



VOLUNTARY CARBON STANDARD 2007.1

VERIFICATION REPORT

WIND POWER PROJECT BY PMPL IN GUJARAT

**Monitoring Period: 2007-05-01 to 2009-08-31
(incl. both days)**

Report No: 53219708-08/473

Date: 2010-08-10

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Name of Verification company:	Date of the issue:
TÜV NORD CERT GmbH	2010-08-10
Report Title:	Approved by:
Wind power project by PMPL in Gujarat	Rainer Winter
Client:	Project Title:
Patanaik Minerals Pvt. Ltd.(PMPL)	Wind power project by PMPL in Gujarat
Summary:	
The verification statement will be provided as part of the final verification report.	

Patanaiik Minerals Pvt. Ltd. (PMPL) Client has commissioned the TÜV NORD JI / CDM Certification Program to carry out the verification of the Project "Wind power project by PMPL in Gujarat" in Jamnagar and Rajkot District in Gujarat, India with regard to the requirements of VCS 2007.1 Standard.

The project activity involves an initiative by PMPL to export renewable electricity produced by Wind Electric Generator (WEG) to the power deficit NEWNE region grid in order to decrease power shortage, diversify the grid and reduce greenhouse gas emissions.

The wind power generated from the project site will be displacing the electricity generated from thermal power stations feeding into NEWNE grid which is fossil fuel intensive (during power surplus time) and will be replacing the usage of diesel generators for meeting the power demand during shortage periods. Since wind power is Green House Gas (GHG) emissions free, the power generated will prevent the anthropogenic green house gas GHG emissions generated by the fossil fuel based thermal power stations comprising coal, diesel, furnace oil and gas. The estimation of GHG reductions by this project is limited to carbon dioxide (CO₂) only.

Reporting period: From 01-05-2007 to 31-08-2009

In the course of the verification (05) Corrective Action Requests (CARs), (02) Clarification Requests (CLs) were successfully closed and (00) Forward Action Request (FAR) will be verified during the subsequent periodic verification.

The verification is based on the draft monitoring report, revised monitoring report, the monitoring plan as set out in the validated PD, the validation report, emission reduction calculation spreadsheet and supporting documents made available to the TÜV NORD JI/CDM CP by the project participant.

As the result of the 1st periodic verification, the verifier confirms that the GHG emission reductions are calculated without material misstatements in a conservative and appropriate manner. TÜV NORD JI/CDM CP herewith confirms that the project has achieved emission reductions in the above mentioned reporting period as follows:

Emission reductions	130,009	t CO₂ equivalents
May 2007 to December 2007		28,878 tCO₂ equivalents
January 2008 to December 2008		60,550 tCO₂ equivalents
January 2009 to August 2009		40,581 tCO₂ equivalents

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Number of pages:

30

Abbreviations

BAU	Business as usual
CA	Corrective Action / Clarification Action
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CO₂	Carbon dioxide
CO_{2e}	Carbon dioxide equivalent
CP	Certification Program
CL	Clarification Request
DNA	Designated National Authority
EB	CDM Executive Board
EIA	Environmental Impact Assessment
ER	Emission Reduction
FAR	Forward Action Request
GHG	Greenhouse gas(es)
GWP	Global Warming Potential
IPCC	Intergovernmental Panel on Climate Change
MP	Monitoring Plan
MR	Monitoring Report
QC/QA	Quality control/Quality assurance
UNFCCC	United Nations Framework Convention on Climate Change
VCS	Voluntary Carbon Standard
VCS - PD	VCS - Project Description
VCU	Voluntary Carbon Unit
VVM	Validation and Verification Manual

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1 INTRODUCTION

The < Patanaik Minerals Pvt. Ltd. (PMPL) > has commissioned the TÜV NORD JI/CDM Certification Program to carry out the verification of the project:

“Wind power project by PMPL in Gujarat”

with regard to the relevant requirements of the Voluntary Carbon Standard 2007.1^{/VCS/}. The verifiers have reviewed the implementation of the monitoring plan (MP) in the registered VCS project for the monitoring period 2009-08-31 to 2007-05-01,

The applied monitoring methodology is “Consolidated baseline methodology for grid-connected electricity generation from renewable sources version 09”.

1.1 Objective

The purpose of this verification, by independent checking of objective evidence, is as follows:

- to verify that the project is implemented as described in the project design document;
- to assess the implementation of the monitoring plan (MP) content in the VCS-PD;
- to assess the project’s compliance with other relevant rules, including the host country (India) legislation;
- to confirm that the monitoring system is implemented and fully functional to generate voluntary emission reductions (VERs / VCU) without any double counting; and
- to establish that the data reported are accurate, complete, consistent, transparent and free of material error or omission by checking the monitoring records and the emissions reduction calculation.

1.2 Scope and Criteria

The verification of this project is based on the validated project design document^{/VCS-PD/}, the monitoring report^{/MR/}, emission reduction calculation spread sheet^{/XLS/}, supporting documents made available to the verifier and information collected through performing interviews and during the on-site assessment. Furthermore publicly available information was considered as far as available and required.

The TÜV NORD JI/CDM CP has employed a risk-based approach in the verification, focusing on the identification of significant risks and reliability of project monitoring and generation of emission reductions.

1.3 VCS Project Description

1.3.1 Project Characteristics

Essential data of the project is presented in the following Table 1-1.

Table 1-1: Project Characteristics

Item	Data
Project title	Wind power project by PMPL in Gujarat
Project owner	PATANAIK MINERALS PVT LTD
Any specific project categories	☐ Mega project ($> 10^6$ t CO _{2eq} / a) ☐ Micro project (< 5000 t CO _{2eq} / a) ☐ AFOLU project ☐ Grouped project ☒ No specific project category
VCS PD dated	Draft: 2009-12-05 Final: 2010-01-05
Applied Methodology	Consolidated baseline methodology for grid-connected electricity generation from renewable sources version 09"
Project starting date	2007-03-21
Crediting period	☒ Renewable Crediting Period (10 y) ☐ Fixed Crediting Period (10 y)
Start of crediting period	2007-03-21

1.3.2 Project Location

The details of the project location are given in table 1-2:

Table 1-2: Project Location

No.	Project Location	
Host Country	India	
Region:	Jamnagar & Rajkot district in Gujarat	
Project location address:	Kalavad taluka of Jamnagar & Upleta taluka of Rajkot district in Gujarat	
Location No.	Latitude	Longitude
81	22°05'54"	70°16'22"
82	22°05'48"	70°16'24"
83	22°05'41"	70°16'26"
84	22°05'35"	70°16'29"
85	22°05'28"	70°16'34"
86	22°05'20"	70°16'27"
87	22°05'15"	70°16'29"

No.	Project Location	
88	22°05'09"	70°16'31"
89	22°05'03"	70°16'32"
90	22°04'56"	70°16'31"
91	22°04'58"	70°16'11"
92	22°05'05"	70°16'11"
93	22°05'11"	70°16'11"
94	22°05'18"	70°16'05"
96	22°05'31"	70°16'04"
97	22°05'38"	70°16'03"
98	22°05'44"	70°16'03"
99	22°05'38"	70°15'29"
100	22°05'32"	70°15'31"
101	22°05'26"	70°15'31"
102	22°05'19"	70°15'34"
103	22°05'12"	70°15'33"
104	22°05'05"	70°15'37"
105	22°04'33"	70°16'05"
106	22°04'26"	70°16'09"
107	22°04'20"	70°16'13"
108	22°04'13"	70°16'15"
109	22°04'05"	70°16'18"
110	22°03'59"	70°16'21"
111	22°03'34"	70°16'03"
112	22°03'28"	70°16'06"
113	22°03'21"	70°16'10"
114	22°03'16"	70°16'13"
501	21°57'46"	70°16'16"
502	21°57'53"	70°16'16"
503	21°57'60"	70°16'11"
504	21°58'03"	70°16'02"
507	21°58'26"	70°15'43"
508	21°58'31"	70°15'41"
510	21°58'46"	70°15'59"
511	21°58'50"	70°15'59"
512	21°58'55"	70°16'00"
513	21°59'01"	70°16'03"
514	21°59'05"	70°16'04"

1.3.3 Technical Project Description

Wind turbines produce electricity by using the natural power of wind to drive a generator. Wind has considerable amount of kinetic energy when blowing at high

speeds. When this kinetic energy passes over the blades of the wind turbines, it is converted into mechanical energy and rotates the wind blades. When the wind blades rotate, the connected generator also rotates, thereby producing electricity. The Project activity envisages installation of 44 WEGs of E-48 Enercon make (800 kW WEGs). The WEGs generate 3-phase power at 400V, which is stepped up to 33 KV. The project can operate in the frequency range of 46–54 Hz and in the voltage range of 400 V $\pm$ 20%.

The key parameters of the project are given in table 1-3:

Table 1-3a: Technical data of the project

Parameter	Unit	Value
Rated capacity	kW	800
Rotor diameter	m	48
Hub height	m	56
Number of blades		3
Swept area	m ²	1810
Rotor speed	rpm	16-31.5
Tip speed	m/s	41 - 78
Cut-in Wind Speed	m/s	3
Rated Wind Speed	m/s	12

Table 1-3b: Parameters confirmed during verification

Parameter	Name	Unit	Value
EGy	Net Quantity of Electricity exported	MWh/yr	143,747

1.3.4 Appointment of team members and technical reviewer

On the basis of a competence analysis and individual availabilities a verification team was appointed. Furthermore also the personnel for the technical review and the final approval were determined.

The list of involved personnel, the tasks assigned and the qualification status are summarized in the table 1-4 below.

Table 1-4: Involved Personnel

	Name	Company	Function ¹⁾	Qualification Status ²⁾	Sectoral competence	Technical competence	Host country Competence	Controlling competence
☒ Mr. ☐ Ms.	Archak Pattanaik	TUV Pvt.Ltd India	TL	A	☐	☐	☒	☒
☒ Mr. ☐ Ms.	M P Kanal	TUV Pvt.Ltd India	TE	A	☒	☒	☒	☐
☒ Mr. ☐ Ms.	Pankaj Mohan	TUV Pvt.Ltd India	TM	A	☒	☒	☒	☐
☒ Mr. ☐ Ms.	Abhishek K Srivastava	TUV Pvt.Ltd India	TM	E	☒	☐	☒	☐
☒ Mr. ☐ Ms.	Prakash Kumar Mishra	TUV Pvt.Ltd India	TM	E	☐	☐	☒	☐
☐ Mr. ☒ Ms.	Pragya kaushik	TUV India Pvt.Ltd		AT	☐	☐	☒	☐
☒ Mr. ☐ Ms.	Stefan Winter	TN CERT	TR	E	☒	☒	☐	☐
☒ Mr. ☐ Ms.	Rainer Winter	TN CERT	FA	SA	☒	☒	☐	☒

¹⁾ TL : Team Leader; TM : Team Member, TR: Technical review; FA: Final approval;

²⁾ GHG Auditor Status: A : Assessor; E : Expert; SA: Senior Assessor; T : Trainee; TE Technical Expert

1.4 Level of Assurance

The verification has been planned and organized to achieve a

☒ reasonable level of assurance

☐ limited level of assurance.

2 METHODOLOGY

The verification of the project consisted of the following steps:

- Contract review
- Appointment of team members and technical reviewers
- Publication of the monitoring report
- Desk review of the Monitoring Report^{/MR/} submitted by the client and additional supporting documents.
- Verification planning,
- On-Site assessment,
- Background investigation and follow-up interviews with personnel of the project developer and its contractors,
- Draft verification reporting
- Resolution of corrective actions (if any)
- Final verification reporting
- Technical review
- Final approval of the verification.

The sequence of the verification is given in the table 2.1 below:

Table 2.1: Verification sequence

Topic	Time
Assignment of verification	2008-11-10
On-site visit	2009-09-24
Draft reporting finalised	2009-12-29
Technical review on draft reporting finalised	-
Final reporting finalised	2010-03-15
Technical review on final reporting finalised	2010-08-10
Final corrections	2010-08-10

The main verification steps are described below.

2.1 Review of Project Documentation

The VCS PD ^{/PD/} and supporting background documents related to the project design and baseline were reviewed.

Furthermore, the verification team used additional documentation by third parties like host party legislation, technical reports referring to the project design or to the basic conditions and technical data.

The references used in the course of this verification are summarized in section 5.

2.2 On-Site Assessment

2.2.1 Review of Performance Records

During the site visit below mentioned records were assessed:

1. Calibration – Enercon India Ltd has provided a certificate stating that the electricity meter used in Enercon WEC is of auto tracking type and hence is an auto calibration mechanism in totality. However the details of the Calibration certificates are also mentioned in the Section 5 in table 5.1.
2. Gujarat Energy Development Agency (GEDA) – Permission of setting up the wind farm and Certificate for sharing the electricity generated by Wind farms at various location have been verified
3. Gujarat Urja Vikas Nigam Limited (GUVNL) – Client has already entered in a agreement with GUVNL for selling the power same cross checked with the copy of agreement provided
4. Purchase order, civil & industrial work order , operation & maintenance work order have been cross checked
5. Land lease documents of Banspani Iron Ltd and Patnaik Minerals Pvt Ltd also assessed

2.2.2 Follow-up Interviews

The verification team has carried out interviews in order to assess the information included in the project documentation and to gain additional information regarding the compliance of the project with the relevant criteria applicable for the VCS.

During verification the verification team has performed interviews to confirm selected information and to resolve issues identified in the document review. The main topics of the interviews are summarized in Table 2-2.

Table 2-2: Interviewed persons and interview topics

Interviewed Persons / Entities	Interview topics
Project proponent representatives Project consultant	- General aspects of the project - Technical equipment and operation - Changes since validation - Monitoring and measurement equipment - Remaining issues from validation / previous verifications - Calibration procedures - Quality management system - Involved personnel and responsibilities - Training and practice of the operational personnel - Implementation of the monitoring plan - Monitoring data management - Data uncertainty and residual risks - GHG calculation - Procedural aspects of the verification - Maintenance - Environmental aspects - Editorial issues of the Monitoring Report

A comprehensive list of all interviewed persons is part of section 5 'References'.#

2.2.3 Collection of Measurements

As the WEGs are owned by more than one investor at the site, the ABT compliant meter at the pooling sub-station will be installed by GETCO on 33/220 KV side. A tri vector meter shall be installed in the metering yard. At the end of the month, GEDA will give in respect of PMPL and BIL, a statement of active energy injection and reactive energy drawal of their WEGs. This statement will be the final measurement of the energy supplied to the GUVNL/DISCOM by the company for the preceding month for the purpose of payment.

The WEGs of a single customer (PMPL and BIL) at a particular site are connected to a metering yard which in turn connects to a feeder that ultimately leads to the main GETCO meter at the substation maintained by Enercon India Limited. Data monitoring takes place at the metering yard. The electricity metered at the GETCO meter is proportionally divided among the customers connected to the meter on the basis of the pro-rata readings taken at the metering yard. The emission reduction calculations are done on the basis of the GETCO Main meter reading (net electricity exported to the grid) after deducting imports from the grid as mentioned in the share certificate issued by GEDA on monthly basis.

The emission reduction calculations will be done on the basis of net electricity supplied to the grid as stated in the share certificate. The joint meter readings will serve as the most authentic data source for the same.

2.2.4 Observation of established practices and testing of the accuracy of monitoring equipment

Accuracy of monitoring equipment in the project is maintained by means of periodic testing and other measures by the project proponent as specified in the QA/QC procedures given in approved monitoring plan of validated VCS PD. The established practices and testing of accuracy of the monitoring equipment was checked at the site by means of calibration certificates and other documentary evidences furnished by the project proponent^{CAL/} on site and were found appropriate.

2.3 Determination of the reductions in GHG emissions

Emission reductions have been transparently calculated as per the approach approved in the validated PD^{/PD/}. The PP has used monitored data and ex ante fixed data including default values as mandated/permitted by the applied methodologies. The values used for calculation of GHG emission reductions have been thoroughly checked by the verification team and was found appropriate and correct. The spread sheet has been submitted by the PP which clearly and transparently mentions value of each data parameter used for calculation. The calculations are traceable and follow logical steps. The input values have been verified from the reliable and authentic sources including monitoring records, literature, approved PD and applied methodology.

2.4 Review of additional data from other sources if appropriate

Additional data from other sources was checked to cross verify the reliability of monitored data e.g. Central Electricity Authority (CEA) and IPCC. This is done through reviewing data sources.

2.5 Review of monitoring results and verification of the correct application of monitoring methodologies

The verification team has carried out interviews in order to assess the information included in the project documentation and to gain additional information regarding the compliance of the project with the relevant criteria applicable for the VCS.

2.6 Resolution of any material discrepancy

Material discrepancies identified in the course of the verification are addressed either as CARs, CLs or FARs.

A **Corrective Action Request (CAR)** is established where:

- mistakes have been made in assumptions, application of the methodology or the project documentation which will have a direct influence the project results,
- the requirements deemed relevant for verification of the project with certain characteristics have not been met or
- there is a risk that the project would not be registered or that emission reductions would not be able to be verified and certified.

A **Clarification Request (CL)** will be issued where information is insufficient, unclear or not transparent enough to establish whether a requirement is met.

A **Forward Action Request (FAR)** will be issued when certain issues related to project implementation should be reviewed during the first verification.

A detailed list of the CARs CLs and FAR raised and discussed in the course of this verification is included in the next section 3 of this report.

3 VERIFICATION FINDINGS

In this section the assessments and findings from the desk review of the VCS PD, site visit, interviews and supporting documents as well as the final assessments are summarised. Table 3-1 includes an overview of all raised CARs, CLs and FARs.

Table 3-1: Overview of CARs, CLs and FARs issued

No.	Topic / Chapter	CAR	CL	FAR
3.1	Remaining issues, including any material discrepancy	-	-	-
3.2	Project implementation	-	-	-
3.3	Completeness of monitoring	02	01	-
3.4	Accuracy of emission reduction calculations	03	01	-
3.5	Quality of evidence to determine emission reductions	-	-	-
3.6	Management and operational system	-	-	-
-	SUM	05	02	0

3.1 Remaining issues, including any material discrepancy, from previous validation

Description

There are no remaining issues including material discrepancies from the earlier validation or determination stage of the project

Related Findings

- ☒ No CARs, CLs or FARs have been identified in this context
- ☐ The following finding(s) have been addressed:

Final Assessment

There were no issues and same has been cross checked by the verification team. This is in compliance with VCS standard 2007.1.

☐ ...

3.2 Project implementation

Description

The project has been implemented as described in the validated VCS Project Description^{/PD/}, however no CARs, CI and FAR were found during the verification.

During the desk review and site visit it was observed that the Start date of crediting period in validated PD was taken from 21st March 2007 however MR submitted mentions the monitoring period from 1st May 2007 till 31st August 2009, the same point got clear on observing the commissioning trend of the WEG which starts from 21st March 2007 onwards, and it took some more time to connect to the grid and some 15 days were also taken as trial period for checking that the WEG is working fine and all the connections are OK, hence the project proponent started claiming of credits from 1st May 2007 onwards which was accepted by the verification team. Also the sufficient data was evidenced through JMR from May 2007 only.

Related Findings

☒ No CARs, CLs or FARs have been identified in this context

☐ The following finding(s) have been addressed:

Final Assessment

This section of the project has no issues same has been checked by the verification team. The commissioning trend of WEG's and other equipments were observed by the verifier and found that it took some more time to connect to the grid and some 15 days were also taken as trial period for checking that the WEG is working fine and all the connections are OK, hence the project proponent started claiming of credits from 1st May 2007 onwards which was accepted by the verification team. Also the sufficient data was evidenced through JMR from May 2007 only.

☐ ...

3.3 Completeness of monitoring

Description

The monitoring report^{/MR1/MR2/} has outlined the monitoring of the project over the period (1st May 2007 to 31st August 2009). The submitted monitoring report^{/MR1/MR2/} which forms the basis of the verification was prepared by summarizing consolidated data over the whole monitoring period in accordance with the monitoring plan of the VCS PD/^{PD/}. The report is in line with the requirements of the monitoring plan of the VCS PD/^{PD/} as well as with the applied methodology ACM0002 Version 9.0.

Related Findings

- ☐ No CARs, CLs or FARs have been identified in this context
- ☒ The following finding(s) have been addressed:

Finding:	3.3-1		
Classification	☒ CAR	☐ CL	☐ FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	On the very first page of VCS Monitoring Report standard version is not mentioned. A correction is required for the same.		
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	The VCS Standard 2007.1 has now been mentioned in the revised monitoring report.		
DOE Assessment #1 <i>The assessment shall encompass all open issues. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	DOE has assessed the revised MR submitted by the PP and found that the revised monitoring mentions the version number of standard on first page. Hence accepted by verification team.		
Conclusion <i>Tick the appropriate checkbox</i>	☐ To be checked during the first periodic verification ☒ Appropriate action was taken ☒ Project documentation was corrected correspondingly ☐ Additional action should be taken ☐ The project complies with the requirements		

Finding:	3.3-1		
Classification	☒ CAR	☐ CL	☐ FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	"Monitoring parameter in the VCS MR given is not in line with the validated PD such as: - Data unit used - Symbol of parameter monitored and any comment section after QA/QC. Correction for the same is required.		
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	The monitoring parameter and the QA/QC has been made in line with the validated PD.		
DOE Assessment #1 <i>The assessment shall encompass all open issues. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	The data units and QA/QC are also found to be appropriately corrected. The PP has revised the MR version 2 in section of monitoring parameter and the revised MR is in line with validated PD. Hence accepted by verification team.		
Conclusion <i>Tick the appropriate checkbox</i>	☐ To be checked during the first periodic verification ☒ Appropriate action was taken ☒ Project documentation was corrected correspondingly ☐ Additional action should be taken ☐ The project complies with the requirements		

Finding:	3.3-1		
Classification	☐ CAR	☒ CL	☐ FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	Project description mention about the hold of 49.9 % of shareholding in BIL. Proof for the same is required.		
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	A copy of the shareholding pattern attested by the company secretary is being submitted as Annexure – 1		
DOE Assessment #1 <i>The assessment shall encompass all open issues. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	DOE has assessed the shareholding pattern submitted by the client and found to be appropriate.		
Conclusion <i>Tick the appropriate checkbox</i>	☐ To be checked during the first periodic verification ☒ Appropriate action was taken ☐ Project documentation was corrected correspondingly ☐ Additional action should be taken ☐ The project complies with the requirements		

Final Assessment

To be provided as part of the final verification reporting.

The section has two CARs and one CL. The first CAR raised on mentioning the standard version of VCS used in the MR, which has been incorporated in the revised MR. The second CAR was raised on the MR 1 submitted that the data unit, QA/QC of the monitoring parameter was not in line with the validated PD.

The clarification raised on the BIL shareholding in the project and proof of the same has been submitted by the PP. Hence accepted by verification team.

☐ ...

3.4 Accuracy of emission reduction calculations

Description

The monitoring report^{/MR1/MR2/} has been found to be in line with the VCS PD^{/PD/}, and also uses the same parameters.

The calculated emission reductions of 130,009 t CO₂e for the period between 1st May 2007 to 31st August 2009 has been verified and found to be true, real and accountable. Still two CARs and one CL were raised on the same and closed successfully.

Related Findings

☐ No CARs, CLs or FARs have been identified in this context

☒ The following finding(s) have been addressed:

Finding:	3.4-1		
Classification	☒ CAR	☐ CL	☐ FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	In the monitoring parameter it has been stated that the net electricity generated has been calculated by GETCO, which is not in line with the validated PD and also with the GEDA which issues the share certificate. Correction required.		
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	The monitoring method for monitoring of net electricity generation has been revised in line with the validated PD.		

DOE Assessment #1 <i>The assessment shall encompass all open issues. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	DOE has assessed the revised MR version 2 and the changes have been incorporated adequately. This was checked by the verification team and hence accepted.
Conclusion <i>Tick the appropriate checkbox</i>	☐ To be checked during the first periodic verification ☒ Appropriate action was taken ☒ Project documentation was corrected correspondingly ☐ Additional action should be taken ☐ The project complies with the requirements

Finding:	3.4-1		
Classification	☒ CAR	☐ CL	☐ FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	Emission reduction section of VCS MR provides the actual generation data in which generation of second phase(Phase-II) for the month of July 2007 and Aug 2007 is not matching with the share certificate.The same need to be corrected.		
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	The PP would like to clarify that during the month of July and August 2007, the project was not fully commissioned. However, some of the WEGs which were part of the project were already commissioned. Hence to incorporate the generation from these commissioned machines the share certificate mentions this generation arbitrarily under Patnaik Minerals Pvt. Ltd. – I, II, III. However, after all the machines were commissioned in September 2007, the nomenclature was corrected and the generation from the project was listed in the share certificate as Patnaik Minerals Pvt. Ltd. – I, Patnaik Minerals Pvt. Ltd. – II and Banspani Iron Limited. Since the share certificates during the project commissioning period (March to August 2007) have inconsistent nomenclature, hence the generation for Patnaik Minerals Pvt. Ltd. – II and III has been summed and accounted for under PMPL Phase – II for the months of July and August 2007 in the monitoring report.		
DOE Assessment #1 <i>The assessment shall encompass all open issues. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	DOE has assessed the justification given by the PP and same has been incorporated in the revised version of the MR. This was also checked by checking the meters and interviewing the personals taking the JMR's.		
Conclusion <i>Tick the appropriate checkbox</i>	☐ To be checked during the first periodic verification ☒ Appropriate action was taken ☒ Project documentation was corrected correspondingly ☐ Additional action should be taken ☐ The project complies with the requirements		

Finding:	3.4-1
Classification	☐ CAR ☒ CL ☐ FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	Clarification is required for the Phase-III PMPL generation and also why share certificate mentions it for only month July 2007 and Aug 2007.
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	The WEGs which are part of the project have been commissioned at different times during the period March to August 2007. However, some of the WEGs which were part of the project were already commissioned and had started generation. Hence to incorporate the generation from these commissioned machines the share certificate mentions this generation arbitrarily under Patnaik Minerals Pvt. Ltd. – I, II, III. However, after all the machines were commissioned in September 2007, the nomenclature was corrected and the generation from the project was listed in the share certificate as Patnaik Minerals Pvt. Ltd. – I, Patnaik Minerals Pvt. Ltd. – II and Banaspani Iron Limited. Hence there is no PMPL Phase III generation, and this was an arbitrary nomenclature adopted by GEDA in the share certificate to account from the commissioned WEGs which had already begun generation even when the full project was not commissioned.
DOE Assessment #1 <i>The assessment shall encompass all open issues. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	The justification for the phase III was cross checked while interviewing the PP and consultant. During the interview this was concluded that there is no PMPL III in the project activity and this was hypothetical number given by state electricity board. This was also checked by checking the meters and interviewing the personals taking the JMR's. DOE has assessed the justification given by the PP and same has been incorporated in the revised version of the MR as well
Conclusion <i>Tick the appropriate checkbox</i>	☐ To be checked during the first periodic verification ☒ Appropriate action was taken ☒ Project documentation was corrected correspondingly ☐ Additional action should be taken ☐ The project complies with the requirements

Finding:	3.4-1		
Classification	☒ CAR	☐ CL	☐ FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	Baseline emissions and hence the emission reductions value given in the MR is not correct. Kindly correct the same.		
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	The baseline emissions have been corrected and the emission reduction figure has been rounded down adopting a conservative approach.		
DOE Assessment #1 <i>The assessment shall encompass all open issues. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	DOE has assessed the justification given by the PP and same has been incorporated in the revised version of the MR. The spreadsheet provided was also checked and found to be appropriate. Hence accepted.		
Conclusion <i>Tick the appropriate checkbox</i>	☐ To be checked during the first periodic verification ☒ Appropriate action was taken ☒ Project documentation was corrected correspondingly ☐ Additional action should be taken ☐ The project complies with the requirements		

Final Assessment

To be provided as part of the final verification reporting.

During the site visit the first CAR raised on the monitoring of the Net electricity generation parameter procedure which differs in PD and MR however the client has revised the MR same has been crosschecked by the DOE team.

The second CAR raised on the Emission reduction section of VCS MR provides the actual generation data in which generation of second phase (Month July –August 2007) is not matching with the share certificates in lieu, PP responded that the commissioning of the WEGs in phases and it was inconsistency in the nomenclature which was earlier mentioned as Pattnaik Mineral Pvt Ltd -I, Patanaik Mineral Pvt Ltd - II, Patnaik Mineral Pvt Ltd –III. The later it was changed to Patanaik Mineral Pvt Ltd - I, Patnaik Mineral Pvt Ltd –II and Banaspani Iron Limited.

The clarification raised on the PMPL phase III generation which was mentioned in the generation certificates, this was an arbitrary nomenclature adopted by GEDA in the share certificates which got clarified by the PP.

The evidence of all the CAR and CL has been crosschecked by the verification team.



...

3.5 Quality of evidence to determine emission reductions

Description

The uncertainty level associated with the monitored data used for calculating emission reductions is low as the following additional parameters are being monitored for cross checking purposes:

- The electricity generation data for each WEG has been recorded in daily generation reports provided by Enercon India Limited.
- The electricity generation at each metering yard has been recorded in daily generation reports provided by Enercon India Limited.

The calibration of all monitoring equipment is being carried out annually.

Related Findings

- ☒ No CARs, CLs or FARs have been identified in this context
- ☐ The following finding(s) have been addressed:

Final Assessment

In order to maintain the accuracy the monitoring instrument EIL has issued the letter stating that the meters are auto tracking and also ensured calibration.

☐ ...

3.6 Management and operational system

Description

The suitability of the monitoring system was assessed first during the desk review, followed by site visit and the interviews. The management and operation of the project has been found to be sufficient as per the monitoring plan of the VCS PD^{PD/}. The system in place on site has been found to be satisfactory as it ensures that the quality of the emission reductions achieved by the project is maintained

Related Findings

- ☒ No CARs, CLs or FARs have been identified in this context
- ☐ The following finding(s) have been addressed:

Final Assessment

The management and operation system found was in line with quality required to generate emission reductions and same has been cross checked in three steps
1.Document desk review, 2 Site visits 3. Interviews by the verification team

☐ ...

4 VERIFICATION STATEMENT

The verification statement will be provided as part of the final verification report.

Patanaik Minerals Pvt Ltd has commissioned the TÜV NORD JI / CDM Certification Program to carry out the verification of the Project “Wind power project by PMPL in Gujarat” in the district of Jamnagar and Rajkot in Gujarat , India with regard to the requirements of VCS 2007.1 Standard.

The project activity involves an initiative by PMPL to export renewable electricity produced by wind Electric Generator (WEG) to the power deficit NEWNE region grid in order to decrease power shortage, diversify the grid and reduce greenhouse gas emissions.

The wind power generated from the project site will be displacing the electricity generated from thermal power stations feeding into NEWNE grid which is fossil fuel intensive (during power surplus time) and will be replacing the usage of diesel generators for meeting the power demand during shortage periods.

Reporting period: From 01-05-2007 to 31-08-2009

In the course of the verification (05) Corrective Action Requests (CARs), (02) Clarification Requests (CLs) were successfully closed and (00) Forward Action Request (FAR) will be verified during the subsequent periodic verification.

The verification is based on the draft monitoring report, revised monitoring report, the monitoring plan as set out in the validated PD, the validation report, emission reduction calculation spreadsheet and supporting documents made available to the TÜV NORD JI/CDM CP by the project participant.

In detail the conclusions can be summarised as follows:

- all operations of the project are implemented and installed as planned and described in the validated project description.

the monitoring plan is in accordance with the applied approved methodology, i.e., Consolidated baseline methodology for grid-connected electricity generation from renewable sources version 09”.

- the installed equipment essential for measuring parameters required for calculating emission reductions is calibrated appropriately.
- the monitoring system is in place and functional. The project has generated GHG emission reductions.

As the result of the 1st periodic verification, the verifier confirms that the GHG emission reductions are calculated without material misstatements in a conservative and appropriate manner. TÜV NORD JI/CDM CP herewith confirms that the project has achieved emission reductions in the above mentioned reporting period as follows:

Emission Reduction(tCO ₂) year wise		
2007	2008	2009
28,878	60,550	40,581

Project emissions 130,009 t CO₂ equivalents

Baseline emissions 0 t CO₂ equivalents

Emission reductions 130,009 t CO₂ equivalents

Essen, 2010-08-10



TÜV NORD JI/CDM Certification
Program

Mr. Archak Pattanaik

Verification Team Leader

Essen, 2010-08-10



TÜV NORD JI/CDM Certification
Program

Mr. Rainer Winter

Final Approval

5 REFERENCES

Table 5-1: Documents provided by the project participant

Reference	Document
/CAL/	Calibration records for the key instruments and measuring devices: • Calibration certificate of associated with PMPL meter no. GJU-04176 dated 2007-06-27. • Calibration certificate of associated with PMPL meter no. GJU-04175 dated 2007-03-13 • Calibration certificate of check meter associated with PMPL meter no . GJB 01470 dated 2008-04-10. • Calibration certificate of associated with PMPL meter no. GJU-04176 dated 2009-03-03. • Calibration certificate of associated with PMPL meter no. GJU-04175 dated 2009-03-03
/CC/	Commissioning certificates for all the wind turbines dated 28-03-2007(4.8 MW), 13-04-2007 (15.2 MW)and 03-09-2007 (15.2 MW).
/CON/	The signed contract between TUV-NORD and Patnaik Minerals Pvt. Ltd to carry out the validation and verification job dated 10-11-2008.
/CN/	Monthly Credit Notes for each WTG covering whole the monitoring period.
/DC/	• Undertaking that the project has not created another form of environmental credit as per the requirement of section 1.13 and 8.2 of the VCS PD. • Undertaking that the project participant shall not claim two different forms of emission reduction certificates for the same monitoring period if the project gets eligible for two GHG programs (eg: CDM).
/JMR/	Sample of Joint Monitoring report.
/LOG/	Extract of log of monitored data of the project activity: • Log for the breakdown details.
/PHOTO/	Photograph of the wind turbine generators installed at project site.
/MR1/	Draft MR version 1 which forms the basis for verification.

Reference	Document
/MR2/	Final MR version 2 which forms the basis for verification.
/PT/	Evidence of proof of title /ownership ▪ Purchase orders of wind turbine generators. ▪ Agreement between PMPL ,EIL & GUVNL .
/QA-QC/	The QA-QC procedure on data acquisition and storage.
/XLS1/	Supporting Excel sheets for calculation of emission reduction version 1
/XLS2/	Supporting Excel sheets for calculation of emission reduction version 2

Table 5-2: Background investigation and assessment documents

Reference	Document
ACM 0002	Grid connected electricity generation from renewable sources : ACM 0002 (version 09)
/CPM/	TÜV NORD JI / CDM CP Manual (incl. CP procedures and forms)
/IPPC/	1. 1996 IPCC Guidelines for National Greenhouse Gas Inventories: work book 2. 2006 IPCC Guidelines for National Greenhouse Gas Inventories: work book
/ISO 14064/	Greenhouse gases -- Part 1: Specification with guidance at the organization level for quantification and reporting of greenhouse gas emissions and removals Greenhouse gases -- Part 2: Specification with guidance at the project level for quantification, monitoring and reporting of greenhouse gas emission reductions or removal enhancements Greenhouse gases -- Part 3: Specification with guidance for the validation and verification of greenhouse gas assertions
/ISO14065/	Greenhouse gases -- Requirements for greenhouse gas validation and verification bodies for use in accreditation or other forms of recognition
VCS	Voluntary Carbon Standard 2007.1
/VDS-PD-T/	VCS PD Template
/VVM/	Validation and Verification Manual (Version as per EB 51)

Table 5-3: Websites used

Reference	Link	Organisation
/cd4cdm/	www.cd4cdm.org	UNEP Riso Centre
/ipcc/	www.ipcc-nggip.iges.or.jp	IPCC publications
/vcs/	www.v-c-s.org	VCSA
/unfccc/	http://cdm.unfccc.int	UNFCCC

Table 5-4: List of interviewed persons

Reference	Mol ¹		Name	Organisation / Function
/IM01/	V	☒ Mr. ☐ Ms.	Sanjit Panda	A.G.M Project, PMPL
/IM02/	V	☒ Mr. ☐ Ms.	Atin Prakash	Earnst & Young/Consultant
/IM03/	V	☒ Mr. ☐ Ms.	Kishore Vasura	Assistant Mgr, Enercon India Limited.
/IM03/	V	☒ Mr. ☐ Ms.	Sajil	Sr. Eng., Enercon India Limited.
/IM03/	V	☒ Mr. ☐ Ms.	Kiran Sule	Stakeholder

¹⁾ Means of Interview: (Telephone, E-Mail, Visit)