VERIFICATION REPORT AND CERTIFICATION STATEMENT

Deepak Fertilisers and Petrochemical Corporation Limited

10 MW Wind Power Project in Maharashtra by Deepak Fertilizers and Petrochemicals Corporation Limited

SGS Climate Change Programme
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Date of Issue:	**Project Number:**
29/01/2010	CCP.VOL0577
Project Title:	
10 MW Wind Power Project in Maharashtra by Deepak Fertilizers and Petrochemicals Corporation Limited	
Organisation:	**Client:**
SGS United Kingdom Limited	Deepak Fertilisers and Petrochemical Corporation Limited

Summary:

SGS United Kingdom Ltd has performed the Voluntary Emission Reduction verification of the VCS project "10 MW Wind Power Project in Maharashtra by Deepak Fertilizers and Petrochemicals Corporation Limited". The verification includes confirming the implementation of the monitoring plan of the registered PDD with UNFCCC Reference No. 2540 and the application of the monitoring methodology as per AMS I.D version 13 dated 14/12/2007. A site visit was conducted to verify the data submitted in the monitoring report.

The project activity involves the installation of 8 wind mills, each with a capacity of 1.25 MW, to generate electricity. The generated electricity is being supplied to Western Grid (Now Integrated Northern Eastern Western North Eastern (NEWNE) Grid). Thus the project activity contributes to reduction in consumption of fossil fuels which would otherwise been consumed in fossil fuel dominated grid connected electricity generation plants.

SGS confirms that the project is implemented in accordance with the validated and registered Project Design Document. The monitoring system is in place and the emission reductions are calculated without material misstatements. The Verification Report and other relevant information further meets all the requirements of the Voluntary Carbon Standard Verification Protocol contained in Sections 2.4 – 2.14 of the VCS. Our opinion relates to the projects GHG emissions and the resulting GHG emission reductions reported and related to the valid and registered project baseline and monitoring and its associated documents. Based on the information seen and evaluated we confirm that the implementation of the project has resulted in **24,151** tCO2e during period 24/04/2007 to 15/06/2009.

Subject:		**Indexing Terms**
VCS 2007.1 Verification		
Voluntary Team:		
Ramkrishna Patil – Lead Assessor Vikas Bankar – Local Assessor Vikas Bankar – Sectoral Scope Expert		☒ No Distribution (without permission from the Client or responsible organisational unit)
Technical Review:	**Trainee Technical Reviewer:**	
Date: 21/02/2010 Irma Lubrecht	Name: N/A	☐ Limited Distribution
		☐ Unrestricted Distribution

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Abbreviations

AMS	Approved Methodology for Small Scale Projects
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CEA	Central Electricity Authority
CL	Clarification Request
CMS	Central Monitoring system
CO2	Carbon Dioxide
CT	Current Transformer
DOE	Designated Operational Entity
EB	Executive Board
EPC	Engineering Procurement and Construction
FAR	Forward Action Request
GHG	Greenhouse Gases
I/O	Input/Output
ISO	International Organization for Standardization
JMR	Joint Meter Reading
kWh	Kilo Watt-hour
MP	Monitoring Plan
MR	Monitoring Report
MSEDCL	Maharashtra Electricity Distribution Company Limited
MSETCL	Maharashtra Electricity Transmission Company Limited
MW	Mega Watt
MWh	Mega Watt-hour
NEWNE	Northern Eastern Western North Eastern
PDD	Project Design Document
PLF	Plant Load Factor
PP	Project Proponent
PPA	Power Purchase Agreement
PT	Potential Transformer
QA/QC	Quality Assurance/Quality Control
SCADA	Supervisory Control and Data Acquisition
SISL	Suzlon Infrastructure Services Limited
tCO2e	Tonnes of Carbon Dioxide Equivalent
UNFCCC	United Nation Framework Convention on Climate Change
VCS	Voluntary Carbon Standards
VCU	Voluntary Carbon Units
WTG	Wind Turbine Generator

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1. Introduction

1.1 Objective

Deepak Fertilisers and Petrochemical Corporation Limited has commissioned an independent verification by SGS United Kingdom Limited of its reported greenhouse gas emission reductions from the **"10 MW Wind Power Project in Maharashtra by Deepak Fertilizers and Petrochemicals Corporation Limited"** project as per VCS 2007.1 guidelines. The verifiers have reviewed the GHG data collected to date for the period between 24/04/2007 to 15/06/2009.

The purpose of this verification exercise is to independently review the objective evidence:

- Whether the project has resulted in emission reductions as declared by the organisation or GHG project's GHG assertion;
- The data reported is accurate, complete, consistent, transparent and free of material error or omission.

1.2 Scope and Criteria

This engagement covers verification of emission reductions from anthropogenic sources of greenhouse gases included within the project boundary of the "10 MW Wind Power Project in Maharashtra by Deepak Fertilizers and Petrochemicals Corporation Limited" project.

SGS' approach is risk-based, drawing on an understanding of the risks associated with reporting GHG emissions data and the controls in place to mitigate these. SGS' examination includes assessment, on a test basis, of evidence relevant to the amounts and disclosures in relation to the project's GHG emission reductions for the defined reporting period.

1.3 VCS Project Description

The proposed VCS project activity is an electricity generation project through Wind Turbine Generators (WTG) and supplying electricity to the western regional grid. The project activity involves 8 WTGs, each with a capacity of 1.25 MW. Total capacity for the project activity is 10 MW. Two WTGs are installed at Aichale village, Dhule district. Remaining 6 WTGs are installed at villages Dhandane, Wankute, Mandal, and Vavad which belongs to Nandurbar district. The project activity was already commissioned and working in satisfactory condition. The project activity involves installation of eight wind electricity generator of 1.25 MW capacity each which was commissioned on 29th September 2006. This was checked during the site visit and cross-checked from the commissioning letter and found acceptable. The project will result in replacing the same amount of electricity from western regional grid (now integrated Northern Eastern Western North Eastern (NEWNE) Grid) which would otherwise have been generated by fossil fuel dominated grid connected power plants. The project activity is located at Dhule and Nandurbar districts of Maharashtra state in India. The project activity was already commissioned and working satisfactory. This was verified by the verification team during the site visit.

1.4 Level of Assurance

The parameters and values presented in the monitoring report were assessed through review of detailed project documentation and electricity generation records, interviews with Operations and Maintenance personnel, check of log books, and observations of monitoring and reporting practices and assessment of the reliability of measuring equipment.

Information which was not available during site visit was reported as Clarification Request (CL) or Corrective Action Request (CAR), following submission of additional information, monitoring and operational records, and the reconsolidation of all reported data was assessed again

1.5 Project Activity and Period Covered

This engagement covers emissions and emission reductions from anthropogenic sources of greenhouse gases included within the project boundary of the following project and period.

Title of Project Activity:	10 MW Wind Power Project in Maharashtra by Deepak Fertilizers and Petrochemicals Corporation Limited
UNFCCC Registration Number (if applicable) :	2540
Monitoring Period Covered in this Report:	24/04/2007 to 15/06/2009
Project Participants:	Deepak Fertilisers and Petrochemical Corporation Limited
Location of the Project Activity:	Site name – Nandurbar Site Village – Aichale, Taluka – Sakri, District - Dhule Village – Dhandane, Wankute, mandal, Vavad, Taluka – Nandurbar, District – Nandurbar State – Maharashtra, Country - India

2. Methodology

2.1 General Approach

SGS' approach to the verification is a two-stage process.

In the first stage, SGS completed a strategic review and risk assessment of the projects activities and processes in order to gain a full understanding of:

- Activities associated with all the sources contributing to the project emissions and emission reductions, including leakage if relevant;
- Protocols used to estimate or measure GHG emissions from these sources;
- Collection and handling of data;
- Controls on the collection and handling of data;
- Means of verifying reported data; and
- Compilation of the monitoring report.

At the end of this stage, SGS produced a Verification Checklist which, based on the risk assessment of the parameters, data collection and handling processes for each of those parameters, describes the verification approach and the sampling plan.

Using the Verification checklist, SGS verified the implementation of the monitoring plan and the data presented in the Monitoring Report for the period in question. This involved a site visit and a desk review of the monitoring report. This verification report describes the findings of this assessment.

2.2 Verification Team for this Assessment

Name	Role	SGS Office
Ramkrishna Patil	Lead Assessor	SGS India
Vikas Bankar	Local Assessor	SGS India
Vikas Bankar	Sectoral Scope Expert	SGS India

2.3 Means of Verification

2.3.1 Review of Project Documentation

The validated registered PDD, the monitoring report submitted by the client and additional background documents related to the project performance were reviewed. A complete list of all documents reviewed is attached in section 1 of this report.

2.3.2 Onsite Inspections

As part of the verification, the following on-site inspections have been performed

Location: Dhule and Nandurbar district	***Date:*** 04/11/2009
Coverage	***Source of Information / Persons Interviewed***
Electricity Generation Records (Credit Reports, JMRs, Invoices)	Mr. Bharat Naik – Suzlon Infrastructure Services Limited (EPC Contractor) Mr. Vikash Kumar Singh – Mitcon Consultancy Services Limited (Consultant)
Reliability & accuracy of readings considered for emisison reduction calculations, Calibration procedure	Mr. Bharat Naik – Suzlon Infrastructure Services Limited (EPC Contractor) Mr. Vikash Kumar Singh – Mitcon Consultancy Services Limited (Consultant)
Monitoring and measuring system • Collection of measurements • Observations of established practices • Data Verification of monitoring parameters	Mr. Bharat Naik – Suzlon Infrastructure Services Limited (EPC Contractor) Mr. Vikash Kumar Singh – Mitcon Consultancy Services Limited (Consultant)
QA/QC procedures, data management, internal audits to mainatin data quality & reliability, maintenance Practices	Mr. Bharat Naik – Suzlon Infrastructure Services Limited (EPC Contractor) Mr. Vikash Kumar Singh – Mitcon Consultancy Services Limited (Consultant)
Consideration of monitoring period, monitoring methodology and emisison reduction calculations	Mr. Suparas Jain – Deepak Fertilisers and Petrochemical Corporation Limited (Project Proponent) Mr. Vikash Kumar Singh – Mitcon Consultancy Services Limited (Consultant)

2.3.3 Review of Monitoring Results and Verification of the Correct Application of Monitoring Methodology

The parameter **"Net generation from all the WTGs of the promoter at a particular site connected to same feeder (EG** $_{\text{(Net export by project activity)}}$**)"** is a calculated parameter and it is being directly used for emission reduction calculations. This parameter is an apportioned value of the difference between total power exported to grid by all WTGs connected to a particular feeder relevant to the project activity and the total power imported from grid by all WTGs connected to same feeder. The Project Proponent (PP) has considered this parameter from credit reports (Ref. /7/) for emission reduction calculations. These credit reports are checked for consistency in values considered in emission reductions calculations. The same has been cross-checked from invoices (Ref. /7/) which are raised by the PP to MSEDCL. Also these values from credit reports are further cross-checked from calculated value of net electricity supplied to grid by apportioning procedure mentioned in registered PDD (Ref. /2/). Both the data i.e. value of this parameter from credit reports and calculated values are found to be consistent. Wherever a small difference is observed because of decimal corrections, the lower of both the values is taken for actual emission reduction calculations. This approach is found conservative and appropriate. The same approach has been reported and it is being reflected from the emission reduction excel spreadsheet (Ref. /11.2/); thus acceptable. Section 5.2 of the monitoring report version 01 dated 15/10/2009 (Ref. /6/) was mentioned that the value of parameter EG $_{\text{(Net export by the project activity)}}$ will be taken from MSEDCL electricity bill. Thus CL #3 was raised. In response the PP has submitted the revised monitoring report version 02 dated 30/11/2009 (Ref. /6.1/). The same has been checked and the revised monitoring report (Ref. /6.1/) mentions that the value of parameter EG $_{\text{(Net export by the project activity)}}$ will be taken from credit reports (Ref. /7/). This is found appropriate and it is accepted. Thus CL #3 was closed out.

The parameter **"The summation of total Electricity Generated (MWh) at the controller from all the wind turbines of the project proponent at a particular site (∑EGn,y)"** is a measured parameter. This parameter

is a summation of electricity generated by all windmills of the project activity. This parameter is being measured online by controller meters installed at each WTG and monitored through a Central Monitoring System (CMS). Daily reports of electricity generation by the project activity is being sent to the PP by EPC contractor for the project activity and it is being recorded monthly. Electricity generation by all WTGs of the project activity reported in emission reduction excel spreadsheet (Ref. /11.2/) is cross-checked from credit reports (Ref. /7/) for the project activity. It is found appropriate and thus it is accepted. This parameter is being used to apportionate net power export and import by all WTGs connected to a particular feeder relevant to the project activity. Controller meters installed at individual WTG are microprocessor based intelligent controllers controlling the entire operation of turbine and it is calculating energy generation with basic signal of CT and PT connected to through I/O gateway. Thus calibration is not possible for controller meters. This has been confirmed from letter from SISL (Ref: SISL/CRM/09-10/0056) dated 13/11/2009 (Ref. /10/). This is found appropriate and it is accepted.

The parameter **"The summation of total Electricity Generated (MWh) from all the wind turbines at the site and connected to a particular feeder as measured at the individual controllers (∑EGm,y)"** is a measured parameter. This parameter is a summation of electricity generated by all windmills connected to a particular feeder relevant to the project activity including WTGs involved in the project activity. This parameter is being measured online by controller meter installed at each WTG and monitored through Central Monitoring System (CMS). Monthly recorded data of this parameter maintained by SISL has been cross-checked from their system and same has submitted to DOE for verification. It is found appropriate and thus it is accepted. This parameter is being used to apportionate net power export and import by all WTGs connected to substation meters relevant to the project activity. Calibration is not possible for controller meters and same has been discussed above.

The parameter **"Total export as measured at the substation feeder of all wind turbines connected to the same feeder ($EG_{JMR,export}$)"** is a measured parameter. This parameter is total power exported to grid by all WTGs connected to a particular feeder relevant to the project activity. This parameter is used to calculate the net generation from all WTGs ($EG_{JMR,export}$ - $EG_{JMR,import}$) at the common metering point . This net generation from all WTGs is being apportioned to calculate net power exported to grid by the project activity based on fraction of electricity generation by WTGs in the project activity (∑EGn,y) and electricity generation by all WTGs connected to feeder relevant to the project activity (∑EGm,y).. The parameter power exported to grid is being measured online by tri-vector meters installed at substation yard where all WTGs are connected. The power exported to grid is being measured jointly in presence of SISL representatives and MSEDCL officials and accordingly JMRs are prepared and signed by both. JMRs are being taken at the main meters installed at substation and check meters are also found to be installed in case of main meter failure. The PP has submitted JMRs (Ref. /8/) as evidence and the same have been cross-checked for consistency of values of this parameter reported by the PP in the emission reduction excel spreadsheet (Ref. /11.2/). It is found appropriate and thus it is acceptable. Calibration/test reports (Ref. /9/) of check and main meters are checked and they are found satisfactory for the monitoring period of the project activity.

The parameter **"Total import as measured at the substation feeder of all wind turbines connected to the same feeder ($EG_{JMR,import}$)"** is a measured parameter. This parameter is total power imported from grid by all WTGs connected to a particular feeder relevant to the project activity. This parameter is used to calculate the net generation from all WTGs ($EG_{JMR,export}$ - $EG_{JMR,import}$) at the common metering point. This net generation from all WTGs is being apportioned to calculate net power imported to grid by the project activity based on fraction of electricity generation by WTGs in the project activity (∑EGn,y) and electricity generation by all WTGs connected to feeder relevant to the project activity (∑EGm,y). The parameter power imported from grid is being measured online by tri-vector meters installed at substation yard where all WTGs are connected. The power imported from grid is being measured jointly in the presence of SISL representatives and MSEDCL officials and accordingly JMRs are prepared signed by both. JMRs are being taken at the main meters installed at substation and check meters are also found to be installed for the case of main meter failure. The PP has submitted JMRs (Ref. /8/) as evidence and the same have been cross-checked for consistency of values of this parameter reported by project proponent in emission reduction excel sheet (Ref. /11.2/). It is found appropriate and thus it is acceptable. Calibration/test reports (Ref. /9/) of check and main meters are checked and they are found satisfactory for monitoring period of the project activity.

The proposed project activity has been registered with a GHG program (UNFCCC Ref No. 2540) and it is concluded that applied methodology AMS I.D version 13 dated 14/12/2007 has been correctly followed by the project proponent.

2.3.4 Determinations of the Reductions in GHG Emissions

For each parameter in the monitoring methodology / monitoring report list the following information

Parameter	**Reported Value** (Period From 01/05/2007 to 31/03/2009)	**Verified Value** (Period From 24/04/2007 to 15/06/2009)
Net generation from all the WTGs of the promoter at a particular site connected to same feeder (MWh)	23,995	29,817
The summation of total Electricity Generated (MWh) at the controller from all the wind turbines of the project proponent at a particular site **(∑EG**n,y**)**		
Feeder wise data is reported;		
1. Jamde-05	4,567	5,793
2. Nandurbar-01	6,258	7,853
3. Nandurbar-02	3,687	4,420
4. Ranala Rural (For K 513 & K 514)	6,772	8,402
5. Ranala Rural (K-478)	3,354	3,239
6. Gangapur-07	1,551	1,149
7. Valve-07	Not Reported	184
The summation of total Electricity Generated (MWh) from all the wind turbines at the site and connected to a particular feeder as measured at the individual controllers. **(∑EG**m,y**)**		
Feeder wise data is reported;		
1. Jamde-05	46,370	61,785
2. Nandurbar-01	76,696	99,137
3. Nandurbar-02	89,344	109,914
4. Ranala Rural (For K 513 & K 514)	23,148	33,258
5. Ranala Rural (K-478)	21,002	24,487
6. Gangapur-07	2,978	20,434
7. Valve-07	Not Reported	2,880
Total export as measured at the substation feeder of all wind turbines connected to the same feeder. **($EG_{JMR,export}$)**		
Feeder wise data is reported;		
1. Jamde-05	49,224	59,773
2. Nandurbar-01	79,507	95,099
3. Nandurbar-02	89,839	106,117

4. Ranala Rural (For K 513 & K 514)	25,636	32,306
5. Ranala Rural (K-478)	23,662	23,790
6. Gangapur-07	2,980	19,688
7. Valve-07	Not Reported	2,751
Total import as measured at the substation feeder of all wind turbines connected to the same feeder. **($EG_{JMR,import}$)**		
Feeder wise data is reported;		
1. Jamde-05	478	480
2. Nandurbar-01	415	443
3. Nandurbar-02	455	460
4. Ranala Rural (For K 513 & K 514)	189	192
5. Ranala Rural (K-478)	121	122
6. Gangapur-07	57	80
7. Valve-07	Not Reported	46
Weighted Average Grid Emission rate (Grid Emission Factor) (tCO_2e/MWh)	0.81	0.81
Emission reductions tCO_2e	19,434	24,151

Please note that there is change in feeder for the WTG 0478, thus the feeder wise details are mentioned in the above table for better transparency

2.3.5 Review of Additional Data from Other Sources if Appropriate

The proposed project activity has used weighted average grid emission factor as ex-post parameter for the calculation of emission reductions as per registered PDD (Ref. /2/) and it would be monitored every year as per latest information available from CEA. The grid emission factor has been taken from "CO2 Baseline Database for the Indian Power Sector", Version 04 which was publically available in September 2008 (Ref. /17/) published by Central Electricity Authority (CEA). Same has been cross-checked from web-link http://www.cea.nic.in/planning/c%20and%20e/user_guide_ver4.pdf. The value of emission factor as 0.81 tCO_2e /MWh was used for the calculation of emission reductions and this is found inline with registered PDD (Ref. /2/), hence accepted. It is also observed that this value of 0.81 tCO_2e /MWh (for year 2007-2008) is conservative emission factor as compared to the other years of the monitoring period and hence is accepted.

Initially the PP did not include grid emission factor in the monitoring plan in first version of monitoring report dated 15/10/2009 (Ref. /6/) as this parameter is ex-post and it needs to be monitored every year. Thus CAR #2 was raised. In response the PP has included **"Weighted Average Grid Emission rate (Grid Emission Factor)"** in section 5.2 of revised monitoring report version 02 dated 30/11/2009 (Ref. /6.1/) for monitoring plan. The same has been checked and it is found acceptable. Thus CAR #2 was closed out.

2.4 Reporting of Findings

As an outcome of the verification process, the team can raise different types of findings

In general, where insufficient or inaccurate information is available and clarification or new information is required the team shall raise a Clarification Request (CL) specifying what additional information is required.

Where a non-conformance arises the team shall raise a Corrective Action Request (CAR). A CAR is issued, where:

I. the verification is not able to obtain sufficient evidence for the reported emission reductions or part of the reported emission reductions. In this case these emission reductions shall not be verified and certified;

II. the verification has identified misstatements in the reported emission reductions. Emission reductions with misstatements shall be discounted based on the verifiers ex-post determination of the achieved emission reductions

The verification process may be halted until this information has been made available to the assessors' satisfaction. Failure to address a CL may result in a CAR. Information or clarifications provided as a result of CL may also lead to a CAR.

Observations may be raised which are for the benefit of future projects and future verification actors. These have no impact upon the completion of the verification activity.

Corrective Action Requests and Clarification Requests are detailed in Verification Checklist. The Project Developer is given the opportunity to "close" outstanding CARs and respond to CLs and Observations.

2.5 Internal Quality Control

Following the completion of the assessment process and a recommendation by the Assessment Team, all documentation will be forwarded to a Technical Reviewer. The task of the Technical Reviewer is to check that all procedures have been followed and all conclusions are justified. The Technical Reviewer will either accept or reject the recommendation made by the assessment team.

3. Verification Findings

3.1 Remaining Issues, including any Material Discrepancy, FARs from Previous Validation

There are no issues pending from the previous validation report

This is first verification under VCS and there were no issues pending from the validation report dated 23/04/2009 (Ref. /1/) submitted to EB at the time of CDM registration of the project activity.

The start date of crediting period was mentioned as 01/05/2007 in monitoring report version 01 dated 15/10/2009 (Ref. /6/). This start date of crediting period was not found inline with VCS policy announcement dated 19/05/2008 http://www.v-c-s.org/190308guide.html (Ref. /5/) which mentions that the VCUs can be registered back to the project start date provisions in VCS 2007.1 Clause 5.2.1. This is 28/03/2006 or two years prior to the completion of the project validation whatever is later" thus CAR #1 was raised. In response to CAR #1, the PP considered 24/04/2007 as start date of monitoring period. It was found that the date of completion of validation is 23/04/2009, thus two years prior to the completion of validation is 24/04/2007. Also this date is later to 28/03/2006, thus date 24/04/2007 as start date for the crediting period considered for present monitoring period is found appropriate. This was also verified through the revised excel spreadsheet for emission reductions (Ref. /11.1/) and revised monitoring report version 02 dated 30/11/2009 (Ref. /6.1/), thus accepted. Thus CAR #1 was closed out.

CL #3 was raised to ask the PP to include the value of each parameter in section 5.2 of the monitoring report. Also the PP was asked to justify the appropriateness of the sentence "The main meter has been installed and owned by MSEDCL, whereas the PP owns the check meters" mentioned in section 5.2 (monitoring procedure) of the monitoring report (Ref. /6/). In response the PP has submitted the revised monitoring report version 02 dated 30/11/2009 (Ref. /6.1/). Revised monitoring report (Ref. /6.1/) mentioned value of each parameter in section 5.2 for respective parameter of the monitoring plan for the project activity. However ownership of the main meter and check meter was not clear through the PP's response to CL #3. Thus CL #3 was kept open. In response the PP has submitted the revised monitoring report version 03 dated 11/12/2009 (Ref. /6.2/). Revised monitoring report (Ref. /6.2/) mentions that main meter and check meter are installed by project proponent at their own expenses. However these metering equipments shall be duly approved tested and sealed by the MSEDCL (Ref. /9/). This is found consistent with the Power Purchase Agreement signed on dated 06/11/2006 (Ref. /22/); thus accepted. Thus CL #3 is closed out.

CL #4 was raised to ask the PP to include check meter replacement details for Nandurbar-02 and Gangapur-07 feeders in the monitoring report. Also the PP was asked to include feeder replacement details for WTG K-478 involved in the project activity through CL #4. In response project proponent submitted revised monitoring report version 02 dated 30/11/2009 (Ref. /6.1/) and revised emission reduction excel sheet (Ref. /11.1/). Same was checked for above mentioned clarification raised. It is found that WTG K-478 was connected to Ranala rural feeder till date 18/09/2008. Then it was shifted to Valve-07 feeder on 19/09/2008 and it was connected to the same feeder till date 22/11/2008. Then it was shifted to Gangapur feeder on 29/11/2008 and it is connected to the same till date. This shifting of WTG K-478 was done that because overloading of WTG on the feeders previously connected. Same has been cross-checked from letter from MSEDCL (Ref: SE/ DHL/ESTM/T/9701 and 9702) dated 08/09/2008 (Ref. /19/) and it is found appropriate. This is found consistent with site visit observations; thus accepted. However monitoring report version 02 dated 30/11/2009 (Ref. /6.1/) does not talk about check meter replacement details for Nandurbar-02 and Gangapur-07 feeders. Thus CL #4 was kept open. In response the PP has submitted revised monitoring report version 03 dated 11/12/2009 (Ref. /6.2/). Same has been checked and it mentions old and new meter serial numbers for check meter change. This has been crosschecked from letter from MSEDCL (Ref: EE/TDD/DHL/TECH/406) dated 24/08/2009 (Ref. /18/, /19/). This is found appropriate and it is accepted. Thus CL #4 is closed out.

During verification of emission reduction excel sheet (Ref. /11/), it was found that net electricity supplied to grid by the project activity was not consistent with calculated values of net electricity supplied to the grid by apportioning procedure as per registered PDD (Ref. /2/). Also it was found that data for WTG K-478 was not available for the months October 2008 and November 2008. Thus CAR #5 was raised. Also the PP was asked to submit all JMRs for the project activity through CAR #5. In response the PP has submitted a revised emission reduction excel spreadsheet (Ref. /11.1/). The same has been checked for above mentioned

clarification raised. It was found that net electricity supplied to grid by the project activity was not consistent with calculated values of net electricity supplied to the grid by apportioning procedure. Also electricity generation data for WTG K-478 was reported along with submission of all JMRs (Ref. /8/) for the project activity. However small difference was observed between values from credit reports (Ref. /7/) and calculated values of net electricity supplied to grid by apportioning procedure because of decimal correction. Thus PP was asked to consider the lower of the two in the emission reduction calculations for the project activity. In response the PP has submitted a revised emission reduction sheet (Ref. /11.2/). The same was checked and it was found that the lower of the two i.e. values from credit reports (Ref. /7/) and calculated values of net electricity supplied to grid by apportioning procedure was considered for emission reduction calculations for the project activity. This is found appropriate and conservative; thus accepted. Hence CAR #5 is closed out.

CAR #6 was raised to ask the PP to submit calibration/test reports for the project activity. Also the PP was asked to submit ISO certificate of the EPC contractor for the project activity. In response the PP has submitted all calibration certificates (Ref. /9/) for the project activity and ISO 9001: 2008 certificate (Ref. /20/) of the project activity. Same were checked and it was found that test report for Jamde-05 feeder was not available for year 2007. Thus CAR #6 was kept open. In response the PP clarified that the PP has no control over calibration of meters. Responsibility of calibration/testing of meters completely lying with the MSEDCL (power purchasing utility) as per power purchase agreement dated 06/11/2006 (Ref. /22/). Also Suzlon Infrastructure Services Limited (EPC contractor) had follow up with the MSEDCL for doing overdue calibration of meters. Project proponent has submitted correspondence (follow up letter to MSEDCL) between SISL and MSEDCL dated 12/10/2007 and 28/11/2007 (Ref. /21/). The same were checked for appropriateness and it is found acceptable. Also test results from calibration carried out for the same on 27/05/2008 is found satisfactory. Thus explanation provided by the project proponent for non availability of test reports for year is found appropriate and it can be accepted. However project proponent was asked to include calibration details in the monitoring report. The PP has submitted the revised monitoring report version 04 dated 23/12/2009 (Ref. /6.3/). Same was checked for calibration details for the project activity and it was found acceptable. QA/QC procedure for data management is ensured through ISO 9001: 2008 certificate of SISL who is acting as EPC Contractor for the project activity; thus acceptable. Thus CAR #6 was closed out.

Validation of Clauses 1.5, 1.12, 1.13, 1.14, 8.1 and 8.2:

As per VCS guidelines, the VCS PD for the project is validated for the required validation clauses (/12/) as below

The VCS PD has mentioned the GPS co-ordinates for the project activity and the same has been validated from the data provided EPC contractor and is accepted. This is in line with section 1.5 of the VCS PD and is accepted.

The project activity involves electricity generation by wind energy as a renewable energy source; the project was not implemented to create GHG emission primarily for the purpose of its subsequent removal or destruction. This was confirmed during site visit and found inline with clause 1.12 of VCS PD and hence accepted by verification team.

Project has not created another form of environmental credit as per clause 1.13 of VCS PD template. The project proponent provided the letter of undertaking (Ref. /13/) stating that the project activity has not created any form of environmental credits and the project proponent will not claim GHG credits from this project activity under more than one GHG programme. This was confirmed by the undertaking from project proponent dated 14/09/2009. Thus this is in line with the clause 1.13 of VCS PD.

The project is registered with CDM programme (UNFCCC Ref. No.2540) and is checked from UNFCCC web site (/4/); thus clause 1.14 of VCS PD projects rejected under other GHG programme was not applicable to this project activity.

The commissioning certificates (/16/) for all 8 wind mills from electricity inspectorate have been checked and purchase orders (/15/) for all wind mills involved in project activity have been checked for the ownership of the project activity. This was as per clause 8.1 of VCS PD Proof of Title and was acceptable to the verification team.

The project activity is registered with CDM programme and currently claiming VCS benefits for the monitoring period 24/04/2007 to 15/06/2009 prior to CDM crediting period start date 16/06/2009. The project activity has

not taken part in emissions trading program and the reductions or removals generated by the project have or will not be used in the Program or jurisdiction for the purpose of demonstrating compliance. This was confirmed by the undertaking (/14/) by the PP, dated 14/09/2009. Hence, this was found in line with the VCS 2007.1 requirement as per clause 8.2 of VCS PD template and hence accepted by verification team.

3.2 Project Implementation

Project was implemented and equipment installed as described in the registered PDD version 05 dated 05/06/2009 (Ref. /2/).

3.3 Completeness of Monitoring

The monitoring of the project activity is found to be in conformity with monitoring methodology described in AMS I.D version 13 dated 14/12/2007 (Ref. /3/) and monitoring plan indicated in the PDD (Ref. /2/) of project activity.

The required monitoring systems have been installed and operational. The meters comply with appropriate quality standards applicable for the used technology. The accuracy class of the meters installed for the project activity is found to be as per Power Purchase Agreement for the project activity.

The sustaining records such as credit reports, JMRs and invoices for the project activity were found to be sufficient to enable verification of emission reductions.

3.4 Accuracy of Emission Reduction Calculations

The calculation of emission reductions is found to be correct. However, considerable difference was observed between estimated emission reductions as per registered PDD (Ref. /2/) and actual emission reductions for present monitoring period. The estimated emission reductions are 14,313 tCO_2 per year as per registered PDD (Ref. /2/). The estimated emission reductions are supposed to be 29,819 tCO_2 for the monitoring period from 24/04/2007 to 15/06/2009 as per registered PDD (Ref. /2/). However actual emission reductions for the same monitoring period are 24,151 tCO_2. Thus CL #7 was raised. In response to CL #7, project proponent has clarified that actual PLF for the windmills in the project activity is much lower i.e. 16% as compared to 19.5% PLF (after considering 5% transmission losses) considered at the time of estimation during validation stage of the project activity. The PLF is based on the nature dependent wind velocity and the variation in the PLF is acceptable. Explanation provided by the PP has been checked for appropriateness and it is found to be acceptable. Thus CL #7 is closed.

The details of the reported and the verified values for all parameters are listed above in section 2.3.4.

3.5 Quality of Evidence to Determine Emission Reductions

Critical parameters used for the determination of the Emission Reductions are discussed above in section 2.3.3 above. All the data recorded are in compliance with the monitoring report.

3.6 Management and Operational System and Quality Assurance

The proposed project activity has an EPC contract with Suzlon Energy Limited for operation and maintenance and monitoring purpose. The companies involved in the project have ISO 9001:2008 quality assurance systems procedure, which establishes the operational and management structure implemented. Therefore we can affirm that the management system of the VCS project is in place; with the responsibilities properly identified and in place.

4. Calculation of Emission Reductions

Parameter	**Reported Value** (Period From 01/05/2007 to 31/03/2009)	**Verified Value** (Period From 24/04/2007 to 15/06/2009)
Net generation from all the WTGs of the promoter at a particular site connected to same feeder (MWh)	23,995	29,817
The summation of total Electricity Generated (MWh) at the controller from all the wind turbines of the project proponent at a particular site **(∑EG**n,y**)** Feeder wise data is reported; 1. Jamde-05 2. Nandurbar-01 3. Nandurbar-02 4. Ranala Rural (For K 513 & K 514) 5. Ranala Rural (K-478) 6. Gangapur-07 7. Valve-07	 4,567 6,258 3,687 6,772 3,354 1,551 Not Reported	 5,793 7,853 4,420 8,402 3,239 1,149 184
The summation of total Electricity Generated (MWh) from all the wind turbines at the site and connected to a particular feeder as measured at the individual controllers. **(∑EG**m,y**)** Feeder wise data is reported; 1. Jamde-05 2. Nandurbar-01 3. Nandurbar-02 4. Ranala Rural (For K 513 & K 514) 5. Ranala Rural (K-478) 6. Gangapur-07 7. Valve-07	 46,370 76,696 89,344 23,148 21,002 2,978 Not Reported	 61,785 99,137 109,914 33,258 24,487 20,434 2,880
Total export as measured at the substation feeder of all wind turbines connected to the same feeder. **($EG_{JMR,export}$)** Feeder wise data is reported; 1. Jamde-05 2. Nandurbar-01 3. Nandurbar-02	 49,224 79,507 89,839	 59,773 95,099 106,117

4. Ranala Rural (For K 513 & K 514)	25,636	32,306
5. Ranala Rural (K-478)	23,662	23,790
6. Gangapur-07	2,980	19,688
7. Valve-07	Not Reported	2,751
Total import as measured at the substation feeder of all wind turbines connected to the same feeder. **($EG_{JMR,import}$)**		
Feeder wise data is reported;		
1. Jamde-05	478	480
2. Nandurbar-01	415	443
3. Nandurbar-02	455	460
4. Ranala Rural (For K 513 & K 514)	189	192
5. Ranala Rural (K-478)	121	122
6. Gangapur-07	57	80
7. Valve-07	Not Reported	46
Weighted Average Grid Emission rate (Grid Emission Factor) (tCO_2e/MWh)	0.81	0.81
Emission reductions tCO_2e	19,434	24,151

Please note that there is change in feeder for the WTG 0478, thus the feeder wise details are mentioned in the above table for better transparency

Kindly note that initially project proponent was considering monitoring period from 01/05/2007 to 31/03/2009 and the project proponent was asked to check the monitoring period as per clause 5.2.1 in VCS 2007.1 Guidelines (Ref. /5/) through CAR #1. In response to findings raised, the PP changed the monitoring period from 24/04/2007 to 15/06/2009 and was found inline with clause 5.2.1 in VCS 2007.1 Guidelines (Ref. /5/).

The values are verified for each parameter and emission reductions are calculated by considering the net electricity supplied to grid by the project activity and grid emission factor as 0.81 t CO2/MWh .The total emission reductions over the monitoring period are 24,151 t CO2e.

The emission reduction is calculated as follows:

Baseline emission from 24/04/2007 to 15/06/2009

Baseline emission = Net electricity supplied to grid (MWh) x Grid emission Factor (t CO2/MWh)

= 29,817x 0.81

= 24,151 t CO2e

Project emission and leakage emissions are zero.

Emission Reduction = Baseline emissions – Project emissions – Leakage Emissions

= 24,151 – 0 – 0

= 24,151 t CO2e

Thus total emission reductions for monitoring period from 24/04/2007 to 15/06/2009 are 24,151 t CO2e.

As the separate JMR for the period from 24/04/2007 to 30/04/2007 and period from 01/06/2009 to 15/06/2009 are not available, hence PP has not considered the electricity generation during that period. This is conservative and thus it is accepted.

Vintage wise verified emission reductions are as follows:

Period	*Net generation from all the WTGs of the promoter at a particular site connected to same feeder (MWh)*	*Verified Emission Reductions (VCU)*
24/04/2007 to 31/12/2007	6,531	5,290
01/01/2008 to 31/12/2008	15,844	12,833
01/01/2009 to 15/06/2009	7,442	6,028
Total	**29,817**	**24,151**

5. Recommendations for Changes in the Monitoring Plan

No recommendation has been given to project proponent regarding the change in the monitoring plan for the current verification.

6. Overview of Results

Is the project documentation in accordance with the requirements of VCS2007.1

Yes. The results of the compliance assessment are recorded in the verification checklist which is used as an internal report only.

Have on-site inspections been performed that may comprise, inter alia, a review of performance records, interviews with project participants and local stakeholders, collection of measurements, observations of established practices and testing of the accuracy of monitoring equipment?

Yes. Verification team has visited the sites and undertook interviews, collected data, audited the implementation of procedures, checked calibration certificates and checked data, inter alia.

The results of the site visits are recorded in the verification checklist which is used as an internal report only.

The evidences have been checked and collected. The revised monitoring report is attached with this verification report.

Has data from additional sources been used? If yes, please detail the source and significance.

Yes, CO2 emission factor for grid i.e. weighted average grid emission factor has been considered as ex-post parameter and it will be monitored every year throughout the crediting period. The value is taken from version 04 of "CO_2 Baseline Database for Indian Power sector" which was publically available in September 2008 published by Central Electricity Authority, Ministry of Power, Government of India. It is also observed that this value of 0.81 tCO2e /MWh (for year 2007-2008) is conservative emission factor as compared to the other years of the monitoring period and hence is accepted.

Please review the monitoring results and verify that the monitoring methodologies for the estimation of reductions in anthropogenic emissions by sources have been applied correctly and their documentation is complete and transparent.

Yes. The monitoring methodology has been correctly applied and the monitoring report and supporting references are complete and transparent.

Have any recommendations for changes to the monitoring methodology for any future crediting period been issued to the project participant?

No recommendation has been given to project proponent regarding the change in the monitoring plan for the current verification.

Determine the reductions in anthropogenic emissions by sources of greenhouse gases that would not have occurred in the absence of the VCS project activity, based on the data and information using calculation procedures consistent with those contained in the registered project design document and the monitoring plan.

The data used in anthropogenic emission reduction calculation is consistent with those contained in the registered PDD and monitoring plan. The emission reduction was 29,819 tCO2 for the period 24/04/2007 to 15/06/2009 as per the estimation made in the PDD. The actual emission reduction has been verified as 24,151 tCO2 for the same period. The variation in the estimated and actual emission reduction is discussed in the section 3.4 of the report.

Identify and inform the project participants of any concerns related to the conformity of the actual project activity and its operation with the registered project description document. Project participants shall address the concerns and supply relevant additional information.

"No such non conformity of the actual project activity and its operation with the registered project description document has been observed."

7. Verification and Certification Statement

SGS United Kingdom Ltd has been contracted by Deepak Fertilisers and Petrochemical Corporation Limited to examine the greenhouse gas (GHG) emission reductions reported from the **"10 MW Wind Power Project in Maharashtra by Deepak Fertilizers and Petrochemicals Corporation Limited"** for the period, 24/04/2007 to 15/06/2009 equating to 24,151 tonnes of CO2 equivalents. Our opinion relates to the project's GHG emissions and resulting GHG emissions reductions reported for the period and the verification testing conducted against the GHG Assertion.

The management of the Deepak Fertilisers and Petrochemical Corporation Limited is responsible for the preparation of the GHG emissions data and the reported GHG emissions reductions on the basis set out within the project Monitoring Report version 05 dated 29/01/2010. Calculation and determination of GHG emission reductions from the project is the responsibility of the management of the "10 MW Wind Power Project in Maharashtra by Deepak Fertilizers and Petrochemicals Corporation Limited". The development and maintenance of records and reporting procedures are in accordance with the monitoring report.

It is SGS' responsibility to express an independent GHG verification opinion on the GHG emissions from the project for the period 24/04/2007 to 15/06/2009 and on the calculation of GHG emission reductions from the project based on the verified emissions for the same.

The verification approach was based on the requirements as defined in Voluntary Carbon Standard VCS 2007.1. Our approach is risk-based, drawing on an understanding of the risks associated with reporting GHG emissions data and the controls in place to mitigate these. Our examination includes assessment, on a test basis, of evidence relevant to the amounts and disclosures in relation to the project's GHG emission reductions for the period 24/04/2007 to 15/06/2009. We planned and performed our work to obtain the information and explanations that we considered necessary to provide sufficient evidence for us to give reasonable assurance that the amount of GHG emission reductions for the period 24/04/2007 to 15/06/2009, prepared on the basis of the Monitoring Report version 05 dated 29/01/2010, are fairly stated. We conducted our verification with regard to the client's GHG PDD and monitoring report which included at "10 MW Wind Power Project in Maharashtra by Deepak Fertilizers and Petrochemicals Corporation Limited" project plan, baseline applied and baseline GHG emissions or removals, Monitoring and Verification Plan, GHG Emission reduction, removal enhancements. This assessment included collection of evidence supporting the reported data checking whether the provisions of the Monitoring and Verification Plan in the PDD were consistently and appropriately applied

We have verified whether the information included in the monitoring report representing the project baseline is current and has been extracted from the project site and the emission reduction achieved has been determined by correctly subtracting emissions for the monitoring period 24/04/2007 to15/06/2009 from the baseline figures for the comparable

Reporting Period: From 24/04/2007 to 15/06/2009

Verified emission in the above reporting period:

Project Emissions:	0	tCO2equivalents
Baseline Emissions:	24,151	tCO2equivalents
Emission Reductions:	24,151	tCO2equivalents

We have verified whether the information included in the attached appendix representing the emission reductions achieved has been determined correctly for the given period from the baseline figure.

Based on process and procedures conducted, in our opinion, Deepak Fertilisers and Petrochemical Corporation Limited assertion on GHG emission reductions for the "10 MW Wind Power Project in Maharashtra by Deepak Fertilizers and Petrochemicals Corporation Limited" project during the reporting period 24/04/2007 to 15/06/2009 is materially correct and is a fair representation of the GHG data and information and the emission reductions are fairly stated. The GHG emission reductions were calculated correctly on the basis of approved monitoring methodology AMS I.D version 13 dated 14/12/2007.

SGS confirms that the project is implemented as described in the validated and registered project design documents. Based on the information we have seen and evaluated, we confirm the following:

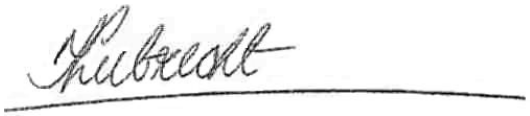
Project Title:	"10 MW Wind Power Project in Maharashtra by Deepak Fertilizers and Petrochemicals Corporation Limited"
UNFCCC Reference Number (if applicable):	2540
Registered PDD and Approved Used for Verification:	PDD version 05 dated 05/06/2009
Methodology Used for Verification:	AMS I.D version 13 dated 14/12/2009
Applicable Period:	24/04/2007 to 15/06/2009
Total GHG Emission Reductions Verified:	24,151

Signature:

Lead Assessor

Ramkrishna Patil

Signature:



Technical Reviewer

Irma Lubrecht

SGS United Kingdom Limited

8. Document References

/1/ Validation Report version 05 dated 05/06/2009 for the project activity
/2/ Registered PDD, Version 05 dated 05/06/2009
/3/ AMS I.D Methodology Version 13 dated 14/12/2007
/4/ UNFCCC CDM website http://cdm.unfccc.int/Projects/DB/SGS-UKL1240498237.32/view
/5/ VCS 2007.1 website http://www.v-c-s.org/190308guide.html

/6/ Monitoring Report version 01 dated 15/10/2009
/6.1/ Monitoring Report version 02 dated 30/11/2009
/6.2/ Monitoring Report version 03 dated 11/12/2009
/6.3/ Monitoring Report version 04 dated 23/12/2009
/6.4/ Monitoring Report version 05 dated 29/01/2010
/7/ Credit Reports and Invoices for the project activity
/8/ JMRs for the project activity
/9/ Test/Calibration certificates for the meters installed at substations related to project activity by MSEDCL are summarized as follows:

Sr. No.	Substation (feeder connection)	Date of Commissioning	Main Meter Serial Number	Check Meter Serial Number
1	Jamde Feeder - 05	29-Sep-06	4725781	4725782
Calibration/Test Report Details for Jamde Feeder 05 meters: Test Report dated 28/03/2006 (Main and Check) Correspondence between MSEDCL and PP dated 12/10/2007 and 28/11/2007 Test Report dated 27/05/2008 (Main and Check) Test Report dated 08/07/2009 (Main and Check)				
2	Nandurbar Feeder - 1	29-Sep-06	4860902	4860904
Calibration/Test Report Details for Nandurbar Feeder 01 meters: Test Report dated 07/06/2006 (Main and old Check) Test Report dated 08/10/2007 (Main) Test Report dated 27/05/2008 (Main and Check) Test Report dated 08/07/2009 (Main and Check)				
3	Gangapur	29-Sep-06	4961766	4890563 (Old: 4961767)
Calibration/Test Report Details for Gangapur 7 Feeder meters: Test Reports dated 26/12/2008 (Main and old Check) Test Reports dated 14/09/2009 (Main and old Check) WTG K478 is connected to this feeder on 1/12/2008. This WTG was idle for the period from 23/11/2008 to 30/11/2008.				
4	Nandurbar Feeder - 2	29-Sep-06	4860905	4890568 (Old: 4860906)
Calibration/Test Report Details for Nandurbar Feeder 02 meters: Test Report dated 07/06/2006 (Main and old Check) Test Report dated 08/10/2007 (Main) Test Report dated 27/05/2008 (Main and Check) Test Report dated 08/07/2009 (Main and Check)				
5	Ranala	29-Sep-06	4725815	4725810
Calibration/Test Report Details for Ranala feeder meters: Test Report dated 23/03/2006 (Main and Check) Test Report dated 17/08/2007 (Main and Check) Test Report dated 12/08/2008 (Main) Test Report dated 12/08/2008 (Check) WTG K478 was available on this Ranala Feeder up to 18/09/2008, and then it is shifted to				

Valve 7 feeder.				
6	Valve - 7	29/09/2008 to 22/11/2008	4863438	4863440
Calibration/Test Details for Valve 7 feeder meters: Testing Report dated 01/10/2008 (Main and Check) WTG K478 was available on this Valve 7 feeder from 19/09/2008 to 22/11/2008. Then it is shifted to Gangapur 7 feeder.				

/10/ Letter from Suzlon (Ref: SISL/CRM/09-10/0056) dated 13/11/2009 for no requirement of Calibration for controller meters
/11/ Excel spreadsheet for emission reduction calculation dated 15/10/2009
/11.1/ Excel spreadsheet for emission reduction calculation dated 30/11/2009
/11.2/ Excel spreadsheet for emission reduction calculation dated 11/12/2009
/11.3/ Excel spreadsheet for emission reduction calculation dated 29/01/2010
/12/ VCS PD for validation of clauses 1.12, 1.13, 1.14, 8.1 and 8.2 as per VCS Guidelines
/13/ Undertakings from project proponent for project not to create environmental credit
/14/ Undertakings from project proponent for project activity not to claim GHG credits under more than one GHG programme dated 14/09/2009.
/15/ Purchase Orders for the project activity
/16/ Commissioning Certificates for the project activity
/17/ CEA Database http://www.cea.nic.in/planning/c%20and%20e/user_guide_ver4.pdf
/18/ Letter from MSEDCL (Ref: EE/TDD/DHL/TECH/406) dated 24/08/2009 for check meter replacement
/19/ Letter from MSEDCL (Ref: SE/ DHL/ESTM/T/9701 and 9702) dated 08/09/2008 for feeder change for WTG K-478
/20/ ISO 9001: 2008 Certificate for Suzlon Infrastructure Services Limited
/21/ Correspondence (follow up letter to MSEDCL) between SISL and MSEDCL dated 12/10/2007 and 28/11/2007
/22/ Power Purchase Agreement dated 06/11/2006

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