

**12.25 MW Bundled grid-connected wind electricity generation project,
Tamil Nadu, India**

MONITORING REPORT

Version: 08

DATE: JUNE 24, 2011

PERIOD:

MARCH 28, 2006 TO JULY 20, 2009

(Including Both Day)

PROJECT LOCATION:

TIRUNELVELI DISTRICT, TAMIL NADU

INDIA

REGISTERED OFFICE:

GTP Granites Limited

4/36 Bharathi Street, Swarnapuri

Salem – 636004, Tamil Nadu

India

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1. Project Details

The project activity under consideration entails generation of clean power by harnessing wind energy – a non-conventional renewable energy resource and export of the electricity generated to the Tamil Nadu Electricity Board (TNEB) on the basis of Power Purchase Agreements. Some of the project proponents are using the energy generated from their WTGs for their captive consumption; the energy is wheeled to the HT industrial units through the existing transmission line of Tamil Nadu Electricity Board (TNEB) as per their wheeling and banking agreement with the electricity board. The project proponents M/s. Viking Textiles Private Limited and M/s. Global Calcium Private Limited are having wheeling and banking agreement with the with the Tamil Nadu Electricity Board to wheel the generated power to their factory premises prior to the agreement the project proponent were drawing power from the southern regional grid to meet their requirement. M/s. GTP Granites Limited signed power purchase agreement with Tamil Nadu Electricity Board for its WTGs bearing HTSC no 1019 and 1021 on 30th September 2004. But as per the revised agreement signed on 21st July 2007 the energy generated from both WTGs will be wheeled to M/s. Golden Spinning Mill Private Limited which is a group concern. The electricity exported from the project to the grid thereby replaces an equivalent amount of power generation at the grid connected power plants which are primarily fossil fuel based. Therefore the project activity results in an equivalent amount of CO₂ emission reduction which otherwise would have resulted from fossil fuel combustion related to electricity generation at the grid.

The project activity is a bundled wind energy project with total capacity of 12.25 MW, comprising of eleven Wind Turbine Generators (WTG's) of varying capacities, commissioned in the period between 31/03/2003 and 02/04/2005. The project activity consists of eleven wind turbine generators (WTGs) in Tirunelveli district of Tamil Nadu state in India. The project activity has Suzlon make nine WTGs of 1250 KW and VestasRRB make two WTGs of 500 KW. The relevant details of the individual components of the bundled project activity including the names of the project promoters, the installed wind power generation All the windmills have been commissioned and the generated electricity from WTGs is connected to state electric utility namely Tamil Nadu Electricity Board (TNEB).

The project activity is located in Tirunelveli district in Tamilnadu state in India. Tirunelveli district is located between 8°.05' and 9°.30' of the Northern latitude and 77°.05' and 78°.25' of Eastern longitude. The project activity is about 15 –20 kilometres from Kanyakumari (Cape Comorin), the southernmost point of India where three seas namely Bay of Bengal, Indian Ocean and Arabian sea confluence. The nearest big railway station is at Kanyakumari and nearest airport is at Trivandrum at 100 kilometres away.

The table 1 gives the details of location of wind turbine generators of the project activity.

TABLE – 1

SI No.	Name of the Company	Installed Capacity (MW)	No. of WTG	Manufacturer of WTG	Capacity (MW)	Survey No.	WTG HT SC No.	Location of WTG				Date of Commissioning	Local Grid Station	Geographical Coordinates
								Village	Taluka	District	State			
1	Viking Textiles Private Limited	2.5	2	Suzlon	1.25	109 (P)	549	Irukkandurai	Radhapuram	Tirunelveli	Tamil Nadu	31-Mar-03	Radhapuram	N 8° 12' 24.9" E 77° 40' 41.8"
				Suzlon	1.25	644/3(P)	580	Dhanukarkulam	Radhapuram	Tirunelveli	Tamil Nadu	21-Sep-03	Radhapuram	N 8° 12' 24.9" E 77° 40' 07.2"
2	Viking Knitters	1.25	1	Suzlon	1.25	607/2A (P)&607/2B (P)	624	Dhanukarkulam	Radhapuram	Tirunelveli	Tamil Nadu	29-Sep-03	Radhapuram	N 8° 14' 40.1" E 77° 39' 26.2"
3	S. Muthurajan	2.25	3	VeatasRRB	0.5	1252/1 (P)	783	Irukkankulam	Radhapuram	Tirunelveli	Tamil Nadu	31-Mar-04	Chithambarapuram	N 8° 12' 19.5" E 77° 37' 07.5"
				VeatasRRB	0.5	1244/1A (P)	784	Irukkankulam	Radhapuram	Tirunelveli	Tamil Nadu	31-Mar-04	Chithambarapuram	N 8° 12' 27.2" E 77° 37' 07"
				Suzlon	1.25	610 (P)	1020	Radhapuram	Radhapuram	Tirunelveli	Tamil Nadu	30-Sep-04	Radhapuram	N 8° 16' 59.4" E 77° 39' 36.7"
4	GTP Granites Limited	3.75	3	Suzlon	1.25	627/5	1019	Radhapuram	Radhapuram	Tirunelveli	Tamil Nadu	30-Sep-04	Radhapuram	N 8° 16' 27.2" E 77° 39' 48.2"
				Suzlon	1.25	600/3 (P)	1021	Radhapuram	Radhapuram	Tirunelveli	Tamil Nadu	30-Sep-04	Radhapuram	N 8° 16' 57.3" E 77° 39' 18.1"
				Suzlon	1.25	182/2 (P)	1133	Radhapuram	Radhapuram	Tirunelveli	Tamil Nadu	04-Mar-05	Radhapuram	N 8° 16' 08.1" E 77° 39' 54.9"
5	Ashok Granites Limited	1.25	1	Suzlon	1.25	611/1B2 (P)	1284	Radhapuram	Radhapuram	Tirunelveli	Tamil Nadu	02-Apr-05	Radhapuram	N 8° 16' 46.1" E 77° 39' 18.1"
6	Global Calcium Private Limited	1.25	1	Suzlon	1.25	645/1A, 1B, 1C, 1D, 1E, 2H, 2G, & 2F	1237	Levingipuram	Radhapuram	Tirunelveli	Tamil Nadu	30-Mar-05	Maharajapuram	N 08° 08' 55.3" E 77° 35' 05.7"

TABLE – 2

SI No.	Name of the Company	Manufacturer of WTG	Capacity (MW)	Date of Commissioning	Survey No.	WTG HT SC No.	Meter Details					
							LR. No.	Sc. No.	Meter Maker	SI. No.	Class	Calibration Record
1	Viking Textiles Private Limited	Suzlon	1.25	31-Mar-03	109 (P)	549	AEE/MRT/WF/MF/MP DL/F.P.T/D.2699/08 Dt. 16-12-2008	549/TIN	ABB	02307248	0.5	31-03-2003 09-11-2006 13-10-2008
		Suzlon	1.25	21-Sep-03	644/3(P)	580	AEE/MRT/WF/MF/MP DL/F.P.T/D.2700/08 Dt. 16-12-2008	580/TIN	Elster	02329020	0.5	21-09-2003 04-01-2008
2	Viking Knitters	Suzlon	1.25	29-Sep-03	607/2A (P)&607/2B (P)	624	AEE/MRT/WF/MF/MP DL/F.P.T/D.2701/08 Dt. 16-12-2008	624/TIN	Elster	02329666	0.5	29-09-2003 31-07-2006
									Elster	04668138	0.5	31-07-2006 24-07-2008
3	S. Muthurajan	VeatasRRB	0.5	31-Mar-04	1252/1 (P)	783	AEE/MRT/WF/MF/MP DL/F.P.T/D.2986/08 Dt. 31-12-2008	783/TIN	Elster	02345930	0.5	31-03-2004 21-04-2008
									Elster	04940968	0.5	21-04-2008

		VeatasRRB	0.5	31-Mar-04	1244/1A (P)	784	AEE/MRT/WF/MF/MP DL/F.P.T/D.2986/08 Dt. 31-12-2008	784/TIN	Elster	02345925	0.5	31-03-2004 02-07-2005 03-02-2006
									Elster	04720140	0.5	03-02-2006 21-04-2008
		Suzlon	1.25	30-Sep-04	610 (P)	1020	AEE/MRT/WF/MF/MP DL/F.P.T/D.2988/08 Dt. 31-12-2008	1020/TIN	Elster	02377849	0.5	30-09-2004 10-11-2006 18-12-2008
4	GTP Granites Limited	Suzlon	1.25	30-Sep-04	627/5	1019	AEE/MRT/WF/MF/MP DL/F.P.T/D.2982/08 Dt. 31-12-2008	1119/TIN	Elster	04668097	0.5	30-09-2004 10-11-2006
									Elster	04902016	0.5	03-08-2007 31-12-2008
		Suzlon	1.25	30-Sep-04	600/3 (P)	1021	AEE/MRT/WF/MF/MP DL/F.P.T/D.2988/08 Dt. 31-12-2008	1021/TIN	Elster	02373979	0.5	30-09-2004 10-11-2006 28-12-2006 18-12-2008

		Suzlon	1.25	04-Mar-05	182/2 (P)	1133	AEE/MRT/WF/MF/MP DL/F.P.T/D.2984/08 Dt. 31-12-2008	1133/TIN	Elster	04668146	0.5	04-03-2005 15-11-2006 31-12-2008
5	Ashok Granites Limited	Suzlon	1.25	02-Apr-05	611/1B2 (P)	1284	AEE/MRT/WF/MF/MP DL/F.P.T/D.2985/08 Dt. 31-12-2008	1284/TIN	Elster	04668140	0.5	02-04-2005 16-02-2006 24-10-2007
									Premier	TNB02175	0.5	24-10-2007 31-12-2008
6	Global Calcium Private Limited	Suzlon	1.25	30-Mar-05	645/1A, 1B, 1C, 1D, 1E, 2H, 2G, & 2F	1237	AEE/MRT/WF/MF/MP DL/F.P.T/D.907/09 Dt. 10-08-2009	1237/TIN	Elster	04691073	0.5	30-03-2005 14-07-2005 20-12-2007 07-02-2009

TABLE – 3

SI No.	Name of the Company	Capacity (MW)	WTG HT SC No.	Periods for which correction factor applied
1	Viking Textiles Private Limited	1.25	549	14-04-2006 to 10-10-2008
		1.25	580	14-04-2006 to 04-01-2008
2	Viking Knitters	1.25	624	05-04-2006 to 31-07-2006, 31-07-2007 to 24-07-2008
3	S. Muthurajan	0.5	783	10-04-2006 to 21-04-2008
		0.5	784	10-04-2006 to 21-04-2008
		1.25	1020	12-04-2006 to 18-12-2008
4	GTP Granites Limited	1.25	1019	12-04-2006 to 10-11-2006, 03-08-2008 to 31-12-2008
		1.25	1021	12-04-2006 to 28-12-2006, 28-12-2007 to 18-12-2008
		1.25	1133	12-04-2006 to 15-11-2006, 15-11-2007 to 31-12-2008
5	Ashok Granites Limited	1.25	1284	NA
6	Global Calcium Private Limited	1.25	1237	07-04-2006 to 20-12-2007, 20-12-2008 to 07-02-2009

2. Project Technologies

In wind energy generation, kinetic energy of wind blowing at high speeds is converted into mechanical energy while passing through the wind-turbine. The rotation of the turbine blades results in the rotation of the generator mounted on the same shaft, thus generating electricity. As there are no GHG emissions associated with wind electricity generation, the technology is widely recognized as clean technology. The important components of a windmill are as follows:

- Main Tower
- Blades
- Nacelle
- Hub
- Main Shaft
- Gear Box, Bearing and Housing
- Brake
- Generator

Furthermore the specifications of the various WTGs employed by the project activity are presented below in table 2:

TABLE – 4

Sl. No.	Particulars	Specifications	
		Suzlon S66 (1250 KW) WTG	VestasRRB V39 (500 KW) WTG
ROTOR			
1	Diameter	66 meter	47 meter
2	No. of Rotor Blade	3	3
3	Orientation	Upwind/Horizontal Axis	-
4	Rotational Speed	13.8/20.7 RPM	26 RPM
5	Rotational direction	Clock Wise	Clock Wise
6	Rotor Blade Material	GRP	Fiber-Glass Reinforced Polyester
7	Swept Area	3421 m ²	1734.1 m ²
8	Hub Height	56 meter	50 meter
9	Regulation	Pitch regulated	Pitch regulated
OPERATIONAL DATA			
10	Cut in Wind Speed	3 meter/sec	4 meter/sec
11	Rated Wind Speed	14 meter/sec	-
12	Cut off Wind Speed	22 meter/sec	25 meter/sec
GEAR BOX			

13	Gearbox	Integrated 3 Stage 1 Planetary & 2 Helical	Planetary (3 Stage)
14	Gear Ratio	02:14.9	01:58.2
15	Manufacturer	Winergy	-
16	Nominal Load	1390 KW	-
17	Type of Cooling	Oil Cooling System, Forced Lubricant	0.3/1.7 KW air cooling
GENERATOR			
18	Generator	Asynchronous 4/6 pole	Single Wound Asynchronous
19	Rotational Speed	1006/1506 RPM	1526 RPM
20	Rated Output	250/1250 KW	500 KW
21	Rated Voltage	690 V	690 V
22	Frequency	50 Hz	50 Hz
23	Insulation	Class "H"	-
24	Enclosure Class	IP 56	-
25	Cooling System	Air Cooled	Air Cooled
OPRATING BRAKES			
26	Aerodynamic Brake	3 Independent systems with blade pitching	-
27	Mechanical Brake	Spring powered disk brake, Hydraulically realized, fail safe	Disk brake, Fail-Safety Electric
YAW DRIVE			
28	Yaw Drive Operation	4 Active electrical yaw motors	Active yaw/wind vane
29	Braking Type	Polyamide slide bearing	-

3. Present status of the project activity

The bundled project has been commissioned and is currently under operation. Please refer to table 3 below for commissioning details of individual wind turbine generators.

TABLE – 5

SI. No.	Name of the project participant	Survey No.	WTG HT SC No.	Location	Commissioning Date
1	Viking Textiles Private Limited	109 (P)	549	Irukkandurai Village	31/03/2003
2	Viking Textiles Private Limited	644/3(P)	580	Dhanukarkulam Village	21/09/2003
3	Viking Knitters	607/2A (P) & 607/2B (P)	624	Dhanukarkulam Village	29/09/2003
4	S. Muthurajan	1252/1 (P)	783	Irukkankulam Village	31/03/2004
5	S. Muthurajan	1244/1A (P)	784	Irukkankulam Village	31/03/2004
6	S. Muthurajan	610 (P)	1020	Radhapuram Village	30/09/2004
7	GTP Granites Limited	627/5	1019	Radhapuram Village	30/09/2004
8	GTP Granites Limited	600/3 (P)	1021	Radhapuram Village	30/09/2004
9	GTP Granites Limited	182/2 (P)	1133	Radhapuram Village	04/03/2005
10	Ashok Granites Limited	611/1B2 (P)	1284	Radhapuram Village	02/04/2005
11	Global calcium Private Limited	645/1A, 1B, 1C, 1D, 1E, 2H, 2G, & 2F	1237	Levingipuram Village	30/03/2005

4. Statement to what extent the project has been implemented as planned

The project has been completed as planned and the described in VCS Project Document (PD). The project is in operation continuously with the planned and forced Maintenance Outages from the commencement of operation. The project is a bundled wind energy based power generation project consisting of eleven WTGs commissioned in Tirunelveli district of Tamil Nadu state in India.

5. Contribution of the Project Activity to Sustainable Development

The contribution of the project activity to the sustainable development of the host country India is evident from the following:

5.1. Social Well Being

- The project generates clean power without negative impacts on surroundings
- No human displacement due to the project activity and hence no requirement of relocation
- The local population has been employed during the installation, commissioning and operation of the wind mills, thus proper training imparted to the people involved results in the skill development of the local inhabitants and also improvement in their economic condition.
- Improvement in the infrastructure in the nearby areas such as development of road network, transportation facilities and other amenities

5.2. Economic Well Being

- The project activity is responsible for creating business opportunities for many local stakeholders
- It is an effort on the part of the project proponent to contribute towards grid stability and abridging the demand-supply gap in electricity in the regional grid and in turn in the national grid
- The project activity conserves fossil-fuels and makes these non-renewable sources of energy available for other important purposes.
- It indirectly contributes towards industrial development of the region by creating a support in terms of supplying power for industries to come up in due course of time

5.3. Technological Well Being

- The project activity generates clean power by harnessing the potential wind energy for power generation
- The project contributes towards the stability of grid power that is a major cause of concern in remote locations
- It also helps in reducing the losses due to power transmission and distribution from the existing generating stations of the grid to remote areas

5.4. Environmental Well Being

- The project activity displaces an equivalent quantum of power generated by the combustion of fossil fuels, the non-renewable energy sources at the grid connected thermal power plants, thus reducing GHG emissions and contributing to the overall cause of mitigation of global warming
- The project activity by setting up wind-farms for power generation does not cause environmental disturbance or ecological imbalance to the surroundings
- The project activity does also contribute to the reduction in the levels of SO_x, NO_x, and SPM associated with combustion of fossil fuels for generation of thermal power

6. Monitoring Period

The monitoring period is chosen from March 28, 2006 to July 20, 2009 which includes both the days.

To maintain the consistency the start date has been considered from 5 April 2006, though the crediting period start date is 28th March 2006. The earliest start date after 28th march 2006 is 5th March 2006. Similarly 20th July 2009 has been considered as the end date of the crediting period.

More over the source of generation is the JMR issued from TNEB and is issued on monthly basis so there is no specific source to take the everyday reading so to avoid error the earliest meter reading date of each WTG has been considered after 28th march 2006 and last meter reading date of each WTG has been considered. No PP will claim the ERs from 28th march 2006 to 4th April 2006 and 15th July 2009 to 20th July 2009.

7. Parameters to be monitored

For the project, the following parameters are being monitored on continuous basis:

TABLE - 6

SI No.	Data Type	Data Variable	Unit	Recording Frequency	Proportion of data to be monitored	Source of Data	Remark
1	E _{GROSS}	Gross units of electricity generated	MWh	Continuous	100%	Electronic	Measured in the interconnection point by TNEB and mentioned as "Total Export" in the Monthly Meter Reading Report
2	E _{IMP}	Units of electricity Imported from the grid	MWh	Continuous	100%	Electronic	Measured in the interconnection point by TNEB and mentioned as "Total Import" in the Monthly Meter Reading Report

3	E _{EXP}	Net units of electricity exported to the grid	MWh	Continuous	100%	Electronic	Measured in the interconnection point by TNEB and mentioned as "Net Generation" in the Monthly Meter Reading Report
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8. Monitoring Methodology & Monitoring Procedure

8.1. Monitoring Methodology

Title of Approved Monitoring Methodology: 'Grid Connected Renewable Electricity Generation'

Reference of the Approved Monitoring Methodology: Category I.D - Renewable Energy Projects: Approved Small Scale Methodology AMS –I.D. / Version 14

Scope no: 1

Sectoral Scope: Energy Industries (Renewable/non-renewable)

8.2. Monitoring, including estimation, modelling, measurement or calculation approaches:

- *Purpose of monitoring:* The Monitoring and Verification (M&V) procedures define a project-specific standard against which the project's performance (i.e. GHG reductions) and conformance with all relevant criteria will be monitored and verified. It includes developing suitable data collection methods and data interpretation techniques for monitoring and verification of GHG emissions with specific focus on technical / efficiency / performance parameters. It also allows scope for review, scrutiny and benchmarking of all these information against reports pertaining to M & V protocols. The M&V Protocol provides a range of data measurement, estimation and collection options/techniques in each case indicating preferred options consistent with good practices to allow project managers and operational staff, auditors, and verifiers to apply the most practical and cost-effective measurement approaches to the project. The aim is to enable this project have a clear, credible, and accurate set of monitoring, evaluation and verification procedures. The purpose of these procedures would be to direct and support continuous monitoring of project performance/key project indicators to determine project outcomes, greenhouse gas (GHG) emission reductions.

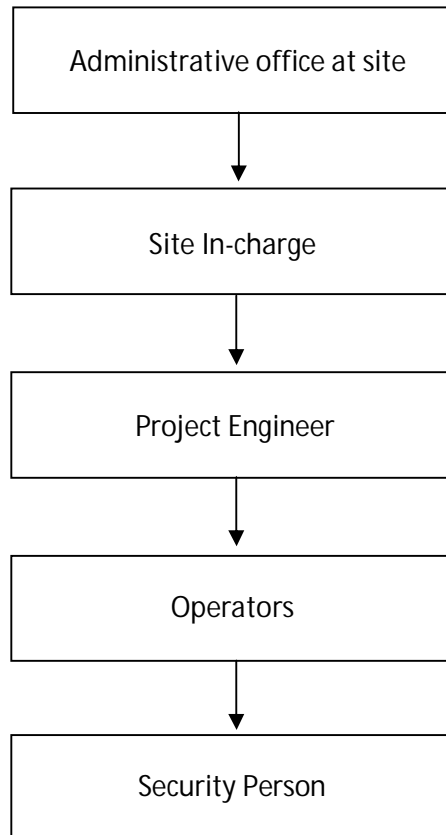
Effective GHG abatement monitoring and realisation of associated benefits stand on the quantification and keeping a track of the GHG emission reductions the project results in. The project activity would reduce the carbon dioxide whereas an appropriate monitoring system would ensure this reduction is quantified and helps maintaining the required level. Also a proactive and efficient monitoring system brings about the flaws in the system if any are identified and opens up the opportunities for improvement. The general monitoring principles are based on:

- *Frequency:* The amount of electricity exported to the grid is monitored every month as per the initial and final reading date of the WTGs.
- *Reliability:* The reliability of the monitoring system is governed by the accuracy of the measurement system and the quality of the equipment to produce the result. All energy

meters will be calibrated on a regular basis by the Tamil Nadu State Electricity Board for ensuring reliability of the system.

- *Registration and Reporting:* Registration of data would be in the plant records log sheet and there from the Electricity Export Joint meter reading report of the SEB. Monthly reports would be prepared stating the net electricity exported and archived by the project proponent.
- *Origin of the data:* There are primarily two types of data sources to be utilised for calculation of the GHG abatement quantum of the project activity:
 1. *Internal:* Documents or records maintained by the company like bills raised to the Tamil Nadu State Electricity Board for export of electricity.
 2. *External:* Public Domain Sources like the Central Electricity Authority CO₂ Baseline Database
- *Monitoring times and periods, considering the needs of intended users :* The Operators record the generation on a daily basis for each service connection. The operators also maintain the records for training, maintenance, break down and calibration of meters. All the metering instruments used on the sites are calibrated periodically and maintained in good working condition. Respective staff employed maintains records for all the monitored parameters. The energy meter is also checked once a year by respective agencies and then sealed. This meter is the basis of billing by state electricity board to project participant.
- *Monitoring roles and responsibilities:* The authority and responsibility for registration, monitoring, measurement, reporting and reviewing of the data rests with the Board of Directors of the project proponent. The Board may delegate the same to a competent person identified by the project proponent for the purpose. The identified person, in the rank of Project Engineer, will be the in charge of GHG monitoring activities for the project activity. A team of experienced personnel in disciplines such as mechanical, electrical with experience in plant operation, measurements and management will assist the Project Engineer. The primary responsibilities of the team is to measure, monitor, record and report the information on various data items to the Project Engineer, in accordance with the applicable standards. Periodic calibration of various instruments used in the monitoring of GHG related data and record keeping of the same also will be the responsibility of the team.

The responsibility of review, storage and archiving of information in good condition lies with the Project Engineer. Project Engineer will undertake periodic verifications and onsite inspections to ensure the quality of the data collected by the team and initiate steps in case of any abnormal conditions. The Project Engineer will review the data collected by the team and suggest corrective actions wherever required. An internal audit report will be prepared for review by the Board of Directors which will be later submitted for verification by an independent entity (DOE). Board of Directors will examine the internal audit reports and will in particular take note of any deviations in data over the norms and monitor that the corrective actions have resulted in adherence to the standards. The team including the Project Engineer will be appointed by the Boards of Directors of the project activity, in advance before the start of project operations. The Project Engineer will report to the Board of Directors and seek guidance in case of conflicts or difficulties in order to maintain the monitoring organization in good spirit.



- *Managing data quality:* The projects employ latest state of art microprocessor based high accuracy monitoring and control equipment that will measure, record, report, monitor and control of various key parameters of the plants. These monitoring and controls will be the part of the Control Systems of wind electric plant. Necessary standby meters or check meters as required will be installed, to operate in standby mode or when the main meters are not working. All meters will be calibrated and sealed as per industry practices at regular intervals. Records of calibration certificates will be maintained for verification. Hence, high quality is ensured with the above parameters. Sales records will be used and kept for checking the consistency of the recorded data. All the data items monitored under the monitoring plan will be kept for 2 years after the end of crediting period or till the last issuance of ERs for this project activity whichever occurs later.

8.3. Description of the monitoring plan

The project proponents have a procedure to ensure proper monitoring of the ERs project activity. The project activity has installed monitoring and control equipment that measure, record, report, monitor and control various key parameters.

The methodology requires monitoring of the net electricity supplied from the project activity. The analysis of the daily power generation reports, performance report and monthly meter reading is handled by the project proponents on a regular basis. The energy meter is maintained by State Electricity Board. The metering system comprises of a main meter and another meter situated at the WTG controller. The meter is sealed in the presence of the representatives of the power producer and Tamil Nadu State Electricity Board. The State Electricity Board personnel take the reading of the power generated every month; and this data is used for billing purposes. The back up meter (Local Controller System meter) shall be used during the period the main metering system is not in service. Both the meters are calibrated at least once in three years. The maintenance and calibration of energy meters is entirely in the hands of Tamil Nadu State Electricity Board and the project proponents have no control over it. The accuracy class of the energy meters is as mentioned in section 3.3. A maintenance log-book is kept at the WTG site. All maintenance/repair related events and activities are recorded in the log book. The meters are the property of Tamil Nadu State Electricity Board. If, during the reading, a particular meter is found faulty, the shift operator reports the same to Tamil Nadu State Electricity Board officials. The Tamil Nadu State Electricity Board officials then visit the site to inspect the faulty meter and if required, replace it with a new meter. The old meter reading and the new meter readings are recorded in the generation log-book. The date of change of meter is also mentioned in the log-book. The Tamil Nadu State Electricity Board i (Joint Meter Reading) will be used for the calculation of net power exported to the grid. The proponent shall keep complete and accurate records and all other data required for the purpose of proper administration and operation of the windmills. The proponent shall also maintain an accurate and up-to-date operating log at the wind mill sites. The data will be kept for at least 2 years after the end of the crediting period.

9. GHG Emission Reductions

9.1. Explanation of methodological choice:

The following Approved Small Scale Methodology has been followed for the project activity under consideration:

Title of Approved Methodology: 'Grid Connected Renewable Electricity Generation'

Reference of the Approved Methodology: Category I.D - Renewable Energy Projects: Approved Small Scale Methodology AMS –I.D. / Version 14¹

For further details regarding the applicability criteria pertaining to the above-Methodology in the context of the project activity, please refer to section 2.2 of the VCS PD.

9.2. Quantifying GHG emissions and/or removals for the baseline scenario:

For the project activity under consideration, the baseline is given by paragraph 9 of the methodology AMS-I.D. / Version 14 as follows:

“the baseline is the kWh produced by the renewable generating unit multiplied by an emission coefficient (measured in kg CO₂e/kWh) calculated in a transparent and conservative manner as:

¹Refer to: http://cdm.unfccc.int/UserManagement/FileStorage/CDMWF_AM_PHPV5WESACMBTJ2YY54GAJYSIEI3HD

(a) A combined margin (CM)², consisting of the combination of operating margin (OM)³ and build margin (BM)⁴ according to the procedures prescribed in the 'Tool to calculate the emission factor for an electricity system'. Any of the four procedures to calculate the operating margin can be chosen, but the restrictions to use the Simple OM and the Average OM calculations must be considered. OR

(b) The weighted average emissions (in kg CO₂e/kWh) of the current generation mix. The data of the year in which project generation occurs must be used.

Calculations must be based on data from an official source (where available) and made publicly available.”

The wind power generation project activity displaces an equivalent amount of electricity that would have been generated in the fossil-fuel dominated Southern Regional grid generation-mix. Since the displaced electricity generation is the element that is likely to affect both the operating margin in the short run and the build margin in the long run, electricity baselines should reflect a combination of these effects. Therefore an ideal baseline approach is envisaged as the one that combines both Operating and Build Margin as prescribed in first alternative stated above. In case of the project activity under consideration, a combined margin (CM) emission factor, calculated according to the procedures prescribed in the 'Tool to calculate the emission factor for an electricity system' and publicly available in the official website of Central Electricity Authority⁵ (CEA), has been used for arriving at the baseline.

9.3. Calculation of net units of electricity substituted in the grid

The net electricity exported to the grid by the project activity in the project would be calculated as the sum of the electricity exported by each individual WTG to the nearest sub-station.

$$E_{EXP,y} = \sum_{i=1}^n E_{EXP,i,y} \dots\dots\dots (1)$$

Where,

$E_{EXP,y}$ Net units of electricity exported to the grid during the project year y (in MWh) by the project activity

$E_{EXP,i,y}$ Net units of electricity exported to the grid by the ith component (WTG) during the project year y (in MWh)

i Total number of individual wind-mills constituting the project activity

Calculation of net electricity export quantum to grid by the bundled Project Activity is shown in table 5:

² The project activity will have an effect on the both the operating margin and build margin.

³ Present power generation sources of the grid, weighted according to their actual participation in the grid mix (all generating sources participating in the grid except hydro, geothermal, wind, low cost biomass, nuclear, and solar power)

⁴ Weighted average emissions of recent capacity additions (most recent 20% or the 5 most recent plants)

⁵ CEA CO₂ Baseline Database, Version 4.0, Dated October 2008, available at: www.cea.nic.in

TABLE – 7

Calculation of CO2 Emission Reduction from Wind Energy Power Projects												
(Grid Connected)												
1	Country	India										
2	Installed Capacity to Claimed under VCS	MW	12.25									
3	Grid	Southern Grid		Southern Grid	Southern Grid			Southern Grid		Southern Grid	Southern Grid	
4	Project Developer / Investor		Viking Textiles Private Limited	Viking Knitters	S. Muthurajan			GTP Granites Limited		Ashok Granites Limited	Global Calcium Private Limited	
5	Location of WTG	Village	Irukkandurai/ Dhanukarkulam	Dhanukarkulam	Radhapuram	Irukkankulam	Radhapuram		Radhapuram	Levingipuram		
		Taluka	Radhapuram	Radhapuram	Radhapuram	Radhapuram	Radhapuram		Radhapuram	Radhapuram		
		District	Tirunelveli	Tirunelveli	Tirunelveli	Tirunelveli	Tirunelveli		Tirunelveli	Tirunelveli		
		State	Tamil Nadu	Tamil Nadu	Tamil Nadu	Tamil Nadu	Tamil Nadu		Tamil Nadu	Tamil Nadu		
6	Installed Capacity of WTGs to Claimed under VCS	MW	2.5	1.25	2.25		3.75		1.25	1.25		
7	Capacity of WTGs	MW	1.25	1.25	1.25	1.25	0.5	0.5	1.25	1.25	1.25	1.25
8	No. of WTGs		1	1	1	1	1	1	1	1	1	1
9	Average PLF	%	23.37%	23.37%	28.56%	28.56%	28.56%	28.56%	28.56%	28.56%	28.56%	28.56%
10	Annual Operating hours	Hours	8760	8760	8760	8760	8760	8760	8760	8760	8760	8760
11	Total Electrical Energy Generated	MWh per annum	2559	2559	3127	3127	1251	1251	3127	3127	3127	3127
12	Total Electrical Energy Generated	KWh per annum	2559015	2559015	3127320	3127320	1250928	1250928	3127320	3127320	3127320	3127320
13	Grid Emission Factor	TonneCO2/MWh	0.928	0.928	0.928	0.928	0.928	0.928	0.928	0.928	0.928	0.928
14	Emission Reduction CO2 from WTGs per Annum	Tonnes of CO2	2373	2373	2901	2901	1160	1160	2901	2901	2901	2901
15	Emission Reduction CO2 per Annum	Tonnes of CO2	27386.6									
16	Crediting period	Years	10									
17	Estimated overall Emission Reduction during Crediting period	Tonnes of CO2	273866									

9.4. Baseline Emission Calculations

The Baseline Emission is calculated as,

$$BE_y = E_{EXP,y} \times EF_{GRID} \dots\dots\dots (2)$$

Where,

BE_y Baseline Emissions due to displacement of electricity at the grid by the project activity during the year y (in tCO₂)

EF_{GRID} Emission factor of the grid to which the electricity generated by the project activity is exported (in tCO₂/ MWh)

9.5. Emission Factor of the Grid (EF_{GRID})

For the project activity, the baseline scenario entails the generation of electricity by the grid connected fossil fuel fired thermal power plants resulting in GHG emissions as per the carbon intensity of the grid. The emission factor for the electricity displaced in the grid due by the electricity generated by the project activity is calculated as per the 'Tool to calculate the emission factor for an electricity system' by CEA and made available publicly for use as a data source for all Indian projects. The Southern Regional Electricity Grid of India that is fed by a majority of the majority of fossil fuel based units is considered for baseline emission calculations over the project activity's crediting period. Justification pertaining to the choice of the grid and details of the calculation of its carbon intensity are presented below.

A) Choice of the grid that will be affected by the project activity

As per 'Tool to calculate the emission factor for an electricity system',

"In large countries with layered dispatch systems (e.g. state/provincial/regional/national) the regional grid definition should be used. A state/provincial grid definition may indeed in many cases be too narrow given significant electricity trade among states/provinces that might be affected, directly or indirectly, by a CDM project activity."

The Indian power grid system (or the National Grid) is divided into two regional grids namely NEWNE Regional Grid and Southern Region Grid. These regional grids have independent state Load Dispatch Centres (LDCs) that manage flow of power in their jurisdiction. Power generated by state owned generation units and private owned generation units is consumed by the respective states. Power generated by central sector plants is shared by all states forming part of the grid in a fixed proportion. The project activity is located in the state of Tamil Nadu in Southern India and hence falls under the Southern Regional Grid of India.

Taking into consideration the points mentioned above (i.e. the relevant grid displaced by the project activity and the guidelines for selection of the appropriate grid in large countries with layered dispatch systems like India as given in 'Tool to calculate the emission factor for an electricity system'), the

Southern Regional Grid has been considered as the most representative system boundary (i.e. project electricity system) where an equivalent amount of electricity would be replaced by the implementation of the project activity. The carbon intensity of the Southern Regional Grid would be determined to arrive at the baseline emission factor for baseline emission calculations for the project activity's crediting period.

B) Determination of the Carbon Intensity of the chosen Grid

CEA has carried out a complete analysis of the electricity generation mix across the country for calculating the emission factor of Southern Regional Grid in its CO₂ Baseline Database Version 4.0 Dated October 2008. The project proponent has used the analysis for computation of the grid emission factor by the CEA following the guidelines of the 'Tool to calculate the emission factor for an electricity system'. The combined margin grid emission factor computed from the above analysis is 0.928 tCO₂/MWh for the Southern Regional Grid (Please refer to the calculation presented below in table 6 & 7). The grid emission factor would be recalculated and updated ex-ante based on the latest available version of the CEA CO₂ Baseline Database over the entire crediting period of the project activity.

TABLE - 8

Calculation of the Carbon Intensity of the NEWNE Regional Grid			
	2005-06	2006-07	2007-08
Operating Margin (tCO ₂ /MWh) (incl. Imports)	1.01	1.00	0.99
Simple Operating Margin (tCO ₂ /MWh) (incl. Imports)	1.00		
Build Margin (tCO ₂ /MWh) (not adjusted for imports)	0.71		
Combined Margin Emission Factor in tCO₂/MWh (including Imports)	0.928		

Summary: Parameters required for calculation of baseline emissions:

TABLE - 9

Sl. No.	Variable	Parameters	Data Sources
1	EF _{GRID}	Grid emission factor	CEA CO ₂ Baseline Database, Version 4.0 dated October 2008
2	E _{EXP,y}	Net electricity exported to the grid	Electricity Statements/ Bills of the State Electricity Board

9.6. Project Emissions:

As the project activity is a wind power project, there are no anthropogenic emissions by sources of GHGs within the project boundary as a result of the project activity. Hence there are no project emissions to be considered.

The main emissions in the context of renewable energy projects (including wind-mills) of the power sector are emissions arising due to activities such as power plant construction and fuel handling (extraction, processing, and transport). The GHG emissions due to the above mentioned sources of emission are negligible with respect to the lifetime of the project activity under consideration.

9.7. Leakage Emissions:

As per the methodology AMS-I.D./ Version 14⁶,

“If the energy generating equipment is transferred from another activity or if the existing equipment is transferred to another activity, leakage is to be considered”.

There are no anthropogenic emissions identified by sources outside the project boundary due to the project activity. Furthermore, the equipments (WTGs) used by the project activity are newly procured and hence not transferred from another project. Thus, there are no leakage emissions attributable to the project activity.

Thus, the GHG emissions attributable to the project activity (project emissions) in the project year y are expressed as:

$$PE_y = 0 \dots\dots\dots (3)$$

9.8. Emission Reductions:

The emission reductions of the project activity are calculated as the difference between the baseline emissions and the project emissions:

$$ER_y = BE_y - PE_y \dots\dots\dots (4)$$

Where,

ER_y Emission reductions for the project activity in the project year y in tonnes of CO₂e

Emission reductions from the project activity were estimated to be 27,386 tonnes of CO₂ equivalent per annum. The estimated emission reductions have been arrived at using the calculated generation as per PLF provided in the TNERC orders. The net generation is arrived at after deducting wheeling charges and losses due to grid availability from the calculated generation. Hence, there is a difference between the estimated amount of emission reductions and the actual emission reductions.

⁶Refer to: http://cdm.unfccc.int/UserManagement/FileStorage/CDMWf_AM_PHPV5WESACMBTJ2YY54GAJYSIEI3HD

10. Monitoring Data

As per the baseline scenario the project activity involves power generation by installation of WTGs in the state of Tamil Nadu, India. Ashok Granites Limited has signed PPA with the TNEB on 2nd April 2005 but at later stage of the project the PPA was revised to wheeling and banking agreement as per current scenario the generated power from WTG is utilized by the PP at his factory premises through HT line. Due to change in the baseline scenario the project is not additional. So the WTG was removed from the bundle.

The emission reductions for the monitoring period are as given below:

Sl. No.	Client Name	WTG - HTSC No.	Billing Month	Period		Export	Import	Wheeling	Net Export Units
				From	To	kWh	kWh	kWh	kWh
1	Viking Textiles Private Limited	549	May-06	14/4/2006	10/5/2006	159824	1152	7991	149876.1
		580		6/4/2006	4/5/2006	132102	1386	6605	123443.6
2	Viking Knitters	624		5/4/2006	4/5/2006	140760	1800	0	138247.2
3	S. Muthurajan	783		10/4/2006	5/5/2006	76896	648	0	75860.3
		784		10/4/2006	5/5/2006	71631	891	0	70377.4
		1020		12/4/2006	10/5/2006	67644	2430	0	64863.6
4	GTP Granites Limited	1019		12/4/2006	10/5/2006	75240	1962	0	72892.0
		1021		12/4/2006	10/5/2006	76896	1944	0	74557.8
		1133		12/4/2006	10/5/2006	87660	2538	0	84671.0
5	Ashok Granites Limited	1284		12/4/2006	10/5/2006	0	0	0	0.0
6	Global Calcium Private Limited	1237	7/4/2006	9/5/2006	207630	1170	10382	195034.0	
Total						1096283	15921	24978	1049823.0
1	Viking Textiles Private Limited	549	Jun-06	10/5/2006	8/6/2006	289664	368	14483	273362.8
		580		4/5/2006	6/6/2006	311544	378	15577	294029.4
2	Viking Knitters	624		4/5/2006	6/6/2006	301320	540	0	299270.7
3	S. Muthurajan	783		5/5/2006	9/6/2006	147150	387	0	146025.3
		784		5/5/2006	9/6/2006	134928	648	0	133602.1
		1020		10/5/2006	10/6/2006	289980	900	0	287625.6
4	GTP Granites Limited	1019		10/5/2006	10/6/2006	272934	648	0	270918.1
		1021		10/5/2006	10/6/2006	323280	702	0	320958.1
		1133	10/5/2006	10/6/2006	282780	936	0	280425.4	

5	Ashok Granites Limited	1284		10/5/2006	10/6/2006	0	0	0	0.0
6	Global Calcium Private Limited	1237		9/5/2006	7/6/2006	221346	684	11067	208484.9
Total						2574926	6191	41127	2514702.4
1	Viking Textiles Private Limited	549	Jul-06	8/6/2006	7/7/2006	368144	256	18407	347639.0
		580		6/6/2006	7/7/2006	332172	306	16609	313594.6
2	Viking Knitters	624		6/6/2006	7/7/2006	329220	360	0	327212.1
		3		S. Muthurajan	783	9/6/2006	10/7/2006	150282	216
784	9/6/2006				10/7/2006	144774	306	0	143742.6
1020	10/6/2006				10/7/2006	315864	936	0	313344.0
4	GTP Granites Limited	1019		10/6/2006	10/7/2006	322830	846	0	320365.6
		1021		10/6/2006	10/7/2006	351936	702	0	349470.8
		1133		10/6/2006	10/7/2006	356274	882	0	353606.2
5	Ashok Granites Limited	1284			10/6/2006	10/7/2006	0	0	0
6	Global Calcium Private Limited	1237		7/6/2006	7/7/2006	228186	810	11409	214822.0
Total						2899682	5620	46425	2833110.5
1	Viking Textiles Private Limited	549	Aug-06	7/7/2006	7/8/2006	383152	240	19158	361837.0
		580		7/7/2006	3/8/2006	364122	216	18206	343878.3
2	Viking Knitters	624		7/7/2006	3/8/2006	299358	558	0	298800.0
		3		S. Muthurajan	783	10/7/2006	10/8/2006	141444	405
784	10/7/2006				10/8/2006	115218	558	0	114081.1
1020	10/7/2006				5/8/2006	297954	630	0	295831.1
4	GTP Granites Limited	1019		10/7/2006	5/8/2006	302634	522	0	300596.2
		1021		10/7/2006	5/8/2006	342144	468	0	339962.9
		1133		10/7/2006	5/8/2006	317718	702	0	315423.9
5	Ashok Granites Limited	1284			10/7/2006	5/8/2006	0	0	0
6	Global Calcium Private Limited	1237		7/7/2006	7/8/2006	282456	738	14123	266179.0
Total						2846200	5037	51487	2776919.4
1	Viking Textiles Private Limited	549	Sep-06	7/8/2006	8/9/2006	322400	800	16120	303864.0
		580		3/8/2006	4/9/2006	303084	612	15154	285799.5
2	Viking Knitters	624		3/8/2006	7/9/2006	322164	1170	0	320994.0
		3		S. Muthurajan	783	10/8/2006	8/9/2006	91737	558
784	10/8/2006				8/9/2006	83844	720	0	82701.2
1020	5/8/2006				9/9/2006	256698	1584	0	253822.6

4	GTP Granites Limited	1019		5/8/2006	9/9/2006	254052	1296	0	251479.3
		1021		5/8/2006	9/9/2006	293850	1242	0	291132.5
		1133		5/8/2006	9/9/2006	276732	1584	0	273756.4
5	Ashok Granites Limited	1284		5/8/2006	9/9/2006	0	0	0	0.0
6	Global Calcium Private Limited	1237		7/8/2006	12/9/2006	224568	828	11228	211385.0
Total						2429129	10394	42502	2365652.1
1	Viking Textiles Private Limited	549	Oct-06	8/9/2006	7/10/2006	319104	240	15955	301312.3
		580		4/9/2006	9/10/2006	311022	504	15551	293409.4
2	Viking Knitters	624		7/9/2006	9/10/2006	279450	252	0	279198.0
3	S. Muthurajan	783		8/9/2006	9/10/2006	113832	333	0	112928.2
		784		8/9/2006	9/10/2006	101556	558	0	100487.4
		1020		9/9/2006	6/10/2006	233622	378	0	232074.0
4	GTP Granites Limited	1019		9/9/2006	6/10/2006	221508	450	0	219948.2
		1021		9/9/2006	6/10/2006	260388	324	0	258760.4
		1133		9/9/2006	6/10/2006	233298	486	0	231643.1
5	Ashok Granites Limited	1284			9/9/2006	6/10/2006	0	0	0
6	Global Calcium Private Limited	1237		12/9/2006	10/10/2006	228978	702	11449	215678.6
Total						2302758	4227	42955	2245439.6
1	Viking Textiles Private Limited	549	Nov-06	7/10/2006	7/11/2006	99536	928	4977	93128.7
		580		9/10/2006	6/11/2006	104076	882	5204	97465.2
2	Viking Knitters	624		9/10/2006	6/11/2006	101340	1170	0	100170.0
3	S. Muthurajan	783		9/10/2006	9/11/2006	41112	1035	0	39866.3
		784		9/10/2006	9/11/2006	34452	1332	0	32941.1
		1020		6/10/2006	7/11/2006	132048	1314	0	130067.2
4	GTP Granites Limited	1019		6/10/2006	7/11/2006	126936	1134	0	125161.7
		1021		6/10/2006	7/11/2006	140526	1008	0	138810.3
		1133		6/10/2006	7/11/2006	133596	1548	0	131372.3
5	Ashok Granites Limited	1284			6/10/2006	7/11/2006	0	0	0
6	Global Calcium Private Limited	1237		10/10/2006	6/11/2006	81666	1188	4083	75980.7
Total						995288	11539	14264	964963.4
1	Viking Textiles Private Limited	549	Dec-06	7/11/2006	4/12/2006	162080	480	8104	152683.2
		580		6/11/2006	7/12/2006	211914	468	10596	199788.1
2	Viking Knitters	624		6/11/2006	6/12/2006	75006	1584	0	73422.0

3	S. Muthurajan	783		9/11/2006	8/12/2006	62163	621	0	61228.1
		784		9/11/2006	8/12/2006	67752	765	0	66644.4
		1020		7/11/2006	4/12/2006	157104	486	0	155830.1
4	GTP Granites Limited	1019		7/11/2006	4/12/2006	61128	648	0	60480.0
		1021		7/11/2006	4/12/2006	167382	414	0	166129.0
		1133		7/11/2006	4/12/2006	167760	666	0	167094.0
5	Ashok Granites Limited	1284		7/11/2006	4/12/2006	0	0	0	0.0
6	Global Calcium Private Limited	1237		6/11/2006	4/12/2006	128376	846	6419	120464.9
Total						1260665	6978	25119	1223763.7
1	Viking Textiles Private Limited	549	Jan-07	4/12/2006	5/1/2007	367344	96	18367	347043.8
		580		7/12/2006	5/1/2007	293724	234	14686	277334.2
2	Viking Knitters	624		6/12/2006	5/1/2007	244692	810	0	243882.0
3	S. Muthurajan	783		8/12/2006	8/1/2007	92781	216	0	92100.0
		784		8/12/2006	8/1/2007	110277	504	0	109219.1
		1020		4/12/2006	4/1/2007	320436	126	0	318707.2
4	GTP Granites Limited	1019		4/12/2006	4/1/2007	135666	324	0	135342.0
		1021		4/12/2006	4/1/2007	252738	432	0	252306.0
		1133		4/12/2006	4/1/2007	348804	288	0	348516.0
5	Ashok Granites Limited	1284			4/12/2006	4/1/2007	0	0	0
6	Global Calcium Private Limited	1237		4/12/2006	5/1/2007	192924	2070	9646	180233.0
Total						2359386	5100	42699	2304683.3
1	Viking Textiles Private Limited	549	Feb-07	5/1/2007	6/2/2007	348352	144	17418	329047.5
		580		5/1/2007	5/2/2007	320832	144	16042	303041.1
2	Viking Knitters	624		5/1/2007	5/2/2007	321552	162	0	321390.0
3	S. Muthurajan	783		8/1/2007	5/2/2007	105480	153	0	104798.8
		784		8/1/2007	5/2/2007	104319	153	0	103643.6
		1020		4/1/2007	5/2/2007	306504	234	0	304736.3
4	GTP Granites Limited	1019		4/1/2007	5/2/2007	284130	234	0	283896.0
		1021		4/1/2007	5/2/2007	286110	432	0	285678.0
		1133		4/1/2007	5/2/2007	331344	198	0	331146.0
5	Ashok Granites Limited	1284			4/1/2007	5/2/2007	0	0	0
6	Global Calcium Private Limited	1237		5/1/2007	6/2/2007	1674	4626	84	-3067.5
Total						2410297	6480	33544	2364309.9

1	Viking Textiles Private Limited	549	Mar-07	6/2/2007	5/3/2007	155856	864	7793	146415.4
		580		5/2/2007	6/3/2007	149724	990	7486	140494.4
2	Viking Knitters	624		5/2/2007	6/3/2007	148554	1224	0	147330.0
		3		S. Muthurajan	783	5/2/2007	5/3/2007	41211	999
784	5/2/2007				5/3/2007	45486	999	0	44254.6
1020	5/2/2007				5/3/2007	134982	1170	0	133131.2
4	GTP Granites Limited	1019		5/2/2007	5/3/2007	125532	1098	0	124434.0
		1021		5/2/2007	5/3/2007	142794	918	0	141876.0
		1133		5/2/2007	5/3/2007	139410	1368	0	138042.0
5	Ashok Granites Limited	1284		5/2/2007	5/3/2007	0	0	0	0.0
6	Global Calcium Private Limited	1237	6/2/2007	6/3/2007	27702	3258	1385	22904.2	
Total						1111251	12888	16664	1079009.4
1	Viking Textiles Private Limited	549	Apr-07	5/3/2007	5/4/2007	68992	1680	3450	63508.6
		580		6/3/2007	9/4/2007	73080	1764	3654	67287.8
2	Viking Knitters	624		6/3/2007	9/4/2007	71316	2448	0	68868.0
		3		S. Muthurajan	783	5/3/2007	5/4/2007	28530	1521
784	5/3/2007				5/4/2007	26010	1476	0	24396.6
1020	5/3/2007				7/4/2007	67122	1944	0	64832.7
4	GTP Granites Limited	1019		5/3/2007	7/4/2007	60624	1890	0	58734.0
		1021		5/3/2007	7/4/2007	68868	1566	0	67302.0
		1133		5/3/2007	7/4/2007	63450	2412	0	61038.0
5	Ashok Granites Limited	1284		5/3/2007	7/4/2007	0	0	0	0.0
6	Global Calcium Private Limited	1237	6/3/2007	5/4/2007	90054	1710	4503	83382.2	
Total						618046	18411	11607	586208.6
1	Viking Textiles Private Limited	549	May-07	5/4/2007	5/5/2007	77264	1744	3863	71262.0
		580		9/4/2007	8/5/2007	93690	1530	4684	86999.9
2	Viking Knitters	624		9/4/2007	8/5/2007	87354	2034	0	85320.0
		3		S. Muthurajan	783	5/4/2007	8/5/2007	44343	1269
784	5/4/2007				8/5/2007	48546	1305	0	46991.7
1020	7/4/2007				4/5/2007	44766	2124	0	42407.6
4	GTP Granites Limited	1019		7/4/2007	4/5/2007	45072	2016	0	43056.0
		1021		7/4/2007	4/5/2007	49302	1692	0	47610.0
		1133		7/4/2007	4/5/2007	42714	2592	0	40122.0

5	Ashok Granites Limited	1284		7/4/2007	4/5/2007	0	0	0	0.0
6	Global Calcium Private Limited	1237		5/4/2007	9/5/2007	136152	1656	6808	126999.0
Total						669203	17962	15355	633614.1
1	Viking Textiles Private Limited	549	Jun-07	5/5/2007	5/6/2007	292144	512	14607	275561.7
		580		8/5/2007	7/6/2007	243738	648	12187	229681.1
2	Viking Knitters	624		8/5/2007	7/6/2007	252936	954	0	251982.0
3	S. Muthurajan	783		8/5/2007	11/6/2007	90432	630	0	89346.7
		784		8/5/2007	11/6/2007	141822	369	0	140742.0
		1020		4/5/2007	7/6/2007	208278	1674	0	205554.2
4	GTP Granites Limited	1019		4/5/2007	7/6/2007	207162	1476	0	205686.0
		1021		4/5/2007	7/6/2007	231876	1242	0	230634.0
		1133		4/5/2007	7/6/2007	228960	1584	0	227376.0
5	Ashok Granites Limited	1284			4/5/2007	7/6/2007	0	0	0
6	Global Calcium Private Limited	1237		9/5/2007	5/6/2007	207540	396	10377	195727.3
Total						2104888	9485	37171	2052291.1
1	Viking Textiles Private Limited	549	Jul-07	5/6/2007	5/7/2007	225232	1008	11262	211830.8
		580		7/6/2007	6/7/2007	229986	342	11499	216993.4
2	Viking Knitters	624		7/6/2007	6/7/2007	287424	486	0	285498.5
3	S. Muthurajan	783		11/6/2007	10/7/2007	131814	306	0	130847.4
		784		11/6/2007	10/7/2007	51696	333	0	51102.9
		1020		7/6/2007	6/7/2007	289368	576	0	287342.3
4	GTP Granites Limited	1019		7/6/2007	6/7/2007	254610	612	0	253998.0
		1021		7/6/2007	6/7/2007	316620	450	0	316170.0
		1133		7/6/2007	6/7/2007	280296	882	0	279414.0
5	Ashok Granites Limited	1284			7/6/2007	6/7/2007	0	0	0
6	Global Calcium Private Limited	1237		5/6/2007	5/7/2007	301590	432	15079	284568.9
Total						2368636	5427	37840	2317766.0
1	Viking Textiles Private Limited	549	Aug-07	5/7/2007	6/8/2007	259408	880	12970	244256.6
		580		6/7/2007	8/8/2007	373014	270	18651	352226.6
2	Viking Knitters	624		6/7/2007	8/8/2007	356832	396	0	354649.9
3	S. Muthurajan	783		10/7/2007	10/8/2007	140292	342	0	139246.8
		784		10/7/2007	10/8/2007	0	387	0	-388.9
		1020		6/7/2007	8/8/2007	334476	702	0	332098.1

4	GTP Granites Limited	1019		6/7/2007	3/8/2007	300510	396	0	300114.0
		1021		6/7/2007	21/7/2007	173502	180	0	173322.0
		1133		6/7/2007	8/8/2007	317844	576	0	317268.0
5	Ashok Granites Limited	1284		6/7/2007	8/8/2007	0	0	0	0.0
6	Global Calcium Private Limited	1237		5/7/2007	4/8/2007	310338	486	15517	292780.9
Total						2566216	4615	47138	2505573.9
1	Viking Textiles Private Limited	549	Sep-07	6/8/2007	5/9/2007	253264	912	12663	238418.1
		580		8/8/2007	6/9/2007	275922	450	13796	260294.1
2	Viking Knitters	624		8/8/2007	7/9/2007	273132	702	0	271060.8
3	S. Muthurajan	783		10/8/2007	10/9/2007	132048	630	0	130754.6
		784		10/8/2007	10/9/2007	4347	1197	0	3122.3
		1020		8/8/2007	6/9/2007	225216	1008	0	223076.9
4	GTP Granites Limited	1019		3/8/2007	5/9/2007	239400	954	11970	226476.0
		1021		8/8/2007	6/9/2007	251892	792	12595	238505.0
		1133		8/8/2007	6/9/2007	239220	864	0	238356.0
5	Ashok Granites Limited	1284		8/8/2007	6/9/2007	0	0	0	0.0
6	Global Calcium Private Limited	1237	4/8/2007	6/9/2007	332658	648	16633	313710.5	
Total						2227099	8157	67657	2143774.3
1	Viking Textiles Private Limited	549	Oct-07	5/9/2007	5/10/2007	270624	608	13531	255128.8
		580		6/9/2007	6/10/2007	265572	414	13279	250549.1
2	Viking Knitters	624		7/9/2007	6/10/2007	272214	630	0	270219.8
3	S. Muthurajan	783		10/9/2007	10/10/2007	110358	540	0	109263.5
		784		10/9/2007	10/10/2007	113058	432	0	112058.6
		1020		6/9/2007	6/10/2007	240048	738	0	238106.1
4	GTP Granites Limited	1019		5/9/2007	6/10/2007	245772	630	12289	231621.0
		1021		6/9/2007	6/10/2007	272394	594	13620	258180.0
		1133		6/9/2007	5/10/2007	240534	720	0	239814.0
5	Ashok Granites Limited	1284		6/9/2007	6/10/2007	0	0	0	0.0
6	Global Calcium Private Limited	1237	6/9/2007	6/10/2007	256752	414	12838	242214.2	
Total						2287326	5720	65557	2207155.0
1	Viking Textiles Private Limited	549	Nov-07	5/10/2007	5/11/2007	80608	2144	4030	74020.2
		580		6/10/2007	5/11/2007	73998	1692	3700	68227.6
2	Viking Knitters	624		6/10/2007	5/11/2007	72288	2268	0	69647.2

3	S. Muthurajan	783		10/10/2007	7/11/2007	13797	1422	0	12298.9	
		784		10/10/2007	7/11/2007	20601	1242	0	19249.8	
		1020		6/10/2007	6/11/2007	71622	2016	0	69237.8	
4	GTP Granites Limited	1019		6/10/2007	5/11/2007	69516	2106	3476	63934.0	
		1021		6/10/2007	6/11/2007	81774	1620	4089	76065.0	
		1133		5/10/2007	5/11/2007	89100	2340	0	86302.8	
5	Ashok Granites Limited	1284		6/10/2007	5/11/2007	0	0	0	0.0	
6	Global Calcium Private Limited	1237		6/10/2007	5/11/2007	95490	1440	4774	88791.4	
Total						668794	18290	20069	627774.7	
1	Viking Textiles Private Limited	549	Dec-07	5/11/2007	6/12/2007	161888	752	8094	152228.8	
		580		5/11/2007	6/12/2007	177876	918	8894	167170.0	
2	Viking Knitters	624		5/11/2007	6/12/2007	165114	1242	0	163040.2	
3	S. Muthurajan	783		7/11/2007	10/12/2007	69939	954	0	68630.5	
		784		7/11/2007	10/12/2007	83520	666	0	82433.1	
		1020		6/11/2007	6/12/2007	159624	1152	0	157668.1	
4	GTP Granites Limited	1019		5/11/2007	6/12/2007	146592	1116	7330	138146.0	
		1021		6/11/2007	6/12/2007	164268	900	8213	154329.2	
		1133		5/11/2007	5/12/2007	151182	1260	0	149159.8	
5	Ashok Granites Limited	1284			5/11/2007	6/12/2007	0	0	0	0.0
6	Global Calcium Private Limited	1237			5/11/2007	8/12/2007	210294	1098	10515	197624.0
Total						1490297	10058	43046	1430429.8	
1	Viking Textiles Private Limited	549	Jan-08	6/12/2007	7/1/2008	255552	416	12778	241078.2	
		580		6/12/2007	8/1/2008	287838	432	14392	273014.0	
2	Viking Knitters	624		6/12/2007	8/1/2008	279738	504	0	277832.8	
3	S. Muthurajan	783		10/12/2007	10/1/2008	71739	1233	0	70141.1	
		784		10/12/2007	10/1/2008	100638	549	0	99583.1	
		1020		6/12/2007	8/1/2008	281268	450	0	279409.4	
4	GTP Granites Limited	1019		6/12/2007	8/1/2008	260316	432	13016	246868.0	
		1021		6/12/2007	8/1/2008	280080	396	14004	264277.6	
		1133		5/12/2007	7/1/2008	294588	522	0	292590.5	
5	Ashok Granites Limited	1284			6/12/2007	8/1/2008	0	0	0	0.0
6	Global Calcium Private Limited	1237			8/12/2007	8/1/2008	249246	828	12462	235956.0
Total						2361003	5762	66652	2280750.6	

1	Viking Textiles Private Limited	549	Feb-08	7/1/2008	5/2/2008	156416	992	7821	146816.0
		580		8/1/2008	5/2/2008	155916	972	7796	147148.0
2	Viking Knitters	624		8/1/2008	5/2/2008	151830	1242	0	149822.6
		3		S. Muthurajan	783	10/1/2008	8/2/2008	29952	1593
784	10/1/2008				8/2/2008	57834	972	0	56568.0
1020	8/1/2008				6/2/2008	150642	1206	0	148676.8
4	GTP Granites Limited	1019		8/1/2008	6/2/2008	141660	1260	7083	132602.4
		1021		8/1/2008	6/2/2008	153522	972	7676	144101.5
		1133		7/1/2008	5/2/2008	166176	1278	0	164060.7
5	Ashok Granites Limited	1284		8/1/2008	6/2/2008	0	0	0	0.0
6	Global Calcium Private Limited	1237	8/1/2008	9/2/2008	168156	1278	8408	158470.0	
Total						1332104	11765	38784	1276467.3
1	Viking Textiles Private Limited	549	Mar-08	5/2/2008	15/3/2008	122048	1152	6102	114178.0
		580		5/2/2008	15/3/2008	126648	1170	6332	119146.0
2	Viking Knitters	624		5/2/2008	20/3/2008	176832	1692	0	174247.4
		3		S. Muthurajan	783	8/2/2008	20/3/2008	0	0
784	8/2/2008				20/3/2008	50580	1260	0	49060.8
1020	6/2/2008				20/3/2008	155682	1386	0	153510.7
4	GTP Granites Limited	1019		6/2/2008	15/3/2008	132390	1530	6620	124240.0
		1021		6/2/2008	15/3/2008	133146	1098	6657	124719.8
		1133		5/2/2008	20/3/2008	168462	1764	0	165846.9
5	Ashok Granites Limited	1284		6/2/2008	15/3/2008	0	0	0	0.0
6	Global Calcium Private Limited	1237	9/2/2008	15/3/2008	143604	1170	7180	135254.0	
Total						1209392	12222	32891	1160203.5
1	Viking Textiles Private Limited	549	Apr-08	15/3/2008	15/4/2008	58992	1904	2950	53833.5
		580		15/3/2008	15/4/2008	95058	1944	4753	88361.0
2	Viking Knitters	624		20/3/2008	21/4/2008	23094	2952	0	20011.8
		3		S. Muthurajan	783	20/3/2008	21/4/2008	47142	1197
784	20/3/2008				21/4/2008	11772	1593	0	10112.2
1020	20/3/2008				20/4/2008	28080	2898	0	25027.1
4	GTP Granites Limited	1019		15/3/2008	15/4/2008	46242	2538	2312	41392.0
		1021		15/3/2008	15/4/2008	51624	1998	2581	46776.9
		1133		20/3/2008	20/4/2008	33066	3222	0	29662.6

5	Ashok Granites Limited	1284		15/3/2008	15/4/2008	0	0	0	0.0
6	Global Calcium Private Limited	1237		15/3/2008	15/4/2008	66384	1764	3319	61301.0
Total						461454	22010	15915	422181.3
1	Viking Textiles Private Limited	549	May-08	15/4/2008	15/5/2008	193328	944	9666	181746.6
		580		15/4/2008	15/5/2008	199602	936	9980	188686.0
2	Viking Knitters	624		21/4/2008	20/5/2008	244584	1152	0	242203.3
3	S. Muthurajan	783		21/4/2008	20/5/2008	144135	297	0	143838.0
		784		21/4/2008	20/5/2008	128169	513	0	127656.0
		1020		20/4/2008	20/5/2008	156150	1728	0	153632.6
4	GTP Granites Limited	1019		15/4/2008	15/5/2008	128610	1764	6431	119763.1
		1021		15/4/2008	15/5/2008	139356	1458	6968	130225.9
		1133		20/4/2008	20/5/2008	158148	1656	0	155693.0
5	Ashok Granites Limited	1284			15/4/2008	15/5/2008	0	0	0
6	Global Calcium Private Limited	1237		15/4/2008	15/5/2008	293328	522	14666	278140.0
Total						1785410	10970	47711	1721584.6
1	Viking Textiles Private Limited	549	Jun-08	15/5/2008	15/6/2008	296912	304	14846	280275.9
		580		15/5/2008	16/6/2008	342180	270	17109	324801.0
2	Viking Knitters	624		20/5/2008	20/6/2008	309582	576	0	307455.2
3	S. Muthurajan	783		20/5/2008	20/6/2008	153558	189	0	153369.0
		784		20/5/2008	20/6/2008	151893	297	0	151596.0
		1020		20/5/2008	20/6/2008	268542	1062	0	266132.0
4	GTP Granites Limited	1019		15/5/2008	15/6/2008	272196	702	13610	257884.0
		1021		15/5/2008	15/6/2008	302256	648	15113	284980.5
		1133		20/5/2008	20/6/2008	308016	684	0	305788.5
5	Ashok Granites Limited	1284			15/5/2008	16/6/2008	0	0	0
6	Global Calcium Private Limited	1237		15/5/2008	16/6/2008	354618	414	17731	336473.0
Total						2759753	5146	78409	2668755.1
1	Viking Textiles Private Limited	549	Jul-08	15/6/2008	15/7/2008	224688	560	11234	211767.8
		580		16/6/2008	15/7/2008	286344	504	14317	271523.0
2	Viking Knitters	624		20/6/2008	21/7/2008	293508	828	0	291208.3
3	S. Muthurajan	783		20/6/2008	20/7/2008	137421	270	0	137151.0
		784		20/6/2008	20/7/2008	137835	396	0	137439.0
		1020		20/6/2008	21/7/2008	268740	1098	0	266292.8

4	GTP Granites Limited	1019		15/6/2008	15/7/2008	262818	900	13141	248777.0
		1021		15/6/2008	15/7/2008	293490	774	14675	276569.7
		1133		21/6/2008	21/7/2008	261630	972	0	259345.0
5	Ashok Granites Limited	1284		16/6/2008	15/7/2008	0	0	0	0.0
6	Global Calcium Private Limited	1237		16/6/2008	15/7/2008	315612	342	15781	299489.0
Total						2482086	6644	69148	2399562.6
1	Viking Textiles Private Limited	549	Aug-08	15/7/2008	15/8/2008	301808	240	15090	284967.8
		580		15/7/2008	15/8/2008	352782	234	17639	334909.0
2	Viking Knitters	624		21/7/2008	20/8/2008	292194	702	0	291492.0
3	S. Muthurajan	783		20/7/2008	20/8/2008	150804	324	0	150480.0
		784		20/7/2008	20/8/2008	149400	450	0	148950.0
		1020		21/7/2008	20/8/2008	262206	1116	0	259773.4
4	GTP Granites Limited	1019		15/7/2008	15/8/2008	293292	720	14665	276436.9
		1021		15/7/2008	15/8/2008	320346	666	16017	302057.9
		1133		21/7/2008	20/8/2008	268434	1062	0	266024.5
5	Ashok Granites Limited	1284		15/7/2008	15/8/2008	0	0	0	0.0
6	Global Calcium Private Limited	1237		15/7/2008	15/8/2008	356074	414	17904	337756.0
Total						2747340	5928	81315	2652847.6
1	Viking Textiles Private Limited	549	Sep-08	15/8/2008	15/9/2008	183360	688	9168	172583.8
		580		15/8/2008	15/9/2008	219870	810	10994	208066.0
2	Viking Knitters	624		20/8/2008	20/9/2008	246510	882	0	245628.0
3	S. Muthurajan	783		20/8/2008	30/9/2008	89478	603	0	88875.0
		784		20/8/2008	20/9/2008	69759	1008	0	68751.0
		1020		20/8/2008	20/9/2008	227016	1098	0	224777.4
4	GTP Granites Limited	1019		15/8/2008	15/9/2008	201690	1368	10084	189222.7
		1021		15/8/2008	15/9/2008	216468	1152	10823	203404.9
		1133		20/8/2008	20/9/2008	230472	1152	0	228161.9
5	Ashok Granites Limited	1284		15/8/2008	15/9/2008	0	0	0	0.0
6	Global Calcium Private Limited	1237		15/8/2008	15/9/2008	215226	720	10761	203745.0
Total						1899849	9481	51830	1833215.7
1	Viking Textiles Private Limited	549	Oct-08	15/9/2008	15/10/2008	110384	880	5519	103428.7
		580		15/9/2008	15/10/2008	169992	846	8500	160646.0
2	Viking Knitters	624		20/9/2008	20/10/2008	125586	1386	0	124200.0

3	S. Muthurajan	783		30/9/2008	20/10/2008	66573	783	0	65790.0	
		784		20/9/2008	20/10/2008	63396	1035	0	62361.0	
		1020		20/9/2008	20/10/2008	95994	1944	0	93560.3	
4	GTP Granites Limited	1019		15/9/2008	15/10/2008	128106	1512	6405	119540.9	
		1021		15/9/2008	15/10/2008	135378	1314	6769	126611.5	
		1133		20/9/2008	20/10/2008	98172	1908	0	95763.6	
5	Ashok Granites Limited	1284		15/9/2008	15/10/2008	0	0	0	0.0	
6	Global Calcium Private Limited	1237		15/9/2008	15/10/2008	188550	954	9427	178169.0	
Total						1182131	12562	36620	1130071.0	
1	Viking Textiles Private Limited	549	Nov-08	15/10/2008	15/11/2008	56208	1872	2810	51526.0	
		580		15/10/2008	15/11/2008	71946	1818	3597	66531.0	
2	Viking Knitters	624		20/10/2008	20/11/2008	68436	2304	0	66132.0	
		3		S. Muthurajan	783	20/10/2008	20/11/2008	37017	1206	0
784	20/10/2008				20/11/2008	27981	1404	0	26577.0	
1020	20/10/2008				20/11/2008	64872	2376	0	62159.8	
4	GTP Granites Limited	1019		15/10/2008	15/11/2008	57762	2268	2888	52305.9	
		1021		15/10/2008	15/11/2008	69120	1782	3456	63527.5	
		1133		20/10/2008	20/11/2008	63450	2556	0	60564.0	
5	Ashok Granites Limited	1284			15/10/2008	15/11/2008	0	0	0	0.0
6	Global Calcium Private Limited	1237			15/10/2008	15/11/2008	63828	1890	3191	58747.0
Total						580620	19476	15942	543881.1	
1	Viking Textiles Private Limited	549	Dec-08	15/11/2008	15/12/2008	154208	640	7710	145858.0	
		580		15/11/2008	15/12/2008	183006	630	9150	173226.0	
2	Viking Knitters	624		20/11/2008	20/12/2008	211410	504	0	210906.0	
		3		S. Muthurajan	783	20/11/2008	20/12/2008	75222	522	0
784	20/11/2008				20/12/2008	86985	387	0	86598.0	
1020	20/11/2008				20/12/2008	209394	522	0	207822.4	
4	GTP Granites Limited	1019		15/11/2008	15/12/2008	152640	810	7632	143430.8	
		1021		15/11/2008	15/12/2008	162630	612	8132	153069.8	
		1133		20/11/2008	20/12/2008	199926	612	0	198311.3	
5	Ashok Granites Limited	1284			15/11/2008	12/12/2008	0	0	0	0.0
6	Global Calcium Private Limited	1237			15/11/2008	15/12/2008	143010	936	7151	134203.3
Total						1578431	6175	39775	1528125.5	

1	Viking Textiles Private Limited	549	Jan-09	15/12/2008	15/1/2009	295568	80	14778	280710.0
		580		15/12/2008	15/1/2009	0	0	0	0.0
2	Viking Knitters	624		20/12/2008	20/1/2009	303210	126	0	303084.0
		3		S. Muthurajan	783	20/12/2008	20/1/2009	129402	135
784	20/12/2008				20/1/2009	131436	144	0	131292.0
1020	20/12/2008				20/1/2009	300564	90	0	300474.0
4	GTP Granites Limited	1019		15/12/2008	15/1/2009	269028	162	13451	255415.0
		1021		15/12/2008	15/1/2009	305442	54	15272	290116.0
		1133		20/12/2008	20/1/2009	295578	108	0	295470.0
5	Ashok Granites Limited	1284		12/12/2008	15/1/2009	0	0	0	0.0
6	Global Calcium Private Limited	1237	15/12/2008	15/1/2009	281178	252	14059	265459.9	
Total						2311406	1151	57560	2251287.9
1	Viking Textiles Private Limited	549	Feb-09	15/1/2009	15/2/2009	166160	368	8308	157484.0
		580		15/1/2009	15/2/2009	0	0	0	0.0
2	Viking Knitters	624		20/1/2009	20/2/2009	194904	630	0	194274.0
		3		S. Muthurajan	783	20/1/2009	20/2/2009	78201	612
784	20/1/2009				20/2/2009	81297	567	0	80730.0
1020	20/1/2009				20/2/2009	196200	558	0	195642.0
4	GTP Granites Limited	1019		15/1/2009	15/2/2009	190890	666	9544	180680.0
		1021		15/1/2009	15/2/2009	223506	522	11175	211809.0
		1133		20/1/2009	20/2/2009	181908	738	0	181170.0
5	Ashok Granites Limited	1284		15/1/2009	15/2/2009	0	0	0	0.0
6	Global Calcium Private Limited	1237	15/1/2009	15/2/2009	196452	720	9823	184923.1	
Total						1509518	5381	38850	1464301.1
1	Viking Textiles Private Limited	549	Mar-09	15/2/2009	16/3/2009	90080	1488	4504	84088.0
		580		15/2/2009	16/3/2009	0	0	0	0.0
2	Viking Knitters	624		20/2/2009	20/3/2009	51678	2160	0	49518.0
		3		S. Muthurajan	783	20/2/2009	20/3/2009	12609	1827
784	20/2/2009				20/3/2009	10926	1296	0	9630.0
1020	20/2/2009				20/3/2009	46764	2178	0	44586.0
4	GTP Granites Limited	1019		15/2/2009	15/3/2009	75168	1638	3758	69772.0
		1021		15/2/2009	15/3/2009	84564	1332	4228	79004.0
		1133		20/2/2009	20/3/2009	46638	2448	0	44190.0

5	Ashok Granites Limited	1284		15/2/2009	15/3/2009	0	0	0	0.0
6	Global Calcium Private Limited	1237		15/2/2009	15/3/2009	89316	1296	4466	83554.0
Total						507743	15663	16956	475124.0
1	Viking Textiles Private Limited	549	Apr-09	16/3/2009	15/4/2009	65424	2192	1308	61924.0
		580		16/3/2009	15/4/2009	0	0	0	0.0
2	Viking Knitters	624		20/3/2009	20/4/2009	69768	2214	0	67554.0
3	S. Muthurajan	783		20/3/2009	20/4/2009	0	0	0	0.0
		784		20/3/2009	20/4/2009	0	0	0	0.0
		1020		20/3/2009	20/4/2009	56340	2340	0	54000.0
4	GTP Granites Limited	1019		15/3/2009	15/4/2009	39456	2610	1973	34873.0
		1021		15/3/2009	15/4/2009	39366	2196	1968	35202.0
		1133		20/3/2009	20/4/2009	54666	2574	0	52092.0
5	Ashok Granites Limited	1284			15/3/2009	15/4/2009	0	0	0
6	Global Calcium Private Limited	1237		15/3/2009	15/4/2009	53730	2214	2686	48830.0
Total						378750	16340	7935	354475.0
1	Viking Textiles Private Limited	549	May-09	15/4/2009	15/5/2009	213120	800	0	212320.0
		580		15/4/2009	15/5/2009	0	0	0	0.0
2	Viking Knitters	624		20/4/2009	20/5/2009	220500	1188	0	219312.0
3	S. Muthurajan	783		20/4/2009	20/5/2009	0	0	0	0.0
		784		20/4/2009	20/5/2009	0	0	0	0.0
		1020		20/4/2009	29/5/2009	151236	1800	0	149436.0
4	GTP Granites Limited	1019		15/4/2009	15/5/2009	127764	1548	6388	119828.0
		1021		15/4/2009	15/5/2009	146484	1332	7324	137828.0
		1133		20/4/2009	29/5/2009	158976	1620	0	157356.0
5	Ashok Granites Limited	1284			15/4/2009	15/5/2009	0	0	0
6	Global Calcium Private Limited	1237		15/4/2009	15/5/2009	275580	468	13779	261333.0
Total						1293660	8756	27491	1257413.0
1	Viking Textiles Private Limited	549	Jun-09	15/5/2009	15/6/2009	318720	336	0	318384.0
		580		15/5/2009	15/6/2009	0	0	0	0.0
2	Viking Knitters	624		20/5/2009	20/6/2009	331920	414	0	331506.0
3	S. Muthurajan	783		20/5/2009	20/6/2009	0	0	0	0.0
		784		20/5/2009	20/6/2009	0	0	0	0.0
		1020		29/5/2009	20/6/2009	330048	504	0	329544.0

4	GTP Granites Limited	1019		15/5/2009	15/6/2009	304416	1800	15221	287395.0
		1021		15/5/2009	15/6/2009	339984	612	16999	322373.0
		1133		29/5/2009	20/6/2009	335574	468	0	335106.0
5	Ashok Granites Limited	1284		15/5/2009	15/6/2009	0	0	0	0.0
6	Global Calcium Private Limited	1237		15/5/2009	15/6/2009	295470	504	14773	280193.0
Total						2256132	4638	46993	2204501.0
1	Viking Textiles Private Limited	549	Jul-09	15/6/2009	15/7/2009	352368	224	0	352144.0
		580		15/6/2009	15/7/2009	0	0	0	0.0
2	Viking Knitters	624		20/6/2009	20/7/2009	369648	396	0	369252.0
3	S. Muthurajan	783		20/6/2009	20/7/2009	0	0	0	0.0
		784		20/6/2009	20/7/2009	0	0	0	0.0
		1020		20/6/2009	20/7/2009	436482	270	0	436212.0
4	GTP Granites Limited	1019		15/6/2009	15/7/2009	378450	0	18922	359528.0
		1021		15/6/2009	15/7/2009	428274	216	21414	406644.0
		1133		20/6/2009	20/7/2009	408060	324	0	407736.0
5	Ashok Granites Limited	1284			15/6/2009	15/7/2009	0	0	0
6	Global Calcium Private Limited	1237		15/6/2009	15/7/2009	296784	486	14839	281459.0
Total						2670066	1916	55175	2612975.0

VCU from March 28, 2006 to July 20, 2009 which includes both the days.

Sl. No.	Client Name	WTG - HTSC No.	Year				Net Export		Grid Emission Factor (tCo2/MW)	Emission Reduction (VCU)
			2006	2007	2008	2009	KWh	MW		
1	Viking Textiles Private Limited	549	1983703	2408722.4	1988060.2	1467054	7847539.72	7847.54	0.928	7282.52
		580	1951408	2420299.2	2356057	0	6727764.30	6727.76	0.928	6243.37
2	Viking Knitters	624	1837314	2532888.4	2401139.4	1534500	8305841.79	8305.84	0.928	7707.82
3	S. Muthurajan	783	816269	987119.6	994059.72	217638	3015086.22	3015.09	0.928	2798.00
		784	744577	736825.28	1025252	221652	2728306.62	2728.31	0.928	2531.87
		1020	1733458	2376898.5	2140774.7	1509894	7761025.26	7761.03	0.928	7202.23
4	GTP Granites Limited	1019	1621841	2065437	1952463.7	1307491	6947232.72	6947.23	0.928	6447.03
		1021	1939782	2241977.2	2120323.6	1482976	7785058.70	7785.06	0.928	7224.53
		1133	1837992	2456554.6	2221812.4	1473120	7989479.28	7989.48	0.928	7414.24
5	Ashok Granites Limited	1284	0	0	0	0	0.00	0.00	0.928	0.00
6	Global Calcium Private Limited	1237	1508029	2025868	2417703.3	1405752	7357352.39	7357.35	0.928	6827.62
TOTAL			15974374	20252590	19617646	10620077	66464687	66464.69	0.928	61679.23

Emission Reduction (VCU)							
2006							
Sl. No.	Client Name	WTG - HTSC No.	Year	Net Export		Grid Emission Factor (tCo2/MW)	Emission Reduction (VCU)
			2006	KWh	MW		
1	Viking Textiles Private Limited	549	1983703	1983703.2	1983.70	0.928	1840.88
		580	1951408	1951408.1	1951.41	0.928	1810.91
2	Viking Knitters	624	1837314	1837314	1837.31	0.928	1705.03
3	S. Muthurajan	783	816269	816268.91	816.27	0.928	757.50
		784	744577	744577.34	744.58	0.928	690.97
		1020	1733458	1733458.1	1733.46	0.928	1608.65
4	GTP Granites Limited	1019	1621841	1621841	1621.84	0.928	1505.07
		1021	1939782	1939782	1939.78	0.928	1800.12
		1133	1837992	1837992.3	1837.99	0.928	1705.66
5	Ashok Granites Limited	1284	0	0	0.00	0.928	0.00
6	Global Calcium Private Limited	1237	1508029	1508029.1	1508.03	0.928	1399.45
TOTAL			15974374	15974374	15974	0.928	14824
2007							
Sl. No.	Client Name	WTG - HTSC No.	Year	Net Export		Grid Emission Factor (tCo2/MW)	Emission Reduction (VCU)
			2007	KWh	MW		
1	Viking Textiles Private Limited	549	2408722	2408722.4	2408.72	0.928	2235.29
		580	2420299	2420299.2	2420.30	0.928	2246.04
2	Viking Knitters	624	2532888	2532888.4	2532.89	0.928	2350.52
3	S. Muthurajan	783	987120	987119.6	987.12	0.928	916.05
		784	736825	736825.28	736.83	0.928	683.77
		1020	2376898	2376898.5	2376.90	0.928	2205.76
4	GTP Granites Limited	1019	2065437	2065437	2065.44	0.928	1916.73
		1021	2241977	2241977.2	2241.98	0.928	2080.55
		1133	2456555	2456554.6	2456.55	0.928	2279.68
5	Ashok Granites Limited	1284	0	0	0.00	0.928	0.00
6	Global Calcium Private Limited	1237	2025868	2025868	2025.87	0.928	1880.01
TOTAL			20252590	20252590	20253	0.928	18794
2008							

Sl. No.	Client Name	WTG - HTSC No.	Year	Net Export		Grid Emission Factor (tCo2/MW)	Emission Reduction (VCU)
			2008	KWh	MW		
1	Viking Textiles Private Limited	549	1988060	1988060.2	1988.06	0.928	1844.92
		580	2356057	2356057	2356.06	0.928	2186.42
2	Viking Knitters	624	2401139	2401139.4	2401.14	0.928	2228.26
3	S. Muthurajan	783	994060	994059.72	994.06	0.928	922.49
		784	1025252	1025252	1025.25	0.928	951.43
		1020	2140775	2140774.7	2140.77	0.928	1986.64
4	GTP Granites Limited	1019	1952464	1952463.7	1952.46	0.928	1811.89
		1021	2120324	2120323.6	2120.32	0.928	1967.66
		1133	2221812	2221812.4	2221.81	0.928	2061.84
5	Ashok Granites Limited	1284	0	0	0.00	0.928	0.00
6	Global Calcium Private Limited	1237	2417703	2417703.3	2417.70	0.928	2243.63
TOTAL			19617646	19617646	19618	0.928	18205
2009							
Sl. No.	Client Name	WTG - HTSC No.	Year	Net Export		Grid Emission Factor (tCo2/MW)	Emission Reduction (VCU)
			2009	KWh	MW		
1	Viking Textiles Private Limited	549	1467054	1467054	1467.05	0.928	1361.43
		580	0	0	0.00	0.928	0.00
2	Viking Knitters	624	1534500	1534500	1534.50	0.928	1424.02
3	S. Muthurajan	783	217638	217638	217.64	0.928	201.97
		784	221652	221652	221.65	0.928	205.69
		1020	1509894	1509894	1509.89	0.928	1401.18
4	GTP Granites Limited	1019	1307491	1307491	1307.49	0.928	1213.35
		1021	1482976	1482976	1482.98	0.928	1376.20
		1133	1473120	1473120	1473.12	0.928	1367.06
5	Ashok Granites Limited	1284	0	0	0.00	0.928	0.00
6	Global Calcium Private Limited	1237	1405752	1405752	1405.75	0.928	1304.54
TOTAL			10620077	10620077	10620	0.928	9855

Summery Table:

Emission Reduction (t CO ₂)				
Sl. No.	Year	Net Export		Emission Reductions (t CO ₂ /MW)
		KWh	MW	
1	2006	15974374	15974	14824
2	2007	20252590	20253	18794
3	2008	19617646	19618	18205
4	2009	10620077	10620	9855
TOTAL		66464687	66465	61678
