Serial Number- AP900320 Last date of Test – 02/08/2010 Validity of Test- 01/08/2015 (once in five years)</p> <p>Vaayu (India) Power Corporation Private Limited (Phase-2) Main Meter Serial Number- AP900327 Check Meter Serial Number- AP900328 Last date of Test – 25/09/2010 Validity of Test- 24/09/2015 (once in five years)</p> <p>Vaayu (India) Power Corporation Private Limited (Phase-3) Main Meter Serial Number- AP900314 Check Meter Serial Number- AP900315 Last date of Test – 30/03/2011 Validity of Test- 29/03/2016 (once in five years)</p> <p>Vaayu (India) Power Corporation Private Limited (Phase-4) Main Meter Serial Number- AP900338 Check Meter Serial Number- AP900339 Last date of Test – 27/09/2010</p>

	<p>Validity of Test- 26/09/2015 (once in five years)</p> <p>Vaayu (India) Power Corporation Private Limited (Phase-5) Main Meter Serial Number- AP900319 Check Meter Serial Number- AP900321 Last date of Test – 30/09/2010 Validity of Test- 29/09/2015 (once in five years)</p> <p>Vaayu (India) Power Corporation Private Limited (Phase-6) Main Meter Serial Number- AP900329 Check Meter Serial Number- AP900330 Last date of Test – 02/12/2010 Validity of Test- 01/12/2015 (once in five years)</p> <p>Vaayu (India) Power Corporation Private Limited (Phase-7) Main Meter Serial Number- AP900331 Check Meter Serial Number- AP900332 Last date of Test – 31/12/2010 Validity of Test- 30/12/2015 (once in five years)</p> <p>Type- Tri-vector Meter Accuracy Class-0.2s Frequency of Calibration- once in five years</p>
Measuring/Reading/Recording frequency	Measuring frequency: Continuous Recording frequency: Monthly
Calculation method (if applicable)	Not Applicable
QA/QC procedures	<p>Value of EG_{pe} can be cross checked from transmission loss calculation sheet signed by the representatives of Enercon and Discom.</p> <p>The meters will be calibrated once in five years by the state utility. Refer Section C for an illustration of the provisions for QA/QC procedures.</p>
Purpose of data	Baseline Emissions calculations
Additional comment	None
Data/Parameter	EG_{pi}
Unit	MWh (Mega-Watt hour)
Description	Electricity Import recorded at 33kV (JMR at 33kV metering point) cluster metering points connecting total 63 machines of the project activity.
Measured/Calculated/Default	Measured
Source of data	Electricity import from the grid as per the joint meter reading recorded at cluster metering point.
Value(s) of monitored parameter	84.800 MWh
Monitoring equipment	<p>Vaayu (India) Power Corporation Private Limited (Phase-1) Main Meter Serial Number- AP900318 Check Meter Serial Number- AP900320 Last date of Test – 02/08/2010 Validity of Test- 01/08/2015 (once in five years)</p> <p>Vaayu (India) Power Corporation Private Limited (Phase-2) Main Meter Serial Number- AP900327 Check Meter Serial Number- AP900328 Last date of Test – 25/09/2010 Validity of Test- 24/09/2015 (once in five years)</p> <p>Vaayu (India) Power Corporation Private Limited (Phase-3) Main Meter Serial Number- AP900314</p>

	<p>Check Meter Serial Number- AP900315 Last date of Test – 30/03/2011 Validity of Test- 29/03/2016 (once in five years)</p> <p>Vaayu (India) Power Corporation Private Limited (Phase-4) Main Meter Serial Number- AP900338 Check Meter Serial Number- AP900339 Last date of Test – 27/09/2010 Validity of Test- 26/09/2015 (once in five years)</p> <p>Vaayu (India) Power Corporation Private Limited (Phase-5) Main Meter Serial Number- AP900319 Check Meter Serial Number- AP900321 Last date of Test – 30/09/2010 Validity of Test- 29/09/2015 (once in five years)</p> <p>Vaayu (India) Power Corporation Private Limited (Phase-6) Main Meter Serial Number- AP900329 Check Meter Serial Number- AP900330 Last date of Test – 02/12/2010 Validity of Test- 01/12/2015 (once in five years)</p> <p>Vaayu (India) Power Corporation Private Limited (Phase-7) Main Meter Serial Number- AP900331 Check Meter Serial Number- AP900332 Last date of Test – 31/12/2010 Validity of Test- 30/12/2015 (once in five years)</p> <p>Type- Tri-vector Meter Accuracy Class-0.2s Frequency of Calibration- once in five years</p>
Measuring/Reading/Recording frequency	Measuring frequency: Continuous Recording frequency: Monthly
Calculation method (if applicable)	Not Applicable
QA/QC procedures	<p>Value of EGpi can be crosschecked from certified statement given by state utility showing cost of export and import. It may be noted that energy import by the project activity will be export by the grid to the project activity and therefore electricity import by the project activity is denoted as export by the grid in the certified statement by the state utility.</p> <p>The meters will be calibrated once in five years by the state utility. Refer Section C for an illustration of the provisions for QA/QC procedures.</p>
Purpose of data	Baseline Emissions calculations
Additional comment	None
Data/Parameter	EGe
Unit	MWh (Mega-Watt hour)
Description	Electricity Export recorded at 132 kV meters (main and check) at ENERCON pooling substation connecting machines of the project activity and machines commissioned by the other project developers.
Measured/Calculated /Default	Measured
Source of data	Electricity export to the grid as per the joint meter reading recorded at 132 KV of the ENERCON pooling substation (Bulk metering point).
Value(s) of monitored parameter	204,708.400 MWh
Monitoring equipment	Vaayu (India) Power Corporation Private Limited (Phase-1, Phase 4 and Phase 7) Main Meter Serial Number- 5341444

	<p>Check Meter Serial Number- 5342869 Last date of Test – 31/03/2010 Validity of Test- 30/03/2015 (once in five years) Old check meter (5342869) was replaced with new check meter (10286994) on 03/08/2011 due to defect in meter scrolling. Last date of Test – 03/08/2011 Validity of Test- 02/08/2016 (once in five years)</p> <p>All the Vaayu phases were connected to above mentioned single 132 KV bulk metering point at S/S. Due to increase in connected load at S/S two 132 KV bulk metering point were used to measure electricity generation from the month June, 2011 onwards. The details of second metering point is provided below:</p> <p>Vaayu (India) Power Corporation Private Limited (Phase-2, Phase 3, Phase 5 and Phase 6) Main Meter Serial Number- 5341380 Check Meter Serial Number- 5341442 Last date of Test – 16/05/2011 Validity of Test- 15/05/2016 (once in five years)</p> <p>Main and check meter were replaced with following new meters on 26 August, 2011 due to defect in meter scrolling. Main Meter Serial Number- 11070263 Check Meter Serial Number- 11070295 Last date of Test – 26/08/2011 Validity of Test- 25/08/2016 (once in five years)</p> <p>Accuracy Class-0.2s Frequency of Calibration- once in five years</p>
Measuring/Reading/Recording frequency	Measuring frequency: Continuous Recording frequency: Monthly
Calculation method (if applicable)	Not Applicable
QA/QC procedures	Value of EGe can be cross checked from transmission loss calculation sheet signed by the representatives of Enercon and Discom. The meters will be calibrated once in five years by the state utility. Refer Section C for an illustration of the provisions for QA/QC procedures.
Purpose of data	Baseline Emissions calculations
Additional comment	None

Data/Parameter	Lep
Unit	MWh (Mega-watt hour)
Description	Total percentage of Transmission loss for export between the metering point at 33 kV metering points (sum of all the WECs connected to Bulk metering point including non-project activity as well as project activity WECs) and the metering point at 132 kV at the ENERCON pooling substation.
Measured /Calculated /Default	Calculated as per formulas better described under section C.
Source of data	Transmission Loss will directly applied from the joint meter reading for the project activity.
Value(s) of monitored parameter	Calculated as per formulas better described under section C. Monthly values of L_{ep} are provided in appendix 4 of monitoring report.
Monitoring equipment	Not Applicable
Measuring/ Reading/ Recording frequency	Monthly. Calculations are based on procedure described in section C.
Calculation method (if applicable)	Total % of transmission losses for export (L_{ep}) are calculated as per following formula:

	$Lep (\%) = \frac{\{(X_{Export,1} + X_{Export,2} + X_{Export,3} + \dots + X_{Export,N}) - EGe\}}{(X_{Export,1} + X_{Export,2} + X_{Export,3} + \dots + X_{Export,N})} * 100$ <p>Refer section C for details and description of the above variables.</p>
QA/QC procedures	The value is calculated. Please refer Section C for QA/QC procedures.
Purpose of data	Baseline Emissions calculations
Additional comment	None

D.3. Implementation of sampling plan

>>

Not applicable to the project activity.

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

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

>>

Baseline emissions include only CO₂ emissions from electricity generation in fossil fuel fired power plants that are displaced due to the project activity. The methodology assumes that all project electricity generation above baseline levels would have been generated by existing grid-connected power plants and the addition of new grid-connected power plants. The baseline emissions are to be calculated as follows:

$$BE_y = EG_{PJ,y} * EF_{grid,CM,y}$$

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" (tCO₂e/MWh)

Accordingly:

Baseline emissions calculation for the period 26/12/2012 to 25/12/2013 (Including first and last day) is as follows:

$$BE_y = 110,692.822 \text{ (kWh)} * 0.94515 \text{ (tCO}_2\text{e/MWh)} / 1000$$

$$= 104,621 \text{ tCO}_2 \text{ e}$$

The details of net electricity generation that is produced and fed into the grid as a result of the implementation of the CDM project activity is provided in Appendix 4.

Baseline Emission Reductions calculations for project activity:-

Duration	Net electricity supplied to the grid by the Project [MWh]	Baseline Emission Factor (tCO ₂ e/MWh)	Baseline Emissions (tCO ₂ e)
	[EGP _{J,y}]	[EF _y]	[BE _y]
26th Dec 2012 - 31st Dec	474.313	0.94515	448

2012			
1st Jan 2013 - 25th Dec 2013	110,218.509	0.94515	104,173
Total	110,692.822		104,621

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

>>

The project activity involves harnessing of wind energy and its conversion to electricity. Hence according to ACM0002 Version 11, there are no project emissions in the project activity

PEy = 0.

E.3. Calculation of leakage

>>

As per ACM0002 Version 11, no leakage has been considered for the calculation of emission factor

LEy = 0.

E.4. Summary of calculation of emission reductions or net anthropogenic 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)	Emission reductions or net anthropogenic GHG removals by sinks (t CO ₂ e)
26/12/2012 to 25/12/2013 (Inclusive of both days)	104,621	0	0	104,621
Total	104,621	0	0	104,621

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 (t CO₂e)	<p>92,971</p> <p>In registered PDD, it was anticipated that crediting period shall start from July 2011 and 1st year begins from the date of registration, and each year extends for 12 months. Hence, annual estimation of emission reductions of one complete year is 92,971.</p>	104,621

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

>>

The estimated annual emission reductions as per the registered PDD corresponding to the current monitoring period are 104,621 tCO₂e. The actual emission reductions are 92,971 which are 12.53 % more than the estimated emission reduction. The increase in PLF is due to the seasonal and cyclical variation in wind characteristics, which is beyond the control of the project proponent.

E.7. Actual emission reductions or net anthropogenic GHG removals by sinks during the first commitment period and the period from 1 January 2013 onwards

Item	Actual values achieved up to 31 December 2012	Actual values achieved from 1 January 2013 onwards
Emission reductions or GHG removals by sinks (t CO ₂ e)	448 tonnes of CO ₂ e.	104,173 tonnes of CO ₂ e.

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Document information

Version	Date	Description
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 anthropogenic 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, performance monitoring		

Appendix 1: Details of Physical Location (Latitude and Longitude)

Sl. No.	WEC Location No.	Latitude			Longitude		
		DEG	MIN	SEC	DEG	MIN	SEC
1	1	14	59	10.3	78	5	17.5
2	2	14	59	17.7	78	5	16.5
3	3	14	59	24.7	78	5	14.9
4	4	14	59	30.0	78	5	14.0
5	5	14	59	39.0	78	5	16.5
6	6	14	59	46.6	78	5	18.3
7	7	14	59	51.8	78	5	0.7
8	8	14	59	58.2	78	4	59.8
9	9	15	0	1.3	78	4	44.5
10	10	14	59	37.2	78	5	1.8
11	11	14	59	43.6	78	4	51.9
12	12	14	59	47.5	78	4	42.5
13	13	14	59	52.5	78	4	37.0
14	14	14	59	52.5	78	4	21.6
15	15	14	59	57.8	78	4	16.3
16	16	15	0	3.2	78	4	11.2
17	17	15	0	9.5	78	4	4.4
18	21	15	0	18.2	78	4	45.5
19	22	15	0	25.6	78	4	39.3
20	23	15	0	30.1	78	4	22.0
21	24	15	0	42.0	78	3	52.3
22	25	15	0	33.2	78	3	42.2
23	26	15	0	39.6	78	3	38.6
24	27	15	0	47.0	78	3	35.2
25	28	15	0	51.2	78	3	29.4
26	29	15	0	57.0	78	3	25.
27	30	15	1	25.9	78	4	50.2
28	31	15	1	32.1	78	4	47.3
29	32	15	1	36.5	78	4	39.4
30	33	15	1	41.9	78	4	39.2
31	34	15	1	43.5	78	4	53.8
32	35	15	1	38.1	78	4	55.4
33	43	15	2	58.6	78	2	57.9
34	43A	15	2	50.4	78	2	59.3
35	61	15	3	22.2	78	2	33.8
36	69	15	4	32.3	78	1	39.2
37	70	15	4	38.5	78	1	38.0
38	71	15	4	44.7	78	1	38.4
39	72	15	4	49.7	78	1	32.0
40	73	15	4	55.4	78	1	34.4
41	74	15	5	2.5	78	1	50.6
42	85	15	3	28.7	78	2	31.0
43	86	15	3	35.6	78	2	29.0

F-CDM-MR

44	90	15	3	6.5	78	2	43.6
45	A1	15	4	32.6	78	2	26.8
46	A2	15	4	40.0	78	2	22.4
47	A3	15	4	28.1	78	2	42.3
48	A4	15	4	40.5	78	2	33.5
49	A5	15	4	54.0	78	2	17.2
50	A6	15	5	7.4	78	2	21.8
51	W1	15	2	37.0	77	59	16.0
52	W2	15	2	29.9	77	59	15.7
53	W3	15	2	24.2	77	59	18.6
54	W4	15	2	13.8	77	59	17.1
55	W5	15	2	5.9	77	59	20.8
56	W6	15	2	0.5	77	59	26.5
57	W7	15	1	49.3	77	59	36.4
58	W8	15	1	41.8	77	59	44.8
59	W9	15	1	36.5	77	59	50.5
60	W10	15	2	3.9	77	59	52.3
61	W11	15	2	10.8	77	59	56.7
62	W12	15	2	21.0	77	59	34.8
63	W13	15	1	55.4	77	59	29.9

Appendix 2: Commissioning Schedule

SN	Name	Village Name	District	Commissioning Date	Machine No	Location No
1	Vaayu (India) Power Corporation Private Limited (Phase-1)	Petnikota	Kurnool	02.08.2010	8572	74
2		Petnikota	Kurnool	02.08.2010	8568	73
3		Petnikota	Kurnool	02.08.2010	8566	72
4		Petnikota	Kurnool	02.08.2010	8574	71
5		Petnikota	Kurnool	02.08.2010	8579	70
6		Petnikota	Kurnool	02.08.2010	8581	69
7	Vaayu (India) Power Corporation Private Limited (Phase-2)	Thummalapenta	Kurnool	24.12.2010	8582	43
8		Thummalapenta	Kurnool	24.12.2010	8587	43A
9		Petnikota	Kurnool	25.09.2010	8593	61
10		Petnikota	Kurnool	25.09.2010	8594	86
11		Petnikota	Kurnool	25.09.2010	8595	85
12		Petnikota	Kurnool	04.05.2011	8828	90
13	Vaayu (India) Power Corporation Private Limited (Phase-3)	Petnikota	Kurnool	30.03.2011	9052	A1
14		Petnikota	Kurnool	30.03.2011	8777	A2
15		Petnikota	Kurnool	30.03.2011	8814	A4
16		Petnikota	Kurnool	30.03.2011	8810	A3
17		Petnikota	Kurnool	30.03.2011	8817	A5
18		Petnikota	Kurnool	04.05.2011	9047	A6
19	Vaayu (India) Power Corporation Private Limited (Phase-4)	Thummalapenta	Kurnool	07.02.2011	8608	28
20		Thummalapenta	Kurnool	28.09.2010	8609	27
21		Thummalapenta	Kurnool	28.09.2010	8610	26
22		Chintalayapalli	Kurnool	28.09.2010	8611	25
23		Chintalayapalli	Kurnool	28.09.2010	8613	24
24		Abudullapuram	Kurnool	28.09.2010	8633	17
25		Abudullapuram	Kurnool	28.09.2010	8630	16
26		Abudullapuram	Kurnool	28.09.2010	8627	15
27		Abudullapuram	Kurnool	28.09.2010	8625	14
28		Abudullapuram	Kurnool	12.11.2010	8638	13
29		Abudullapuram	Kurnool	12.11.2010	8637	12
30		Abudullapuram	Kurnool	12.11.2010	8605	11
31		Abudullapuram	Kurnool	12.11.2010	8599	10
32		Thummalapenta	Kurnool	24.12.2010	8607	29
33	Vaayu (India) Power Corporation Private Limited (Phase-5)	Chintalayapalli	Kurnool	30.09.2010	8614	30
34		Chintalayapalli	Kurnool	30.09.2010	8617	31
35		Chintalayapalli	Kurnool	30.09.2010	8618	32
36		Chintalayapalli	Kurnool	30.09.2010	8619	33
37		Chintalayapalli	Kurnool	30.09.2010	8620	35
38		Chintalayapalli	Kurnool	30.09.2010	8622	34
39	Vaayu (India) Power Corporation Private Limited (Phase-6)	Abudullapuram	Kurnool	02.12.2010	8604	9
40		Abudullapuram	Kurnool	02.12.2010	8603	8
41		Abudullapuram	Kurnool	02.12.2010	8602	7

F-CDM-MR

42		Abudullapuram	Kurnool	02.12.2010	8601	6
43		Abudullapuram	Kurnool	02.12.2010	8600	5
44		Abudullapuram	Kurnool	02.12.2010	8941	4
45		Abudullapuram	Kurnool	02.12.2010	8597	3
46		Abudullapuram	Kurnool	02.12.2010	8596	2
47		Abudullapuram	Kurnool	02.12.2010	8589	1
48		Abudullapuram	Kurnool	02.12.2010	8831	23
49		Abudullapuram	Kurnool	02.12.2010	8639	22
50		Abudullapuram	Kurnool	02.12.2010	8830	21
51	Vaayu (India) Power Corporation Private Limited (Phase-7)	Venkatampalli	Anantapur	31.12.2010	9044	W6
52		Venkatampalli	Anantapur	31.12.2010	8775	W7
53		Venkatampalli	Anantapur	31.12.2010	8980	W13
54		Venkatampalli	Anantapur	31.12.2010	8992	W12
55		Bhogasamudram	Anantapur	31.12.2010	9006	W8
56		Bhogasamudram	Anantapur	31.12.2010	8988	W9
57		Venkatampalli	Anantapur	31.12.2010	8773	W4
58		Venkatampalli	Anantapur	31.12.2010	8979	W5
59		Venkatampalli	Anantapur	24.01.2011	8811	W1
60		Venkatampalli	Anantapur	24.01.2011	8802	W2
61		Venkatampalli	Anantapur	24.01.2011	8803	W3
62		Bhogasamudram	Anantapur	24.01.2011	8986	W10
63		Bhogasamudram	Anantapur	24.01.2011	8987	W11

Appendix 3: Baseline Information

The Operating Margin data for the most recent three years and the Build Margin data for the Southern Region Electricity Grid as published in the CEA database are as follows:

Simple Operating Margin

	Southern Grid (tCO ₂ e/MWh)
Simple Operating Margin – 2006-07	0.99912
Simple Operating Margin – 2007-08	0.99062
Simple Operating Margin – 2008-09	0.97293
Average Operating Margin of last three years	0.98756

Build Margin

	Southern Grid (tCO ₂ e/MWh)
Build Margin- 2008-09	0.81792

Combined Margin Calculations

	Weights	Southern Grid (tCO ₂ e/MWh)
Operating Margin	0.75	0.98756
Build Margin	0.25	0.81792
Combined Margin		0.94515

Detailed information on calculation of Operating Margin Emission Factor and Build Margin Emission Factor is available at www.cea.nic.in/reports/planning/cdm_co2/cdm_co2.htm .

APPENDIX 4: GENERATION DETAILS

		Net electricity supplied to the grid (kWh)	Electricity exported to grid after apportioning of transmission Losses (kWh)	Electricity Export recorded at 33kV (kWh)	Electricity Import recorded at 33kV (kWh)	Electricity Export recorded at 132 Kv (kWh) *		Transmission losses (%) applied directly from Joint Meter Reading Sheets
Month	Phase	EG _{Pj,y}	EG _{Export,y}	EG _{pe}	EG _{pi}	EG _e		L _{ep}
		Calculated	As required by monitoring plan of registered PDD, Calculated using formula $EG_{\text{export}, y} = EG_{pe} * (1 - L_{ep} \%)$	Joint Meter Reading Sheets	Joint Meter Reading Sheets	Joint Meter Reading Sheets		Joint Meter Reading Sheets (Calculated)
Jan-13	Vaayu (India) Power Corporation Private Limited (Phase-1)	453716	454116	460700	400	3720600	For Phase 1,4 and 7	1.429
	Vaayu (India) Power Corporation Private Limited (Phase-2)	315788	316288	319900	500			1.129
	Vaayu (India) Power Corporation Private Limited (Phase-3)	373430	373930	378200	500			1.129
	Vaayu (India) Power Corporation Private Limited (Phase-4)	866326	867326	879900	1000			1.429
	Vaayu (India) Power Corporation Private Limited (Phase-5)	436607	437207	442200	600	2438000	For Phase 2,3,5 and 6	1.129
	Vaayu (India) Power Corporation Private Limited (Phase-6)	827242	828242	837700	1000			1.129

F-CDM-MR

	Vaayu (India) Power Corporation Private Limited (Phase-7)	661187	663087	672700	1900			1.429
Feb- 13	Vaayu (India) Power Corporation Private Limited (Phase-1)	595191	595591	599000	400	5092200	For Phase 1,4 and 7	0.569
	Vaayu (India) Power Corporation Private Limited (Phase-2)	490908	491208	495000	300			0.766
	Vaayu (India) Power Corporation Private Limited (Phase-3)	541616	541916	546100	300			0.766
	Vaayu (India) Power Corporation Private Limited (Phase-4)	1151208	1151908	1158500	700			0.569
	Vaayu (India) Power Corporation Private Limited (Phase-5)	633011	633311	638200	300	3577000	For Phase 2,3,5 and 6	0.766
	Vaayu (India) Power Corporation Private Limited (Phase-6)	1164598	1166098	1175100	1500			0.766
	Vaayu (India) Power Corporation Private Limited (Phase-7)	891591	892691	897800	1100			0.569
Mar- 13	Vaayu (India) Power Corporation Private Limited (Phase-1)	540526	541026	545000	500	4653000	For Phase 1 ,4 and 7	0.729
	Vaayu (India) Power Corporation Private Limited (Phase-2)	417993	418493	422200	500			0.878
	Vaayu (India) Power Corporation Private Limited (Phase-3)	491144	491744	496100	600			0.878
	Vaayu (India) Power Corporation	1042733	1043933	1051600	1200			0.729

F-CDM-MR

	Private Limited (Phase-4)							
	Vaayu (India) Power Corporation Private Limited (Phase-5)	609196	609996	615400	800	3246000	For Phase 2, 3, 5 and 6	0.878
	Vaayu (India) Power Corporation Private Limited (Phase-6)	1027490	1028390	1037500	900			0.878
	Vaayu (India) Power Corporation Private Limited (Phase-7)	874760	876960	883400	2200			0.729
Apr- 13	Vaayu (India) Power Corporation Private Limited (Phase-1)	330704	331604	336600	900	766800	For Phase 1, 4 and 7	1.484
	Vaayu (India) Power Corporation Private Limited (Phase-2)	286515	287615	290800	1100			1.095
	Vaayu (India) Power Corporation Private Limited (Phase-3)	317968	318968	322500	1000			1.095
	Vaayu (India) Power Corporation Private Limited (Phase-4)	761297	763597	775100	2300			1.484
	Vaayu (India) Power Corporation Private Limited (Phase-5)	374440	375740	379900	1300	634000	For Phase 2, 3, 5 and 6	1.095
	Vaayu (India) Power Corporation Private Limited (Phase-6)	714761	717061	725000	2300			1.095
	Vaayu (India) Power Corporation Private Limited (Phase-7)	590176	592376	601300	2200			1.484
May- 13	Vaayu (India) Power Corporation Private Limited (Phase-1)	701756	702856	727700	1100	6733800	For Phase 1, 4 and 7	3.414

F-CDM-MR

	Vaayu (India) Power Corporation Private Limited (Phase-2)	620550	621450	633100	900			1.840
	Vaayu (India) Power Corporation Private Limited (Phase-3)	615346	616346	627900	1000			1.840
	Vaayu (India) Power Corporation Private Limited (Phase-4)	1518749	1520649	1574400	1900			3.414
	Vaayu (India) Power Corporation Private Limited (Phase-5)	887642	888642	905300	1000	4769000	For Phase 2, 3, 5 and 6	1.840
	Vaayu (India) Power Corporation Private Limited (Phase-6)	1543634	1545234	1574200	1600			1.840
	Vaayu (India) Power Corporation Private Limited (Phase-7)	1160205	1162605	1203700	2400			3.414
Jun-13	Vaayu (India) Power Corporation Private Limited (Phase-1)	2152398	2152498	2179900	100	19963800	For Phase 1, 4 and 7	1.257
	Vaayu (India) Power Corporation Private Limited (Phase-2)	1890205	1890305	1913400	100			1.207
	Vaayu (India) Power Corporation Private Limited (Phase-3)	1757821	1758021	1779500	200			1.207
	Vaayu (India) Power Corporation Private Limited (Phase-4)	4296206	4296406	4351100	200			1.257
	Vaayu (India) Power Corporation Private Limited (Phase-5)	2063882	2064082	2089300	200	12781000	For Phase 2, 3, 5 and 6	1.207
	Vaayu (India) Power Corporation	3848182	3848382	3895400	200			1.207

F-CDM-MR

	Private Limited (Phase-6)							
	Vaayu (India) Power Corporation Private Limited (Phase-7)	3659809	3659909	3706500	100			1.257
Jul- 13	Vaayu (India) Power Corporation Private Limited (Phase-1)	2367287	2367487	2404200	200	22705200	For Phase 1, 4 and 7	1.527
	Vaayu (India) Power Corporation Private Limited (Phase-2)	1818249	1818449	1829500	200			0.604
	Vaayu (India) Power Corporation Private Limited (Phase-3)	2099640	2099740	2112500	100			0.604
	Vaayu (India) Power Corporation Private Limited (Phase-4)	5359977	5360377	5443500	400			1.527
	Vaayu (India) Power Corporation Private Limited (Phase-5)	2378246	2378446	2392900	200	13785000	For Phase 2, 3, 5 and 6	0.604
	Vaayu (India) Power Corporation Private Limited (Phase-6)	4329687	4330087	4356400	400			0.604
	Vaayu (India) Power Corporation Private Limited (Phase-7)	3947674	3948274	4009500	600			1.527
Aug- 13	Vaayu (India) Power Corporation Private Limited (Phase-1)	2347810	2347910	2367800	100	21623400	For Phase 1, 4 and 7	0.840
	Vaayu (India) Power Corporation Private Limited (Phase-2)	1976883	1976983	1986100	100			0.459
	Vaayu (India) Power Corporation Private Limited (Phase-3)	2035214	2035414	2044800	200			0.459

F-CDM-MR

	Vaayu (India) Power Corporation Private Limited (Phase-4)	5028201	5028601	5071200	400			0.840
	Vaayu (India) Power Corporation Private Limited (Phase-5)	2429993	2430193	2441400	200			0.459
	Vaayu (India) Power Corporation Private Limited (Phase-6)	4355913	4356113	4376200	200	14278000	For Phase 2, 3, 5 and 6	0.459
	Vaayu (India) Power Corporation Private Limited (Phase-7)	3764507	3764807	3796700	300			0.840
Sep-13	Vaayu (India) Power Corporation Private Limited (Phase-1)	865982	866882	875400	900			0.973
	Vaayu (India) Power Corporation Private Limited (Phase-2)	709825	710925	720800	1100	8015400	For Phase 1, 4 and 7	1.370
	Vaayu (India) Power Corporation Private Limited (Phase-3)	891996	892996	905400	1000			1.370
	Vaayu (India) Power Corporation Private Limited (Phase-4)	1962290	1965190	1984500	2900			0.973
	Vaayu (India) Power Corporation Private Limited (Phase-5)	1059160	1061160	1075900	2000			1.370
	Vaayu (India) Power Corporation Private Limited (Phase-6)	1894257	1896457	1922800	2200	5867000	For Phase 2, 3, 5 and 6	1.370
	Vaayu (India) Power Corporation Private Limited (Phase-7)	1258099	1262099	1274500	4000			0.973
Oct-13	Vaayu (India) Power Corporation	686196	687296	690500	1100	6100200	For Phase 1, 4 and 7	0.464

F-CDM-MR

	Private Limited (Phase-1)							
	Vaayu (India) Power Corporation Private Limited (Phase-2)	522082	523482	525400	1400			0.365
	Vaayu (India) Power Corporation Private Limited (Phase-3)	626102	627202	629500	1100			0.365
	Vaayu (India) Power Corporation Private Limited (Phase-4)	1484765	1487665	1494600	2900			0.464
	Vaayu (India) Power Corporation Private Limited (Phase-5)	691755	694655	697200	2900	4181000	For Phase 2, 3, 5 and 6	0.365
	Vaayu (India) Power Corporation Private Limited (Phase-6)	1358415	1360715	1365700	2300			0.365
	Vaayu (India) Power Corporation Private Limited (Phase-7)	977325	981325	985900	4000			0.464
Nov- 13	Vaayu (India) Power Corporation Private Limited (Phase-1)	357919	358319	360900	400	32058000	For Phase 1, 4 and 7	0.715
	Vaayu (India) Power Corporation Private Limited (Phase-2)	276462	277062	279700	600			0.943
	Vaayu (India) Power Corporation Private Limited (Phase-3)	311233	311633	314600	400			0.943
	Vaayu (India) Power Corporation Private Limited (Phase-4)	780570	781770	787400	1200			0.715
	Vaayu (India) Power Corporation Private Limited (Phase-5)	350553	351553	354900	1000	2141000	For Phase 2, 3, 5 and 6	0.943

F-CDM-MR

	Vaayu (India) Power Corporation Private Limited (Phase-6)	705672	706672	713400	1000			0.943
	Vaayu (India) Power Corporation Private Limited (Phase-7)	578621	580221	584400	1600			0.715
Dec-13	Vaayu (India) Power Corporation Private Limited (Phase-1)	363139	363639	371200	500	3375000	For Phase 1, 4 and 7	2.037
	Vaayu (India) Power Corporation Private Limited (Phase-2)	280599	281099	288000	500			2.396
	Vaayu (India) Power Corporation Private Limited (Phase-3)	331939	332439	340600	500			2.396
	Vaayu (India) Power Corporation Private Limited (Phase-4)	843145	844245	861800	1100			2.037
	Vaayu (India) Power Corporation Private Limited (Phase-5)	361413	362013	370900	600	2204000	For Phase 2, 3, 5 and 6	2.396
	Vaayu (India) Power Corporation Private Limited (Phase-6)	740409	741009	759200	600			2.396
	Vaayu (India) Power Corporation Private Limited (Phase-7)	685111	687211	701500	2100			2.037
	Total	110,692,822	110,777,622	112,014,100	84,800	204,708,400		