

PROJECT DESIGN DOCUMENT FORM (PDD)

CONTENTS

- A. General description of project activity
- B. Application of a baseline and monitoring methodology
- C. Duration of the project activity / crediting period
- D. Environmental impacts
- E. Stakeholders' comments

Annexes

Annex 1: Contact information on participants in the project activity

Annex 2: Information regarding public funding

Annex 3: Baseline information

Annex 4: Monitoring plan

Appendix 1: Location Map

Appendix 2: Minutes of local stakeholder meeting

SECTION A. General description of project activity**A.1 Title of the project activity:**

>>

Title: Bundled wind energy generation projects in Gujarat, India

Version: 4.0

Date: 22/05/2007

A.2. Description of the project activity:

>>

Objective of the Projects

The objective of the Projects is development, design, engineering, procurement, finance, construction, operation and maintenance of wind power projects in the Indian state of Gujarat to provide reliable, renewable power to the Gujarat state electricity grid and the Western regional electricity grid. The energy supplied to the grid is drawn at the destination for the captive consumption. The wheeling of the electricity from the generating source to the destination for self consumption (captive consumption) is guided by the wheeling and banking arrangement. The Projects will lead to reduced greenhouse gas emissions because they displace electricity from fossil fuel based electricity generation plants.

Nature of Projects

The Projects harness renewable resources in the region, and thereby displacing non-renewable natural resources thereby ultimately leading to sustainable economic and environmental development.

The 59.4 MW bundled Project comprises 3 numbers of 600 kW E-40 and 72 numbers of 800 kW E-48 Enercon-make wind energy converters. Enercon (India) Ltd (EIL) is the equipment supplier and the operations and maintenance contractor for the Projects. All the projects in this bundle of Gujarat are captive wind power projects. All the projects are connected to the Gujarat state electricity grid. The details of the Projects are provided below:

Table 1 : Details of the Projects

Sr.No.	Name of Customer	Name of Site	Name of State	M/C Model		Total MW	Year of Commissioning
				E-40	E-48		
1	Desai Textiles	Navadra	Gujarat	1		0.60	Jun-04
2	Rivaa Textiles Ltd	Navadra	Gujarat	2		1.20	Aug-04
3	Dinesh Mills	Bamnasa	Gujarat		5	4.00	Mar-05
4	Gujarat Guardian Ltd.	Bamnasa	Gujarat		13	10.40	Mar-05
5	Gujarat Guardian Ltd.	Bamnasa	Gujarat		1	0.80	Jul-05
6	Shreeji Prints Pvt. Ltd.	Bamnasa	Gujarat		2	1.60	Aug-05
7	Rachana Art Prints Pvt. Ltd.	Bamnasa	Gujarat		1	0.80	Aug-05
8	Kanishka Prints P. Ltd.	Bamnasa	Gujarat		1	0.80	Aug-05
9	Rajshanti Metals Pvt Ltd	Kuranga	Gujarat		1	0.80	Nov-05
10	Prabhat Elastomers P. Ltd.	Kuranga	Gujarat		2	1.60	Nov-05
11	Ahmedabad Strips P. Ltd.	Kuranga	Gujarat		1	0.80	Dec-05

PROJECT DESIGN DOCUMENT FORM (PDD)

page 3

12	Austin Engineering Co Ltd	Kuranga	Gujarat		1	0.80	Dec-05
13	Indo Fashions Pvt. Ltd.	Kuranga	Gujarat		1	0.80	Dec-05
14	Inova Cast Pvt Ltd	Kuranga	Gujarat		1	0.80	Dec-05
15	Nawaz Silk Mill	Kuranga	Gujarat		1	0.80	Dec-05
16	Rajhans Metals Pvt Ltd	Kuranga	Gujarat		1	0.80	Dec-05
17	Surbhi Industries Ltd.	Kuranga	Gujarat		1	0.80	Dec-05
18	Eagle Fibres P. Ltd.	Kuranga	Gujarat		1	0.80	Feb-06
19	Ravikan Ceramics Pvt. Ltd.	Navadra	Gujarat		1	0.80	Mar-06
20	Manish Packaging P. Ltd.	Kuranga	Gujarat		1	0.80	Mar-06
21	Unique Tags Private Limited	Navadra	Gujarat		1	0.80	Mar-06
22	Jagdish Technocast Pvt. Ltd.	Navadra	Gujarat		1	0.80	Mar-06
23	Excel Crop Care Limited	Navadra	Gujarat		1	0.80	Mar-06
24	Bhavani Industries	Navadra	Gujarat		1	0.80	Mar-06
25	Shree Sai Calnates India (P) Ltd.	Navadra	Gujarat		1	0.8	Mar-06
26	Shilp Gravures Ltd.	Navadra	Gujarat		1	0.80	Mar-06
27	Empilon Fabrics P. Ltd.	Navadra	Gujarat		1	0.80	Mar-06
28	Leamak Healthcare P. Ltd.	Navadra	Gujarat		1	0.80	Mar-06
29	Jayant Agro-Organics Limited	Navadra	Gujarat		2	1.60	Mar-06
30	Gujarat Guardian Ltd.	Kurunga	Gujarat		7	5.60	Aug-06
31	Madhusudan Special Solutions	Satapar	Gujarat		1	0.80	Sep-06
32	Echjay Industries P. Ltd.	Satapar	Gujarat		6	4.80	Sep-06
33	Gujarat Guardian Ltd.	Satapar	Gujarat		8	6.40	Sep-06
34	Mascot Forge Pvt. Ltd.	Satapar	Gujarat		1	0.80	Sep-06
35	Sayaji Iron & Engineering Co.	Satapar	Gujarat		1	0.80	Sep-06
36	Zydex Industries	Satapar	Gujarat		1	0.80	Sep-06
37	Transmetal Limited	Navadara	Gujarat		1	0.80	Mar-06
		Total		3	72	59.40	

Contribution to sustainable development

The Projects meet several sustainable development objectives including:

- contribution towards the policy objectives of Government of India and Government of Gujarat of incremental capacity from renewable sources;
- contribution towards meeting the electricity deficit in Gujarat;
- expansion and diversification in the fuel mix of the Gujarat sector that is susceptible to variation in hydrology;
- CO₂ abatement and reduction of greenhouse gas emissions through development of renewable technology;
- contribution to improved service delivery to a limited extent;

- improvement in the micro-economic efficiency of the sector through various innovations incorporated in the project activity;
- reducing the average emission intensity (SO_x, NO_x, PM, etc.), average effluent intensity and average solid waste intensity of power generation in the system;
- conserving natural resources including land, forests, minerals, water and ecosystems;
- developing the local economy and create jobs and employment, particularly in rural areas, which is a priority concern for the Government of India;
- building capacity and empowerment of vulnerable sections of the rural communities in the vicinity of the project; and
- increasing income security of vulnerable sections of the society through redistribution benefits on account of the economic activities associated with the project.

A.3. Technical description of the project activity:
A.3.1. Location of the project activity:

>>

A.3.1.1. Region/State/Province etc.:

>>

The Projects are located in Western electricity grid region in the state of Gujarat. The Projects are located in the Jamnagar district.

A.3.1.2. City/Town/Community etc:

>>

Please see location details in A.3.1.3 below.

A.3.1.3. Detail of physical location, including information allowing the unique identification of this project activity (maximum one page):

>>

Table – 2: Details of Physical Location (Latitude -longitudes are provided in Appendix 3)

Sr.No.	Name of Customer	Name of Site	Name of State	Unique Identification
1	Desai Textiles	Navadra	Gujarat	W3
2	Rivaa Textiles Ltd	Navadra	Gujarat	EN/600/04-05/009-010
3	Dinesh Mills	Bamnasa	Gujarat	EN/800/04-05/0042-0046
4	Gujarat Guardian Ltd.	Bamnasa	Gujarat	EIL/800/04-05/0029-0041
5	Gujarat Guardian Ltd.	Bamnasa	Gujarat	EIL/800/05-06/0063
6	Shreeji Prints Pvt. Ltd.	Bamnasa	Gujarat	EIL/800/05-06/0064-0065
7	Rachana Art Prints Pvt. Ltd.	Bamnasa	Gujarat	EIL/800/05-06/0066
8	Kanishka Prints P. Ltd.	Bamnasa	Gujarat	EIL/800/05-06/0067
9	Rajshanti Metals Pvt Ltd	Kuranga	Gujarat	EIL/800/05-06/0078
10	Prabhat Elastomers P. Ltd.	Kuranga	Gujarat	EIL/800/05-06/0072-0073

11	Ahmedabad Strips P. Ltd.	Kuranga	Gujarat	EIL/800/05-06/0080
12	Austin Engineering Co Ltd	Kuranga	Gujarat	EIL/800/05-06/0090
13	Indo Fashions Pvt. Ltd.	Kuranga	Gujarat	EIL/800/05-06/0086
14	Inova Cast Pvt Ltd	Kuranga	Gujarat	EIL/800/05-06/0091
15	Nawaz Silk Mill	Kuranga	Gujarat	EIL/800/05-06/0084
16	Rajhans Metals Pvt Ltd	Kuranga	Gujarat	EIL/800/05-06/0088
17	Surbhi Industries Ltd.	Kuranga	Gujarat	EIL/800/05-06/0085
18	Eagle Fibres P. Ltd.	Kuranga	Gujarat	EIL/800/05-06/0107
19	Ravikan Ceramics Pvt. Ltd.	Navadra	Gujarat	EIL/800/05-06/0122
20	Manish Packaging P. Ltd.	Kuranga	Gujarat	EIL/800/05-06/0122
21	Unique Tags Private Limited	Navadra	Gujarat	EIL/800/05-06/0102
22	Jagdish Technocast Pvt. Ltd.	Navadra	Gujarat	EIL/800/05-06/0104
23	Excel Crop Care Limited	Navadra	Gujarat	EIL/800/05-06/0106
24	Bhavani Industries	Navadra	Gujarat	EIL/800/05-06/0103
25	Shree Sai Calnates India (P) Ltd.	Navadra	Gujarat	EIL/800/05-06/0108
26	Shilp Gravures Ltd.	Navadra	Gujarat	EIL/800/05-06/0119
27	Empilon Fabrics P. Ltd.	Navadra	Gujarat	EIL/800/05-06/0121
28	Leamak Healthcare P. Ltd.	Navadra	Gujarat	EIL/800/05-06/0120
29	Jayant Agro-Organics Limited	Navadra	Gujarat	EIL/800/05-06/0110-0111
30	Gujarat Guardian Ltd.	Kurunga	Gujarat	EIL/800/06-07/0070-0076
31	Madhusudan Special Solutions	Satapar	Gujarat	EIL/800/06-07/0160
32	Echjay Industries P. Ltd.	Satapar	Gujarat	EIL/800/06-07/0162-0167
33	Gujarat Guardian Ltd.	Satapar	Gujarat	EIL/800/06-07/0181-0188
34	Mascot Forge Pvt. Ltd.	Satapar	Gujarat	EIL/800/06-07/0168
35	Sayaji Iron & Engineering Co.	Satapar	Gujarat	EIL/800/06-07/0169
36	Zydex Industries	Satapar	Gujarat	EIL/800/06-07/0189
37	Transmetal Limited	Navadara	Gujarat	EIL/800/05-06/0105

A.3.2. Category(ies) of project activity:

>>

The project activity is considered under CDM category zero-emissions ‘**grid-connected electricity generation from renewable sources**’ that generates electricity in excess of 15 MW (limit for small scale project). Therefore as per the scope of the project activity enlisted in the ‘list of sectoral scopes and related approved baseline and monitoring methodologies (version 02 Mar 05/07:23)’, the project activity may principally be categorized in Scope Number 1, Sectoral Scope - Energy industries (renewable/ non-renewable sources).

A.3.3. Technology to be employed by the project activity:

>>

The Projects involve Enercon made 600 kW E-40 and 800 kW E-48 rated wind energy converters (WECs) with internal electrical lines connecting the Projects with local evacuation facility. The WECs generates 3-phase power at 400V, which is stepped up to 33 KV. The wind farms operate as base load

units and can operate in the frequency range of 47.5–51.5 Hz and in the voltage range of 400 V $\pm$ 12.5%. The other salient features of the state-of-art-technology are:

- Gearless Construction - Rotor & Generator Mounted on same shaft eliminating the Gearbox.
- Variable Speed function ensuring optimum efficiency at all times. Having speed range of 18 to 33 RPM.
- Variable Pitch functions ensuring maximum energy capture.
- Near Unity Power Factor at all times.
- Minimum drawl (less than 1% of kWh generated) of Reactive Power from the grid.
- No voltage peaks at any time.
- Operating range of the WEC with voltage fluctuation of -20 to +20%.
- Less Wear & Tear since the system eliminates mechanical brake, which are not needed due to low speed generator which runs at maximum speed of 33 rpm and uses Air Brakes.
- Three Independent Braking System.
- Generator achieving rated output at only 33 rpm.
- Incorporates lightning protection system, which includes blades.
- Starts Generation of power at wind speed of 3 m/s.

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 other components the "Synchronous Generators" using "Vacuum Impregnation" technology are manufactured. Moreover, Enercon India Limited has acquired capabilities to export synchronous generators and blades of the wind turbines, is recognized as an export house by the Government of India and has successfully exported wind turbines to Australia.

A.3.4 Estimated amount of emission reductions over the chosen crediting period:

>>

Crediting Period for the Projects: 01/06/2004 to 31/12/2006

Years	Annual estimation of emission reductions in tonnes of CO₂e
2004	992
2005	24,152
2006	68,155
Total estimated reductions (tonnes of CO ₂ e)	93,299

A.3.5. Public funding of the project activity:

>>

There is no ODA financing involved in the Project.

SECTION B. Application of a baseline and monitoring methodology

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

>>

The approved consolidated baseline and monitoring methodology **ACM0002 Version 6.0** (19 May 2006) has been used. The titles of these baseline and monitoring methodologies are "Consolidated baseline

methodology for grid-connected electricity generation from renewable sources” and “Consolidated monitoring methodology for grid-connected electricity generation from renewable sources.

B.2 Justification of the choice of the methodology and why it is applicable to the project activity:

>>

The Projects are wind based renewable energy source, zero emission power project connected to the Gujarat state grid, which forms part of the Western regional electricity grid. The Projects will displace fossil fuel based electricity generation that would have otherwise been provided by the operation and expansion of the fossil fuel based power plants in Western regional electricity grid. The power generated is fed to the grid and is wheeled to the industry for captive consumption. The projects are guided by the wheeling arrangement for wheeling the electricity from the generating source to the destination for captive consumption.

The approved consolidated baseline and monitoring methodology ACM0002 Version 6 is the choice of the baseline and monitoring methodology and it is applicable because:

- the Projects are grid connected renewable power generation project activities where in the energy generated is wheeled to the destination for captive consumption.
- the Projects represent electricity capacity additions from wind sources
- the Projects do not involve switching from fossil fuel to renewable energy at the site of project activity since the Projects are green-field electricity generation capacities from wind sources at sites where there was no electricity generation source prior to the Projects
- the geographical and system boundaries of the Western electricity grid can be clearly identified and information on the characteristics of the grid is available.

B.3. Description of the sources and gases included in the project boundary

>>

The project boundary encompasses the physical, geographical site of the Projects sited at the Project Location. It would include the wind turbine installations and pooling sub-stations up to the Metering Points.

According to ACM0002, for the baseline emission factor, the spatial extent of the project boundary includes the project site and all power plants connected physically to the electricity system that the CDM project power plant is connected to.

The Indian electricity system is divided into five regional grids, viz. Northern, Eastern, Western, Southern, and North-Eastern. Each grid covers several states. As the regional grids are interconnected, there is inter-state and inter-regional exchange. A small power exchange also takes place with neighbouring countries like Bhutan and Nepal.

Power generation and supply within the regional grid is managed by Regional Load Dispatch Centre (RLDC). The Regional Power Committees (RPCs) provide a common platform for discussion and solution to the regional problems relating to the grid. Each state in a regional grid meets its demand with its own generation facilities and also with allocation from power plants owned by the Central Sector such as NTPC and NHPC etc. Specific quotas are allocated to each state from the Central Sector power plants. Depending on the demand and generation, there are electricity exports and imports between states in the regional grid. The regional grid thus represents the largest electricity grid where power plants can be dispatched without significant constraints and thus, represents the “project electricity system” for the

Projects. As the Projects are connected to the Western regional electricity grid, the Western grid is the “project electricity system”.

	Source	Gas	Included?	Justification/ Explanation
Baseline	Electricity generation from power plants connected to the Western Grid	CO ₂	Included	Main emission source
		CH ₄	Excluded	This source is not required to be estimated for wind energy projects under ACM0002
		N ₂ O	Excluded	This source is not required to be estimated for wind energy projects under ACM0002
Project Activity	Electricity generation from the Projects	CO ₂	Excluded	Wind energy generation does not have any direct GHG emissions.
		CH ₄	Excluded	
		N ₂ O	Excluded	

B.4. Description of how the baseline scenario is identified and description of the identified baseline scenario:

>>

According to ACM0002, for project activities that do not modify or retrofit an existing electricity generation facility, the baseline scenario is the following:

Electricity delivered to the grid by the project would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources, as reflected in the combined margin (CM) calculations described below.

As the Projects do not modify or retrofit an existing generation facility, the baseline scenario is the emissions generated by the operation of grid-connected power plants and by the addition of new generation sources. This is estimated using calculation of Combined Margin multiplied by electricity delivered to the grid by the Projects.

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 project activity:

>>

Common Practice Test

Provision of underlying service or product with the project technology does not exceed 51% in the defined market area.

Investment in wind energy projects in the State of Gujarat and the Western regional electricity grid are not mandatory. There are no national or local laws or regulations that require this investment to be undertaken, i.e., setting up of wind power projects. The setting up of wind energy projects is a voluntary activity.

We analyze the extent to which wind energy projects have diffused in the electricity sector in Gujarat. In 2004 – 05, wind electricity generation was 350 GWh¹ and the total electricity availability from all the sources at bus-bar in the state of Gujarat was 53410 GWh². This works out to 0.65%, showing that wind energy power generation is insignificant as compared to other power project generation sources in Gujarat.

Installed capacity of wind energy generation sources stood at 219.9 MW³ as of 31 March 2005.

Clearly, wind power project development in Gujarat is insignificant when compared to the power sector of Gujarat. Further, wind power project development is substantially dependent on CDM mechanism and thus is not common practice.

Enforcement of applicable laws and regulations

- Local or National Legislation does not require the production of the underlying service or product with the chosen technology.
- Additionally, the Project should not have been undertaken to meet a formal or voluntary target imposed by government regulation or under agreement with a government agency (e.g. the auto manufacturers and the EU, where companies agree to meet reduction targets voluntarily through their industry association).
- Carbon credits should not be the by-product from the creation of an ancillary environmental asset and/or financial instrument (e.g. renewable energy credits).
- The emission reductions from the Project must not have been used against any voluntary corporate emission reduction targets.
- Project is not a downstream energy efficiency project in a jurisdiction with a mandatory GHG emissions cap on upstream electricity generators.

There is no legal and regulatory requirement that mandates the production of energy by the chosen technology. Investment in wind energy projects in the State of Gujarat and the western regional electricity grid are not mandatory. There are no national or local laws or regulations that require this investment to be undertaken, i.e., setting up of wind power projects. The setting up of wind energy projects is a voluntary activity.

Carbon credits produced are not the by-products from the creation of an ancillary environmental asset. The emission reductions from the project are not used for against any voluntary corporate emission reduction targets. India is a Non-Annex-1 and has not yet capped the emission reduction target for any industry. Hence project is not the down stream energy efficiency project and is not mandated by jurisdiction

¹ Source: Table No. 3.4, CEA General Review 2006

² Source: Table No. 5.2, CEA General Review 2006

³ Source: Table No. 2.4, CEA General Review 2006

Carbon credits should not be the byproduct from the creation of an ancillary environmental asset and/or financial instrument (e.g. renewable energy credits).

There are no renewable energy credits that are being produced from the project activity. The carbon credits are the only credits that are generated from the project activity.

The emission reductions from the Project must not have been used against any voluntary corporate emission reduction targets.

India being a non Annex 1 country does not have any emission reduction targets. Thus the emission reductions generated from the project activity are not being used to meet any voluntary corporate emission reduction target.

Project is not a downstream energy efficiency project in a jurisdiction with a mandatory GHG emissions cap on upstream electricity generators.

This is not applicable to the project activity falls under the purview of electricity generation from renewable energy sources.

The project is not the least cost option for providing the underlying product or service.

- Companies shall provide calculations that illustrate that the project is not the Least Cost Option.

The cost of generation from the various options available to the investors is compiled in the table given below. The cost of each of the categories is compared against the cost of generation from the wind power projects which is considerably higher. Gujarat electricity regulatory commission has given the tariff based on cost of generation at Rs. 3.37, which is considerably higher than the cost of generation listed in the table below (Data for the cost of generation has been compiled from the tariff order of Gujarat State Electricity Corporation Limited (GSECL) dated 31st March 2007). Hence we can state from the above analysis that wind energy is not the least cost option for the off takers of electricity.

Sl.No.	Station	Net Generation	Annual Fixed Charges	Fixed Cost Per Unit	Variable Charges	Total Cost Per Unit
		(MU)	(Rs. Lakhs)	(Rs./Kwh)	Rs./kWh.	Rs./Unit
	<u>Thermal</u>					
1	Ukai TPS	4,744	17,248	0.36	1.47	1.83
2	Gandhinagar 1-4	3,340	18,621	0.56	1.65	2.21
3	Gandhinagar –5	1,481	7,780	0.53	1.46	1.99
4	Wanakbori 1-6	8,135	29,557	0.36	1.65	2.01
5	Wanakbori – 7	1,481	7,843	0.53	1.63	2.16
6	Sikka	1,408	9,016	0.64	1.99	2.63
7	<u>Lignite Based</u>					
8	KLTPS - 1-3	1,157	16,384	1.42	1.07	2.49
9	KLTPS – 4	144	4,250	2.95	1.01	3.96
10	<u>Oil and Gas Based</u>					
11	Dhuvaran Oil	1,303	7,852	0.60	3.76	4.36
12	Dhuvaran Gas-1	693	4,433	0.64	2.25	2.89
13	Dhuvaran Gas-2	756	6,255	0.83	2.23	3.06
14	Utran Gas	877	4,476	0.51	1.98	2.49

	Hydro					
1.	Ukai Hydro	525	2659	0.51	0	0.51
2.	Kadana Hydro	144	8112	5.63	0	5.63

B.6. Emission reductions:**B.6.1. Explanation of methodological choices:**

>>

According to the approved baseline methodology ACM0002, the emission reductions ER_y by the project activity during a given year “y”¹ is

$$ER_y = BE_y - PE_y - Ly \dots \dots \dots (1)$$

BE_y is the baseline emissions

PE_y is project activity emissions and;

Ly is the amount of emissions leakage resulting from the project activity.

Baseline Emissions for the amount of electricity supplied by project activity, BE_y is calculated as

$$BE_y = EG_y * EF_y \dots \dots \dots (2)$$

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 (OM) and the Build Margin (BM). Considering the emission factors for these two margins as $EF_{OM,y}$ and $EF_{BM,y}$, then the EF_y is given by:

$$EF_y = w_{OM} * EF_{OM,y} + w_{BM} * EF_{BM,y} \dots \dots \dots (2)$$

with respective weight factors w_{OM} and w_{BM} (where $w_{OM} + w_{BM} = 1$).

The Operating Margin emission factor

As per ACM0002, dispatch data analysis should be the first methodological choice. However, this option is not selected because the information required to calculate OM based on dispatch data is not available in the public domain for the Western electricity regional grid.

The Simple Operating Margin approach is appropriate to calculate the Operating Margin emission factor applicable in this case. As per ACM 0002 the Simple OM method can only be used where low cost must run resources constitute less than 50% of grid generation based on average of the five most recent years. The generation profile of the Western grid in the last five years is as follows:

¹ Throughout the document, the suffix y denotes that such parameter is a function of the year y, thus to be monitored at least annually.

Generation in GWh	2004-05	2003-04	2002-03	2001-02	2000-01
Low cost/must run sources					
Hydro	10,610	9,282	8,172	7,928	7,174
Wind & Renewables	884	1,522	879	610	314
Nuclear	5,100	5,700	6,200	6,073	5,903
Other sources					
Coal	141,964	136,063	137,392	133,628	128,561
Diesel	-	-	-	-	-
Gas	25,526	21,508	18,713	16,072	21,280
Total Generation	184,084	174,075	171,356	164,311	163,232
Low cost/must run sources	16,594	16,504	15,251	14,611	13,391
Low cost/must run sources	9%	9%	9%	9%	8%

Source: Table 3.4 of CEA General Review 2004-05, 2003-04, 2002-03, 2001-02, 2000-01

From the available information it is clear that low cost/must run sources account for less than 50% of the total generation in the Western grid in the last five years. Hence the Simple OM method is appropriate to calculate the Operating Margin Emission factor applicable.

Build Margin Emission Factor

The Build Margin emission factor $EF_{BM,y}$ (tCO₂/GWh) is given as the generation-weighted average emission factor of the selected representative set of recent power plants represented by the 5 most recent plants or the most recent 20% of the generating units built (summation is over such plants specified by k):

$$EF_{BM,y} = [\sum_i F_{i,m,y} * COEF_i] / [\sum_k GEN_{k,m,y}] \dots \dots \dots (5)$$

The summation over i and k is for the fuels and electricity generation of the plants in sample m mentioned above.

The choice of method for the sample plant is the most recent 20% of the generating units built as this represents a significantly larger set of plants for a large regional electricity grid having a large number of power plants connected to it and is therefore appropriate.

The Central Electricity Authority, Ministry of Power, Government of India has published a database of Carbon Dioxide Emission from the power sector in India based on detailed authenticated information obtained from all operating power stations in the country. This database i.e. The CO₂ Baseline Database provides information about the Operating Margin and Build Margin Emission Factors of all the regional electricity grids in India. The Operating Margin in the CEA database is calculated ex ante using the Simple OM approach and the Build Margin is calculated ex ante based on 20% most recent capacity additions in the grid based on net generation as described in ACM0002. We have, therefore, used the Operating Margin and Build Margin data published in the CEA database, for calculating the Baseline Emission Factor.

Combined Margin Emission Factor

As already mentioned, baseline emission factor (EF_y) of the grid is calculated as a combined margin (CM), calculated as the weighted average of the operating margin (OM) and build margin (BM) factor. In case of wind power projects default weights of 0.75 for EF_{OM} and 0.25 for EF_{BM} are applicable as per ACM0002. No alternate weights are proposed.

Using the values for operating margin and build margin emission factors provided in the CEA database and their respective weights for calculation of combined margin emission factor, the baseline carbon emission factor (CM) is 940.22 tCO₂e/GWh or 0.94022 tCO₂e/MWh.

Project Emissions:

The project activity uses wind power to generate electricity and hence the emissions from the project activity are taken as nil.

$$PE_y = 0$$

Leakage:

Emissions Leakage on account of the project activity is ignored in accordance with ACM0002.

$$L_y = 0$$

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

Data / Parameter:	$EF_{OM,y}$							
Data unit:	tCO ₂ e/MWh							
Description:	Operating Margin Emission Factor of Western Electricity Grid							
Source of data used:	“CO₂ Baseline Database for Indian Power Sector” published by the Central Electricity Authority, Ministry of Power, Government of India. The “CO₂ Baseline Database for Indian Power Sector” is available at www.cea.nic.in							
Value applied:	<table><tr><td>2002 – 03</td><td>0.9814</td></tr><tr><td>2003 – 04</td><td>0.9903</td></tr><tr><td>2004 – 05</td><td>1.0119</td></tr></table>		2002 – 03	0.9814	2003 – 04	0.9903	2004 – 05	1.0119
2002 – 03	0.9814							
2003 – 04	0.9903							
2004 – 05	1.0119							
Justification of the choice of data or description of measurement methods and procedures actually applied :	Operating Margin Emission Factor has been calculated by the Central Electricity Authority using the simple OM approach in accordance with ACM0002.							

Data / Parameter:	<i>EF_{BM,y}</i>	
Data unit:	tCO ₂ e/MWh	
Description:	Build Margin Emission Factor of Western Electricity Grid	
Source of data used:	“CO₂ Baseline Database for Indian Power Sector” published by the Central Electricity Authority, Ministry of Power, Government of India. The “CO₂ Baseline Database for Indian Power Sector” is available at www.cea.nic.in	

Value applied:	0.7772
Justification of the choice of data or description of measurement methods and procedures actually applied :	Build Margin Emission Factor has been calculated by the Central Electricity Authority in accordance with ACM0002.

B.6.3 Ex-ante calculation of emission reductions:

>>

See B.6.4 below.

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

>>

Year	Estimation of project activity emissions (tonnes of CO ₂ e)	Estimation of baseline emissions (tonnes of CO ₂ e)	Estimation of leakage (tonnes of CO ₂ e)	Estimation of overall emission reductions (tonnes of CO ₂ e)
2004	0	992	0	992
2005	0	24,152	0	24,152
2006	0	68,155	0	68,155
Total (tonnes of CO₂e)	0	93,299	0	93,299

B.7 Application of the monitoring methodology and description of the monitoring plan:**B.7.1 Data and parameters monitored:**

B.7.1 Data and parameters monitored:	
Data / Parameter:	EGy
Data unit:	MWh (Mega-watt hour)
Description:	Net electricity supplied to the grid by the Projects
Source of data to be used:	Certification of metering records and share certificate for electricity produced by wind farm provided by GEDA (Gujarat Energy Development Agency)
Value of data applied for the purpose of calculating expected emission reductions in section B.5	2006: 72,488,586 kWh 2005: 25,687,600 kWh 2004: 1,055,294 kWh
Description of measurement methods and procedures to be applied:	Net electricity supplied to grid is measured by main meters (export and import) at the Metering Point. This is further described in Annex – 2.
QA/QC procedures to be applied:	QA/QC procedures are elaborated in Annex – 2 (Monitoring Plan).
Any comment:	The meter testing and checking procedures that are solely within the purview of GETCO (Gujarat Energy Transmission Corporation Limited), i.e., frequency of testing of main/check meters, quality and standards of portable meter testing equipment, testing and calibration of portable meter testing equipment using a

	meter testing bench, testing and calibration of meter testing bench, etc. are outside the purview of the monitoring plan for the Projects.
--	--

B.7.2 Description of the monitoring plan:

>>

Approved monitoring methodology ACM0002 / Version 06 Sectoral Scope: 1, "Consolidated monitoring 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.

This approved monitoring methodology requires monitoring of the following:

- Electricity generation from the project activity; and
- Operating margin emission factor and build margin emission factor of the grid, where *ex post* determination of grid emission factor has been chosen

Since the baseline methodology is based on *ex ante* determination of the baseline, the monitoring of operating margin emission factor and build margin emission factor is not required.

Hence, under the monitoring protocol for the Project it is required to monitor the units of electricity supplied to the grid by the wind farms. The monitoring procedures and QA/QC procedures are provided in Annex – 2 (Monitoring Plan)

The Projects are operated and managed by Enercon (India) Ltd.

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:

>>

The start date of the Projects is the date of purchase order for the first sub-project to be commissioned. This project is Sr. No. 01 (Desai Textiles) in Table – I and the date of purchase order is 29/01/2004.

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

>>

20 years

C.2 Crediting period and related information:

C.2.1. Starting date of the crediting period:

>>

01/06/2004 for all projects.

C.2.2. End of crediting period:

>>

31/12/2006

SECTION D. Environmental impacts

>>

D.1. Documentation on the analysis of the environmental impacts, including transboundary impacts:

>>

Enercon appointed Care Sustainability to conduct rapid environmental impact assessment study to assess the impact of the project on the local environment.

Environmental Impact Assessment (EIA) of this project is not an essential regulatory requirement, as it is not covered under the categories as described in EIA Notification of 1994 or the Amended Notification of 2006. However, Enercon conducted the EIA to study impacts on the environment resulting from the project activity.

The EIA study included identification, prediction and evaluation of potential impacts of the CDM activities on air, water, noise, land, biological and socio-economic environment within the study area. The ambient air concentrations of Suspended Particulate Matter, Respirable Particulate Matter, Oxides of Nitrogen, Sulphur dioxide and Carbon Monoxide were monitored and were found under limits as specified by CPCB. The noise levels were observed through out the study period and were found to be in the permissible range as specified by the state pollution control board and National Ambient Air Quality Standards. Water quality monitoring studies were carried out for determination of physico-chemical characteristics of bore wells. The ph level of water was found to be under the specified limits.

The site does not involve any sensitive archaeological monuments as per the Archaeological Survey of India. No Historical and Cultural Monuments have been affected due to project location. The project area consists of some grass shrubs and does not have much to offer aesthetically. However, construction of wind power mills with pleasing architectural design that blends with the landscape will have a positive impact on the aesthetics of the present surrounding of the site.

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:

>>

EIA demonstrated that there is no major impact on the environment due to the installation and operation of the windmills. The ecology is not likely to get impacted by this type of project activity. The local population confirmed that there is no noise or dust nuisance due to windmills. The EIA also ruled out any adverse impacts due to the project activity.

SECTION E. Stakeholders' comments

>>

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

>>

The comments from local stakeholders were invited through a local stakeholder meeting conducted at Satapar site office, Jamnagar on 16 December 2006. A local newspaper advertisement was placed in *Aajkal* on 2nd December 2006 inviting the local stakeholders for the meeting.

The local stakeholder consultation meeting had representatives from the nearby villages, representatives of Enercon. The minutes of the meeting are set out in Appendix 1.

E.2. Summary of the comments received:

>>

The comments from local villagers included:

- The nature of benefits that local stakeholders will get
- Impact on the grazing of local cattle
- Impact on any migratory patterns of birds or fauna
- Addressing safety issues by Enercon, incidence of accidents
- Noise disturbance

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

>>

Enercon provided the following responses in relation to the comments received from the local stakeholders:

- The benefits to the local stakeholders will be through employment opportunities provided by the project in terms of construction workers. It will also lead to better connectivity to nearby towns.
- The project does not affect the grazing by the cattle. Enercon does not use any kind for boundary wall to protect their machines and hence the accessibility of cattle to areas for grazing and drinking water is not affected.
- The Project does not fall under migratory patterns of the birds.
- Enercon has appropriate protocols are in place to take care of all the safety issues. No incidence of accident has occurred.

The local stakeholders were satisfied with the explanations provided during the meeting.

Annex 1**CONTACT INFORMATION ON PARTICIPANTS IN THE PROJECT ACTIVITY**

Organization:	Enercon (India) Limited
Street/P.O.Box:	A-9, Veera Industrial Estate, Veera Desai Road, Andheri West-400053
Building:	Enercon Tower
City:	Mumbai
State/Region:	Maharashtra
Postfix/ZIP:	400 053
Country:	India
Telephone:	+91-22-66924848
FAX:	+91-22-67040473
E-Mail:	a.raghavan@enerconindia.net
URL:	
Represented by:	
Title:	Associate Vice President
Salutation:	Mr.
Last Name:	A V Raghavan
Middle Name:	
First Name:	
Department:	Corporate
Mobile:	+91-98200 45724
Direct FAX:	+91-22-5692 1175
Direct tel:	+91-22-6692 4848 extn. 7169
Personal E-Mail:	a.raghavan@enerconindia.net

Annex 2

INFORMATION REGARDING PUBLIC FUNDING

No ODA funding is sorted for this project.

Annex 3**BASELINE INFORMATION**

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

Simple Operating Margin

	tCO ₂ e/GWh
Simple Operating Margin - 2002-03	981.41
Simple Operating Margin - 2003-04	990.31
Simple Operating Margin - 2004-05	1011.94
Average Operating Margin of last three years	994.55

Build Margin

	tCO ₂ e/GWh
Build Margin	777.22

Combined Margin calculations

	Weights	tCO ₂ e/GWh
Operating Margin	0.75	994.55
Build Margin	0.25	777.22
Combined Margin		940.22

Detailed information on calculation of Operating Margin Emission Factor and Build Margin Emission Factor is available at www.cea.nic.in.

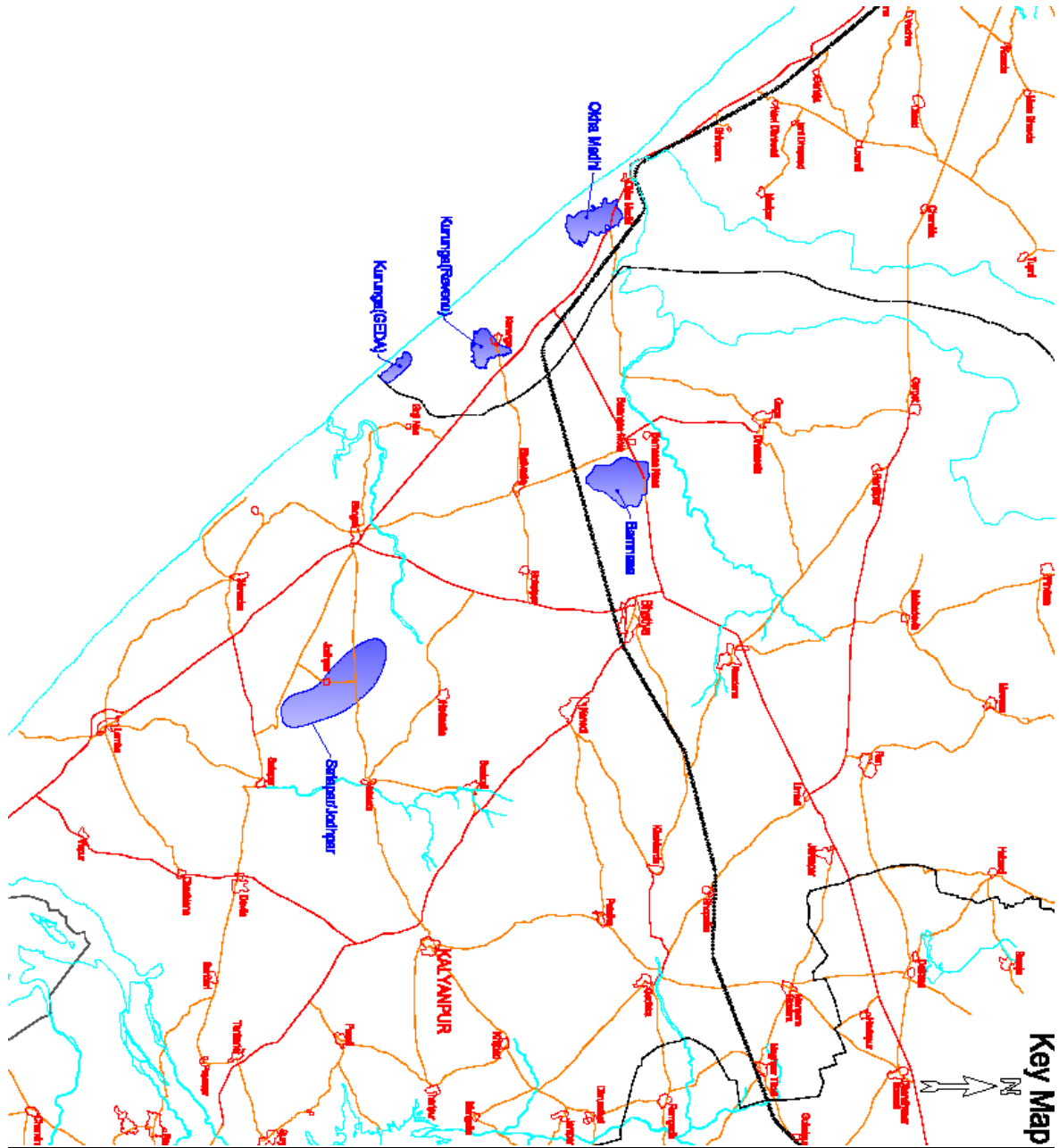
Annex 4

MONITORING INFORMATION

- The electricity supplied to the grid will be metered at the 132 kV level at the Bhogat substation and at the 66 kV at Navadra substation. Representatives of GEDA (Gujarat Energy Development Agency), GETCO (Gujarat Energy Transmission Corporation Limited) and Enercon will jointly take the main meter reading and sign the meter reading every month. Enercon has also installed the meters for each customer, which is sealed in presence of representatives of Enercon, GETCO (Gujarat Energy Transmission Corporation Limited) and GEDA (Gujarat Energy Development Agency).
- This value of the monthly joint meter reading of the EIL sub-station is then apportioned to the EB reading taken for each customer to get the net supply of electricity to the grid for that particular customer. The share certificate is signed by the GEDA (Gujarat Energy Development Agency) officials, which is used to produce invoice on behalf of the customer
- The meters will be jointly inspected/ tested once in a year as per the terms of the Wheeling arrangement. Joint inspection and testing will also be carried out as and when difference in monthly meter readings exceeds the sum of maximum error as per accuracy class of main and back up meters.
- In case the meters are found to operate outside the permissible limits, the meters will be either replaced immediately or calibrated.

Appendix 1 – Location Map

A.



Appendix 2 – Minutes of stakeholder consultation meeting

*Public Consultation Meeting of Wind Energy Projects for Clean Development Mechanism (CDM)
Project of Enercon (India) Limited situated at Satapar, Bamanasa, Navadra, Kuranga and Okhamati.,
Distt. Jamnagar, Gujarat.*

Kalyanpur, District Jamnagar, Gujarat (INDIA)**MINUTES OF THE MEETING**

Agenda : Local Public Consultation Meeting of stakeholder of Wind Energy Projects for Clean Development Mechanism.

Venue : Service Office, SATAPAR

Date : December 16, 2006

Time : 1500 hrs to 1800 hrs

Representative from the local stakeholders who were chief guest and shared the dash.

<u>Sr. No.</u>	<u>Name</u>	<u>Village</u>	<u>Port-folio</u>
01.	Mr. Markhi R Der	Navadra	Sarpanch
02.	Mr. Jodha bhai	Satapar	Dy. Sarpanch
03.	Mr. Mughabhai	Lamba	Sarpanch
04.	Mr. Chetaniya Ranabhai	Satapar	Sarpanch

The list of all other members representing other villages within the nearby vicinity is attached with this as Annexure 'A'. (Total list of 22 persons).

Following people were representing Enercon (India) Ltd for the purpose of this meeting;

Mr. Mahender Singh, Project Office

Mr. K .D. Baria, Service Office.

Mr. Vivek Sen, Corporate Office Mumbai

Mr. K.D. Baria invited the above representative of the different villages to chair the meeting.

The agenda of the meeting was fixed as follows :-

- | | | |
|----|---|---|
| 1. | Welcome | :-By Mr. Mahender Singh |
| 2. | Description of the project details | :-By Mr. K .D. Baria |
| 3. | Quarries from stakeholders | :- Stakeholders & villagers (open) |
| 4. | Vote of Thanks | :- By Mr. Mahender Singh & Mr. |

K.D. Baria

Welcome Address

Mr. Mahender Singh from Enercon (I) Limited welcomed all the people who came to take part in the meeting including the chief guest. There were more than 22 people from all the villages that fall in the region of the project sites.

Description of the project Details :

Mr. K.D. Baria highlighted the project description right from the beginning of the initial project in that area. The knowledge and awareness of the Wind farms was communicated to the local people in the local language. The wind farm projects falls in the category of the renewable energy. The meaning of the renewable energy was explained. The sites where the projects are located have no commercial activities and is a waste land procured through Government was explained to the villagers.

The advantage of the Wind Mills to the people in that region and to India as such was explained to the people. The optimum use of the barren land was explained to them. In addition to this several other support services augmented by the ENERCON to local people in terms of making available access road to the villages, transportation system, providing employment to the local people of skill and unskill category was explained to them.

The Wind Farm produces the clean and green energy and do not account for any kind of pollution as might be the case with other alternatives. The comparison between the wind farm projects and other alternatives was drawn in order to communicate the advantages that wind power possess over other alternatives of renewal energy available in India.

Mr. Mahender Singh

Mr. Mahender Singh briefed the advantages of the wind farm in the region and in India as a whole and emphasized on the employment opportunity being provided to the local people in the region and as a result of which the economic conditions of the local people has been improving in the region.

Mr. K.D. Baria

Mr. Kantilal D Baria emphasized that the economic conditions of the people and villagers in this area are not good. With the coming up of the wind farm projects of Enercon (India) Limited, there has been a tremendous improvement in the economic conditions of the villagers as the employment opportunities to the people in the form of Security guards, drivers, labourers, extending contract for construction work, road work and other avenues have been opened by the Enercon. The educated people have also been given permanent employment which are on the mustered roll of the company depending upon their competency and talent.

Mr. Vivek Sen

Mr. Vivek Sen explained the villagers about the basic concept of CDM and its importance in the current context of climatic change and concern of the nations around the world to tackle this change. He told how Enercon India Ltd is earning carbon credits and distributing the benefits to the project owners. He also emphasized that Enercon is doing a great work for the development of power infrastructure in the region along with the goal of contributing to the sustainable development.

The opinions, suggestions and concerns of the stakeholders were specially invited. The participants including the chief guest expressed the queries as given below. The representative of the ENERCON clarified them as given below :-

<u>Sl. No.</u>	<u>Quarries</u>	<u>Responses</u>
01.	Will the project affect the grazing of local cattle ?	No, the project do not affect the grazing of the cattle. Enercon (India) Limited does not use any kind of boundary wall to protect their machines and hence the accessibility of cattle to areas for grazing and drinking water is not affected in any manner.
02.	Do Enercon takes care of safety issues?	The Enercon (India) limited takes care about the safety issues. Appropriated protocols are in place to take care of all the safety issues.
03.	What are the benefits of the wind power projects that stakeholders shall observe?	The project will provide the people with the employment opportunities. The project will give further jobs to the deserving villagers so as to improve upon the economic conditions of the villagers and explore the opportunities in terms of assigning construction, road work to the deserving villagers.
04.	Will the project affect any migratory patterns of birds or fauna ?	The project does not fall under migratory patterns of the birds.
05.	During construction and erection has any incident of accident or damage occurred?	Till date no incident of accident has occurred. Even blasting is done under strict control and supervision with enough warning. Mainly ground blasting is practiced.
06.	Does the project help in improving the electricity supply to the villagers or neighbourhood areas ?	The duration of power supply to the villages has increased and also there is improvement in quality of the power supply. The power fluctuations in the voltage have remarkably decreased.
07.	Have you observed any noise disturbances from the project during construction and operation of the project?	No noise disturbances have been observed so far.

Vote of Thanks

Mr. Mahender Singh and Mr. K.D. Baria thanked all the people for sparing their time for this meeting and requested them to continue their support and cooperation towards the projects of ENERCON (INDIA) Limited in the vested interest of the local public and nation as a whole. All the appointed representative of the villages and also the local population present in the meeting expressed their happiness towards the Enercon (India) Limited for their noble gesture of organizing this meeting with the villagers and stakeholders.

Appendix III
Latitude and Longitude extend of the Project

S. No.	Name of Customer	M/C Model	Type of M/C	No. of M/C	Capacity (MW)	Site	Date of Commissioning	Meter Serial Number	Unique Identification No	Loc. No.	Latitude (Degree, Min., Sec.)	Longitude (Degree, Min., Sec.)
1	Ahmedabad Strips P. Ltd.	E-48	0.8	1	0.80	Kurunga	Dec-05	GJB 00442	EIL/800/05-06/0080	ASPLKRG-01	N22 00 41.0	E69 10 13.3
2	Austin Engineering Co Ltd	E-48	0.8	1	0.80	Kurunga	Dec-05	GJB 00597	EIL/800/05-06/0090	AECLKRG-01	N22 00 22.5	E69 10 45.6
3	Bhavani Industries	E-48	0.8	1	0.80	Navadara	Mar-06	GJB 00602	EIL/800/05-06/0103	BINA-01	N21 56 19.2	E69 17 00.7
4	Dinesh Mills	E-48	0.8	5	4.00	Bamnasa	Mar-05	GJB 00441	EN/800/04-05/0042-0046	SDMLBM-01	N22 05 52.6	E69 12 55.3
										SDMLBM-02	N22 05 38.9	E69 12 54.7
										SDMLBM-03	N22 05 34.5	E69 12 54.2
										SDMLBM-04	N22 05 29.8	E69 12 54.6
										SDMLBM-05	N22 05 25.2	E69 12 55.8
5	Desai Textiles	E-40	0.6	1	0.6	Navadra	June -04	1987044	W3	DTPL-01	N21 56 28.2	E69 14 21.4
6	Eagle Fibres P. Ltd.	E-48	0.8	1	0.80	Kurunga	Feb-06	GJB 00643	EIL/800/05-06/0107	EFPLKRG-01	N22 00 44.5	E69 10 21.1
7	Echjay Industries Pvt Ltd	E-48	0.8	6	4.8	Satapar	Sep-06	GJU 03940	EIL/800/06-07/0162-0167	EIPLSP-01	N21 58 31.1	E69 18 24.5
										EIPLSP-02	N21 58 26.3	E69 18 25.3
										EIPLSP-03	N21 58 21.7	E69 18 28.0
										EIPLSP-04	N21 58 16.9	E69 18 29.4
										EIPLSP-05	N21 58 12.2	E69 18 30.1
										EIPLSP-06	N21 58 07.5	E69 18 31.0
8	Empilon Fabrics P. Ltd.	E-48	0.8	1	0.80	Navadra	Mar-06	GJB 00610	EIL/800/05-06/0121	EFPLNA-01	N21 56 56.9	E69 16 58.1
9	Excel Crop Care Limited	E-48	0.8	1	0.80	Navadra	Mar-06	GJB 00607	EIL/800/05-06/0106	ECCLNA-01	N21 56 50.6	E69 16 36.9
10	Gujarat Guardian Ltd.	E-48	0.8	14	11.20	Bamnasa	Sep-03	GJB 00435	EIL/800/04-05/0029-0041, EIL/800/05-06/0063	GGLBM-01	N22 05 47.4	E69 13 12.1
										GGLBM-02	N22 05 42.7	E69 13 12.4
										GGLBM-03	N22 05 37.7	E69 13 12.7
										GGLBM-04	N22 05 32.9	E69 13 13.0
										GGLBM-05	N22 05 27.9	E69 13 12.3
										GGLBM-06	N22 05 23.3	E69 13 13.0
										GGLBM-07	N22 05 18.1	E69 13 13.3

										GGLBM-08	N22 05 13.0	E69 13 13.7
										GGLBM-09	N22 05 08.2	E69 13 13.2
										GGLBM-10	N22 05 03.1	E69 13 12.8
										GGLBM-11	N22 04 59.0	E69 13 15.7
										GGLBM-12	N22 04 53.8	E69 13 13.4
										GGLBM-13	N22 04 49.3	E69 13 08.7
										GGLBM-14	N22 05 55.3	E69 13 08.0
	Gujarat Guardian Ltd.	E-48	0.8	7	5.6	Kurunga	June 06 and Aug 2006	GJB 00440	EIL/800/06-07/0070-0076	GGLKRG-01	N22 02 25.5	E69 09 58.8
										GGLKRG-02	N22 02 19.7	E69 10 04.9
										GGLKRG-03	N22 02 14.0	E69 10 11.1
										GGLKRG-04	N22 02 19.2	E69 10 22.8
										GGLKRG-05	N22 02 30.7	E69 10 10.5
										GGLKRG-06	N22 02 36.4	E69 10 04.4
										GGLKRG-07	N22 02 51.6	E69 10 10.4
	Gujarat Guardian Ltd.	E-48	0.8	5	4	Satapar	Sep-06	GJU 03937	EIL/800/06-07/0181-0188	GGLSP-01	N21 58 01.2	E69 18 52.5
										GGLSP-02	N21 58 05.6	E69 18 51.5
										GGLSP-03	N21 58 10.7	E69 18 52.4
										GGLSP-04	N21 58 17.6	E69 18 52.7
										GGLSP-08	N21 58 35.8	E69 18 22.1
										GGLSP-05	N21 58 20.5	E69 18 49.3
										GGLSP-06	N21 58 45.2	E69 18 18.8
	Gujarat Guardian Ltd.	E-48	0.8	3	2.4	Satapar	Sep-06	GJB 00644		GGLSP-07	N21 58 40.5	E69 18 20.4
11	Indo Fashions Pvt. Ltd.	E-48	0.8	1	0.80	Kurunga	Dec-05	GJB 00444	EIL/800/05-06/0086	IFPLKRG-01	N22 00 24.0	E69 10 29.8
12	Inova Cast Pvt Ltd	E-48	0.8	1	0.80	Kurunga	Dec-05	GJB 00596	EIL/800/05-06/0091	ICPLKRG-01	N22 00 16.7	E69 10 51.7
13	Jagdish Technocast Pvt. Ltd.	E-48	0.8	1	0.80	Navadra	Mar-06	GJB 00603	EIL/800/05-06/0104	JTPLNA-01	N21 56 15.6	E69 16 42.7
14	Jayant Agro-Organics Limited	E-48	0.8	2	1.60	Navadra	Mar-06	GJB 00439	EIL/800/05-06/0110-0111	JAOLNA-01	N21 57 06.4	E69 16 52.1
										JAOLNA-02	N21 57 02.7	E69 16 53.8
15	Kanishka Prints P. Ltd.	E-48	0.8	1	0.80	Bamnasa	Aug-05	GJB 00531	EIL/800/05-06/0067	KPPLBM-01	N22 05 31.1	E69 13 35.6
16	Leamak Healthcare P. Ltd.	E-48	0.8	1	0.80	Navadra	Mar-06	GJB 00608	EIL/800/05-06/0120	LHPNA-01	N21 56 49.7	E69 17 00.3
17	Madhusudan Special Solutions	E-48	0.8	1	0.80	Satapar	Mar-06	GJU 04006	EIL/800/06-07/0160	MSSPLSP-01	N21 57 58.0	E69 18 35.0
18	Manish	E-48	0.8	1	0.80	Kurunga	Sep-06	GJB 00640	EIL/800/05-	MPPLKRG-01	N22 02 30.7	E69 09 53.2

	Packaging P. Ltd.								06/0122			
19	Mascot Forge Pvt. Ltd.	E-48	0.8	1	0.80	Satapar	Sep-06	GJU 03930	EIL/800/06-07/0168	MFPLSP-01	N21 58 55.0	E69 18 10.3
20	Nawaz Silk Mill	E-48	0.8	1	0.80	Kurunga	Dec-05	GJB 00437	EIL/800/05-06/0084	NSMKRG-01	N22 00 34.1	E69 10 33.3
21	Prabhat Elastomers P. Ltd.	E-48	0.8	2	1.6	Kurunga	Nov-05	GJB 00440	EIL/800/05-06/0072-0073	PEPLKRG-01	N22 00 05.8	E69 10 47.2
										PEPLKRG-02	N22 00 13.2	E69 10 39.4
22	Rachana Art Prints Pvt. Ltd.	E-48	0.8	1	0.80	Bamnasa	Aug-05	GJB 00532	EIL/800/05-06/0066	RACHNBM-01	N22 05 26.9	E69 13 38.4
23	Rajhans Metals Pvt Ltd	E-48	0.8	1	0.80	Kurunga	Dec-05	GJB 00599	EIL/800/05-06/0088	RMPLKG-01	N22 00 40.6	E69 10 27.8
24	Rajshanti Metals Pvt Ltd	E-48	0.8	1	0.80	Navadra	Nov-05	GJB 00430	EIL/800/05-06/0078	RMPLNA-01	N22 00 41.2	E69 10 27.9
25	Ravikan Ceramics Pvt. Ltd.	E-48	0.8	1	0.80	Navadra	Mar-06	GJB 00601	EIL/800/05-06/0109	RCPNA-01	N21 56 25.4	E69 16 57.1
26	Rivaa Textiles	E-40	0.6	2	1.2	Navadra	Aug-04	GJB 00284	EN/600/04-05/009-010	RIVAA-01	N21 56 40.0	E69 14 30.2
										RIVAA-02	N21 56 36.7	E69 14 33.2
27	Sayaji Iron & Engineering Co.	E-48	0.8	1	0.80	Satapar	Sep-06	GJU 03927	EIL/800/06-07/0169	SIECLSP-01	N21 58 24.5	E69 18 46.1
28	Shilp Gravures Ltd.	E-48	0.8	1	0.80	Navadra	Mar-05	GJB 00609	EIL/800/05-06/0119	SGLNA-01	N21 56 41.7	E69 17 03.8
29	Shree Sai Calnates India (P) Ltd.	E-48	0.8	1	0.80	Navadra	Mar-06	GJB 00604	EIL/800/05-06/0108	SSCPLNA-01	N21 56 22.2	E69 16 41.0
30	Shreeji Prints Pvt. Ltd.	E-48	0.8	2	1.60	Bamnasa	Feb-07	GJB 00533	EIL/800/05-06/0064-0065	SHREEBM-01	N22 05 36.2	E69 13 37.9
										SHREEBM-02	N22 05 40.6	E69 13 45.1
31	Surbhi Industries Ltd.	E-48	0.8	1	0.80	Kurunga	Aug-05	GJB 00438	EIL/800/05-06/0085	SILKRG-01	N22 00 17.9	E69 10 34.5
32	Transmetal Limited	E-48	0.8	1	0.80	Navadra	Dec-05	GJB 00606	EIL/800/05-06/0105	TLNA-01	N21 56 44.1	E69 16 34.3
33	Unique Tags Private Limited	E-48	0.8	1	0.80	Navadra	Mar-06	GJB 00605	EIL/800/05-06/0102	UTPLNA-01	N21 56 38.3	E69 16 23.2

34	Zydex Industries	E-48	0.8	1	0.80	Satapar	Mar-06	GJU 04005	EIL/800/06-07/0189	DEXSP-01	N21 59 01.0	E69 18 12.6
	Total capacity			75	59.4	MW						