CLEAN DEVELOPMENT MECHANISM
PROJECT DESIGN DOCUMENT FORM (CDM-SSC-PDD)
Version 03 - in effect as of: 22 December 2006

CONTENTS

Revision history of this document

Version Number	Date	Description and reason of revision
01	21 January 2003	Initial adoption
02	8 July 2005	• The Board agreed to revise the CDM SSC PDD to reflect guidance and clarifications provided by the Board since version 01 of this document. • As a consequence, the guidelines for completing CDM SSC PDD have been revised accordingly to version 2. The latest version can be found at <http://cdm.unfccc.int/Reference/Documents>.
03	22 December 2006	• The Board agreed to revise the CDM project design document for small-scale activities (CDM-SSC-PDD), taking into account CDM-PDD and CDM-NM.

SECTION A. General description of small-scale project activity

A.1 Title of the small-scale project activity:

Title: 1.5 MW Wind Power Project in Maharashtra by M/s. Allgrow ventures
Version: 01
Date: 30/05/09

A.2. Description of the small-scale project activity:

The project activity is a wind based power project with a main objective of mitigating the greenhouse gas effect. The project activity would generate electrical power using wind energy, through operation of wind Turbine Generator (WTG) in village Adwadi, Nasik District, Maharashtra state in India. The total installed capacity of the proposed project activity is 1.5 MW, which comprises of 1 nos. of Wind Turbine Generator (WTG) of 1500 kW. The electricity produced by the project activity, will reduce the associated emissions with thermal power generation in the NWENE Grid of the country which is dominated by fossil fuel based electricity.

The electricity generated through the power project will be evacuated to Maharashtra State Electricity Board (MSEB).The power generated at 33 KV level and it will be stepped up to 132 KV to the nearest substation .the proposed project activity can replace approximately 3,013 tonnes of CO2 equivalent annually.

The owner of the WTG is M/s Allgrow Ventures, A proprietorship firm, has a vast experience in the construction business. Proprietor Mrs. Giselle D. Mehta with its Group Company M/S. Allegro Ventures India Pvt is also successfully operating one more 1.25 MW wind mill in Bellary district, Karnataka, which was also considered for the CDM.

Purpose of the Project Activity:

The main purpose of the proposed project activity is to generate the electricity by using wind power resource and export the same to the state electricity board, which is dominating by fossil fuel based electricity. Share of different energy sources in Maharashtra Electricity is given below[1].

Region	Ownership Sector	Modewise Breakup							
		Thermal			Total Thermal	Nuclear	Hydro (Renewable)	RES** (MNRE)	Grand Total
		Coal	Gas	Diesel					
Maharastra	State	6546.00	912.00	0.00	7458.00	0.00	2638.83	217.73	10314.56
	Private	1650.00	180.00	0.00	1830.00	0.00	444.00	1707.30	3981.30
	Central	1787.00	2617.28	0.00	4404.28	852.06	0.00	0.00	5256.34
	Sub-Total	**9983.00**	**3709.28**	**0.00**	**13692.28**	**852.06**	**3082.83**	**1925.03**	**19552.20**

[1] *Annual Report (Ministry of Power: 2007-2008)*

The table clearly depicts the facts that coal has the highest share in state's energy mix with 51%, while the share of renewable energy (except large Hydro) is only 9.8%. Therefore we can summarize the purpose of the project activity as:

1) To reduce the state's dependency on fossil fuels and further reduction in GHG emission.
2) To promote small scale renewable projects, as a corporate responsibility towards environment.
3) Apart from this the proposed project activity also contributes to the sustainable development of the region, socially, environmentally and economically:

Sustainable Development: Proposed CDM project activity has following sustainable development aspects:

Social well being: The project activity provides direct and indirect job opportunities to the local population during an Erection & operation of the windmill. Employment generation shall help poverty alleviation of Local community; infrastructure development for the project will also improve the living standard of local population.

Environmental well being: In the propose project activity the electricity generation by the wind energy which replaces fossil fuel burning in the electricity system and thus reduces GHG emissions in the atmosphere. As there is no end products in term of waste in use of wind energy so there is no problem of solid waste disposal which is a main problem in the use of other source of power generation. The project activity is an environment friendly electricity generation system with no significant impact on the environment.

Economic Well-being: The proposed project activity creates job opportunities for local people during construction and operation period. The generated electricity will be fed into the NWENE grid this generation of electricity by the project activity, which will improve availability of electricity to the NWENE grid.

Technological Well Being: The proposed project activity use 1500 KW WTG so the project has demonstrated the success of large capacity wind electricity generators (WEG) in the region and promotes them. In view of the above, the project participants consider that the project activity profoundly contributes to the sustainable development

A.3. Project participants:

Name of Party Involved (*) ((host) indicates a host party)	Private and/or Public entity (ies) Project Participants (*) as applicable	Kindly indicate if the party involved wishes to be considered as a project participant (Yes / No)
Government of India (Host Country)	M/s. Allgrow Ventures (Proprietorship Firm)	No
(*) In accordance with the CDM Modalities and procedures, at the time of making the CDM PDD public at the stage of validation, a Party involved may or may not have provided its approval. At the time of requesting the registration, the approval by the party (ies) involved is required.		
Note: When the PDD is filled in support of a new methodology (forms CDM-NBM and CDMNMM), at least the host party (ies) involved and any known project participant (e.g. those proposing a new methodology) shall be identified.		

A.4. Technical description of the small-scale project activity:

The project activity consists of a WTG of 1500 kW manufactured, supplied & maintained by M/s Suzlon Energy Limited & installed in Nasik district of Maharashtra. Generated electricity is transmitted through a 33/133KV transmission lines to the substation. The average lifetime of the project is 20 years which is guaranteed by technology supplier.

Technical details of the project activity:

Rotor	
Diameter	82.0 m
Cut in Speed	4 m /s
Cut out speed	20 m /s
Rated wind speed	14 m/s
Swept area	5278 m^2
Rotation speed	16.30 rpm
Regulation	Pitch
Generator	
Type	Asynchronous , 4 poles
Output	1500 kw
Rotation speed	1511 rpm
Operating voltage	690 V
Frequency	50 HZ
Cooling systems	Air cooling
Gear box	
Type	3 stage gear box
Rotation	95.09

Cooling systems	Oil cooling
Nominal load	1650 kw
Yaw Mechanism	
Drive system	4 active electrical yaw motors
Bearing	Polyamide slide bearings
Safety system	
Aerodynamic breaks	3 times independent pitch regulation
Mechanical breaks	Spring powered disc brake, hydraulically released fail safe
Control unit	Microprocessor Controlled indicating operating conditions with UPS backup system
Tower	
Type	Free standing, lattice type, hot dip galvanized

A.4.1. Location of the small-scale project activity:

A.4.1.1. Host Party(ies):

Country: India

A.4.1.2. Region/State/Province etc.:

State: Maharashtra

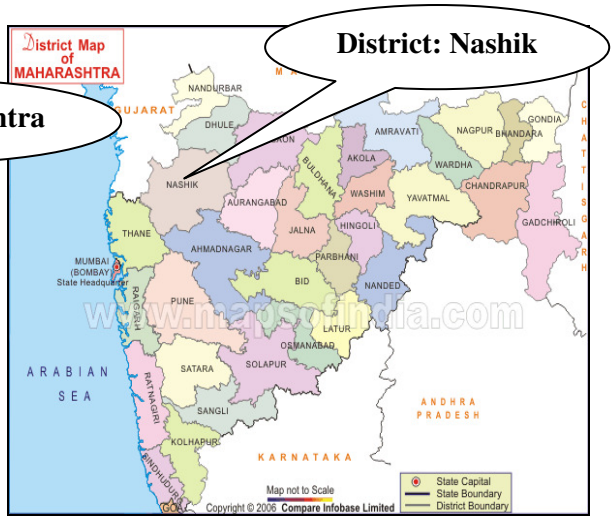
A.4.1.3. City/Town/Community etc:

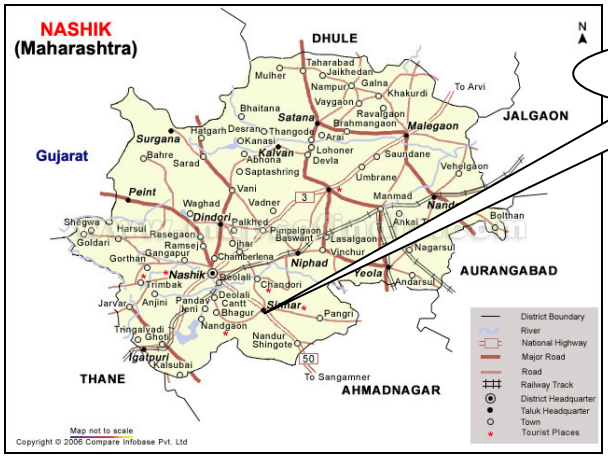
District: Nasik
Village: Adwadi
Taluka: Sinner

A.4.1.4. Details of physical location, including information allowing the unique identification of this small-scale project activity :

The site has been identified as ideally suited for wind power generation based on the studies and data analysis carried out by the wind turbine manufacturer M/s Suzlon Energy Ltd. The location details of the site are:

Owner	Installed Capacity (MW)	Village/Taluka	Location Number	Longitude	Latitude
M/s Allgrow Ventures	1.5	Adwadi/Sinner	AD09	19°43.8''33'	73°54.5''42'





A.4.2. Type and category(ies) and technology/measure of the small-scale project activity:

The proposed project activity is small type of project activity which is less than the 15 MW for small-scale CDM project activities, the proposed project activity falls under the following type and category

Project type **:** Type I – Renewable Energy Projects
Category **:** I.D – Grid connected renewable electricity generation
Reference **:** AMS I.D, Version 14, Scope: 01, EB

The methodology also refers to the "**Tool to calculate the emission factor for an electricity system, version 01.1."**

The proposed project activity consists of WTG of 1500 kW, manufactured by M/s Suzlon Energy Limited & installed in Nasik district in Maharashtra. The technology as well as service provider for WTG is M/s Suzlon Energy Limited. The project is a clean renewable energy project that uses wind energy for electricity generation without GHG emissions associated with the conventional electricity generation

A.4.3 Estimated amount of emission reductions over the chosen crediting period:

The crediting period for the proposed project activity is 10 year, it is estimated that the proposed project would generate the 30,130 CER during the crediting period.

Years	Estimation of annual emission reductions in tonnes of CO_2
1 April 2010- 31 March 2011	3,013
1 April 2011- 31 March 2012	3,013
1 April 2012- 31 March 2013	3,013
1 April 2013-31 March 2014	3,013
1 April 2014- 31 March 2015	3,013
1 April 2015-31 March 2016	3,013
1 April 2016- 31 March 2017	3,013
1 April 2017-31 March 2018	3,013
1 April2018- 31 March 2019	3,013
1 April 2019- 31March 2020	3,013
Total estimated reductions (tonnes of CO_2)	30,130
Total number of crediting years	10
Annual average of the estimated reductions over the crediting period (tonnes of CO_2)	3,013

A.4.4. Public funding of the small-scale project activity:

No public funding for the proposed project activity

A.4.5. Confirmation that the small-scale project activity is not a debundled component of a large scale project activity:

The project proponents hereby confirm that the project activity is not a defunded component of another larger project activity A small-scale project is considered a de-bundled component of a large project activity if there is a registered small scale activity or an application to register another small-scale activity:

- With the same project participants
- In the same project category and technology
- Registered within the previous two years; and
- Whose project boundary is within 1 km of the project boundary of the proposed small scale activity.

Proprietor Mrs. Giselle D. Mehta with its Group Company M/S. Allegro Ventures India Pvt is successfully operating one more 1.25 MW wind mill in bellary district, Karnataka, which was also considered for the CDM.

Therefore the project proponent further confirms that they have not registered any small scale CDM activity or applied to register another small scale CDM project activity within 1 km of the project boundary, in the same project category and technology/measure in the previous 2 years.

SECTION B. Application of a baseline and monitoring methodology

B.1. Title and reference of the approved baseline and monitoring methodology applied to the small-scale project activity:

TYPE I: Renewable Energy Projects
Category AMS I D: Grid Connected Renewable Energy Generation
Version 14, in effect from 31/07/2009
Sectoral Scope: 01(Energy Industry Renewable/Non Renewable Sources)
Methodology AMS ID also refers to its tool[2]: "**Tool to calculate the emission factor for an electricity system, version 01.1.**"

B.2 Justification of the choice of the project category:

Proposed small scale project activity meets the eligibility criteria as proposed in approved baseline methodology AMS I D, Version 14. Applicability of methodology is justified as follows:

Applicability criteria	Project case
This category comprises renewable energy generation units, such as photovoltaic, hydro, tidal/wave, wind, geothermal and biomass, that supplies electricity to an electricity distribution system which would have been otherwise supplied by at least one fossil fuel fired generating unit.	The project uses renewable source of energy in form of wind to produce electricity.
Eligibility limit for small scale CDM project activity is 15 MW.	Power generation capacity of proposed wind power project is 1.5 MW which is well below the specified limit.
Combined heat and power (co-generation) systems are not eligible under this category.	Not applicable because Project Activity is only a power generation system.
In the case of project activities that involve the addition of renewable energy generation units at an existing renewable power generation facility, the added capacity of the units added by the project should be lower than 15 MW and should be physically distinct from the existing units.	Not applicable because the entire project is Greenfield project and this project is not capacity enhancement or up gradation of project.
Project activities that seek to retrofit or modify an existing facility for renewable energy generation are included in this category. To qualify as a small-scale project, the total output of the Modified or retrofitted unit shall not exceed the limit of 15 MW.	Not applicable because activity is not a retrofit or modification of an existing project

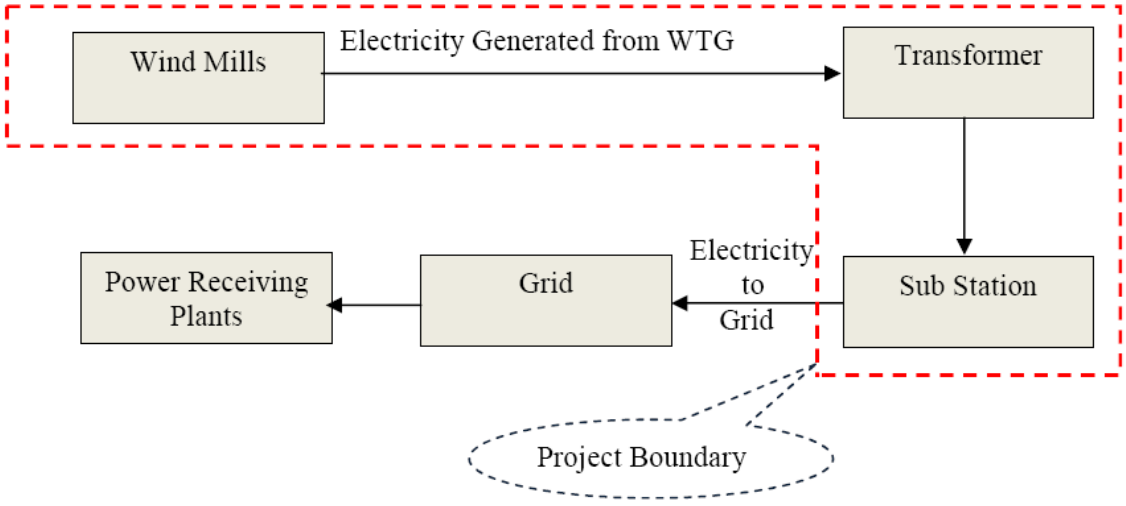
[2] http://cdm.unfccc.int/methodologies/SSCmethodologies/approved.html

Hence, AMS.I.D 'Grid connected renewable electricity generation' is applied to the proposed project activity.

B.3. Description of the project boundary:

As per the Appendix B of simplified modalities & procedures for small scale CDM-project activities, the Project boundary is the boundary encompasses the physical, geographical site of the renewable Generation source."

The project boundary is thus composed of the Wind Turbine Generators, the metering equipment for each generator and substation. As per paragraph 6 of small scale methodology AMS I D project boundary encompasses the physical and geographical site of renewable generation source. Project boundary is delineated by the dotted box in diagram below.



The GHG emission sources considered for the project boundary and their explanations are as follows:

Source	Gas	Included	Justification / explanation
(BASELINE) Electricity Generation of Indian NWENE Grid	CO2	Yes	Major emission sources
	CH4	No	Excluded for simplification. This is conservative
	N2O	No	Excluded for simplification. This is conservative
(PROJECT ACTIVITY) Wind Electricity Generation	CO2	No	As renewable wind power project, excluded for simplification
	CH4	No	The proposed project is wind power project, so CH4 is excluded for simplification.
	N2O	No	As renewable wind power project, excluded for simplification

B.4. Description of baseline and its development:

As per Paragraph 9 of methodology I.D. Version 14 the baseline emissions are calculated based on the net energy provided to the grid by renewable generating unit multiplied by an emission factor for the displaced grid electricity (in tCO_{2e} /kWh). The methodology provides following approaches for baseline calculations.

a) Combined margin (CM), consisting of the combination of operating margin (OM) and build margin (BM) according to the procedures prescribed in the approved methodology "Tool to calculate the emission factor for an electricity system".

OR

b) The weighted average emissions (in $kgCO_2equ/kWh$) of the current generation mix.

The data of the year in which project generation occurs, must be used.

Operating Margin – The "approximate operating margin" is the weighted average emissions (in tCO_{2e}/MWh) of all generating sources serving the system, excluding hydro, geo-thermal, wind, low-cost biomass, nuclear and solar generation;

Build margin – The "build margin" reflects the average CO_2 intensity of newly built power stations that will be (partially) replaced by a CDM project. In accordance with the Grid Tool, the build margin is calculated in this database as the average emissions intensity of the 20% most recent capacity additions in the grid based on net generation. Depending on the region, the build margin covers units commissioned in the last five years.

Combined Margin – The combined margin is the weighted average of the simple operating Margin and the build margin. In particular, for intermittent and non-dispatchable generation types Such as wind and solar photovoltaic, the Grid Tool allows to weigh the operating margin and Build margin at 75% and 25%, respectively**.**

The baseline is calculated using the combined margin approach. The baseline emission factor is calculated in the following steps:

Step 1: Calculation of Operating Margin Emission Factor $EF_{OM, Y}$
The operating margin emission factor has been calculated using a 3 year data vintage:
The $EF_{OM, Y}$ is estimated to be:

Year	$EF_{OM, Y}$ (tCO2/MWh)
2005-2006	1.0194
2006-2007	1.0083
2007-2008	0.9991

Thus the final $EF_{OM, Y}$ based on three years average is estimated to be 1.0090 **tCO2/ MWh**.

Step 2: Calculation of the Build Margin Emission Factor $EF_{BM, Y}$
The $EF_{BM, y}$ is estimated at **0.5977 tCO2/MWh**
(With sample group constituting most recent capacity additions to the grid comprising 20% of the system generation)

Step 3: Calculation of Baseline Emission Factor EF_{y}
The baseline emission factor EF_{y} is calculated as the weighted average of the Operating Margin emission factor ($EF_{OM, y}$) and the Build Margin emission factor ($EF_{BM, y}$):
$\mathbf{EF_{y} = w_{OM} * EF_{OM, y} + w_{BM} * EF_{BM, y}}$
Where the weights w_{OM} and w_{BM}, are 75% and 25% respectively for wind energy projects, and $EF_{OM, y}$ and $EF_{BM, y}$ are calculated as described in Steps 1 and 2 above and are expressed in tCO2/MWh.

Baseline Emission factor = (1.0090)* 0.75 + (0.5977)* 0.25
= 0.9062 tCO2/MWh
= 0.0009 tCO2/kWh

Details of Baseline data:

Operating margin emission factor and Build Margin emission factor calculations:
Data of Operating and Build Margin for the three financial years from 2005 to 2008 has been obtained from – **'The CO2 Baseline Database for the Indian Power Sector'** Ministry of Power: Central Electricity Authority (CEA) Version 4.0[3]
This database is prepared as per ACM0002, Version 10.

[3] http://www.cea.nic.in/planning/c%20and%20e/Government%20of%20India%20website.htm

B.5. Description of how the anthropogenic emissions of GHG by sources are reduced below those that would have occurred in the absence of the registered small-scale CDM project activity:

The project activity is installation of wind power plant. In absence of the project activity, the equivalent amount of electricity would have been generated in the existing and future power plants in the NWENE grid. Thus, the project activity avoids the emission of equivalent amount of GHGs associated with the current fuel mix in the grid.

Prior CDM Awareness:

1. Project Proponent's group company M/S.Allegro Ventures India Pvt. Ltd. already has one 1.25 MW wind power project in Belarry district of State Karnataka. The WTG was also considered for the CDM, which shows that project proponent was well aware of the CDM benefits that can be earned from the project activity.

2. Also as per the proposal sent by technology supplier i.e. Suzlon Energy Limited, CDM and its benefits were clearly explained.

3. The letter dated 14-02-09, from M/S.Ganesh & Sudhir, Charted Accountants of M/S. Allgrow Ventures explaining CDM and it benefits, was also received by the project proponent.

Serious consideration of CDM:

As per UNFCCC EB 41, Annex 46 guidelines, UNFCCC and DNA of India were formally informed about the CDM consideration for the project activity within 6 months of the start date of the project activity. And the confirmation was also received from both of them.

Thus, it can be concluded that the project proponent has seriously considered the CDM revenues during the planning of the project activity. Necessary evidences of the following nature are available with the project proponent and will be made available to the DOE for validation:

Justification for additionality

As per the UNFCCC simplified modalities to establish additionality of the project activity, project participants shall provide an explanation to show that the project activity would not have occurred anyway due to at least one of the following barriers:

a) Investment barrier
b) Technological barrier
c) Barrier due to prevailing practice
d) Other barriers

The project viability has been analysed on the basis of the financial compatibility (Investment Barrier), which was found the most critical barrier, as this is the primary requirement of the private investors to analyse the project on its financial feasibility and compare it with his risk taking ability. But after the analysis it was found that to invest in a wind project is not a very good option:

Analysis was done on the basis of below mentioned parameters:

Parameters	**Values**
Installed Capacity (MW)	1.5
Gross Annual generation (GWh)	3.50
Transmission Loss	5.00%
Net Annual generation (GWh)	3.33
Electricity price from grid (INR/kWh)	3.50
Escalation in Electricity Price from grid (INR/kWh)/year	0.15
O&M cost (Mill/Year)	
For First Year	0.00
For Second Year	0.00
From Third Year Onward	1.3
Yearly Increase (%) on O &M Cost (After 3rd Year)	5%
Term Loan Details	
Interest on Term Loan	13.25%
Loan Repayment Period	6 years (72 monthly instalments)
Other Details	
Income Tax	33.66%
Emission Factor (tCO2/kWh)	0.0009
CER price Euro/Ton	15
Exchange rate Euro=INR	60
Incentives	
Tax holiday / years	10
MAT	0 (Proprietorship firm)
Cost of the Project (Million INR)	**89.81**
Means of Finance	**Rs. Million**
Share Capital	40.81
Term Loans	49.00

Benchmark Analysis:

Prime landing Rate (PLR) of Reserve Bank of India (RBI) has been used for the benchmark analysis. this PLR is compared with IRR of the project activity to demonstrate additionality. IRR is the most common financial indicator used by bankers as well as investors to identify the financial viability of the project. The Project IRR has been computed by taking into account the

cash outflows (capital investment in the project) and cash inflows comprising profit after tax, depreciation, interest on term loan and salvage value (in the terminal year).

RBI PLR:

Considering the financial year of (2008-2009) as the conceptualization phase of the project activity, the most recent available values of PLR with the project start date (Feb 2009), have been used.

As per the Bulletin of December-2008[4] issued by Reserve bank of India average of most recent three months have been taken and simple average of all three values have been assumed as the benchmark return of the Project.

Month	PLR (%)
August 2008	13.25-14.00
September 2008	13.75-14.00
October 2008	13.75-14.00
Simple Average of (13.25, min-14.00, max)	**13.62**

The Internal Rate of Return:

IRR of the project is compared with RBI PLR to prove that the proposed CDM project activity is unlikely to be financially attractive without CER revenue. The IRR for the project works out to **11.89%** and the same is lower against a benchmark of **13.62**%. Considering CDM revenue, the IRR improves to a level of **14.92%.**

Therefore considering the inflow and outflow, the project activity does not seem to be a very attractive option to the project proponent. However he had invested in the same, assuming that he can overcome the risk with the help of CDM revenue, which he can earn from the project.

In this way, being a corporate, the project proponent can fulfil his social and environmental responsibility, without taking any financial risk.

[4] http://rbidocs.rbi.org.in/rdocs/Bulletin/PDFs/88843.pdf

B.6. Emission Reduction:

B.6.1. Explanation of methodological choices:

Emission Reductions (ER_Y) = Baseline Emission (BE_Y) – Project Emission (PE_Y) +Leakage Emission (LE_Y)

Baseline Emission - Emission which would have taken place due to use of electricity from grid in absence of project activity

Baseline Emissions (BE_Y) in tCO_{2eq}./ year **= Emission co-efficient** ($tCO_{2eq.}$/ kWh) **x Anticipated supply to grid from project activity** (kWh/ year)

Project Emission (PE_Y) in tCO_{2eq}./ year **= 0**
Energy generated by project activity is from wind energy which is a renewable form of energy. So the generation of energy is not associated with GHGs emission.

Leakage Emission (LE_Y) in tCO_{2eq}./year = **0**
A consideration of the leakage effects generated by the project activity is not required as per the provisions of Type 1D Grid connected renewable electricity generation, Appendix B of the simplified modalities and procedures for small-scale CDM project activities, as the energy generating equipment used is not equipment transferred to another activity and there is no existing energy generating equipment on site.

B.6.2. Data and parameters that are available at validation:

(Copy this table for each data and parameter)

Data / Parameter:	**$EF_{OM, Y}$**
Data unit:	tCO_2/MWh
Description:	Operating margin grid emission factor
Source of data used:	CEA published data,
Value applied:	1.0089
Justification of the choice of data or description of measurement methods and procedures actually applied :	The value applied is taken from the CEA reviews of three years. The detailed calculation is shown in the baseline section above. http://www.cea.nic.in/planning/c%20and%20e/Government%20of%20India%20website.htm
Any comment:	

Data / Parameter:	$EF_{BM, Y}$
Data unit:	tCO_2/MWh
Description:	Build margin grid emission factor
Source of data used:	CEA published data,
Value applied:	0.5977
Justification of the choice of data or description of measurement methods and procedures actually applied :	The value applied is taken from the CEA reviews. http://www.cea.nic.in/planning/c%20and%20e/Government%20of%20India%20website.htm
Any comment:	

B.6.3 Ex-ante calculation of emission reductions:

The emission reductions $\mathbf{ER_Y}$ by the project activity during a given year Y is:

Emission Reductions (ER_Y) = Baseline Emission (BE_Y) – Project Emission (PE_Y) +Leakage Emission (LE_Y)

$$\mathbf{BE_Y = EG_Y * EF_Y}$$

Where EG_Y is the electricity supplied to the grid, EF_Y is the CO2 emission factor of the grid as calculated below.
The emission factor EF_Y of the grid is represented as a combination of the Operating Margin and the Build Margin. Considering the emission factors for these two margins as EFOM,Y and EFBM,Y then the EF_Y is given by:

$$\mathbf{EF_Y = w_{OM} * EF_{OM,Y} + w_{BM} * EF_{BM,Y}}$$

With respective weight factors w_{OM} and w_{BM} (where $w_{OM} + w_{BM} = 1$); as per recommendations of ACM0002 for a wind project, the weightage for operating margin has been taken as, wOM = 0.75 and that for build margin, wBM = 0.25 has been considered.

The additional information on the emission factor calculation is provided in section B.6.1

Calculation of annual electricity supplied to the grid by the Project and baseline emission is given in the table below:

Number of WTGs	1
Total Capacity of WTGs (MW)	1.5
Annual Generation (kWh)	3,500,000*

(*****Source: Generation Guarantee given by WTG manufacturer)

Years	**Gross Electricity Generation (kWh)**	**Transmission loss**	**EG_Y (kWh)**	**Avg CO_2 Emission Factor (tCO2/ kWh)**	**Baseline Emission (tCO_2/ year)**
1st April. 2010 to 31st March 2011	3,500,000	5.00%	3,325,000	0.0009	3,013
1st April. 2011 to 31st March 2012	3,500,000	5.00%	3,325,000	0.0009	3,013
1st April 2012 to 31st March 2013	3,500,000	5.00%	3,325,000	0.0009	3,013
1st April 2013 to 31st March 2014	3,500,000	5.00%	3,325,000	0.0009	3,013
1st April. 2014 to 31st March 2015	3,500,000	5.00%	3,325,000	0.0009	3,013
1st April 2015 to 31st March 2016	3,500,000	5.00%	3,325,000	0.0009	3,013
1st April 2016 to 31st March 2017	3,500,000	5.00%	3,325,000	0.0009	3,013
1st April 2017 to 31st March 2018	3,500,000	5.00%	3,325,000	0.0009	3,013
1st April 2018 to 1st March 2019	3,500,000	5.00%	3,325,000	0.0009	3,013
1st April 2019 to 1st March 2020	3,500,000	5.00%	3,325,000	0.0009	3,013
Total	35,000,000		33,250,000		30,130

Baseline Emission (tCO2eq./year)	3,013
Project Emission (tCO2eq./year)	0
Leakage Emission (tCO2eq./year)	0

Emission Reductions (ERY) = Baseline Emission (BEY) – Project Emission (PEY) +Leakage Emission (LEY)

Emission Reductions (tCO2eq./year) = 30,130– 0 – 0 = 30,130

B.6.4 Summary of the ex-ante estimation of emission reductions:

Summary of the ex ante estimation of emission reductions are furnished below.

Year	Estimation of project activity emissions (tCO_2 e)	Estimation of baseline emissions (tCO_2 e)	Estimation of leakage (tCO_2 e)	Estimation of overall emission reductions (tCO_2 e)
1 April 2010- 31 March 2011	0	3,013	0	3,013
1 April 2011- 31 March 2012	0	3,013	0	3,013
1 April 2012- 31 March 2013	0	3,013	0	3,013
1 April 2013-31 March 2014	0	3,013	0	3,013
1 April 2014- 31 March 2015	0	3,013	0	3,013
1 April 2015-31 March 2016	0	3,013	0	3,013
1 April 2016- 31 March 2017	0	3,013	0	3,013
1 April 2017-31 March 2018	0	3,013	0	3,013
1 April2018- 31 March 2019	0	3,013	0	3,013
1 April 2019- 31March 2020	0	3,013	0	3,013
Total (tonnes of CO_2e)		**30,130**		**30,130**

B.7 Application of a monitoring methodology and description of the monitoring plan:

B.7.1 Data and parameters monitored:

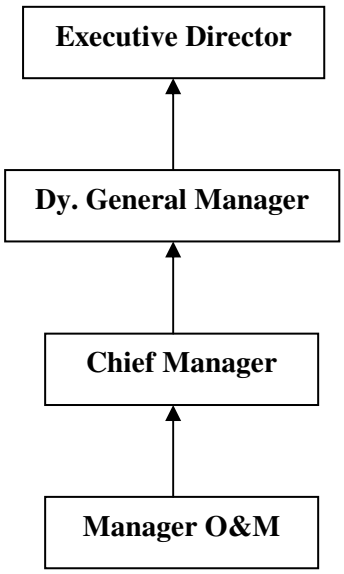
Data / Parameter:	**EG_y**
Data unit:	kWh/year
Description:	Net Electricity generated by WTG and exported to grid
Source of data to be used:	Energy Metering System and Electricity Sales Invoice
Value of data	3,325,000
Description of measurement methods and procedures to be applied:	The electricity will be monitored through state-of-the-art sealed and tested meters. The metering system will comprise of two sets of meters – meters on the generator cables recording gross electricity generation and meters in the sub-station recording net electricity generation. The net metered electricity generation data will be used to calculate and monitor the greenhouse gas emission reductions from the project. Joint Meter Reading would be done with the buyer of the electricity i.e. Maharashtra State Electricity Distribution Licensee (MSEDCL), to ascertain the exact amount of electricity exported.
QA/QC procedures to be applied:	The project employs Class 0.2S high accuracy monitoring and control equipment that will measure, record, report, monitor and control of various key parameters of the plant. These monitoring and controls will be the part of the Control System of the Wind Power Project. All meters will be calibrated every six months and sealed as per the industry practices. Training will be provided to the operators of the project for safe, efficient operations of the plant and handling emergency situations. Hence, high quality is ensured with the above parameter.
Any comment:	The Joint Meter Readings can be cross checked by Control Room Data.

B.7.2 Description of the monitoring plan:

The monitoring plan for the propose project activity is developed as per the procedure for AMS 1D small scale project activity. The monitoring plan will be implemented by the project proponent.

The parameter needs to be regularly monitored to calculate the emission reduction is the net electricity supplied to the grid. Therefore the procedure to monitor and metering of electricity will be done according to the procedure given below:

The authority and responsibility of Project management as well as registration, monitoring measurement and reporting lies with Project Proponents. Project Proponents have envisaged a Project Team to ensure proper and continuous monitoring of the performance of WTGs and generation of Power. The same has been outlined below:



- **Responsibilities**

Executive Director:

- To be responsible for overall project management.

Dy. General Manager:

- To be responsible for generation data, CDM related monitoring Internal verification and presenting the same to the Executive director
- To verify if the monitored data is normal.
- To calculate the emission reductions regularly and write the monitoring report with the help of CDM consultant.

Chief Manager:

- To conduct the monitoring task strictly based on the monitoring manual and registered PDD. To record required monitored parameters. To report the monitoring results to the Dy. General Manager.

Manager O&M:

- The O&M personal are qualified engineers and are trained at the WTG manufacturing facility of Suzlon Infrastructure Ltd for operating and ensuring best performance of the WTGs.

- **Metering and Data Archiving:**

The general conditions set out for metering, recording, meter readings, meter inspections, Test & Checking and communication shall be as per the PPA (Power Purchase Agreement) with MSEDCL.

1. **Metering Equipment**: Metering equipment shall be bidirectional electronic tri-vector meters of accuracy class 0.2% required for the Project (both Main and check meters). The meters installed shall be capable of 35 days with digital output.

2. **Joint Metering Procedure:** The joint reading at metering point is carried out once in a month in presence of authorized representative of project owner and MSEDCL. Joint meter reading will be furnished to Superintending Engineer for further processing. Wherever more than one project owners are delivering the energy through common power evacuation facility and through common metering equipment, there Joint meter reading is supported by the meter readings of individual meters installed at wind energy generator. Based on Joint Meter Reading and individual meter reading a break of electricity generated from individual wind energy generator is prepared and certified by MSEDCL. Billing records are maintained by project owner.

3. **Meter Test Checking:** All the main and check meters shall be tested for accuracy every calendar quarter with reference to a portable standard meter which shall be of an accuracy class of 0.1%. The portable standard meter shall be owned by the Corporation at its own cost and expense and tested and certified at least once every year against an accepted laboratory standard meter in accordance with electricity standards. The meters shall be deemed to be working satisfactorily if the errors are within specifications for meters of 0.2% accuracy class. The consumption registered by the main meters alone will hold good for the purpose of billing as long as the error in the main meter is within the permissible limits.

   a) If during the quarterly tests, the main meter is found to be within the permissible limit of error and the corresponding check meter is beyond the permissible limits, then billing will be as per the main meter as usual. The check meter shall, however, be calibrated immediately.

   b) If during the quarterly tests, the main meter is found to be beyond permissible limits of error, but the corresponding check meter is found to be within permissible limits of error, then the billing for the month up to the date and time of such test shall be as per the check meter. There will be a revision in the bills for the period from the previous calibration test up to the current test based on the readings of the check meter. The main meter shall be calibrated immediately and billing for the period thereafter till the next monthly meter reading shall be as per the calibrated main meter.

   c) If during the quarterly tests, both the main meters and the corresponding check meters are found to be beyond the permissible limits of error, both the meters shall be immediately calibrated and the correction applied to the reading registered by the main meter to arrive at the correct reading of energy supplied for billing purposes for the period from the last month's meter reading up to the current test. Billing for the period thereafter till the next monthly meter reading shall be as per the calibrated main meter.

d) If during any of the monthly meter readings, the variation between the main meter and the check meter is more than that permissible for meters of 0.2 % accuracy class, all the meters shall be re-tested and calibrated immediately

e) In the event that the main/check meter error is found at the time of the meter calibration after the issuance of CERs during the crediting period, the correction of the meter error for the CER calculation will be incorporated in the next issuance of the CERs.

f) In the event that the date of registration is in the middle of the month, while the JMR is issued on monthly basis at the end of the month. The CERs will be estimated based on meter readings at the receiving station for the period from the start date of the project registration and the end of the month.

4. **Records:** O&M Contractor Suzlon Energy Ltd. will maintain an accurate and up to date operating log at the wind farm. All the records will be preserved for 2 years beyond the crediting period.

5. **Billing:** The billing will be done on monthly basis as per statement taken by MSEDCL at the end of each month for the energy supplied.

- **Operation & Maintenance:** The project proponents have signed an "Operation and Maintenance" agreement with M/s Suzlon Infrastructure Services Ltd for the operation and maintenance of wind turbines.

B.8 Date of completion of the application of the baseline and monitoring methodology and the name of the responsible person(s)/entity(ies)

Date:
30/05/2009

Name & Address:
Mr. Avadhesh Mittal
Gensol Consultants Pvt. Ltd.,
205-206, Sarthik II, Opp- Rajpath Club
Ahmadabad-380015
Gujarat

Status:
The Entity is the not a Project Proponent

SECTION C. Duration of the project activity / crediting period

C.1 Duration of the project activity:

C.1.1. Starting date of the project activity:

18/02/09 (Date of Purchase Order Raised for WTGs)

C.1.2. Expected operational lifetime of the project activity:

20 years 0 Month

C.2 Choice of the crediting period and related information:

Project Proponent have opt for the fixed crediting period

C.2.1. Renewable crediting period

Not chosen

C.2.1.1. Starting date of the first crediting period:

Not applicable

C.2.1.2. Length of the first crediting period:

Not applicable

C.2.2. Fixed crediting period:

C.2.2.1. Starting date:

1/04/2010 or the date of registration from Executive Board (Whichever is later)

C.2.2.2. Length:

10 Years 0 Months

SECTION D. Environmental impacts

As per the Schedule 1 of Ministry of Environment and Forests (MoEF - Government of India) Notification dated September 14, 2006, - 39 activities are required to undertake Environmental Impact Assessment (EIA). This project activity does not fall under the specified categories therefore EIA is not required for. Moreover, the project activity i.e., electricity generation from wind, clean and green source of power which will result in no negative impact on environment. Thus no EIA was conducted

D.1. If required by the host Party, documentation on the analysis of the environmental impacts of the project activity:

The project activity is a renewable energy project and therefore no significant environmental impacts are envisaged from the project activity

D.2. If environmental impacts are considered significant by the project participants or the host Party, please provide conclusions and all references to support documentation of an environmental impact assessment undertaken in accordance with the procedures as required by the host Party:

No significant environmental impacts considered due to implementation of project activity by the host party, hence, no references or procedures specified here.

SECTION E. Stakeholders' comments

E.1. Brief description how comments by local stakeholders have been invited and compiled:

In order to get the views of the local stakeholders and respond to their concerns (if any), a stakeholder meeting was organized by the project proponent. The meeting was open to all and invitations were sent through the paper advertisement on the local newspaper "DESHDOOT- Nashik Avruti" on 7th May 2009.Some of the identified stakeholders were invited personally.

The stakeholder meeting was organised on 18th May 2009 at the project site as per following agenda:

1. Welcome address and introduction
3. Introduction to the phenomenon of global warming and climate change
4. Project description of the wind project and the associated benefits
5. Introduction to CDM and how it helps in reducing the global warming concerns
7. Question and Answer session between the project proponent and the stakeholders
8. Vote of thanks
9. Signing of the attendance sheet
10. Filling of the comment sheet by the concerned stakeholders.

Following people attended the stakeholder consultation meet:

- Project Proponents
- Consultant
- Suzlon (Technology Supplier)
- Local Stakeholders (villagers)

The Project Proponent welcomed all the stakeholders and briefed them about the agenda for the meeting. She also introduced the consultant.

The consultant made a presentation on the phenomenon of global warming and climate change. He gave the non technical description of the project activity. The impacts of the project activity on the environment and its contribution to the improvement in country's power situation. He also explained how the GHG emissions would have occurred in the absence of the project activity.

The Project Proponent invited the stakeholders to come up with their queries or concerns that they may have.

E.2. Summary of the comments received:

People illustrated a very positive attitude towards wind farm. Stakeholders were more curious regarding the Global warming and its impacts therefore general points regarding the global warming, it's mitigating efforts and CDM were discussed.

E.3. Report on how due account was taken of any comments received:

The comments received from the stakeholders were mostly positive; therefore any corrective actions were not required. Minor queries of the stakeholders were satisfactorily answered by the technology supplier as well as by the consultant.

Annex 1

CONTACT INFORMATION ON PARTICIPANTS IN THE PROJECT ACTIVITY

Organization:	M/s Allgrow Ventures
Street/P.O.Box:	Light House Hill Road
Building:	UG-II-5B, Maximus Commercial Complex
City:	Mangalore
State/Region:	Karnataka
Postfix/ZIP:	575001
Country:	India
Telephone:	+ 91 (824) 4250186 , 4250187
FAX:	+ 91 (824) 2410184
E-Mail:	allgrowventures@gmail.com
URL:	
Represented by:	Mrs. G. D. Mehta
Title:	Proprietor
Salutation:	Mrs.
Last Name:	Mehta
Middle Name:	D.
First Name:	Giselle
Department:	Proprietor
Mobile:	09343561564
Direct FAX:	
Direct tel:	+ 91 (824) 4250186 , 4250187
Personal E-Mail:	allgrowventures@gmail.com

Annex 2

INFORMATION REGARDING PUBLIC FUNDING

No public funding from the parties included in Annex -I is involved in the project activity

Annex 3

BASELINE INFORMATION

The baseline emission factor has been calculated as **"Combined Margin (Including Imports)"** (described in B.5) of NWENE Region for the year 2007-2008, adopted from the "CO_2 Baseline Database" published by Central Electricity Authority (CEA), Govt. of India, Version 4, Sep 2008.

Calculation for Emission Factor

CENTRAL ELECTRICITY AUTHORITY: CO2 BASELINE DATABASE	
VERSION	4.0
DATE	9/1/2008
BASELINE METHODOLOGY	ACM0002 / Ver 07

and "Tool to Calculate the Emission Factor for an Electricity System", Version 1.1

Simple Operating Margin (tCO2/MWh) (incl. Imports)			
	2005-06	2006-07	2007-08
NEWNE	1.0195	1.0083	0.9992
South	1.0057	0.9991	0.9906
India	1.0166	1.0063	0.9973

Build Margin (tCO2/MWh) (not adjusted for imports)			
	2005-06	2006-07	2007-08
NEWNE	0.6725	0.6313	0.5977
South	0.7067	0.7013	0.7133
India	0.6808	0.6485	0.6253

Calculations

Operating Margin	1.0090
Build Margin	0.5977
Baseline Emission Factor (t CO2/MWh)	0.9062
Baseline Emission Factor (t CO2/kWh)	0.0009

Annex 4

MONITORING INFORMATION

A) Monitoring Details

Interconnection and Evacuation:

Wind energy generated from the facility is evacuated to the state grid system through the state grid EHV substation. Project owner makes all the arrangements at its cost for connecting the facility with state grid system at the point of delivery.

Generation Reports:

Project owner is required to furnish a generation report to the Chief Engineer (Electrical) and to the Electrical Inspector of project owner's area and the officer of MSEDCL before 10th Day of the subsequent month.

Metering Equipments:

Project owner installs the approved energy meter with online reading features at the Metering Point ("the main meter"). Project owner may also install a check meter to measure the delivery of electric energy to grid during period when the main meter is not working. Metering equipment shall be identical in make, technical standards and accuracy class and calibration and comply with the electricity rules.

Testing of metering equipment:

Main and check meter are tested for accuracy with a portable standard meter by Distribution Company. MSEDCL carries out the calibration and periodical testing of the meter in the presence of authorized representative of project owner. Frequency of meter testing is annually.
If during the test any f the main or check meter is found to be beyond the permissible limit of error then the same should be calibrated immediately.

B) Operation & Management Service:

Routine Maintenance Services:

Routine Maintenance Labour work involves making available suitable manpower for operation and maintenance of the equipment and covers periodic preventive maintenance, cleaning and upkeep of the equipment including-
1) Tower Torquing
2) Blade Cleaning

3) Nacelle Torquing and Cleaning
4) Transformer Oil Filtration
5) Control Panel & LT Panel Maintenance
6) Site and Transformer Yard Maintenance

Security Service:
This service includes watch and ward and security of the wind turbines and the equipment.

Management Services:
1) Data logging in for power generation, grid availability, machine availability.
2) Preparation and submission of monthly performance report in agreed format.
3) Taking monthly meter reading jointly with utility of power generated at promoter's wind turbines and supplied to grid from the meter/s maintained by utility for the purpose and co-ordinate to obtain necessary power credit report/ certificate.

Technical Services:
1) Visual inspection of the WTGs and all parts thereof.
2) Technical assistance including checking of various technical, safety and operational parameters of the equipment, trouble shooting and relevant technical services