

To,

The UNFCCC CDM Registration Team
Germany
November 2, 2006

Subject: Project No. 571 - 10.6 MW wind farm at Village Badabagh, District Jaisalmer, Rajasthan.

Submissions from the Project Participant: Senergy Global Private Limited

Comment 1: The PDD does not provide necessary data used to calculate "OM" and "BM" and hence the determination of baseline emission factor is not transparent

Reply: The detailed calculations for establishment of baseline emission factors were provided to the DOE during validation of the subject candidate CDM project and the same was checked by the DOE.

The detailed data as well as the calculations for the same is attached with the replies as Annexure 1 in the form of Microsoft Excel Sheet.

The data used for calculations has been obtained from Central Electricity Authority (Govt. of India) and NRLDC (Northern Region Load Dispatch Centre – the government of India entity responsible for maintaining the complete northern grid).

Additionally we would like to submit that the baseline calculations have been carried out using the latest version of AMS 1D (version 9, 28 July 2006) for small scale grid connected wind energy projects. The baseline value so obtained is most conservative for the grid connected projects in northern grid of India. There are 2 projects already registered with UNFCCC at a relatively higher baseline value namely:

Project Ref: 376 registered on 4th June 2006 with baseline emission factor of 0.95.

Project Ref: 330 registered on 21st July 2006 with baseline emission factor of 0.942.

With complete & exhaustive calculations using the three year average (using ACM 002 as the benchmark for AMS 1D) of all the operating facilities of northern grid, which we have used as the basis of our baseline calculations, the baseline emission factor for our project comes out to be: 0.8645 which is conservative in all respects.

Comment 2: The project has a confusing & strange arrangement. There are 6 investors however these investors are not the project participants, but the relationship between Senergy Global & Project (wind farm) is not clear. Clarification is needed on this issue.

Reply: The DNA approval in India has two components namely the DNA approval to the project and the trading conditions (the complete DNA approval letter is enclosed with the replies as Annexure 2). The Indian DNA has adopted a standard practice to issue the DNA approval to a single entity even in the case of bundled CDM projects.

There are two registered projects from India with similar conditions:

Project 1. Ref No. 310 registered on 29 May 2006 in which Enercon India Limited is project participant whereas the wind turbines are owned by different entities namely:

- Enercon Wind Farm Jaisalmer Limited
- Compucom Software Limited
- Shriram Transport Company
- LNJ Group
- R K Marbles Group
- Desai Brothers Limited
- Dempo Industries Private Limited
- Hindustan Platinum Private Limited
- Revathi Equipment Limited
- Renaissance Asset Management
- Texmo Group
- Venlon Polyester Film Limited
- Dinesh Pouches Limited

Project 2: Ref 112 registered on 19 February 2006 in which M P Glychem Industries Limited is project participant whereas the wind turbines are owned by different entities namely

- M P Glychem Industries Limited
- Rajratan Global Wire Limited
- General Foods Limited
- Ruchi Soya Industries Limited
- Itarasi Oil & Flour Limited

The candidate CDM project for which the review has been requested is also a bundled CDM project with ownership of turbines with individual turbine owners. All the owners (6 in number) have decided to give this responsibility to Senergy Global Private Limited as their common representative as project participant for CDM due diligence.

A letter confirming the same was issued by individual project participant in the name of Senergy Global Private Limited (the complete set of letters is enclosed as Annexure 3 to 8). These letters were submitted to both, the Indian DNA as well as to DOE for obtaining the host country approval and validation respectively.

We hope our submission clarifies the concerns raised by the members of the CDM Executive Board.

Thanking you

Sincerely

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BUILD MARGIN FOR NORTHERN REGION FOR 2004-05

Tariff Orders/Orders

Calculated Values-B/g colour

Ref: Addition in generating capacity (utilities only), CEA General Review 1994-95, 1995-96, 1996-97, 1997-98, 1998-99, 1999-2000, 2000-01, 2001-02, 2002-03, 2005

MNES Rept -Baseline for RE proj under CDM

Name of the Plant	Year-Commissioning	Agency/Owner	Fuel Type	Installed Cap. (MW)	Gross Gen. (MU)	Operating Heat Rate	NCV	Fuel Consumption (Fi) (000 Tonnes)	COEFi	Fi*COEFi (000 tCO2)
NJ HEP Unit 6	31-03-04	SJVNL & HP	Hydro	250	851.4616667					
NJ HEP Unit 5	03/09/2004	SJVNL & HP	Hydro	250	851.4616667					
Chemara HEP II Unit 3	26-02-04	HP NHPC	Hydro	100	448.0233333					
NJ HEP Unit 4	13-02-04	SJVNL & HP	Hydro	250	851.4616667					
NJ HEP Unit 3	22-01-04	SJVNL & HP	Hydro	250	851.4616667					
Chemara HEP II Unit 2	12/05/2003	HP NHPC	Hydro	100	448.0233333					
NJ HEP Unit 2	23-11-03	SJVNL & HP	Hydro	250	851.4616667					
Chemara HEP II Unit 1	11/04/2003	HP NHPC	Hydro	100	448.0233333					
NJ HEP Unit 1	20-09-03	SJVNL & HP	Hydro	250	851.4616667					
KOTA TPS-IV Unit-6	30.7.2003	RRVUNL	Coal	195	1470	2695	4021	985.23999	1.5484	1525.5456
SURATGARH-III Unit 5	30.6.2003	RRVUNL	Coal	250	1955	2439.21	4021	1185.9377	1.5484	1836.306
Baspa - II Unit3	27-05-03	HP Jai Prakash	Hydro	100	398.94					
Baspa - II Unit2	02/08/2003	HP Jai Prakash	Hydro	100	398.94					
Pragati CCGT Unit-III	31.1.2003	PrPCL	Gas	121.2	935.6684019	2061	12428.57	155.15965	2.91535	452.34469
Baspa - II Unit1	24-01-03	HP Jai Prakash	Hydro	100	398.94					
Pragati CCGT Unit-II	9.11.2002	PrPCL	Gas	104.6	807.515799	2061	12428.57	133.90841	2.91535	390.38989
Ramgarh CCGT Stage-II GT-2	24.8.2002	RRVUNL	Gas/HSD	37.8	119.554960000	3056	12428.57	29.396782	2.91535	85.701907
Ramgarh CCGT Stage-II GT-2	7.8.2002	RRVUNL	Gas/HSD	37.5	118.606110000	3056	12428.57	29.163474	2.91535	85.021733
Malana Unit1	07/09/2001	IP Malana Powe	Hydro	43	133.04					
Malana Unit2	07/05/2001	IP Malana Powe	Hydro	43	133.04					
Upper Sindh II Unit1	29-03-02	J&KSEB	Hydro	35	48.57758621					
Upper Sindh II Unit2	09/11/2001	J&KSEB	Hydro	35	48.57758621					
Pragati CCGT (Unit-1)	15.03.2002	DVB	Gas	104.6	807.515799	2061	12428.57	133.90841	2.91535	390.38989
Suratgarh TPS Unit4	25-03-02	RRVUNL	Coal	250	1951	2439.21	4021	1183.511	1.5484	1832.549
Suratgarh TPS (Unit-3)	29.10.2001	RRVUNL	Coal	250	1876	2439.21	4021	1138.0149	1.5484	1762.1023
Wind Power Stations	06/01/2001	RRVUNL	Wind	2.15	6.45					
Ghanvi Unit2	12/07/2000	HPSEB	Hydro	11.25	37.03					
Ghanvi Unit1	30-07-00	HPSEB	Hydro	11.25	37.03					
Gumma Unit2	14-10-00	HPSEB	Hydro	1.5	2.175					

Gumma Unit1	31-08-00	HPSEB	Hydro	1.5	2.175					
Chenani III Unit3	31-07-00	J&KSEB	Hydro	2.5	6.365091463					
Chenani III Unit2	31-07-01	J&KSEB	Hydro	2.5	6.365091463					
Chenani III Unit1	31-07-02	J&KSEB	Hydro	2.5	6.365091463					
Ranjit Sagar Unit1	10/11/2000	PSEB	Hydro	150	282.8425					
Ranjit Sagar Unit2	16-09-00	PSEB	Hydro	150	282.8425					
Ranjit Sagar Unit3	20-08-00	PSEB	Hydro	150	282.8425					
Ranjit Sagar Unit4	08/12/2000	PSEB	Hydro	150	282.8425					
Panipat TPS St IV (Unit-6)	31.03.2001	HPGCL (Haryana)	Coal	210	1482	3180	4021	1172.0368	1.5484	1814.7818
Faridabad CCGT (Steam) Unit-1	31.7.2000	NTPC	Gas/Neptha	144	1058.868837	2175	12428.57	185.30207	2.91535	540.22038
Rajasthan Atomic power plant	23-12-00	NPC	Nuclear	220	1309.7					
Jaisalmer Wind	06/01/2000	RSPC	Wind	2.25	6					
Upper Sind II Unit 1	01/05/2000	J&KSEB	Hydro	35	48.57758621					
Faridabad CCGT (Unit-2) Gas Turbine Unit	18.10.1999	NTPC	Gas/Neptha	143	1051.515581	2175	12428.57	184.01525	2.91535	536.46885
Faridabad CCGT (Unit-1) Gas Turbine Unit	28.6.1999	NTPC	Gas/Neptha	143	1051.515581	2175	12428.57	184.01525	2.91535	536.46885
Suratgarh TPS (Unit-2)	28.3.2000	Rajasthan SEB	Coal	250	1704	2439.21	4021	1033.6767	1.5484	1600.5449
Rajasthan Atomic power plant	03/10/2000	NPC	Nuclear	220	1309.7					
Unchachar TPP (Unit-4)	22.10.1999	NTPC	Coal	210	1748	2515	4021	1093.3151	1.5484	1692.8891
GHTP Bhatinda (Unit-2)	16.10.1998	PSEB	Coal	210	1536	2899	4021	1107.4021	1.5484	1714.7015
Suratgarh TPS (Unit-1)	10.5.1998	Rajasthan SEB	Coal	250	1876	2439.21	4021	1138.0149	1.5484	1762.1023
Unchachar (Unit-3)	27.1.1999	NTPC	Coal	210	1690	2515	4021	1057.0381	1.5484	1636.7177
					35160.9591					20195.246

$EF\ BM = \Sigma(Fi*COEFi) / \Sigma(Gross\ Gen.)$ (tCO2/ MWh)

	Gross Gen (MUs)			(Fi*COEFi) (000 tCO2)
Total	35160.9591			20195.246

Gen from new TPS comprising of total thermal gen of NR grid (%) 20.97654307

EF BM	0.574365622			tCO2/MWh
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Total Thermal	Year	Gross Gen (MUs)	Fi*COEFi (000 tCO2)
	2002-03	116468.74	112752.2531
	2003-04	121417.73	116720.6657
	2004-05	125404.34	119675.5035
Total NR Generation 2003-04		167334.46 MUs	
Total NonTherm. Gen		45916.73 MUs	27.440092 %

Non Thermal gen is less than 50% of total NR gen .So **Simple OM Method** use

	2002-03	2003-04	2004-05	
EF OM Simple	0.96809026	0.9613148	0.95431708	tCO2/ MWh
EF OM Simple Average of Three years		0.9612407		tCO2/ MWh
EF BM		0.5743656		tCO2/ MWh

According to ACM 0002 for wind power projects the Combined margin is calculated as follows:

Combined Margin Emission Factor EF = 75% EF OM + 25% EF BM

Hence,

EF 0.864522

Imports from others	2002-03		2003-04		2004-05		2005-06	
Imports from WREB	186.39		282.02		1602.84		2153.23	
Imports from EREB	1019.53		2334.76		3600.58		4112.67	
EF (WREB), tCO ₂ /GWh	910.00		910.00		906.00		884.00	http://mnes.nic.in/baselinepdfs/chapter2.pdf EF of Western Grid has been considered
EF (EREB), tCO ₂ /GWh	1192.00		1186.00		1178.00		1158.00	http://mnes.nic.in/baselinepdfs/chapter2.pdf EF of Eastern Grid has been considered

As per ACM0002 the CO₂ emission factor for the net Electricity imports from the connected Electricity system, there is an option to consider 0 t CO₂/ MWh as net electricity import. As the source of the plant importing to the grid is not known and the percentage of import is very less, this option has been used for net electricity imported.

NORTHERN GRID

Calculated Values-Big colour

Baseline for FY 2002-03, 2003-04, 2004-05

(Ref: 1) Electricity Data 2002-03, 2003-04, CEA General Report 2005, www.cea.nic.in

(2) NREDC Annual Report 2002-03, 2003-04, 2004-05 www.nredc.org

(3) Performance Review of Thermal Power Station 2003-03, 2003-04, 2004-05, CEA

IPP

C/A Performance Review 2005

C/A Performance Review of Thermal Power Station 2003-03, 2003-04, 2004-05

MNES Rep: Baseline for RE proj under CDM

Steam Rank and Low Cost Plants shall be eliminated from Baseline Calculations

CERC Website

1 GWH=1 MU

1 MWH= 1000 kWh

STEAM = COAL

Gas=NG

Formulas

Fuel Cons (Ft) 7000 tons = (Gross Gen MU * OHR kcal/kWh)/(NCV kcal/kg)

COEFF1 (CO2/kg of fuel) = (NCV* EFCO2)*OXID

OXID = 0.58 (Coal), 0.59 (Oil), 0.995 (Gas)- Ref: Revised 1996 IPCC Guidelines

NCV (kcal/kg) Ref: Baseline for RE projects under CDM, AMNES report/www.mnre.nic.in/baseline/ncv.htm

Coal (default)=4021 Lignite=2800 Gas/NG/LNG=12428.57 Diesel=10316 Naptha=10750

Coal (Default)=1.58

Lignite=1.19

Gas/NG/LNG=2.93

Diesel=3.2

Naptha=3.3

NORTHERN GRID		Calculated Values-Big colour		Data Collection from Different Sources-marked with different colours										Formulas:		NCV * EFCO2/Ref:MNES Report)	
Baseline for FY 2002-03, 2003-04, 2004-05		IPP		MPLDC Annual Report 2002-03, 2003-04, 2004-05		Tariff Orders/Circulars		1 GW=1 MU		Fuel Cons (Fi) '000 tons = (Gross Gen MU * OHR kcal/KWh)/(NCV kcal/kg)		NCV * EFCO2/Ref:MNES Report)		Fuel Cons (Fi) '000 tons = (Gross Gen MU * OHR kcal/KWh)/(NCV kcal/kg)		Coal (Default)=1.58	
(Ref 1) Electricity Data 2002-03, 2003-04, CEA, General Review 2005, www.cen.nic.in				CEA General Review 2005		NTDP Presentation		1 MW=1 000 KWh		COEFFI (tCO2/kg of fuel) = (NCV* EFCO2)*OXID		Lignite=1.19				Lignite=1.19	
(2) NMLDC Annual Report 2002-03, 2003-04, 2004-05 www.nmlc.org				CEA Performance Review of Thermal Power Station 2002-03, 2003-04, 2004-05				STEAM = COAL		OXID = 0.98 (Coal), 0.99 (Oil), 0.995 (Gas)- Ref: Revised 1996 IPCC Guidelines		Gas/NG/LNG=2.93				Gas/NG/LNG=2.93	
(3) Performance Review of Thermal Power Station 2002-03, 2003-04, 2004-05, CEA				MNES Regt-Baseline for RE proj under CDM		CERC Website		Gas=NG		NCV (kcal/kg)/Ref: Baseline for RE projects under CDM, MNES report/www.mnec.nic.in/baseline/tpc.htm		Diesel=3.2				Diesel=3.2	
										Coal (default)=0.21 Lignite=2800, Gas/NG/LNG=12428.57, Diesel=10316, Naptha=10750		Naptha=3.3					

Name of the Plant	Year-Commission	Agency/ Owner	Fuel Type	Inst.Cap. (MW)	Gross Gen. (MU) 2002-03	Gross Gen. (MU) 2003-04	Gross Gen. (MU) 2004-05	Fuel Cons. (Fi) (000 Tonnes) 2002-03	Fuel Cons. (Fi) (000 Tonnes) 2003-04	Fuel Cons. (Fi) (000 Tonnes) 2004-05	Oper. HR (kcal/ kWh) 2002-03	Oper. HR (kcal/ kWh) 2003-04	Oper. HR (kcal/ kWh) 2004-05	NCV kcal/Kg	NCV x EFCO2 Kg of CO2/ Kg of fuel	OXID	COEFFI (kg of CO2/kg of fuel)	Fi*COEFFI (tCO2) 2002-03	Fi*COEFFI (tCO2) 2003-04	Fi*COEFFI (tCO2) 2004-05
Pampore (OCCGT)		J&K PDC	Gas (Oil based-HSD)	175	58	29	23.74	13.6686682	6.834334119	5.59472731	2929	2929	2929	12428.57	2.93	0.995	2.91535	39.84895	19.924476	16.31059
Arvind Gash-Nat (Bemina-5 MW+ Leb-2.18 MW)		J&K PDC	Diesel	7.18	0	0	0	0	0	0	2061	2061	2061	10316	3.2	0.99	3.168	0	0	0
Kashab		J&K PDC	Diesel	0.06	0	0	0	0	0	0	2061	2061	2061	10316	3.2	0.99	3.168	0	0	0
Upper Simb		J&K PDC	Diesel	1.7	0	0	0	0	0	0	2061	2061	2061	10316	3.2	0.99	3.168	0	0	0
HYDRO																		39.849	19.92448	16.3106
Lower Bicham		J&K PDC	Hydro	105	9.88	312.87	427.03													
Upper Simb		J&K PDC	Hydro	127.6	318.55	256.16	127.1													
Gandharvi		J&K PDC	Hydro	15	22.52	23.39	26.44													
Mohra		J&K PDC	Hydro	9	0	0	0													
Chenani		J&K PDC	Hydro	32.8	63.17	30.85	83.51													
Sakani		J&K PDC	Hydro	9.75	0	0	0													
Small Hyde		J&K PDC	Hydro	3.54	0	1.37	5.7													
Sewa-III		J&K PDC	Hydro	9																
Jammu Canal		J&K PDC	Hydro	1																
TOTAL THERMAL (J&K)					183.94	58	29	23.74												
TOTAL HYDRO (J&K)					312.69	406.12	864.64	719.78												

PUNJAB																				
THERMAL																				
Guru Nanak Dev TPS (Bhatinda) Unit-1		PSEB	Coal	110	571	632	631	455.073226	488.5999702	454.9288734	3204.64	3108.64	2899	4021	1.58	0.98	1.5484	704.6354	756.54819	704.4119
Guru Nanak Dev TPS (Bhatinda) Unit-2		PSEB	Coal	110	612	654	0	487.749237	505.608197	0	3204.64	3108.64	2899	4021	1.58	0.98	1.5484	755.2309	782.88373	0
Guru Nanak Dev TPS (Bhatinda) Unit-3		PSEB	Coal	110	681	614	696	542.740572	474.6841482	501.7915941	3204.64	3108.64	2899	4021	1.58	0.98	1.5484	840.3795	775.00094	776.9741
Guru Nanak Dev TPS (Bhatinda) Unit-4		PSEB	Coal	110	635	651	666	506.079682	503.2888933	480.1626461	3204.64	3108.64	2899	4021	1.58	0.98	1.5484	783.6138	779.29252	743.4838
GHTP (Lehra Mohabbat) Unit 1		PSEB	Coal	210	1500	1670	1773	931.715991	1005.949689	1068.82666	2497.62	2422.11	2424	4021	1.58	0.98	1.5484	1442.669	1557.6125	1654.971
GHTP (Lehra Mohabbat) Unit 2		PSEB	Coal	210	1406	1711	1536	873.328456	1030.646658	925.9547376	2497.62	2422.11	2424	4021	1.58	0.98	1.5484	1352.262	1595.8533	1433.748
Guru Gobind Singh TPS (Ropar) Unit-1		PSEB	Coal	210	1214	1323	1600	793.190948	839.3235713	1011.88759	2627.2	2550.96	2543	4021	1.58	0.98	1.5484	1228.177	1299.6086	1566.807
Guru Gobind Singh TPS (Ropar) Unit-2		PSEB	Coal	210	1305	1515	1390	852.6476	961.1301666	879.0773439	2627.2	2550.96	2543	4021	1.58	0.98	1.5484	1320.24	1488.214	1361.163
Guru Gobind Singh TPS (Ropar) Unit-3		PSEB	Coal	210	1459	1609	1502	953.266551	1020.764646	949.9094753	2627.2	2550.96	2543	4021	1.58	0.98	1.5484	1476.038	1580.552	1470.84
Guru Gobind Singh TPS (Ropar) Unit-4		PSEB	Coal	210	1281	1166	1608	836.966725	739.7213032	1016.947028	2627.2	2550.96	2543	4021	1.58	0.98	1.5484	1295.959	1145.3845	1574.641
Guru Gobind Singh TPS (Ropar) Unit-5		PSEB	Coal	210	1453	1457	1442	949.346332	924.3344243	911.9636096	2627.2	2550.96	2543	4021	1.58	0.98	1.5484	1469.968	1431.2394	1412.085
Guru Gobind Singh TPS (Ropar) Unit-6		PSEB	Coal	210	1533	1397	1545	1001.61592	886.2698632	977.1039542	2627.2	2550.96	2543	4021	1.58	0.98	1.5484	1550.902	1372.3003	1512.948
Bhukari Rice Straw Fired		PSEB	Rice Straw	10	0	23.63	91.24	0	34.518704	136.204992	3652	3652	3652	2500	1.58	0.98	1.5484	0	53.448761	210.8998
HYDRO																		14220.1	14577.94	14423
Jogindernagar/Shanar		PSEB	Hydro	110	456.81	564.21	510.13													
Upper Bicham Doab Canal (UBDC)		PSEB	Hydro	90	394.27	427.45	376.99													
Baran Sagar		PSEB	Hydro	600	1141.93	1247.50	1131.35													
Makrand		PSEB	Hydro	207	787.9	1029.24	786.53													
Asandpur Sahi		PSEB	Hydro	134	736.02	816.35	587.65													
Small Hydrel		Punjab Hydro P Ltd	Hydro	4.1	8.63	5.66	1.4													
Doodhar		PSEB	Hydro	1.5																
Rohi		PSEB	Hydro	0.8																
Thuli		PSEB	Hydro	0.8																
TOTAL THERMAL (Punjab)					13650	14422.6	14482.2													
TOTAL HYDRO (Punjab)					3525.56	4390.5	3394.07													

RAJASTHAN																				
THERMAL																				
Kota TPS Unit 1		BRVUNL	Coal	110	691	740	783	452.348088	495.9711515	524.7910967	2632.26	2695	2695	4021	1.58	0.98	1.5484	700.4158	767.96173	812.5865
Kota TPS Unit 2		BRVUNL	Coal	110	865	721	846	566.253395	483.236757	567.0156677	2632.26	2695	2695	4021	1.58	0.98	1.5484	876.7868	748.24379	877.9671

(3) Performance Review of Thermal Power Stations 2002-03, 2003-04, 2004-05: CEA

NRLDC Annual Report 2002-03, 2003-04, 2004-05	Tariff Orders/Orders
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CEA General Review 2005	NTPC Presentation
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CEA Performance Review of Thermal Power Station 2003-03, 2003-04, 2004-05		
MNES Rort - Baseline for RE proj under CDM		CERC Website

$$\text{Fuel Cons (Fi) '000 tons} = (\text{Gross Gen MU} * \text{OHR kcal/kWh}) / (\text{NCV kcal/kg})$$
$$\text{COEF}_i (\text{tCO}_2/\text{kg of fuel}) = (\text{NCV} \cdot \text{EFCO}_2) \cdot \text{OXID}$$

OXID = 0.98 (Coal), 0.99 (Oil), 0.995 (Gas)- Ref: Revised 1996 IPCC Gu
NCV (kcal/kg) (Ref: Baseline for RE projects under CDM, MNES www.mnec.in)

Coal (Default)=1.58

Lignite=1.19

	Gas/NG/LNG=2.93
g/hou	Diesel=3.2

[illegible]

HYDRO										23017.3	22676.04	21579.8
R-shant	UP/VNL	Hydro	300	652.74	1135.14	477.04						
Chera Hydro	UP/VNL	Hydro	69	956.56	427.57	198.00						
Mastilla	UP/VNL	Hydro	50	99.52	126.99	143.87						
Khara	UP/VNL	Hydro	72	411.47	389.9	276.4						
Channoli	UP/VNL	Hydro	0.8									
Suwanand	UP/VNL	Hydro	0.8									
Nirgama	UP/VNL	Hydro	5									
Namini	UP/VNL	Hydro	0.7									
Bhoda	UP/VNL	Hydro	2.7									
Tapovan	UP/VNL	Hydro	0.8									
Chutara	UP/VNL	Hydro	3									
Salva	UP/VNL	Hydro	3									
Gangori	UP/VNL	Hydro	0.8									
TOTAL THERMAL (UP)				3919	29978	29623	19700					
TOTAL HYDRO (UP)				518.6	1391.39	2071.52	1097.85					

HYDRO

Ganga Canal		UHPC	Hydro	32.7	138.31	131.04	208.86
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NORTHERN GRID Calculated Values-Big colour
Baseline for FY 2002-03, 2003-04, 2004-05

(Ref 1) Electricity Data 2002-03, 2003-04, CEA, General Review 2005, www.cea.nic.in
 (2) NREDC Annual Report 2002-03, 2003-04, 2004-05 www.nrdc.org
 (3) Performance Review of Thermal Power Station 2002-03, 2003-04, 2004-05, CEA

Data Collection from Different Sources-marked with different colours

NREDC Annual Report 2002-03, 2003-04, 2004-05
 Tariff Orders/Circulars
 CEA General Review 2005
 NTPC Presentation
 CEA Performance Review of Thermal Power Station 2002-03, 2003-04, 2004-05
 MNES Regt -Baseline for RE proj under CDM
 CERC Website

Formulae:

Fuel Cons (Fi) '000 tons = (Gross Gen MU * OHR kcal/kWh)/(NCV kcal/kg)
 COEFi (tCO2/kg of fuel) = (NCV* EFCO2)*OXID
 OXID = 0.98 (Coal), 0.99 (Oil), 0.995 (Gas)- *Ref: Revised 1996 IPCC Guidelines*
 NCV (kcal/kg)/Ref: Baseline for RE projects under CDM, MNES report/www.mnec.nic.in/baselinerepvt.htm
 Coal (default)=1.58
 Lignite=1.19
 Gas/NG/LNG=2.93
 Diesel=3.2
 Naptha=3.3
 Coal (default)=8021 Lignite=2800, Gas/NG/LNG=12428.57, Diesel=10316, Naptha=10750

OXID values (Ref: Revised 1996 IPCC Guidelines)					Must Run and Low Cost Plants shall be eliminated from Baseline Calculations															
Name of the Plant	Year-Commission	Agency/ Owner	Fuel Type	Inst.Cap. (MW)	Gross Gen. (MU) 2002-03	Gross Gen. (MU) 2003-04	Gross Gen. (MU) 2004-05	Fuel Cons. (Fi) (000 Tonnes) 2002-03	Fuel Cons. (Fi) (000 Tonnes) 2003-04	Fuel Cons. (Fi) (000 Tonnes) 2004-05	Oper. HR (kcal/ kWh) 2002-03	Oper. HR (kcal/ kWh) 2003-04	Oper. HR (kcal/ kWh) 2004-05	NCV Kcal/Kg	NCV x EFCO2 Kg of CO2/ Kg of fuel	OXID	COEFi (kg of CO2/kg of fuel)	Ft*COE Fi (000 tCO2) 2002-03	Ft*COE Fi (000 tCO2) 2003-04	Ft*COE Fi (000 tCO2) 2004-05
Raprahan Atomic Power Station (RAPS) -B		NPC	Nuclear	440	3460.4	2971.35	2619.4													
Narora Atomic Power Station (NAPS) -B		NPC	Nuclear	440	3572.1	3041.34	2441.04													
BBMB (HYDRO)																				
Shikhar Complex		BBMB	Hydro	1490.15	6531.01	7060.7	4517.32													
Gadur		BBMB	Hydro	990	3253.1	3337.21	3102.12													
Prong		BBMB	Hydro	396	763.85	1112.28	874.71													
TOTAL THERMAL (CGS)					8137	58552	59461	61727.5												
TOTAL HYDRO (CGS)					3810	8936.99	11400.6	15351												
TOTAL NUCLEAR (CGS)					1180	8571.92	7324.27	6255.93												
TOTAL BBMB HYDRO (CGS)					2876.15	10548	11510.3	8493.95												

Operating Margin Emission Factor (EF OM)

Simple OM Method:

$$EF OM \text{ simple} = \frac{2(Ft*COEFi) / (2/Gross Gen.)}{tCO2/MWh}$$

Build Margin Emission Factor (EF BM)

$$EF BM = \frac{2(Ft*COEFi) / (2/Gross Gen.)}{tCO2/MWh}$$

Calculation of Build Margin shall includes either of

- the 5 power plants that have been built most recently, or
- the power plants capacity additions in the electricity system that comprise 20% of the system generation (in MWh) and that have been built most recently.

The large value of (a) or (b) should be used for calculating EF BM

Baseline Emission Factor (EF)

$$EF = WOM * EF OM + RBM * EF BM \text{ (tCO2/MWh)}$$

	Year	Gross Gen (MU's)	Ft*COE Fi (000 tCO2)
Total Thermal	2002-03	116468.7	112752
	2003-04	121417.7	116721
	2004-05	125404.3	119676
Total NR Generation 2003-04		167334.5 MU's	
Total NonTherm. Gen		45916.23 MU's	274401 %

Non Thermal gen is less than 50% of total NR gen. So Simple OM Method use

	2002-03	2003-04	2004-05
EF OM Simple	0.96809	0.963315	0.954317
EF OM Simple Average of Three years		0.961241	



भारत सरकार
पर्यावरण एवं वन मंत्रालय
GOVERNMENT OF INDIA
MINISTRY OF ENVIRONMENT & FORESTS

F.No.4/24/2005-CCC

28 April 2006

To
Dr. Ajay Mathur
President
Senegy Global Private Limited
D-33, Defence Colony
New Delhi 110024
Fax: 011 2465 5144

Sub: Host Country Approval to "10.6 MW wind farm" at Badabagh, Jaisalmer, Rajasthan by M/s Senegy Global Private Limited – regarding CDM.

Sir,

I am directed to state that the Project Concept Note and Project Design Document for "10.6 MW wind farm" at Badabagh, Jaisalmer, Rajasthan by M/s Senegy Global Private Limited was considered by the National CDM Authority in its meeting held on 12 December 2005. The Authority confirms that:

- (i) The Government of India has ratified the Kyoto Protocol in August 2002.
- (ii) This is approval of voluntary participation in the proposed CDM project activity.
- (iii) The project contributes to Sustainable Development in India.

Yours faithfully,

(R.K. Sethi)
Director (CC)



जहाँ है हरियाली।
वहाँ है खुशहाली।।

पर्यावरण भवन, सी.जी.ओ. कॉम्प्लेक्स, लोदी रोड, नई दिल्ली-110003
PARYAVARAN BHAWAN, C.G.O. COMPLEX, LODHI ROAD, NEW DELHI-110003

भारत सरकार
पर्यावरण एवं वन मंत्रालय
GOVERNMENT OF INDIA
MINISTRY OF ENVIRONMENT & FORESTS

F.No.4/24/2005-CCC

28 April 2006

To
Dr. Ajay Mathur
President
Senergy Global Private Limited
D-33, Defence Colony
New Delhi 110024
Fax: 011 2465 5144

Sub: Host Country Approval to "10.6 MW wind farm" at Badabagh, Jaisalmer, Rajasthan by M/s Senergy Global Private Limited (SGPL) – regarding CDM.

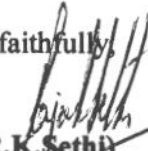
Sir,

Kindly refer to Ministry's letter No.4/24/2005-CCC dated 28 April 2006 conveying Host Country Approval to your CDM project "10.6 MW wind farm" at Badabagh, Jaisalmer, Rajasthan.

Please note that the following conditions shall also be complied with:

- (i) M/s SGPL shall not sell the CERs to any agency/ company/ organization, which purchase the CERs using ODA Funds.
- (ii) M/s SGPL shall inform the National CDM Authority regarding all transaction details of CERs including the name and address of the party to which CERs were sold within 30 days of transfer of the CERs.
- (iii) M/s SGPL shall furnish expeditiously any information, during the lifetime of the project as requested by the National CDM Authority.
- (iv) M/s SGPL shall obtain all statutory clearances and other approvals as required from the competent authorities for setting up of the project.
- (v) All transactions shall be subject to supervision of the Executive Board of the CDM, under the authority and guidance of the COP/MOP.
- (vi) This approval is not transferable. The authority reserves the right to revoke this Host Country Approval if the conditions stipulated in this approval are not complied with to the satisfaction of the National CDM Authority.

Yours faithfully,


(R.K. Sethi)
Director (CC)



जहाँ है हरियाली।
वहाँ है खुशहाली।।

पर्यावरण भवन, सी.जी.ओ. कॉम्प्लेक्स, लोदी रोड, नई दिल्ली-1100 03 सूचना सुविधा केन्द्र फोन : 24361669
PARYAVARAN BHAWAN, C.G.O. COMPLEX, LODHI ROAD, NEW DELHI-110003 website : <http://envfor.nic.in>

Varroc Engineering Pvt. Ltd.

Regd. & Corp. Office :

E-4, MIDC, Industrial Area
Waluj, Aurangabad 431136
Maharashtra, India

Tel +91 240 2556227
Fax +91 240 2564540

email varroc.wp1@varrocgroupp.com
www.varrocengg.com



STATEMENT OF MODALITIES OF COMMUNICATING WITH THE CDM EXECUTIVE BOARD AND THE UNFCCC SECRETARIAT

10.6 MW wind farm at Village Badabagh, District Jaisalmer, Rajasthan, INDIA

Further to the proposed registration of subject grid connected wind power projects in Rajasthan, India, please note that:

We VARROC ENGINEERING PRIVATE LIMITED who are the project participant hereby authorize Dr. Ajay Mathur (President – Senergy Global Private Limited) to carry out necessary formalities of instructions on allocation of CERs from the candidate CDM project.

On behalf of
VARROC ENGINEERING PRIVATE LIMITED

A handwritten signature in black ink, appearing to read 'T.R. Sachidanandan'.

T.R.SACHIDANANDAN
Authorized Signatory

A handwritten signature in black ink, appearing to read 'Ajay Mathur'.

Dr. Ajay Mathur
(Senergy Global Private Limited)

Signature Attested

On behalf of
VARROC ENGINEERING PRIVATE LIMITED

A handwritten signature in black ink, appearing to read 'T.R. Sachidanandan'.

T.R.SACHIDANANDAN
Authorized Signatory



**ENDURANCE TRANSMISSION
SYSTEMS (INDIA) PVT. LTD.**

K-228, M.I.D.C. Industrial Area
Waluj, Aurangabad (M.S.) 431136, India

**STATEMENT OF MODALITIES OF COMMUNICATING WITH
THE CDM EXECUTIVE BOARD AND THE UNFCCC SECRETARIAT**

10.6 MW wind farm at Village Badabagh, District Jaisalmer, Rajasthan

Further to the proposed registration of subject grid connected wind power projects in Rajasthan, India, please note that:

We Endurance Transmission Systems (I) Private Limited, K – 228, Midc Waluj Industrial Area, Aurangabad 431136, who are the project participant hereby authorize Dr. Ajay Mathur (President – Senergy Global Private Limited) to carry out necessary formalities of instructions on allocation of CERs from the candidate CDM project.

Endurance Transmission Systems (I) Pvt. Ltd.



Authorized Signatory



Dr. Ajay Mathur
(Senergy Global Private Limited)



Signature Attested
Authorized Signatory



VISHAL EXPORTS OVERSEAS LIMITED

(A Government of India Recognised Four Star Export House)

"Vishal House"

Opp. Sales India, B/h. Oriental of Commerce, Ashram Road, Ahmedabad - 380 009. INDIA

Tele. : 0091 - 79 - 27544591 Fax : 0091 - 79 - 27541894 E-mail : vishalad1@sancharnet.in website : www.vishalexports.co.in

3rd July, 2006

STATEMENT OF MODALITIES OF COMMUNICATING WITH THE CDM EXECUTIVE BOARD AND THE UNFCCC SECRETARIAT

10.6 MW wind farm at Village Badabagh, District Jaisalmer, Rajasthan

Further to the proposed registration of subject grid connected wind power projects in Rajasthan, India, please note that:

We, Vishal Exports Overseas Limited, having our registered office at Vishal House, opp. Sales India, Ashram Road, Ahmedabad – 380 009, who are the project participant hereby authorize Dr. Ajay Mathur (President & CEO – Senergy Global Private Limited) to carry out necessary formalities of instructions on allocation of CERs from the candidate CDM project.

Signed on behalf of Vishal Exports Overseas Limited

Jt. Managing Director

Dr. Ajay Mathur
(Senergy Global Private Limited)

Signature Attested

For Vishal Exports Overseas Limited

Jt. Managing Director



VISHAL PLASTOMER Pvt. Ltd.

" Vishal House" Opp. Sales India,
B/h. Oriental Bank of Commerce,
Ashram Road, Ahmedabad - 380 009. INDIA
Tele. : 0091-79-27543251, 27543534
: 27543019, 27543321
Fax : 0091-79-27541894
E-mail : vishalad1@sancharnet.in
Website : www.vishalexports.co.in

3rd july, 2006

**STATEMENT OF MODALITIES OF COMMUNICATING WITH
THE CDM EXECUTIVE BOARD AND THE UNFCCC
SECRETARIAT**

10.6 MW wind farm at Village Badabagh, District Jaisalmer, Rajasthan

Further to the proposed registration of subject grid connected wind power projects in Rajasthan, India, please note that:

We, Vishal Plastomer Private Limited, having our registered office at Vishal House, opp. Sales India, Ashram Road, Ahmedabad – 380 009, who are the project participant hereby authorize Dr. Ajay Mathur (President & CEO – Senergy Global Private Limited) to carry out necessary formalities of instructions on allocation of CERs from the candidate CDM project.

Signed on behalf of Vishal Plastomer Private Limited

Dipak S. Mehta
Director

Dr. Ajay Mathur
(Senergy Global Private Limited)

Signature Attested

For Vishal Plastomer Private Limited

Director



July 4, 2006

**STATEMENT OF MODALITIES OF COMMUNICATING WITH
THE CDM EXECUTIVE BOARD AND THE UNFCCC
SECRETARIAT**

10.6 MW wind farm at Village Badabagh, District Jaisalmer, Rajasthan

Further to the proposed registration of subject grid connected wind power projects in Rajasthan, India, please note that:

We, Suzlon Green Power Limited, having our registered office at Suzlon House, Shree Krishna Centre, Navrangpura, Ahmadabad – 380 009, India who are the project participant hereby authorize Dr. Ajay Mathur (President – Senergy Global Private Limited) to carry out necessary formalities of instructions on allocation of CERs from the candidate CDM project.

Signed on behalf of Suzlon Green Power Limited

Authorized Signatory

Dr. Ajay Mathur
(Senergy Global Private Limited)

Signature Attested
Authorized Signatory

SUZLON GREEN POWER LIMITED

Regd. Office : Suzlon House, Near Shree Krishna Centre, Navrangpura, Ahmedabad - 380 009. India

NAVBHARAT BUILDCON [P] LTD.

Jaipur Road, Madanganj-Kishangarh (Raj.)
Ph. 01463-242038, 245638

Ref.

Date:

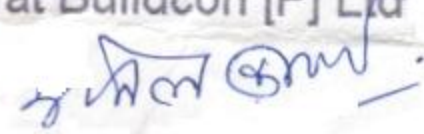
STATEMENT OF MODALITIES OF COMMUNICATING WITH THE CDM EXECUTIVE BOARD AND THE UNFCCC SECRETARIAT

10.6 MW Grid Connected wind electricity project at Bada Bagh Dist., Jaisalmer
(Rajasthan) in India

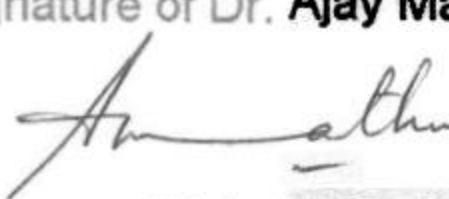
Further to the proposed registration of subjected grid connected wind power
projects in Rajasthan, India. Please note that:

We, Navbharat Buildcon [P] Limited, Jaipur Road, Madanganj-
Kishangarh, Distt. Ajmer (Raj.), who are the project participant hereby
authorize Dr. Ajay Mathur (President & CEO- Senergy Global Private
Limited) to carry out necessary formalities of instructions on allocation of
CERs from the candidate CDM project.

Signed on behalf of Navbharat Buildcon [P] Ltd

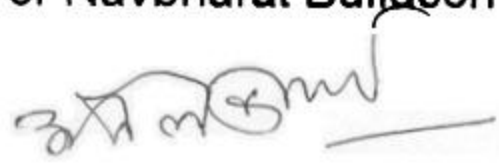

(Anil Kumar Lunadia)
Director

Signature of Dr. Ajay Mathur


(Senergy Global Private Limited)

Signature Attested

For Navbharat Buildcon [P] Ltd.,


(Anil Kumar Lunadia)
Director