MONITORING REPORT FORM (CDM-MR) *
Version 01 - in effect as of: 28/09/2010

CONTENTS

* as contained within the document entitled "Guidelines for completing the monitoring report form (CDM-MR)" (EB 54 meeting report, annex 34).

MONITORING REPORT
Version 01 and date 01/03/2012
Title project activity: 5 MW WIND POWER PROJECT BY GOKUL REFOILS AND SOLVENT LIMITED
Reference number: 4062
Monitoring period number: 01
Monitoring dates: 07/02/2011 - 31/01/2012 (first and last days included)

SECTION A. General description of the project activity

A.1. Brief description of the project activity: >>

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1. Purpose of the project activity and the measures taken to reduce greenhouse gas emissions;

The project activity primarily aims at reducing Green House Gas emission and abates environmental pollution through deployment of cleaner technology for generation of electrical energy. The project proponent being a proactive business entity with a view to be in tune with the sustainable development priorities of the country, is promoting the project activity of generating sizable green power through tapping of wind energy in the existing barren land available in the windy site of Gujarat. The project activity through generation of electrical energy will help in bridging the demand -supply gap in the state.

2. Brief description of the installed technology and equipments;

Before the project activity, project proponent was using electricity directly from the grid. Project participant establish the project activity because of associated environment benefits. The Project activity employs four number of Suzlon make with each having a capacity of 1250 kW, at Kutch district of Gujarat. The electricity generated for the project activity is wheeled to Gokul's industrial units at Sidhpur (Sidhpur Unit -1 and Unit 2) and Gandhidham using state electricity grid (GETCO) infrastructure. Through utilization of renewable power at the industrial premise, the manufacturing unit would be displacing equivalent quantum of grid electricity which would otherwise be generated from fossil fuel dominated grid.

Location details:

Location number	WTG No	Name of the location
W-2 (V5)	SEL/1250/05-06/0156	Motisindholi village (Tal:Abdasa, District:Kutch)
W-3 (V6)	SEL/1250/05-06/0157	Motisindholi village (Tal:Abdasa, District: Kutch)
W-13 (M16)	SEL/1250/06-07/0224	Kadoli Village (Tal:Abdasa District: Kutch)
W-14 (M17)	SEL/1250/06-07/0225	Kadoli Village (Tal:Abdasa District: Kutch)

3. Relevant dates for the project activity (e.g. construction, commissioning, continued operation periods, etc.).

The start date of the project activity: 15/04/2006 (date of purchase order placed for first wind turbine first set of wind mills by Gokul)

S No	Wind turbine	Commissioning date
1	W-2 (Motisindholi village)	18/07/2006
2	W-3 (Motisindholi village)	07/09/2006
3	W-13(Kadoli village)	22/12/2006
4	W-14 (Kadoli village)	22/12/2006

4. Total emission reductions achieved in this monitoring period: 9548 tCO_2e

A.2. Project Participants

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Name of Party involved (*) ((host) indicates a host Party)	Private and/or public entity(ies) project participants (*) (as applicable)	Kindly indicate if the Party involved wishes to be considered as project participant(Yes/No)
India (Host)	M/s. Gokul Refoils and Solvent Limited (Private Entity)	No

A.3. Location of the project activity:

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Complete information of the location of the project activity: town, city, country and GPS coordinates.

The project is located at Motisindholi village and Kadoli village in Abdasa Taluka of Kutch district of Gujarat. The GPS co ordinates are tabulated below.

WTG Location	Northing coordinates	Easting coordinates
W-2 (Motisindholi village)	22° 30'36" N	68 ° 19'12" E
W-3 (Motisindholi village)	22° 30'38" N	68° 19'10" E
W-13(Kadoli village)	23° 03'56.75" N	68° 50'38.3" E
W-14 (Kadoli village)	23° 03'54" N	68° 50'35" E

A.4. Technical description of the project

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The project activity incorporates installation of four number of 1250KW wind turbine generator of Suzlon Energy Limited. In wind energy based power generation, the kinetic energy of the wind is being converted to mechanical energy and subsequently to electric energy. The kinetic energy is converted into mechanical energy. The wind blade supplies the mechanical energy to the generator thereby producing electricity. The technical specification of the wind turbine is depicted below:

Specification of S- 70/1250 WTG:

Rotor:	
Diameter	69.1 m
Number of rotor blades	3
Orientation	Upwind/Horizontal axis
Rotational speed	13.2 / 19.8 rpm
Rotational direction	Clockwise
Rotor blade material	GRP
Swept area	3750 m^2
Hub height	74 m
Regulation	Pitch regulated
Operational data	
Cut in wind speed	3 m/s
Rated wind speed:	12 m/s
Cut out wind speed	20 m/s

Gearbox	
Type	Integrated 3 stage 1 planetary and 2 Helical
Gear ratio	1:77.848
Manufacturer	Flender – Winergy
Nominal load	1390 kW
Type of cooling	Oil cooling system, Forced lubrication
Generator	
Type	Asynchronous 4/6 pole
Rotation speed	1000/1515 RPM
Rated output	250/1250 kW
Rated voltage:	690 V
Frequency:	50 Hz
Insulation:	Class "H"
Enclosure class	IP 56
Cooling system:	Air cooled
Operating brakes	
Aerodynamic brake	3 independent systems with blade pitching
Mechanical brake	Spring powered disc brakes, hydraulically released, fail safe
Yaw drive	
Method of operation	4 active electrical yaw motors
Bearing type	Polyamide slide bearing

Specification of S- 64/1250 WTG:

Rotor:	
Diameter	64 m
Number of rotor blades	3
Orientation	Upwind/Horizontal axis
Rotational speed	13.8 / 20.7 rpm
Rotational direction	Clockwise
Rotor blade material	GRP
Swept area	3217 m^2
Hub height	65 m
Regulation	Pitch regulated
Operational data	
Cut in wind speed	3 m/s
Rated wind speed:	14 m/s
Cut out wind speed	25 m/s
Gearbox	
Type	Integrated 3 stage 1 planetary and 2 Helical
Gear ratio	1:74.917
Manufacturer	Flender – Winergy
Nominal load	1390 kW
Type of cooling	Oil cooling system, Forced lubrication

Generator	
Type	Asynchronous 4/6 pole
Rotation speed	1006/1506 RPM
Rated output	250/1250 kW
Rated voltage:	690 V
Frequency:	50 Hz
Insulation:	Class "H"
Enclosure class	IP 56
Cooling system:	Air cooled
Operating brakes	
Aerodynamic brake	3 independent systems with blade pitching
Mechanical brake	Spring powered disc brakes, hydraulically released, fail safe
Yaw drive	
Method of operation	4 active electrical yaw motors
Bearing type	Polyamide slide bearing

The life of each WTG is 20 years. The PLF is taken as 25.57% as per loan application to bank. The wind turbine generators are connected through substation through 33 KV overhead transmission line.

A.5. Title, reference and version of the baseline and monitoring methodology applied to the project activity:

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Title: AMS-I.F. "Renewable Electricity generation for captive use and mini-gird"
Version: 01
Type: I Renewable energy project
Sectoral Scope: 01

Tools Used:
Tool to calculate the emission factor for an electricity system (Version: 2)
2. Attachment A to Appendix B of the simplified modalities and procedure for small scale CDM project activities.
3. General guidance to SSC CDM methodologies (Version 12.1)

A.6. Registration date of the project activity:

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The project was registered as CDM project activity with UNFCCC (ref number 4062) on 07/02/2011 and the details of the same can be viewed on-

http://cdm.unfccc.int/Projects/DB/BVQI1287635834.92/view

A.7. Crediting period of the project activity and related information (start date and choice of crediting period):

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The project activity has considered fixed crediting period of 10 years. The start date of crediting period is from the date of registration. i.e. 07/02/2011.

A.8. Name of responsible person(s)/entity(ies):

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Contact information of the person(s)/entity(ies) responsible for completing the monitoring report form (CDM-MR).

Organization:	**Gokul Refoils and Solvents Limited**
Street/P.O.Box:	Navrangpura
Building / Location:	Gokul House, 43-Shreemali Co-op. Housing Society ltd., Opp. Shikhar building
City:	Ahmedabad
State/Region:	Gujarat
Postfix/ZIP:	380 009
Country:	India
Telephone:	+91-79-66615253/54/55, 66304555
FAX:	+91-79-66304543
E-Mail:	cfo@gokulgroup.com
URL:	http://www.gokulgroup.com/
Represented by:	
Title:	CFO
Salutation:	Mr
Last Name:	Agarwal
Middle Name:	-
First Name:	Prakash
Department:	Finance
Direct FAX:	+91-79-66304543
Direct tel:	+91-79-66615253/54/55, 66304555
Personal E-Mail:	cfo@gokulgroup.com

SECTION B. Implementation of the project activity

B.1. Implementation status of the project activity

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1. The starting date of operation of the project activity is 15/04/2006. In this, the project located in Motisindholi and Kadoli village in Abdasa Taluka of Kutch district of Gujarat. The wind turbines located in Motisindholi village were commissioned on 18/07/2006 and the wind turbines located in Kadoli village were commissioned on 22/12/2006.
2. The project activity consists of 4 wind turbines totalling 5 MW capacity and wheeling the electricity to Gokul's industrial units at Sidhpur (Sidhpur Unit -1 and Unit 2) and Gandhidham using state electricity grid (GETCO) infrastructure. There has been no major downtime of the equipments, overhaul times or exchange of equipments in the project activity during the current monitoring period.
3. There are no events or situations that occurred during the monitoring period, which may impact the applicability of the methodology.

B.2. Revision of the monitoring plan

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The monitoring plan has not been revised.

B.3. Request for deviation applied to this monitoring period

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There is no deviation applied to this monitoring period.

B.4. Notification or request of approval of changes

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The PP has not raised a notification or request of changes from the project activity as described in the registered CDM PDD during the current monitoring period.

SECTION C. Description of the monitoring system

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Monitoring consisted of metering the net electricity supplied by the project activity to the grid. Measurement results were cross checked with records for the electricity sold. The cycle of hourly measurement and monthly recording was followed.

Data Monitoring

The project activity essentially involved generation of electricity utilizing wind energy. Hence, the monitoring plan involved measurement of electricity generated from the wind turbine based electricity generation unit.

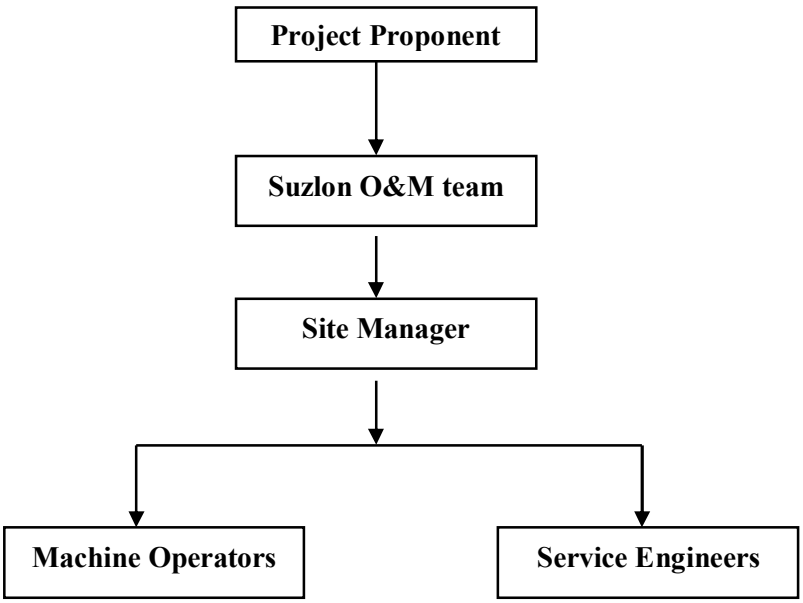
The electricity generated from the project was measured by a sealed Gujarat Energy Transmission Corporation Limited (GETCO) meter installed at the WTG site. The electricity reading from this meter was taken every month by representatives of project proponent through Operation and maintenance contractor namely Suzlon Infrastructure private limited. Set up by Gujarat State government, GETCO is a transmission company with on objective to lay, operate, and manage Power System network and associated Sub- Stations, across the state of Gujarat.

Metering was done at the substation which has a main meter and measures electricity generated by all wind turbines connected to the substation including those of project activity. This meter is tri-vector meter with accuracy of 0.5 s class and is capable of measuring import and export. Monthly reading was taken on the meter at substation by GETCO representatives of project proponent through Operation and maintenance contractor. This reading gave net electricity exported to grid by all WTGs connected to substation.

Based on monthly recordings at WTG and substation, Gujarat Energy Development Agency (GEDA) does the apportioning of electricity and issues a certificate for share of electricity to project proponent. GEDA is the Nodal Agency of the Government of Gujarat for promotion and popularization of =Renewable Energy and Energy Conservation in the state of Gujarat, India. GEDA is not involved in manufacturing or marketing of Renewable Energy Devices & Systems

Roles and Responsibility

Operation and maintenance was carried out by Suzlon who is highly experienced and trained in carrying out the same. The monitoring, recording and reporting was carried out by Suzlon. Generation report from LCS controller was sent by Suzlon to project participant. The PP reviewed the data.



Frequency of meter reading
The meter reading at individual WTG and GETCO substation were recorded on monthly basis.

Data archiving
Data was electronically archived. The data would be archived two years after crediting period or last issuance whichever is later.

Calibration of Meters
The meter located at the WTG and at substation was calibrated. The calibration will be done once in a year and the same will follow the procedures of GETCO.

Procedures to deal with uncertainties in monitored data
During the annual calibration of the meter at WTG, if the meter is found to be outside the permissible limit of error then the meter will be replaced immediately. The error will be applied to the monitored data from the date of last calibration.

During the annual calibration if the meter at substation is found to be outside the permissible limit of error then the meter will be replaced immediately. The error will be applied to the monitored data from the date of last calibration.

Apportioning of electricity
In case date of registration doesn't match with the date of 'Certificate of share of electricity generated then apportioning will be carried out based on ratio of generation data using LCS.
The emission reductions of that particular period (from the date of registration of the project till the end of the month) will be calculated based on percentage generation of that particular period at WTG using LCS data multiplied with the total units generated in the month as per sharing certificate issued by GEDA.

The sample calculation is furnished below:

Generation at WTG (MWh) = A
(From the date of registration to the end of month using LCS data)

Total generation at WTG (MWh) = B
(Total generation of particular month)

% Generation from the date of registration to the end of the month = C = (A/B)*100

Generation as per GEDA (MWh) = D
(Sharing Certificate)

Generation used for calculation of emission reduction Calculations (MWh) = (D * C/100)

Adjustment in monthly bills for wheeled electricity
The net electricity exported to grid is the monitored parameter. Wheeling charges are deducted from electricity exported to grid, and remaining electricity is wheeled to Gokul's industrial units. The net electricity wheeled is adjusted in electricity bills of Gokul's industrial units at Sidhpur (Sidhpur 1 and Sidhpur 2) and at Gandhidham.

The net electricity wheeled is crosschecked from deductions made in electricity bill of Gokul's respective industrial units.

SECTION D. Data and parameters

D.1. Data and parameters determined at registration and not monitored during the monitoring period, including default values and factors	
(Copy this table for each data and parameter. To report multiple values, a table may be used)	
Data / Parameter:	**$EF_{OM,y}$**
Data unit:	tCO2/MWh.
Description:	The operating margin refers to a cohort of power plants that reflect the existing power plants whose electricity generation would be affected by the proposed CDM project activity.
Source of data used:	CO2 Baseline Database for the Indian Power Sector" (Version 4.0, October 2008) by Ministry of Power Central Electricity Authority.
Value(s) :	1.0090
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	The value of EFOM has been taken from CEA CO2 baseline database Version 4, which is an official source of data by government of India. This database is based on tool to calculate emission factor for an electricity system.
Additional comment:	-

Data / Parameter:	**$EF_{OM,y}$**
Data unit:	tCO2/MWh.
Description:	The build margin refers to a cohort of power units that reflect the type of power units whose construction would be affected by the proposed CDM project activity.
Source of data used:	CO2 Baseline Database for the Indian Power Sector" (Version 4.0, October 2008) by Ministry of Power Central Electricity Authority.
Value(s) :	0.5977
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	The value of EFBM has been taken from CEA CO2 baseline database Version 4, which is an official source of data by government of India. This database is based on tool to calculate emission factor for an electricity system.
Additional comment:	-

Data / Parameter:	**$EF_{OM,y}$**
Data unit:	tCO2/MWh.
Description:	The build margin refers to a cohort of power units that reflect the type of power units whose construction would be affected by the proposed CDM project activity.
Source of data used:	CO2 Baseline Database for the Indian Power Sector" (Version 4.0, October 2008) by Ministry of Power Central Electricity Authority.
Value(s) :	0.9062
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	The EFCM is calculated based on EFOM and EFBM and using rates given in the Tools to calculate emission factor for an electricity system. The value of EFOM and EFBM has been taken from CEA CO2 baseline database Version 4, which is an official source of data by government of India. This database is based on tool to calculate emission factor for an electricity system.
Additional comment:	-

D.2. Data and parameters monitored	
(Copy this table for each data and parameter. To report multiple values, a table may be used)	
Data / Parameter:	**$EG_{BL,y}$**

Data unit:	MWh/y
Description:	It refers to the net quantum of electricity supplied from the project activity to the grid.
Measured /Calculated /Default:	Measured
Source of data:	The monthly 'Certificate for share of electricity generated' issued by GEDA to project participant will be used to determine the value.
Value(s) of monitored parameter:	7052
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	Data is used for Baseline emission calculation.
Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)	A sealed meter is installed at each WTG by state electricity distribution company GETCO.
Measuring/ Reading/ Recording frequency:	The meter reading at each WTG is recorded monthly by representatives from GETCO and project proponent.
Calculation method (if applicable):	Not applicable
QA/QC procedures applied:	Calibration of meter at the substation and at WTG is carried annually. The net electricity wheeled will be crosschecked from deductions made in electricity bill of Gokul's industrial units at Sidhpur (Sidhpur 1 and Sidhpur 2) and at Gandhidham. Data will be archived for a period of two years after crediting period or last issuance which ever is later.

Data / Parameter:	**EG_{weg}**
Data unit:	MWh
Description:	Electricity generated as measured by WTG controller.
Measured /Calculated /Default:	Measured
Source of data:	Weekly Report with daily generation data provided by Suzlon to the PP.
Value(s) of monitored parameter:	7398.25
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	Data is used for Baseline emission calculation.
Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)	This parameter is measured using a controller available in the control panel of the WTG at the site. The LCS located at the WTG measures electricity continuously. The LCS is installed by Suzlon. The daily readings of the generation are sent to project proponent every week by Suzlon. The LCS installed cannot be calibrated. Current transformer provides the input to LCS through a multi function relay.
Measuring/ Reading/ Recording frequency:	Data is continuously measured by LCS at WTG. Project Proponent receives daily readings. Suzlon provides weekly report with these daily readings.
Calculation method (if applicable):	Not applicable
QA/QC procedures applied:	Calibration of meter at the substation and at WTG is carried annually. The net electricity wheeled will be crosschecked from deductions made

	in electricity bill of Gokul's industrial units at Sidhpur (Sidhpur 1 and Sidhpur 2) and at Gandhidham. Data will be archived for a period of two years after crediting period or last issuance whichever is later.

SECTION E. Emission reductions calculation

E.1. Baseline emissions calculation

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NEWNE Grid Emission factor:
Operating Margin Grid Emission factor: 1.0090 tCO2/MWh14
Build Margin Grid Emission Factor: 0.5977 tCO2/MWh
Combined Margin Emission Factor = (75% x 1.0090 + 25% x 0.5977)
= **0.9062 t CO_2/MWh**

Baseline emissions calculation:
BE_y = Grid Emission Factor (tons of CO2/MWh) * Power Generated from the Project (MWh/year)
= EF_{CO2} * $EG_{BL, y}$
= 0.9062 t CO_2/MWh * 7052 MWh p.a
= 6391 t CO_2

E.2. Project emissions calculation

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Project Emission (PEy): PEy=0 tCO2 e

E.3. Leakage calculation

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Leakage: (Ly): Ly= 0 tCO2 e

Since there is no transfer of equipments from or to the project activity, thus leakage emissions are considered as zero.

E.4. Emission reductions calculation / table

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Total baseline emissions: 6391tCO2 e

Total project emissions: 0 tCO2 e

Total leakage: 0 tCO2 e

Total emission reductions: 6391-0-0= 6391 tCO2 e

E.5. Comparison of actual emission reductions with estimates in the CDM-PDD

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This section shall include a comparison of actual values of the emission reductions achieved during the monitoring period with the estimations in the registered CDM-PDD.

Item	Values applied in ex-ante calculation of the registered CDM-PDD	Actual values reached during the monitoring period
Emission reductions (tCO_2e)	**9548**	**6391**

E.6. Remarks on difference from estimated value in the PDD

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The values reached during the monitoring period are for one year. Considering the values reached for one year it is found that there is a decrease of about 33% of the estimated CERs.

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History of the document

Version	Date	Nature of revision
01	EB 54, Annex 34 28 May 2010	Initial adoption.
Decision Class: Regulatory **Document Type**: Guideline, Form **Business Function**: Issuance		