

1st Monitoring Report
Project Title - 150 MW grid connected Wind Power based electricity generation project
in Gujarat, India.

Crediting Period
30/09/2007-17/06/2009
(Both days are inclusive)

Submitted by
M/s. DLF Limited
DLF Gateway Tower, 7th Floor, DLF City Phase III
(Version 02, Dated 14/10/2009)

1. Title of the project activity:

150 MW grid connected Wind Power based electricity generation project in Gujarat, India.

Date of Registration of project at UNFCCC: 18th June 2009

The project was registered at UNFCCC (Ref Number 2347) on 18/06/2009 and the details of the same can be viewed on

<http://cdm.unfccc.int/Projects/DB/BVQI1229917560.71/view>

Project also complies with the VCS Project Description template clauses 1.12, 1.13, 1.14, 8.1 and 8.2 as, PP owns the WTGs and the project activity is not implemented to create GHG emissions primarily for the purpose of its subsequent removal or destruction. This monitoring report for the project activity is prepared to verify voluntary emission reductions under VCS 2007.1 only and have not created another form of environmental credit. Further, the emission reduction generated from the project activity are generated voluntarily and would not be used to comply with the emission reduction targets or any legal /regulatory compliance or to participate in emission trading program. The supplementary VCS PD is also submitted which is in line with the requirements of Policy Announcement from VCS association dated 19/03/2008. This is the first monitoring report of project titled '150 MW grid connected Wind Power based electricity generation project in Gujarat, India. under VCS. The document reports, the VER (Voluntary Emission Reduction) for the monitoring period from 30/09/2007 to 17/06/2009.

As the project activity is registered under other VCS Program approved GHG Programs (CDM), and eligible to create Voluntary Carbon Units (VCUs) for the emissions reductions. The VCUs for the project activity are registered for the project start date as per the provisions in VCS 2007.1 Clause 5.2.1. (i.e 28 March 2006 or two years prior to the completion of the project validation whatever is later).

Project activity has been validated under the CDM, hence a further validation shall be completed of clauses 1.12, 1.13, 1.14, 8.1 and 8.2 of the VCS Project Description template (<http://v-c-s.org/docs/VCS PD.doc>).

2. Introduction

The project activity involves the establishment of a wind farm of 150 MW installed capacity enabling generation of electricity by state-of-art 1.5 MW capacity Wind Turbine Generators (WTGs) in the state of Gujarat¹. The electricity generation from this wind farm will contribute to annual GHG reductions calculated at 382003 tCO₂e (tonnes of carbon dioxide equivalent).

The project boundary is composed of the Wind Energy Generators, main transformers, grid, transmission lines, sub station and the metering equipment for each generator and substation, and the grid which is used to transmit the generated electricity.

The implemented project activity, sells electricity generated from its WTGs to the Gujarat Urja Vikas Nigam Ltd. (GUVNL) which falls under Western regional (currently known as NEWNE grid) grid network of India. This avoids generation of same amount of energy in fossil fuel dominated thermal plants. Thus the project activity avoids CO₂ and other GHG emissions that would have happened in the absence of the project activity. The project activity also contributes to the regional sustainable development.

WTGs installed by the project proponent are distributed across the Kachh region. In the villages of Lathedi, Jakhau, Nani Sindhodi, Moti Sindhodi, Chachhi, Sandhan, Budhia, Ranpar, Rapargarh, Sayra, Suthari, Vanku, and Dhutai of Gujarat state.

¹ The details of project implementation are provided in Annexure 1

3. Monitoring systems and procedures:

The project operation has been monitored in accordance with the requirements of the applicable Monitoring Methodology as follows:

Methodology Number: ACM0002.

Title: – “Consolidated Baseline Methodology for grid connected electricity generation from renewable sources”, Version 07 (EB36), Sectoral scope: 1

3.1 Metering layout

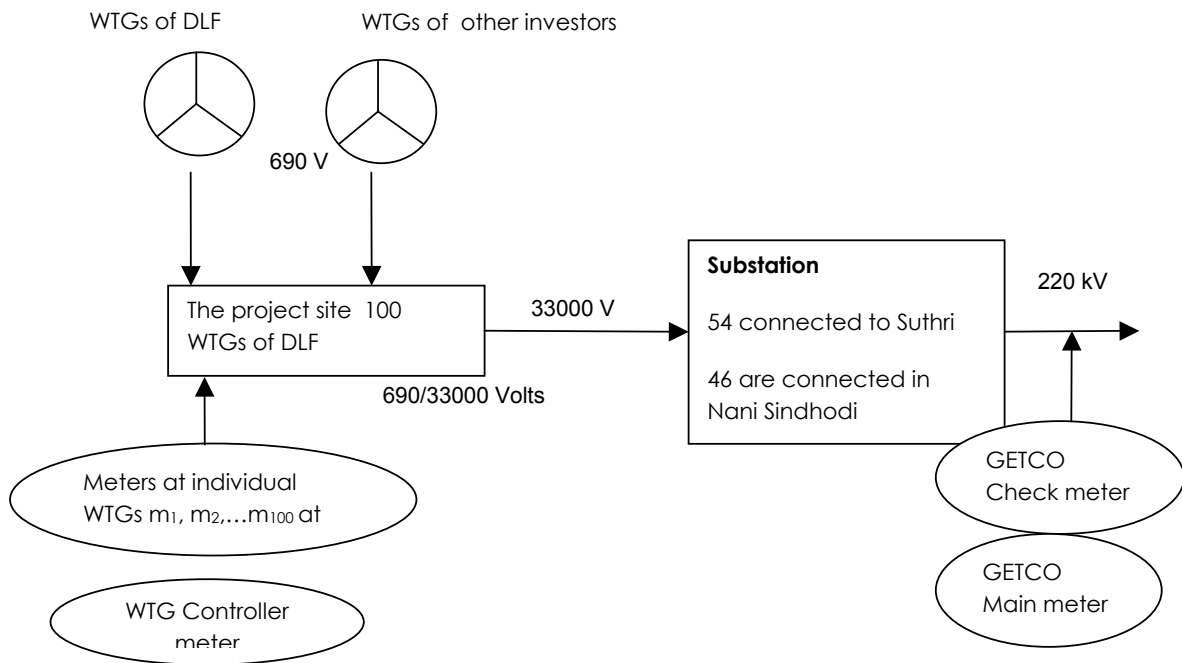
Data monitoring takes place at the following meters

- a) GETCO main meter at substation (M), GETCO Check meter at substation (M')²
- b) GETCO meter installed at the individual WTGs ($m_1, m_2, m_3, \dots, m_{100}$) known as VCB (Vacuum Circuit Breaker) meter of the WTG
- c) WTG controller meter installed at the WTG

The electricity metered at the GETCO meter (M) is proportionally divided by GEDA among the customers connected to the meter on the basis of the prorata readings taken at the individual WTG VCB meter (m).

There is a transmission loss between the individual WTGs and the substation. This loss is proportionally divided by GEDA among the WTGs connected to the meter on the basis of the prorata readings taken at the individual WTG VCB meter (m). The final share certificate indicates the net electricity exported to grid. This is issued by GEDA.

² All the WTGs (including the WTGs of the other investors also) are connected to the pooling meters at substation.



3.2 Parameter Monitored

Data / Parameter:	EGy
Data unit:	MWh
Description:	Electricity supplied to GUVNL (For the period of 30/09/07-25/05/09)
Source of data to be used:	Certificate for share of electricity provided by GEDA.
Value of data applied for the purpose of calculating expected emission reductions	383117.0 MWh
Description of measurement methods and procedures to be applied:	The electricity supplied to the grid is calculated by GEDA on the basis of the GETCO Main meter (installed at Substation ³) reading (net electricity exported to the grid) after deducting imports from the grid. This is indicated in the share certificate

³ Refer Annexure 2 for the details of the meters and the substation.

	issued by GEDA on monthly basis.
QA/QC procedures to be applied:	Annual calibration of all the meters installed at the substation has been undertaken. The net electricity generation data can be cross checked with sales receipts.
Any comment:	This data will be used for the emission reduction calculation when the dates (start or end) of monitoring period are coinciding.

Data / Parameter:	EG _{WTG}
Data unit:	MWh
Description:	Electricity generated by each WTG (for the period 26/05/2009-17/06/2009)
Source of data to be used:	Daily generation reports provided by Suzlon
Value of data applied for the purpose of calculating expected emission reductions	40836 MWh
Description of measurement methods and procedures to be applied:	The generation data of individual WTG is monitored as a real-time entity at CMS. This data for each individual WTG is recorded electronically.
QA/QC procedures to be applied:	The data is recorded electronically. Note: The sum of energy generation of all the WTGs at controller will be higher than the values specified in the GEDA issued share certificates. This is because of line losses included in the controller and excluded by GEDA.
Any comment:	This data will be used for the emission reduction calculation when the dates (start or end) of monitoring period are not coinciding.

4. Emission reduction calculations

- The emission reduction calculations have been done on the basis of net electricity supplied to the grid.
- As the date of registration for CDM is in the middle of the month (18/06/09), while the share certificate for the electricity generation is issued on monthly basis.

- c) The period of monitoring is 30/09/2007 -17/06/2009. The VCUs for the period (30/09/07-25/05/09) has been calculated based on the share certificates and for the remaining period (26/05/2009-17/06/2009) are calculated prorata basis from the generation at WTG control meter.
- d) Energy generation on prorata basis is calculated as follows:

$$EG_{EB_26\ May-17\ June} = \frac{EG_{WTG_26\ May-17\ June}}{EG_{WTG_26\ May-25\ June}} \cdot EG_{EB_26\ May-25\ June}$$

Where

$EG_{EB_26\ May-17\ June}$	Net energy generation at the EB meter installed at the substation during the period of 26 May-17 June 2009 (Monitoring period)
$EG_{EB_26\ May-25\ June}$	Net energy generation at the EB meter installed at the substation during the period of 26 May-25 June 2009 (Monthly monitoring period)
$EG_{WTG_26\ May-25\ June}$	Net energy generation at the WTG controller meter during the period of 26 May-25 June 2009 (monitoring period)
$EG_{WTG_26\ May-17\ June}$	Net energy generation at the WTG controller meter during the period of 26 May-17 June 2009 (Monthly monitoring period)

Generation at WTG controller from 26th May - 17th June (kWh)	41246792
Generation at WTG controller from 26th May-25th June (kWh)	47279386
Generation at EB meter from 26th May-25th June (kWh)	46809341

$$EG_{EB_26\ May-17\ June} = \frac{41246792}{47279386} \cdot 46809341$$

Net energy generation at the EB meter installed at the substation during the period of 26 May-17 June 2009 = 40836722 kWh

Project Activity Emissions: Nil

The project activity being a zero emissions renewable energy project (wind power project), there are no anthropogenic green house gas emission by the project activity.

Leakage: Nil

This is not applicable as the renewable energy technology used is not equipment transferred from another activity. Therefore, no leakage calculation is required.

Baseline emissions

The baseline emissions which include only CO2 emissions from electricity generation in fossil fuel fired power plants that are displaced due to the project activity is calculated with the help of the following equation:

$$BE_y = (EG_y - EG_{baseline}) \cdot EF_{grid,CM,y}$$

Where:

BE_y = Baseline emissions in year y (tCO2/yr).

EG_y = Electricity supplied by the project activity to the grid (MWh).

$EG_{baseline}$ = Baseline electricity supplied to the grid in the case of modified or retrofit facilities (since this is not the case in this project this can be considered as zero) (MWh). For new power plants this value is taken as zero.

$EF_{grid,CM,y}$ = Combined margin CO2 emission factor for grid connected power generation in year y calculated using the latest version of the “Tool to calculate the emission factor for an electricity system”.

Procedure to calculate Emission Factor $EF_{grid,CM,y}$

For calculating the emission factor the Methodological tool “Tool to calculate the emission factor for an electricity system”. This methodological tool determines the CO2 emission factor for the displacement of electricity generated by power plants in an electricity system, by calculating the “operating margin” (OM) and “Build Margin” (BM) as well as “Combined Margin” (CM) through a step wise approach. The steps required are as follows:

STEP 1. Identify the relevant electric power system.

STEP 2. Select an operating margin (OM) method.

STEP 3. Calculate the operating margin emission factor according to the selected method.

STEP 4. Identify the cohort of power units to be included in the build margin (BM).

STEP 5. Calculate the build margin emission factor.

STEP 6. Calculate the combined margin (CM) emissions factor.

STEP 1: Identify the relevant electric power system.

Refer to section B.4

STEP 2. Select an operating margin (OM) method.

As per the tool, the calculation of Operating Margin emission factor ($EF_{grid,OM,y}$) should be based on any one of the four following methods:

(a) Dispatch Data Analysis OM

(b) Average OM

(c) Simple Adjusted OM

(d) Simple OM

Since the “Tool to calculate the emission factor for an electricity system”, version 01, gives the freedom to choose any of the four options of calculating the OM, Simple OM has been chosen to be the most appropriate method of calculating the emission reductions in the project.

STEP 3. Calculate the operating margin emission factor according to the selected method. ($EF_{grid,OM,y}$)

In the western regional the power generation is dominated by fossil fuel based power plants and the power generation by low cost/must run resources constitute less than 50% of total grid generation, so

simple operating margin method is used for operating margin emission factor calculation. The Operating Margin emission factor EF_{OMy} is defined as the generation-weighted average emissions per electricity unit (tCO₂ / MWh) of all generating sources serving the system, excluding zero- or low-operating cost power plants (hydro, geothermal, wind, low-cost biomass, nuclear and solar generation), based on the latest three year average (2004-05, 2005-06, 2006-07).

As per the CEA CO₂ Baseline Database, the OM has been calculated as :

$$(EF_{\text{grid, OM},y}) = 1.0035 \text{ tCO}_2\text{e/MWh}$$

Table 16: Simple Operating Margin⁴

Simple Operating Margin (tCO₂/MWh) (incl. Imports)

	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07
North	0.9768	0.9778	1.0003	0.9872	0.9801	0.9992	0.9985
East	1.2198	1.1874	1.1704	1.1960	1.1745	1.1291	1.0909
South	1.0237	1.0027	1.0075	1.0048	1.0009	1.0079	1.0030
West	0.9782	1.0101	0.9850	0.9921	1.0129	1.0039	0.9936
North-East	0.7353	0.7107	0.7437	0.7366	0.9019	0.6994	0.7031
India	1.0132	1.0204	1.0171	1.0219	1.0236	1.0191	1.0106

STEP 4. Identify the cohort of power units to be included in the build margin (BM).

The value of the data has been taken from the data published by CEA as referred in earlier step. The CEA Baseline Database has been calculated as per the methodology ACM0002 and the details of the key assumptions considered to calculate the figure can be found in the User Guide⁷ of the same.

Two following options for years(s) y are present, in terms of vintage of data:

Option 1.

For the first crediting period, calculate the build margin emission factor *ex-ante* based on the most recent information available on units already built for sample group m at the time of CDM-PDD submission to the DOE for validation. For the second crediting period, the build margin emission factor should be updated based on the most recent information available on units already built at the time of submission of the request for renewal of the crediting period to the DOE. For the third crediting period, the build margin emission factor calculated for the second crediting period should be used. This option does not require monitoring the emission factor during the crediting period.

⁴ Operating Margin emission factor has been referred from the “Baseline Carbon Dioxide Emission Database of CEA Version 3”(dated: December 15, 2007)

Option 2.

For the first crediting period, the build margin emission factor shall be updated annually, *ex-post*, including those units built up to the year of registration of the project activity or, if information up to the year of registration is not yet available, including those units built up to the latest year for which Out of the above two, Option 1 is selected.

The Build margin emission factor has been calculated *ex-ante* based on the most recent information available on plants already built for sample group *m* at the time of PDD submission. The sample group *m* consists of the power plant capacity additions in the electricity system that comprise 20% of the system generation (in GWh) and that have been built most recently as this sample group comprises larger annual generation than the generation of the sample group *m* consisting of the five power plants that have been built most recently. For the second crediting period, the build margin emissions factor shall be calculated *ex-ante*, as described in option 1 above. For the third crediting period, the build margin emission factor calculated for the second crediting period should be used.

The BM is calculated using latest year data calculated by Central Electricity Authority (CEA) in their CO2 Baseline Database. .

STEP 5. Calculate the build margin emission factor ($EF_{\text{grid, BM}, y}$)

As per the CEA CO2 Baseline Database, the BM for the 2007-08 has been calculated to be :

$$EF_{\text{grid, BM}, y} = 0.5938 \text{ tCO}_2\text{e/MWh}$$

Table 17: Build Margin

Build Margin (tCO2/MWh) (not adjusted for imports)

	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07
North					0.5336	0.6006	0.6283
East					0.9043	0.9672	0.9281
South					0.7047	0.7101	0.7055
West					0.7700	0.6300	0.5938
North-East					0.1456	0.1489	0.2265
India					0.6944	0.6838	0.6771

STEP 6. Calculate the combined margin (CM) emissions factor ($EF_{\text{grid, CM}, y}$)

The CM can be calculated as per the following:

Where:

$EF_{\text{grid, OM}, y}$ = Build Margin CO2 emission factor in the year *y* (tCO2/MWh)

$EF_{\text{grid, BM}, y}$ = Operating Margin CO2 emission factor in the year *y* (tCO2/MWh)

W_{OM} = Weighting of operating margin emission factor (%)

W_{BM} = Weighting of build margin emission factor (%)

Owing to their intermittent and non-dispatchable nature, the default weights for wind and solar projects are as follows:

$$w_{OM} = 75\% \text{ and } w_{BM} = 25\%$$

Thus, the CM emissions factor ($EF_{grid, CM, y}$) for the project has been calculated to be:

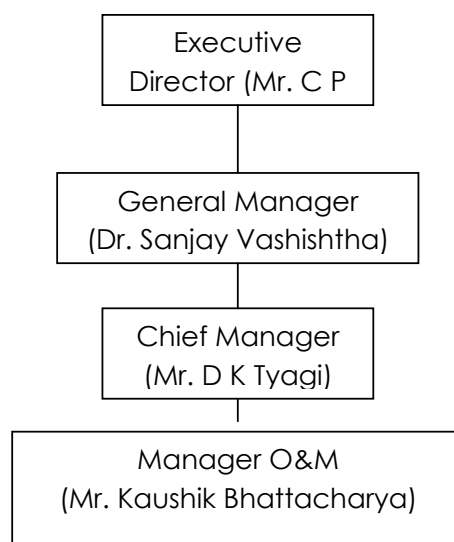
$$EF_{grid, CM, y} = 0.90105 \text{ tCO}_2/\text{MWh}$$

$$EF_{grid, CM, y} = 0.90105 \text{ tCO}_2/\text{MWh} \text{ (calculated on ex-ante basis)}$$

5. Operation and Maintenance

To ensure trouble free operations and efficient generations through all the wind turbines, DLF has entered into a comprehensive Operation and Maintenance agreement with the manufactures of the turbines for a period of 20 years. The contractor Suzlon, under the O&M contract with DLF is responsible for the operation and maintenance of the project activity for the entire crediting period.

The authority and responsibility of project management as well as registration, monitoring, measurement and reporting lies with DLF Limited. DLF has formulated a Project Team to ensure proper and continuous monitoring of the performance of turbines and generation of power. The same has been outlined as follows:



6. Responsibilities

Executive Director: Responsible for overall project management.

Dy. General Manager: Responsible for generation data CDM related monitoring , internal verification and presenting the same to the Executive director. Verification of monitored data. Emission reduction calculation and preparation of monitoring report.

Chief Manager: Monitoring task strictly based on the monitoring manual and registered PDD. Record required monitored parameters. Report the monitoring results to the Dy. General Manager.

Manager O&M. O&M monitoring and coordinate with the O&M contractor Suzlon for smooth functioning of the wind farm. Assessment of regular maintenance of monitoring equipment.

The O&M personnel of Suzlon are qualified engineers and are trained at the WTG manufacturing facility of Suzlon Energy Limited at Daman for operating and ensuring best performance of the WTGs.

8. Details of Project Proponent

Organization:	DLF Limited
Street/P.O.Box:	DLF Gateway Tower, 7 th Floor, DLF City Phase III
Building:	
City:	Gurgaon
State/Region:	Haryana
Postfix/ZIP:	122002
Country:	India
Telephone:	+91 124 4376971
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E-Mail:	poonacha-cp@dlf.in
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Represented by:	Mr. C. P. Poonacha
Title:	Authorised representative
Salutation:	Mr.
Last Name:	Poonacha
Middle Name:	
First Name:	C.P.
Department:	
Mobile:	
Direct FAX:	+91 124 4376973
Direct tel:	+91 124 4376971
Personal E-Mail:	poonacha-cp@dlf.in

9. Abbreviations in the report:

ACM	Approved Consolidated Methodology
BEF	Baseline emission factor
BM	Build Margin
CO2	Carbon dioxide
CER	Carbon Emission Reductions
CEA	Central Electricity Authority
CDM	Clean development mechanism
CM	Combined Margin
GHG	Green House Gas
GERC	Gujarat Electricity Regulatory Commission
GUVNL	Gujarat Urja Vikas Nigam Limited
MoEF	Ministry of Environment and Forests
UNFCCC	United Nations Framework Convention on Climate Change
VCB	Vacuum Control Breaker
WTG's	Wind Turbine Generators

Annexure 1: Commissioning dates and location details

Sr No	Machine No.	Location	(Commissioned Date)
1	M419	Nanisindhodi	30-Sep-07
2	M276	Lathedi	5-Nov-07
3	M288	Lathedi	5-Nov-07
4	M289	Lathedi	19-Nov-07
5	M293	Lathedi	19-Nov-07
6	M270	Lathedi	26-Dec-07
7	M286	Lathedi	26-Dec-07
8	M417	Nanisindhodi	26-Dec-07
9	M418	Nanisindhodi	26-Dec-07
10	M420	Nanisindhodi	26-Dec-07
11	M422	Nanisindhodi	26-Dec-07
12	M456	Nanisindhodi	26-Dec-07
13	M506	Nanisindhodi	26-Dec-07
14	M292	Lathedi	28-Dec-07
15	M296	Lathedi	28-Dec-07
16	M299	Lathedi	28-Dec-07
17	M280	Lathedi	29-Dec-07
18	M282	Lathedi	29-Dec-07
19	M421	Nanisindhodi	29-Dec-07
20	M439	Nanisindhodi	29-Dec-07
21	M440	Nanisindhodi	29-Dec-07
22	M455	Nanisindhodi	29-Dec-07
23	M533	Nanisindhodi	29-Dec-07
24	M544	Vanku	29-Dec-07
25	M443	Nanisindhodi	31-Dec-07
26	M464	Nanisindhodi	31-Dec-07
27	M465	Nanisindhodi	31-Dec-07

28	M479	Nanisindhodi	8-Jan-08
29	M526	Kadoli	10-Jan-08
30	M213	Suthari	23-Jan-08
31	M275	Lathedi	23-Jan-08
32	M290	Lathedi	23-Jan-08
33	M202	Suthari	13-Feb-08
34	M262	Lathedi	13-Feb-08
35	M263	Lathedi	13-Feb-08
36	M264	Lathedi	13-Feb-08
37	M265	Lathedi	13-Feb-08
38	M266	Lathedi	13-Feb-08
39	M268	Lathedi	13-Feb-08
40	M272	Lathedi	13-Feb-08
41	M97	Kadoli	13-Feb-08
42	M640	Nanisindhodi	22-Feb-08
43	M641	Nanisindhodi	22-Feb-08
44	M643	Nanisindhodi	22-Feb-08
45	M645	Nanisindhodi	22-Feb-08
46	M726	Jakhau	22-Feb-08
47	M727	Jakhau	22-Feb-08
48	M744	Jakhau	22-Feb-08
49	M745	Jakhau	22-Feb-08
50	M746	Jakhau	22-Feb-08
51	M749	Jakhau	22-Feb-08
52	M750	Jakhau	22-Feb-08
53	M761	Jakhau	22-Feb-08
54	M764	Jakhau	22-Feb-08
55	M765	Jakhau	22-Feb-08
56	M772	Jakhau	22-Feb-08

57	M773	Jakhau	22-Feb-08
58	M774	Jakhau	22-Feb-08
59	M775	Jakhau	22-Feb-08
60	M790	Jakhau	22-Feb-08
61	M793	Jakhau	22-Feb-08
62	M632	Jakhau	26-Feb-08
63	M762	Jakhau	26-Feb-08
64	M277	Lathedi	12-Mar-08
65	M478	Nanisindhodi	12-Mar-08
66	M514	Nanisindhodi	12-Mar-08
67	M587	Vanku	12-Mar-08
68	M634	Jakhau	12-Mar-08
69	M771	Jakhau	12-Mar-08
70	M164	Suthari	15-Mar-08
71	M230	Suthari	15-Mar-08
72	M269	Lathedi	15-Mar-08
73	M291	Lathedi	15-Mar-08
74	M297	Lathedi	15-Mar-08
75	M586	Vanku	15-Mar-08
76	M748	Jakhau	15-Mar-08
77	M770	Jakhau	15-Mar-08
78	M783	Jakhau	15-Mar-08
79	M785	Jakhau	15-Mar-08
80	M786	Jakhau	15-Mar-08
81	M787	Jakhau	15-Mar-08
82	M789	Jakhau	15-Mar-08
83	M791	Jakhau	15-Mar-08
84	M792	Jakhau	15-Mar-08
85	M145	Kadoli	20-Mar-08

86	M148	Kadoli	20-Mar-08
87	M170	Suthari	20-Mar-08
88	M172	Suthari	20-Mar-08
89	M201	Suthari	20-Mar-08
90	M508	Nanisindhodi	20-Mar-08
91	M747	Jakhau	25-Mar-08
92	M150	Suthari	29-Mar-08
93	M161	Kadoli	29-Mar-08
94	M260	Lathedi	29-Mar-08
95	M431	Nanisindhodi	29-Mar-08
96	M444	Nanisindhodi	29-Mar-08
97	M589	Kadoli	29-Mar-08
98	M667	Nanisindhodi	29-Mar-08
99	M794	Jakhau	29-Mar-08
100	M810	Jakhau	29-Mar-08

Annexure 2

Summary of electricity generation and meter details

<u>Time Period</u>	<u>Site</u>	<u>Installed Capacity (MW)</u>	<u>Share of Electricity (kWh)</u>	<u>Total for the Month</u>	<u>Net VCUs</u>	<u>Meter No</u>
30/09/2007-30/09/2007	Vanku ⁵	1.5	1363	1363	1.2	Main meter GJB00591 (TR1) ⁶ Main meter GJB00592 (TR2)
01/10/2007-25/10/2007	Nani Sindhodi ⁷	1.5	36820	36820	33.2	Main meter –(Line 1) GJB0667 Main Meter (line 2) GJB00668 Check meter GJU 04622 (Line 1) Check Meter GJU 00669 (Line 2)
26/10/2007-25/11/2007	Suthri ⁸	6	133647			Main meter GJB 00671 (TR1) Main meter GJB 00673 (TR2) Check meter GJB 00672 (TR1) Check meter GJB00675 (TR2)
26/10/2007-25/11/2007	Nani Sindhodi ⁹	1.5	109546	243193	219.1	Main meter –(Line 1) GJB0667 Main Meter (line 2) GJB00668 Check meter GJU 04622 (Line 1) Check Meter GJU 00669 (Line 2)
26/11/2007-25/12/2007	Nani Sindhodi ¹⁰	1.5	250844			Main meter –(Line 1) GJB0667 Main Meter (line 2) GJB00668

⁵ This was the first WTG commissioned by DLF Ltd (M419). The period in the share certificate is 25/08/2007-30/09/07 from the Vanku substation.

⁶ Vanku substation does not have a check meter installed as it is a 66 kV substation. In case of failure the readings at the feeding point of Vanku substation i.e. Kothara substation meter readings can be used.

⁷ For the month of October the share certificate issued for M419 was from Nani sindhodi substation. The period listed in the share certificate is 30/09/2007-25/10/2007. As per the commissioning certificated dated 19/10/2007.

⁸ These WTGs (4WTGs, 6MW) were commissioned on 05/11/2007 for two WTGs and 19/11/2009 for Two WTGs. However the share certificate period is for 26/10/2007-25/11/2007. As per the commissioning certificate dated 27/11/2007.

⁹ Metering was done at the Suthri substation only. The share certificate is only issued in the name of Nani sindhodi as the metering of Nani Sindhodi line was done at Suthri substation.

¹⁰ Metering was done at the Suthri substation only. The share certificate is only issued in the name of Nani sindhodi as the metering of Nani Sindhodi line was done at Suthri substation.

						Check meter GJU 04622 (Line 1) Check Meter GJU 00669 (Line 2)
26/11/2007- 25/12/2007	Suthri	6	889878	1140722	1027.8	Main meter GJB 00671 (TR1) Main meter GJB 00673 (TR2) Check meter GJB 00672 (TR1) Check meter GJB00675 (TR2)
26/12/2007- 25/01/2008	Suthri	22.5 ¹¹	2929552			Main meter GJB 00671 (TR1) Main meter GJB 00673 (TR2) Check meter GJB 00672 (TR1) Check meter GJB00675 (TR2)
26/12/2007- 25/01/2008	Nani Sindhodi ¹²	25.5 ¹³	2563041	5492593	4949.1	Main meter –(Line 1) GJB0667 Main Meter (line 2) GJB00668 Check meter GJU 04622 (Line 1) Check Meter GJU 00669 (Line 2)
26/01/2008- 25/02/2008	Suthri DLF I	22.5	2893273			Main meter GJB 00671 (TR1) Main meter GJB 00673 (TR2) Check meter GJB 00672 (TR1) Check meter GJB00675 (TR2)
26/01/2008- 25/02/2008	Suthri DLF II	25.5	2645306			Main meter GJB 00671 (TR1) Main meter GJB 00673 (TR2) Check meter GJB 00672 (TR1) Check meter GJB00675 (TR2)
26/01/2008- 25/02/2008	Suthri DLF III	43.5 ¹⁴	603414	6141993	5534.2	Main meter GJB 00671 (TR1) Main meter GJB

¹¹ This include the 6MW+1.5MW(which was earlier in Nani sindhodi) +9 Mw commissioned on 26/12/2007 and 9MW commissioned on 29/12/2007. As per the commissioning certificate dated 31/01/2008.

¹² Metering was done at the Suthri substation only. The share certificate is only issued in the name of Nani sindhodi as the metering of Nani Sindhodi line was done at Suthri substation.

¹³ These WTGs were commissioned during 26/12/2009-23/01/2008 as per the commissioning certificate dated 06/02/2008.

¹⁴ These WTGs were commissioned during 22/02/2008-26/02/2008 as [per the commissioning certificate dated 05/03/2008 and 15/04/2008.

						00673 (TR2) Check meter GJB 00672 (TR1) Check meter GJB00675 (TR2)
26/02/2008- 31/03/2008	Vanku	3	97429			Main meter GJB00591 (TR1) Main meter GJB00592 (TR2)
26/02/2008- 31/03/2008	Suthri DLF I	22.5	3541262			Main meter GJB 00671 (TR1) Main meter GJB 00673 (TR2) Check meter GJB 00672 (TR1) Check meter GJB00675 (TR2)
26/02/2008- 31/03/2008	Suthri DLF II	25.5	3398686			Main meter GJB 00671 (TR1) Main meter GJB 00673 (TR2) Check meter GJB 00672 (TR1) Check meter GJB00675 (TR2)
26/02/2008- 31/03/2008	Suthri DLF III	58.5	6728122			Main meter GJB 00671 (TR1) Main meter GJB 00673 (TR2) Check meter GJB 00672 (TR1) Check meter GJB00675 (TR2)
26/02/2008- 31/03/2008	Suthri DLF IV	40.5 ¹⁵	1741214	15506713	13972.3	Main meter GJB 00671 (TR1) Main meter GJB 00673 (TR2) Check meter GJB 00672 (TR1) Check meter GJB00675 (TR2)
01/04/2008- 25/04/2008	Vanku	3	236056			Main meter GJB00591 (TR1) Main meter GJB00592 (TR2)
01/04/2008- 25/04/2008	Suthri DLF I	22.5	2499149			Main meter GJB 00671 (TR1) Main meter GJB 00673 (TR2) Check meter GJB 00672 (TR1) Check meter GJB00675 (TR2)
01/04/2008- 25/04/2008	Suthri DLF II	25.5	2738146			Main meter GJB 00671 (TR1)

¹⁵ The new capacities added during the March 2008 was 58.5 MW. This is as per the commissioning certificate dated 15/04/2006. DLF commissioned all its 150 MW capacity on 29/03/2008.

						Main meter GJB 00673 (TR2) Check meter GJB 00672 (TR1) Check meter GJB00675 (TR2)
01/04/2008- 25/04/2008	Suthri DLF III	58.5	6278337			Main meter GJB 00671 (TR1) Main meter GJB 00673 (TR2) Check meter GJB 00672 (TR1) Check meter GJB00675 (TR2)
01/04/2008- 25/04/2008	Suthri DLF IV	40.5	3867942	15619630	14074.1	Main meter GJB 00671 (TR1) Main meter GJB 00673 (TR2) Check meter GJB 00672 (TR1) Check meter GJB00675 (TR2)
26/04/2008- 25/05/2008	Vanku	3	874146			Main meter GJB00591 (TR1) Main meter GJB00592 (TR2)
26/04/2008- 25/05/2008	Suthri DLF I	22.5	7170963			Main meter GJB 00671 (TR1) Main meter GJB 00673 (TR2) Check meter GJB 00672 (TR1) Check meter GJB00675 (TR2)
26/04/2008- 25/05/2008	Suthri DLF II	25.5	6582937			Main meter GJB 00671 (TR1) Main meter GJB 00673 (TR2) Check meter GJB 00672 (TR1) Check meter GJB00675 (TR2)
26/04/2008- 25/05/2008	Suthri DLF III	58.5	17700971			Main meter GJB 00671 (TR1) Main meter GJB 00673 (TR2) Check meter GJB 00672 (TR1) Check meter GJB00675 (TR2)
26/04/2008- 25/05/2008	Suthri DLF IV	40.5	11084436	43413453	39117.7	Main meter GJB 00671 (TR1) Main meter GJB 00673 (TR2) Check meter GJB 00672 (TR1) Check meter GJB00675 (TR2)
26/05/2008- 25/06/2008	Suthri DLF I	22.5	5780423			Main meter GJB 00671 (TR1)

						Main meter GJB 00673 (TR2) Check meter GJB 00672 (TR1) Check meter GJB00675 (TR2)
26/05/2008- 25/06/2008	Suthri DLF II	25.5	6883356			Main meter GJB 00671 (TR1) Main meter GJB 00673 (TR2) Check meter GJB 00672 (TR1) Check meter GJB00675 (TR2)
26/05/2008- 25/06/2008	Suthri DLF III	61.5	19090149			Main meter GJB 00671 (TR1) Main meter GJB 00673 (TR2) Check meter GJB 00672 (TR1) Check meter GJB00675 (TR2)
26/05/2008- 25/06/2008	Suthri DLF IV	40.5	12290754	44491711	40089.3	Main meter GJB 00671 (TR1) Main meter GJB 00673 (TR2) Check meter GJB 00672 (TR1) Check meter GJB00675 (TR2)
26/05/2008- 25/06/2008	Vanku ¹⁶	3	447029			Main meter GJB00591 (TR1) Main meter GJB00592 (TR2)
26/06/2008- 25/07/2008	Suthri DLF I	22.5	6049842			Main meter GJB 00671 (TR1) Main meter GJB 00673 (TR2) Check meter GJB 00672 (TR1) Check meter GJB00675 (TR2)
26/06/2008- 25/07/2008	Suthri DLF II	25.5	6578346			Main meter GJB 00671 (TR1) Main meter GJB 00673 (TR2) Check meter GJB 00672 (TR1) Check meter

¹⁶ Generation from 26/05/2008-14/06/2008, of DLF 3MW capacity was fed to Vanku substation. and generation from 15/06/2008-25/06/2008, was fed to Suthri substation from the same WTGs. That's why DLF installed capacity total summation is 153 MW during the period of 26/05/2008 -25/06/2008. However the installed capacity is 150 MW only.

						GJB00675 (TR2)
26/06/2008- 25/07/2008	Suthri DLF III	61.5	15830979			Main meter GJB 00671 (TR1) Main meter GJB 00673 (TR2) Check meter GJB 00672 (TR1) Check meter GJB00675 (TR2)
26/06/2008- 25/07/2008	Suthri DLF IV	40.5	10216496	38675663	34848.7	Main meter GJB 00671 (TR1) Main meter GJB 00673 (TR2) Check meter GJB 00672 (TR1) Check meter GJB00675 (TR2)
26/07/2008- 25/08/2008	Suthri DLF I	22.5	5619111			Main meter GJB 00671 (TR1) Main meter GJB 00673 (TR2) Check meter GJB 00672 (TR1) Check meter GJB00675 (TR2)
26/07/2008- 25/08/2008	Suthri DLF II	25.5	6399766			Main meter GJB 00671 (TR1) Main meter GJB 00673 (TR2) Check meter GJB 00672 (TR1) Check meter GJB00675 (TR2)
26/07/2008- 25/08/2008	Suthri DLF III	61.5	15868157			Main meter GJB 00671 (TR1) Main meter GJB 00673 (TR2) Check meter GJB 00672 (TR1) Check meter GJB00675 (TR2)
26/07/2008- 25/08/2008	Suthri DLF IV	40.5	9534629	37421663	33718.8	Main meter GJB 00671 (TR1) Main meter GJB 00673 (TR2) Check meter GJB 00672 (TR1) Check meter GJB00675 (TR2)
26/08/2007- 01/10/2008	Suthri DLF I	22.5	4198351			Main meter GJB 00671 (TR1) Main meter GJB 00673 (TR2) Check meter GJB 00672 (TR1) Check meter GJB00675 (TR2)
26/08/2007- 01/10/2008	Suthri DLF II	25.5	5116697			Main meter GJB 00671 (TR1) Main meter GJB

						00673 (TR2) Check meter GJB 00672 (TR1) Check meter GJB00675 (TR2)
26/08/2007- 01/10/2008	Suthri DLF III	61.5	12291091			Main meter GJB 00671 (TR1) Main meter GJB 00673 (TR2) Check meter GJB 00672 (TR1) Check meter GJB00675 (TR2)
26/08/2007- 01/10/2008	Suthri DLF IV	40.5	7892620	29498759	26579.9	Main meter GJB 00671 (TR1) Main meter GJB 00673 (TR2) Check meter GJB 00672 (TR1) Check meter GJB00675 (TR2)
02/10/2008- 25/10/2008	Suthri DLF I	22.5	1327924			Main meter GJB 00671 (TR1) Main meter GJB 00673 (TR2) Check meter GJB 00672 (TR1) Check meter GJB00675 (TR2)
02/10/2008- 25/10/2008	Suthri DLF II	25.5	1274225			Main meter GJB 00671 (TR1) Main meter GJB 00673 (TR2) Check meter GJB 00672 (TR1) Check meter GJB00675 (TR2)
02/10/2008- 25/10/2008	Suthri DLF III	61.5	3678868			Main meter GJB 00671 (TR1) Main meter GJB 00673 (TR2) Check meter GJB 00672 (TR1) Check meter GJB00675 (TR2)
02/10/2008- 25/10/2008	Suthri DLF IV	40.5	2408184	8689201	7829.4	Main meter GJB 00671 (TR1) Main meter GJB 00673 (TR2) Check meter GJB 00672 (TR1) Check meter GJB00675 (TR2)
26/10/2008- 25/11/2008	Suthri DLF I	22.5	2934120			Main meter GJB 00671 (TR1) Main meter GJB 00673 (TR2) Check meter GJB 00672 (TR1) Check meter

						GJB00675 (TR2)
26/10/2008- 25/11/2008	Suthri DLF II	25.5	2435927			Main meter GJB 00671 (TR1) Main meter GJB 00673 (TR2) Check meter GJB 00672 (TR1) Check meter GJB00675 (TR2)
26/10/2008- 25/11/2008	Suthri DLF III	61.5	6904933			Main meter GJB 00671 (TR1) Main meter GJB 00673 (TR2) Check meter GJB 00672 (TR1) Check meter GJB00675 (TR2)
26/10/2008- 25/11/2008	Suthri DLF IV	40.5	4512141	16787121	15126.0	Main meter GJB 00671 (TR1) Main meter GJB 00673 (TR2) Check meter GJB 00672 (TR1) Check meter GJB00675 (TR2)
26/11/2008- 25/12/2008	Suthri DLF I	22.5	3475431			Main meter GJB 00671 (TR1) Main meter GJB 00673 (TR2) Check meter GJB 00672 (TR1) Check meter GJB00675 (TR2)
26/11/2008- 25/12/2008	Suthri DLF II	25.5	3750457			Main meter GJB 00671 (TR1) Main meter GJB 00673 (TR2) Check meter GJB 00672 (TR1) Check meter GJB00675 (TR2)
26/11/2008- 25/12/2008	Suthri DLF III	61.5	9914034			Main meter GJB 00671 (TR1) Main meter GJB 00673 (TR2) Check meter GJB 00672 (TR1) Check meter GJB00675 (TR2)
26/11/2008- 25/12/2008	Suthri DLF IV	40.5	6543278	23683200	21339.7	Main meter GJB 00671 (TR1) Main meter GJB 00673 (TR2) Check meter GJB 00672 (TR1) Check meter GJB00675 (TR2)
26/12/2008- 25/01/2009	Suthri DLF I	22.5	2598798			Main meter GJB 00671 (TR1) Main meter GJB

						00673 (TR2) Check meter GJB 00672 (TR1) Check meter GJB00675 (TR2)
26/12/2008- 25/01/2009	Suthri DLF II	25.5	2820227			Main meter GJB 00671 (TR1) Main meter GJB 00673 (TR2) Check meter GJB 00672 (TR1) Check meter GJB00675 (TR2)
26/12/2008- 25/01/2009	Suthri DLF III	61.5	8143442			Main meter GJB 00671 (TR1) Main meter GJB 00673 (TR2) Check meter GJB 00672 (TR1) Check meter GJB00675 (TR2)
26/12/2008- 25/01/2009	Suthri DLF IV	40.5	5503491	19065958	17179.4	Main meter GJB 00671 (TR1) Main meter GJB 00673 (TR2) Check meter GJB 00672 (TR1) Check meter GJB00675 (TR2)
26/01/2009- 25/02/2009	Suthri DLF I	22.5	2873240			Main meter GJB 00671 (TR1) Main meter GJB 00673 (TR2) Check meter GJB 00672 (TR1) Check meter GJB00675 (TR2)
26/01/2009- 25/02/2009	Suthri DLF II	25.5	2328443			Main meter GJB 00671 (TR1) Main meter GJB 00673 (TR2) Check meter GJB 00672 (TR1) Check meter GJB00675 (TR2)
26/01/2009- 25/02/2009	Suthri DLF III	61.5	6824300			Main meter GJB 00671 (TR1) Main meter GJB 00673 (TR2) Check meter GJB 00672 (TR1) Check meter GJB00675 (TR2)
26/01/2009- 25/02/2009	Suthri DLF IV	40.5	4553559	16579542	14939.0	Main meter GJB 00671 (TR1) Main meter GJB 00673 (TR2) Check meter GJB 00672 (TR1) Check meter

						GJB00675 (TR2)
26/02/2009-31/03/2009	Suthri DLF I	22.5	2800124			Main meter GJB 00671 (TR1) Main meter GJB 00673 (TR2) Check meter GJB 00672 (TR1) Check meter GJB00675 (TR2)
26/02/2009-31/03/2009	Suthri DLF II	25.5	2800433			Main meter GJB 00671 (TR1) Main meter GJB 00673 (TR2) Check meter GJB 00672 (TR1) Check meter GJB00675 (TR2)
26/02/2009-31/03/2009	Suthri DLF III	61.5	7154531			Main meter GJB 00671 (TR1) Main meter GJB 00673 (TR2) Check meter GJB 00672 (TR1) Check meter GJB00675 (TR2)
26/02/2009-31/03/2009	Suthri DLF IV	40.5	4685056	17440144	15714.4	Main meter GJB 00671 (TR1) Main meter GJB 00673 (TR2) Check meter GJB 00672 (TR1) Check meter GJB00675 (TR2)
01/04/2009-25/04/2009	Suthri DLF I	22.5	2972151			Main meter GJB 00671 (TR1) Main meter GJB 00673 (TR2) Check meter GJB 00672 (TR1) Check meter GJB00675 (TR2)
01/04/2009-25/04/2009	Suthri DLF II	25.5	2772704			Main meter GJB 00671 (TR1) Main meter GJB 00673 (TR2) Check meter GJB 00672 (TR1) Check meter GJB00675 (TR2)
01/04/2009-25/04/2009	Suthri DLF III	61.5	6968915			Main meter GJB 00671 (TR1) Main meter GJB 00673 (TR2) Check meter GJB 00672 (TR1) Check meter GJB00675 (TR2)
01/04/2009-25/04/2009	Suthri DLF IV	40.5	4582044	17295814	15584.4	Main meter GJB 00671 (TR1) Main meter GJB

						00673 (TR2) Check meter GJB 00672 (TR1) Check meter GJB00675 (TR2)
26/04/2009- 25/05/2009	Suthri DLF I	22.5	4185406			Main meter GJB 00671 (TR1) Main meter GJB 00673 (TR2) Check meter GJB 00672 (TR1) Check meter GJB00675 (TR2)
26/04/2009- 25/05/2009	Suthri DLF II	25.5	4291980			Main meter GJB 00671 (TR1) Main meter GJB 00673 (TR2) Check meter GJB 00672 (TR1) Check meter GJB00675 (TR2)
26/04/2009- 25/05/2009	Suthri DLF III	61.5	10472287			Main meter GJB 00671 (TR1) Main meter GJB 00673 (TR2) Check meter GJB 00672 (TR1) Check meter GJB00675 (TR2)
26/04/2009- 25/05/2009	Suthri DLF IV	40.5	6942058	25891731	23329.7	Main meter GJB 00671 (TR1) Main meter GJB 00673 (TR2) Check meter GJB 00672 (TR1) Check meter GJB00675 (TR2)
26/05/2009- 17/06/2009	Suthri DLF I	22.5				Main meter GJB 00671 (TR1) Main meter GJB 00673 (TR2) Check meter GJB 00672 (TR1) Check meter GJB00675 (TR2)
26/05/2009- 17/06/2009	Suthri DLF II	25.5				Main meter GJB 00671 (TR1) Main meter GJB 00673 (TR2) Check meter GJB 00672 (TR1) Check meter GJB00675 (TR2)
26/05/2009- 17/06/2009	Suthri DLF III	61.5				Main meter GJB 00671 (TR1) Main meter GJB 00673 (TR2) Check meter GJB 00672 (TR1) Check meter

						GJB00675 (TR2)
26/05/2009- 17/06/2009	Suthri DLF IV	40.5		40836722 ¹⁷	36795.9	Main meter GJB 00671 (TR1) Main meter GJB 00673 (TR2) Check meter GJB 00672 (TR1) Check meter GJB00675 (TR2)
Total (VCUs)						382003¹⁸

Substation	Meter No	Calibration date
Suthri Line 2	GJB00669 (Main Meter) GJB00670)	18/11/2008, 06/07/2009
Suthri Line 1	MSE64370 (Main Mater) GJU04622 (Check Meter)	18/11/2008, 06/07/2009
Suthri	GJB 00671 GJB00673 GJB00676	16/06/2009
Vanku	GJB00591 GJB00592	20/09/2005

¹⁷ Calculated based on the apportioning of generation at the control panel meter readings.

¹⁸ Rounded off to a lower value

Summary of internal Monitoring reports

Internal monitoring of the project activity was carried twice in a year.

Internal Monitoring report summary 1

S. No.	Month	Gujarat Billable Units (kWh)
1	Sep-07	1363
2	Oct-07	36820
3	Nov-07	243193
4	Dec-07	1140722
5	Jan-08	5492593
6	Feb-08	6141993
7	Mar-08	15506713
	Total	28563397

Internal Monitoring report summary 2

S. No.	Month	Gujarat Billable Units (kWh)
1	Apr-08	15619630
2	May-08	43413453
3	Jun-08	44491711
4	Jul-08	38675663
5	Aug-08	37421663
6	Sep-08	29498759

Internal Monitoring report summary 3

S. No.	Month	Gujarat Billable Units (kWh)
1	Oct-08	8689201
2	Nov-08	16787121
3	Dec-08	23683200
4	Jan-09	19065958
5	Feb-09	16579542
6	Mar-09	17440144
	Total	311366045

Total value will not match since the next half yearly monitoring is due for duration up to June 2009. However, monthly details will be matching for respective months.