



VERIFICATION / CERTIFICATION REPORT

““6.75 MW SMALL SCALE GRID
CONNECTED “WIND ELECTRICITY
GENERATION PROJECT” BY TAMIL NADU
NEWSPRINT” AND PAPERS LIMITED” IN
INDIA

UNFCCC REFERENCE NO. 1053

MONITORING PERIOD
01 APRIL 2004 to 16 JULY 2007.

REPORT No. 2007-2058

REVISION No. 01

DET NORSKE VERITAS AS



VERIFICATION / CERTIFICATION REPORT

Date of first issue: 2007-10-18	Project No.: 4607-2058	DET NORSKE VERITAS AS <i>DNV Certification</i> Veritasveien 1, 1322 HØVIK, Norway Tel: +47 67 57 99 00 Fax: +47 67 57 99 11 http://www.dnv.com Org. No: NO 945 748 931 MVA
Approved by: Michael Lehmann Technical Director	Organisational unit: DNV Certification, International Climate Change Services	
Client: Tamilnadu Newsprint and Papers Limited.	Client ref.: Mr. S. Udaya Sankar Dy.General Manager, Projects.	
Summary: Det Norske Veritas Certification AS has performed a verification of the emission reductions reported for the "6.75 MW Small Scale Grid Connected "Wind Electricity Generation Project" by Tamil Nadu Newsprint and Papers Limited" (Registration Ref. No. 1053) for the period 01 April 2004 to 16 July 2007. In our opinion, the GHG emissions reductions reported for the project in the revised monitoring report version 02 of 18 Sept 2007 are fairly stated. The GHG emission reductions were calculated correctly on the basis of the simplified modalities and procedure, AMS-I.D version 10 and the monitoring plan and formulae provided in the validated PDD of 24 March 2007. Hence, Det Norske Veritas Certification AS is able to certify that the emission reductions from the "6.75 MW Small Scale Grid Connected "Wind Electricity Generation Project" by Tamil Nadu Newsprint and Papers Limited" for the period 01 April 2004 to 16 July 2007 amount to 45 584 tCO ₂ equivalent.		

Report No.: 2007-2058	Subject Group: Environment	Indexing terms Key words Climate Change Kyoto Protocol Validation Clean Development Mechanism	Service Area Verification
Report title: "6.75 MW Small Scale Grid Connected "Wind Electricity Generation Project" by Tamil Nadu Newsprint and Papers Limited" in India			Market Sector Energy Industry
Work carried out by: Murali Govindarajulu Ramesh Ramachandran		<input checked="" type="checkbox"/> No distribution without permission from the client or responsible organisational unit <input type="checkbox"/> free distribution within DNV after 3 years <input type="checkbox"/> Strictly confidential <input type="checkbox"/> Unrestricted distribution	
Work verified by: K.Venkata Raman			
Date of this revision: 2007-10-18	Rev. No.: 01		Number of pages: 10
© 2002 Det Norske Veritas AS All rights reserved. This publication or parts thereof may not be reproduced or transmitted in any form or by any means, including photocopying or recording, without the prior written consent of Det Norske Veritas AS.			

***Table of Content******Page***

1	INTRODUCTION	1
1.1	Objective	1
1.2	Scope	1
1.3	Description of the Project Activity	1
2	METHODOLOGY	2
2.1	Review of Documentation	3
2.2	Site Visits	3
2.3	Assessment	3
2.4	Reporting of Findings	3
3	VERIFICATION FINDINGS	4
3.1	Remaining Issues, CARs, FARs from Previous Validation or Verification	4
3.2	Project Baseline	4
3.3	Project Implementation	4
3.4	Completeness of Monitoring	4
3.5	Accuracy of Emission Reduction Calculations	4
3.6	Quality of Evidence to Determine Emission Reductions	6
3.7	Management System and Quality Assurance	6
4	VERIFICATION STATEMENT	7
5	REFERENCES.....	9

Appendix A Verification Checklist

***Abbreviations***

CAR	Corrective Action Request
CDM	Clean Development Mechanism
CEF	Carbon Emission Factor
CER	Certified Emission Reduction(s)
CMS	Central Monitoring Station
CO ₂	Carbon dioxide
CO ₂ e	Carbon dioxide equivalent
DNV	Det Norske Veritas
FAR	Forward Action Request
GHG	Greenhouse gas(es)
GWP	Global Warming Potential
IPCC	Intergovernmental Panel on Climate Change
JMR	Joint Meter Reading
MP	Monitoring Plan
MR	Monitoring Report
PDD	Project Design Document
TNEB	Tamilnadu Electricity Board
TNPL	Tamilnadu Newsprint and Papers Limited
UNFCCC	United Nations Framework Convention for Climate Change
WEG	Wind Electricity Generators



1 INTRODUCTION

Tamilnadu Newsprint and Papers Limited (TNPL) has commissioned Det Norske Veritas Certification AS (DNV) to carry out the verification of emission reductions reported for the “6.75 MW Small Scale Grid Connected “Wind Electricity Generation Project” by Tamil Nadu Newsprint and Papers Limited”, for the period 01 April 2004 to 16 July 2007. This report contains the findings from the verification and a certification statement for the certified emission reductions.

1.1 Objective

Verification is the periodic independent review and ex-post determination by the Designated Operational Entity (DOE) of the monitored reductions in GHG emissions that have occurred as a result of the registered CDM project activity during a defined verification period.

Certification is the written assurance by the DOE that, during a specific period in time, a project activity achieved the emission reductions as verified.

1.2 Scope

The verification scope was:

- To verify that actual monitoring systems and procedures are in compliance with the monitoring systems and procedures described in the monitoring plan for the project activity,
- To evaluate the GHG emission reduction data and express a conclusion with a high level of assurance about whether the reported GHG emission reduction data is free from material misstatement,
- To verify that the reported GHG emission data is sufficiently supported by evidence

The verification shall ensure that the reported emission reductions are complete and accurate in order to be certified.

The verification team has, based on the recommendations in the Validation and Verification Manual /5/, employed a risk based approach, focussing on the identification of significant reporting risks and verifying the mitigation measures for these.

1.3 Description of the Project Activity

Project Party:	The Republic of India
Title of the project activity:	“6.75 MW Small Scale Grid Connected “Wind Electricity Generation Project” by Tamil Nadu Newsprint”and Papers Limited
UNFCCC registration number:	1053
Methodology applied:	AMS-I.D, version 10



 VERIFICATION / CERTIFICATION REPORT

Project Participants:	Tamilnadu Newsprint and Papers Limited (TNPL)
Location of the project activity:	The project is located at Devarkulam in Tirunelveli District, Tamilnadu, India.
Project's crediting period	01 April 2004 to 31 March 2014 (Fixed crediting period).
Verification period	01 April 2004 to 16 July 2007.
Starting date of the project	The project started with the commissioning of the first four WEGs on 29 March 2001 and the remaining three machines were installed and commissioned during March 2004, with the last machine being commissioned on 31 March 2004.

The project activity envisages harnessing wind potential in the Tirunelveli region of Tamilnadu, for generation of electricity. The project activity has an aggregated installed capacity of 6.75 MW comprising of 4 NEG Micon make wind electricity generators (WEGs) each having a capacity of 750 kW and 3 Suzlon make WEGs, each having a capacity of 1.25 MW. All the WEGs are connected to the Tamilnadu state electricity grid. The electricity generated by four 750kW WEGs is measured by one meter and the electricity generated by the remaining three 1.25MW WEGs are measured by individual meters. The electricity generated from the machines is evacuated from the nearest sub-station along a 33 kV supply line and fed to the grid after stepping up to 132kV. The project proponent has entered into an agreement for the operation and maintenance of the machines, with the suppliers, NEG-Micon and Suzlon.

2 METHODOLOGY

The verification of the emission reductions has assessed all factors and issues that constitute the basis for emission reductions from the project. As the CDM Executive Board has not yet formally endorsed the application of any materiality principle for verification of emission reductions from CDM projects - implying that emphasis should be on the significant contributors to emission reductions - the DNV team has for this assignment decided to check all factors and issues with the same emphasis. Despite this, the team has during its preparations identified the key reporting risks and used the assessment to determine to which extent the project operator's control systems were adequate for mitigation of these key reporting risks. In addition, other areas that can have an impact on reported emission reductions have also undergone detailed audit testing. The verification process was guided by a verification checklist.

Verification team

Ramesh Ramachandran	DNV Chennai	Team Leader, CDM Verifier
Murali Govindarajulu	DNV Chennai	GHG Auditor
Michael Lehmann	DNV Oslo	Energy Sector Expert
K. Venkata Raman	DNV Bangalore	Technical Reviewer

***Duration of verification***

Preparations:	From 10 August 2007 to 14 August 2007
On-site verification:	From 16 August 2007 to 17 August 2007
Completion of Reporting:	18 October 2007

2.1 Review of Documentation

The monitoring reports (Version 1 and 2) / 1/ and the emission reduction calculations, provided in the form of spreadsheets submitted by Tamilnadu Newsprint and Papers Limited, were assessed as a part of the verification. In addition the Project Design Document / 2/, the monitoring plan contained in the PDD as well as the validation report / 3/ were also assessed. Other operational documents /6/-/14/ were also assessed as evidence during the site visit.

2.2 Site Visits

On 16-17 August 2007, DNV carried out a site visit at wind farm. DNV verified that the actual operation of the project as described in the PDD. The instruments used for monitoring electricity at all the four evacuation locations were checked, including the calibration records. Evidence for the reported net generation of electricity was verified, i.e. the electricity supplied to the grid minus the electricity consumption of the project (electricity imported from the grid).

2.3 Assessment

The data presented in the monitoring report were assessed in detail through a review of the detailed project documentation and electricity generation records, interviews with personnel at Tamilnadu Newsprint and Papers Limited, collection of measurements, observation of established monitoring and reporting practices and assessment of the reliability of monitoring equipment. This has enabled the verification team to assess the accuracy and completeness of reported monitoring data and to verify the correct application of the approved monitoring plan and monitoring methodology. The grid emission factor has been calculated ex-ante (for the entire crediting period) based on electricity generation mix in the southern region grid and this has been assessed and verified as part of the validation of the project.

2.4 Reporting of Findings

Findings established during the verification may be that:

- 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 material misstatements in the reported emission reductions. Emission reductions with material misstatements shall be discounted based on the verifiers' ex-post determination of the achieved emission reductions.

A forward action requests (FAR) should be issued, where:

- a. the actual project monitoring and reporting practices requires attention and /or adjustment for the next consecutive verification period, or
- b. an adjustment of the implementation of monitoring planis recommended.



In the context of FARs, risks have been identified, which may endanger the delivery of high quality CERs in the future, i.e. by deviations from standard procedures as defined by the monitoring plan. As a consequence, such aspects should receive a special focus during the next consecutive verification. A FAR may originate from lack of data sustaining claimed emission reductions.

3 VERIFICATION FINDINGS

3.1 Remaining Issues, CARs, FARs from Previous Validation or Verification

According to the validation report / 3/, no CAR or CL's were required to be closed out during verification. This has again been confirmed by DNV.

3.2 Project Baseline

The baseline is the emission reductions occurring due to electricity generation through renewable sources and is calculated as the product of the net electricity generated / exported to the grid and the grid emission coefficient of the southern regional grid to which the Tamilnadu state grid is connected. The emission coefficient for the southern regional grid has been established ex-ante (for the entire crediting period) in a transparent manner and has been validated to be 0.9321 t CO₂e/MWh (as per section 3.3 of the validation report).

3.3 Project Implementation

The project is implemented as planned and stated in the registered PDD. The 6.75 MW wind farm comprises seven WEGs commissioned between March 2001 and March 2004. The commissioning certificates for the wind turbines were verified against the commissioning capacity details and found to be correct. DNV has also verified the nameplate capacity of the WEGs.

3.4 Completeness of Monitoring

As stated in the monitoring plan of the registered PDD, the following parameters are being monitored:

- Electricity generation - net export to grid,
- Even though not a part of the monitoring plan, generation of electricity from individual wind turbine have also been monitored.

The parameters reported, including source, frequency and review criteria as indicated in the monitoring plan were verified to be correct and in line with the validated monitoring plan of the PDD. Necessary management system procedures including responsibility and authority of monitoring activities have been verified to be consistent with the PDD. Knowledge of personnel associated with the project activity was also found to be satisfactory.

3.5 Accuracy of Emission Reduction Calculations

The parameter of net electricity exported to the grid (as per the monitoring plan) is being monitored and archived. The monthly meter readings (both main and check meters) of all the



VERIFICATION / CERTIFICATION REPORT

four meters are noted jointly by the project proponent (TNPL) and Tamilnadu state electricity board (TNEB) officials and signed as the joint meter reading (JMR) report. Based on the JMR, a statement showing the electricity generated by the WEGs is issued by TNEB to TNPL. This is then translated into an invoice and forwarded by TNPL to TNEB, which clearly indicates the net electricity exported and forms the basis for calculations of the emission reductions in line with the monitoring plan in the registered PDD.

The verification identified one error in the monitoring report (version 1) which resulted in DNV issuing the below corrective action request (CAR).

FAR/CAR	Description of finding	Response	Conclusion
CAR 1	Net electricity generation data pertaining to the billing period of 15 June 2007 to 16 July 2007 by the meter number 388, has been incorrectly indicated in the monitoring report. This needs to be revised and presented.	The value pertaining to the export of electricity for the billing month of 15 June 2007 to 16 July 2007, for HTSC Meter No. 388 in the monitoring report has been corrected from 1123800 KWh in the original monitoring report to 1122600 KWh in the revised monitoring report according to the value in the JMR. The monitoring report has also been revised accordingly in the version 2 dated 18 September 2007.	The correction was verified and is accepted.

Each meter is jointly inspected and sealed on behalf of the parties and is not interfered with by either party except in the presence of the other party or its accredited representatives. The general conditions set out for metering, recording, meter readings, meter inspections, test & checking and communication are as per the power purchase agreement (PPA) with TNEB.

The emission reductions from the project for the period from 01 April 2004 to 16 July 2007 as reported in the revised monitoring report of version 02 dated 18 September 2007 and actually verified at site equals to 45 584 tonnes of CO₂ equivalent. The reported emission reductions of 45 584 are lesser by 2.33% than the estimated emission reduction of 46 675 (estimated for the same period as per the registered PDD of 24 March 2007).

Year	Registered PDD CERs	Monitoring Report (version 1) CERs	Revised Monitoring Report (version 2) CERs
01 April 2004–16 July 2007	46675	45 585	45 584
% Deviation from PDD	0	-2.33	-2.33



3.6 Quality of Evidence to Determine Emission Reductions

Sufficient evidence was presented for the reported net emission reductions. Please refer to section 5 for a list of evidences assessed by DNV.

3.7 Management System and Quality Assurance

TNPL has established management procedures and implemented effectively to ensure that the process is consistent. The procedures cover management responsibilities, data monitoring procedures, training procedures, periodical internal audits, management reviews and corrective actions in case of any deviations effectively. Calibration process is followed as per defined procedures and carried out annually and the calibration certificates of the instruments used for data monitoring and recording were also verified during the site visit.



4 VERIFICATION STATEMENT

Det Norske Veritas Certification AS has been engaged by Tamilnadu Newsprint and Papers Limited (TNPL) to verify the greenhouse gas (GHG) emission reductions reported for the “6.75 MW Small Scale Grid Connected “Wind Electricity Generation Project” by Tamilnadu Newsprint and Paper Limited” (CDM registration reference no. 1053) for the period 1 April 2004 to 16 July 2007.

Responsibilities of TNPL and DNV Certification AS

The management of the “6.75 MW Small Scale Grid Connected “Wind Electricity Generation Project” by Tamilnadu Newsprint and Paper 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’s monitoring plan. The development and maintenance of records and reporting procedures in accordance with that plan, including the calculation and determination of GHG emission reductions from the project, is the responsibility of the management of the project.

It is DNV’s responsibility to express an independent verification statement on the GHG emission reductions from the project reported for the period 01 April 2004 to 16 July 2007.

Basis of GHG verification opinion

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 emissions for the period from 01 April 2004 to 16 July 2007.

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 01 April 2004 to 16 July 2007 are fairly stated.

We conducted our verification on the basis of the simplified monitoring methodology AMS-I.D, version 10, and the monitoring plan included in the PDD of the project. The verification included:

- *collection and assessment of evidence supporting the reported data,*
- *checking whether the provisions of the monitoring methodology AMS-I.D, version 10, and the monitoring plan in the PDD were consistently and appropriately applied.*

In our opinion, GHG emissions reported for the project in the revised monitoring report version 02 of 18 September 2007 / 1/ are fairly stated.

The GHG emission reductions were calculated correctly on the basis of the approved simplified baseline and monitoring methodology AMS-I.D, version 10 and the monitoring plan and formulae provided in the validated and registered PDD of 24 March 2007.

Det Norske Veritas Certification AS is able to certify that the emission reductions from the “6.75 MW Small Scale Grid Connected “Wind Electricity Generation Project” by Tamilnadu Newsprint and Paper Limited” for the period 01 April 2004 to 16 July 2007 amount to 45 584 ton CO₂ equivalent.



VERIFICATION / CERTIFICATION REPORT

Bangalore & Oslo, 10 October 2007.

A handwritten signature in black ink, appearing to read 'Chandrashekara Kumaraswamy'.

*Chandrashekara Kumaraswamy
Manager (South Asia)
Climate Change Services
Det Norske Veritas Certification AS*

A handwritten signature in blue ink, appearing to read 'Michael Lehmann'.

*Michael Lehmann
Technical Director
International Climate Change Services
Det Norske Veritas Certification AS*



5 REFERENCES

Documents provided by the Project Participants that relate directly to the GHG components of the project.

- / 1/ Tamilnadu Newsprint and Papers Limited: Monitoring report for “6.75 MW Small Scale Grid Connected “Wind Electricity Generation Project” by Tamilnadu Newsprint and Papers Limited”, version 01 dated 27 July 2007 and version 02 dated 18 September 2007.
- / 2/ Tamilnadu Newsprint and Papers Limited: CDM PDD for the “6.75 MW Small Scale Grid Connected “Wind Electricity Generation Project” by Tamilnadu Newsprint and Papers Limited”, version 06 dated 24 March 2007.
- / 3/ DNV: Validation report for the “6.75 MW Small Scale Grid Connected “Wind Electricity Generation Project” by Tamilnadu Newsprint and Papers Limited. Report No. 2006-9028 dated 27 March 2007.
- / 4/ CDM Executive Board: AMS-I.D – “Grid connected renewable energy generation”, version 10.

Background documents related to the design and/or methodologies employed in the design or other reference documents.

- /5/ International Emission Trading Association (IETA) & the World Bank’s Prototype Carbon Fund (PCF): *Validation and Verification Manual*. <http://www.vvmanual.info>
- /6/ Records of Joint Meter readings at the wind farm site.
- /7/ Commissioning certificates of the WEGs
- /8/ Energy meter calibration test report from the Assitant Executive engineer Wind Farm MRT, Wind energy development cell, TNEB, Tirunelveli. Dt.31 August 2007.
- /9/ Performance Certificates for TNEB Meters for the Year 2006, from Assistant executive engineer, TNEB, Trunleveli.
- /10/ Letter WF:TNEB:119:2007 dated 11 Sept 2007 from TNPL.
- /11/ Record of Statements for the energy generated through wind mills from TNEB to TNPL.
- /12/ Record of Invoices raised form TNPL for the Sale of power.
- /13/ Daily generation reports including down times.
- /14/ Records of Monthly generation details in CMS, Maintenance records, Internal calibration records, Internal audit reports.



Persons interviewed during the verification.

/15/	Dr. S.Chinnaraj	Dy. Manager, R & D, TNPL
	Mr. R.Arumugan	Dy.Manager, Electrical, TNPL
	Mr. M.Chandrasekaran	Sr. Plant Engineer, Electr,TNPL
	Mr.K.P.Pradeesh	Engineer, Suzlon infrastructure and Service.
	Mr.V.Venkateshwaran	Engineer, Customer service, Vestas wind tech pvt ltd.

- o0o -

APPENDIX A

VERIFICATION CHECKLIST

Verification Checklist

OBJECTIVE	Ref.	COMMENTS	Concl.(incl FARs/CARs)
A. Opening Session			
A.1. Introduction to audits		Outline of the Initial verification process was presented by Team Leader. <ul style="list-style-type: none"> • Objectives • Verification team, plan • Confirmation of participation • Definition of FAR/CAR • Obligation to confidentiality 	OK
A.2. Clarification of access to data archives, records, plans, drawings etc.		Activities related to the project at all locations, e.g. measurement, calculation, reporting, calibration, control of documentation and records is planned and covered as per procedures defined. Access to these was verified to be clear and implementation was verified to be effective.	OK
A.3. Contractors for equipment and installation works <i>Who has installed the equipment? Who was contracted for planning etc.?</i>		Four WEGs were supplied by NEG Micon and Three WEGs were supplied by M/s Suzlon. The installation and the commissioning of the WEGs have also been done by WEG suppliers.	OK
A.4. Actual status of installation works <i>Project installation should be finished at time of initial verification in so far as the project should be ready to generate emission reductions afterwards.</i>		The project started with the commissioning of the first four WEGs on 29 March 2001 and other WEGs were installed during March 2004. So, project considered generation of emission reductions from 01 April 2004 to 16 July 2007 as a part of this monitoring period.	OK

OBJECTIVE	Ref.	COMMENTS	Concl.(incl FARs/CARs)
<p>B. Open issues indicated in validation report</p> <p><i>Especially in projects which are not yet registered at CDM-EB or JI-SB, there might be some outstanding issues which should have been indicated by the validation report.</i></p>			
<p>B.1. Missing steps to final approval</p>		<p>According to the validation report all the CAR’s and CL’s are closed. This was verified during verification, by DNV</p>	<p>OK</p>
<p>C. Implementation of the project</p> <p><i>This part is covering the essential checks during the on-site inspection at the project’s site, which is indispensably for an initial verification</i></p>			
<p>C.1. Physical components</p> <p><i>Check the installation of all required facilities and equipment as described by the PDD.</i></p>		<p>The project activity has an aggregated installed capacity of 6.75 MW comprising of 4 NEG Micon make WEGs each having a capacity of 750 kW and 3 Suzlon make WEGs, each having a capacity of 1.25 MW, connected to the Tamilnadu state electricity grid. The project is located at Devarkulam in Tirunelveli District, Tamilnadu, India. The electricity generated from the WEGs are evacuated through the nearest grid sub-station along a 33 kV supply line and fed into the grid after stepping up to 132 kV.</p>	<p>OK</p>
<p>C.2. Project boundaries</p> <p><i>Check whether the project boundaries are still in compliance with the ones indicated by the PDD.</i></p>		<p>The project boundaries and key equipments for the project activity are in line with the PDD encompassing the physical, geographical site of the renewable generation source. The project boundary covers the WEGs and the evacuation systems.</p>	<p>OK</p>
<p>C.3. Monitoring and metering systems</p> <p><i>Check whether the required metering systems have been installed. The meters have to comply with appropriate quality standards applicable for the used technology.</i></p>		<p>The metering system as envisaged in the PDD has been verified to be installed and in place. The metering of generated and exported power happens through four meters, which are calibrated periodically by TNEB. The calibration process is in place as defined in procedures.</p> <p>The metering by central monitoring station as envisaged in the PDD has been verified to be installed and in place. The calibration process is in place as</p>	<p>OK</p>

OBJECTIVE	Ref.	COMMENTS	Concl.(incl FARs/CARs)
		defined in procedures.	
<p>C.4. Data uncertainty <i>How will data uncertainty be determined for later calculations of emission reductions? Is this in compliance with monitoring and metering equipment?</i></p>		All equipment used for measurement and metering are calibrated as per procedures defined and certificates of calibration are in place.	OK
<p>C.5. Calibration and quality assurance <i>Check how monitoring and metering systems are subject to calibration and quality assurance routines</i> a) <i>with installation</i> b) <i>during future operation</i></p>		The calibration status of metering and monitoring equipment is up to date and the procedures defined cover the process of calibration. The meters used for power monitoring are calibrated by TNEB authorities. The certificates of calibration are verified during site inspection.	OK
<p>C.6. Data acquisition and data processing systems <i>Check the eligibility of used systems.</i></p>		As above.	OK
<p>C.7. Reporting procedures <i>Check how reports with relevance for the later determination of emission reductions will be generated</i></p>		Project Management system procedures, including responsibility and authority of monitoring and reporting activities, have been verified to be as per that indicated in the registered validation report. However an error was noticed in the transposing of the data from the invoice to the excel worksheet and an CAR was issued and was closed subsequently.	CAR-1
<p>C.8. Documented instructions <i>Check whether the personnel performing tasks with sensitivity for the monitoring of emission reductions have access and knowledge of documented instructions, forming a part of the project's management system.</i></p>		All the activities have been performed as per the defined procedures and are satisfying the requirements needed to monitor emission reductions effectively.	OK
<p>C.9. Qualification and training <i>Check whether the personnel performing tasks with sensitivity for the monitoring of emission reductions has the appropriate competences,</i></p>		Tasks have been performed as per procedures defined and by competent personnel. The procedures defined take care of required competence for performing tasks as per documented instructions.	OK

OBJECTIVE	Ref.	COMMENTS	Concl.(incl FARs/CARs)
<i>capabilities and qualifications to ensure the required data quality.</i>			
<p>C.10. Responsibilities <i>Check whether all tasks required to gather data and prepare a monitoring report with the necessary quality have been allocated to responsible employees.</i></p>		<p>Responsibility and authority of monitoring and reporting activities have been verified to be as per that indicated in the registered PDD and allocated to the responsible employees.</p>	OK
<p>C.11. Troubleshooting procedures <i>Check whether there are possibilities of redundant data monitoring in case of having problems with the used monitoring equipment. Such procedures may reduce risks for the buyers of emission reductions (e.g. the Client)</i></p>		<p>The data redundancy is maintained by multi stage monitoring as the export power is monitored by both project team and also TNEB officials. This would reduce risk for the buyers on emission reductions.</p>	OK
<p>D. Internal Data <i>Identifying the internal GHG data sources and ways in which the data have been collected, calculated, processed, aggregated and stored should be part of initial verification to assess accuracy and reliability of the internal GHG data..</i></p>			
<p>D.1. Type and sources of internal data <i>Acquire information on type and source of internal GHG data, which is used in calculations of emission reductions. E.g..” continuous direct measurements”, “site-specific correlations”, “periodic direct measurements”, “use of models” and/or “use of default emissions factors”.</i></p>		<p>Southern grid emission factor has been used in the calculation of the emission reductions. The power exported to the grid is monitored on daily basis by project team and on monthly basis by TNEB officials. This daily monitoring also includes the monitoring of the power imported from the grid during plant shutdowns and annual maintenance.</p>	OK
<p>D.2. Data collection <i>How is data collected and processed? What are the means of quantifying emissions from the different data sources?</i></p>		<p>Each WEG is equipped with an integrated electronic meter. These meters are connected to the Central Monitoring Station (CMS) of the entire wind farm. The generation data of individual machine can be monitored as a real-time entity at CMS.</p>	OK

OBJECTIVE	Ref.	COMMENTS	Concl.(incl FARs/CARs)
<p>D.3. Quality assurance <i>Does internal data collection underlie sufficient quality assurance routines?</i></p>		<p>Yes. The data undergoes multiple checks through operating team and plant management as a part of quality assurance.</p>	<p>OK</p>
<p>D.4. Significance and reporting risks <i>Assess the significance and reporting risks related to the different internal data sources. Potential reporting risks may be related to the calculation methods, accuracy of data sources and data collection and/or the information systems from which data is obtained. The significance of and risks associated with the data source indicate the level of verification effort required at a later stage.</i></p>		<p>The recording of the net electricity exported by the TNEB official is through data logger system and hence no significant reporting risks are foreseen. These data will be cross verified through the readings captured by CMS. The data related to baseline emissions is based in CEA data hence uncertainty is less through out the crediting period.</p>	<p>OK</p>
<p>E. External Data <i>Especially for data of baseline emissions there might be the necessity to include external data sources. The access to such data and a proof of data quality should be part of initial verification. If it is deemed to be necessary, an entity delivering such data should be audited.</i></p>			
<p>E.1. Type and sources of external data <i>Acquire information on type and source of external data, which is used in calculations of emission reductions</i></p>		<p>The external data sources used is mainly data for calculation of Southern grid emission factor based on CEA data. The audit of these external data may not be required as these are independent and authorised sources of data.</p>	<p>OK</p>
<p>E.2. Access to external data <i>How is data transferred? How can reproducibility of data set be ensured?</i></p>		<p>Transfer and compilation of data will be done manually. The reproducibility of data will be through redundant data captured.</p>	<p>OK</p>
<p>E.3. Quality assurance <i>Does external data underlie any quality assurance routines?</i></p>		<p>Yes the external data are subjected to quality assurance routines as CO2 emission factor for grid (as per CO2 baseline database of Central Electricity Authority) is fixed ex-ante for entire crediting period.</p>	<p>OK</p>

OBJECTIVE	Ref.	COMMENTS	Concl.(incl FARs/CARs)
<p>E.4. Data uncertainty <i>Is it possible to assess the data uncertainty of external data? Are such routines included in reporting procedures?</i></p>		<p>The grid emission factor has been obtained from CO2 baseline database. This is been verified and found reasonable as the uncertainty impact is very negligible.</p>	<p>OK</p>
<p>E.5. Emergency procedures <i>Are there any procedures which will be applicable if there is no access to relevant external data?</i></p>		<p>No such emergencies are fore seen.</p>	<p>OK</p>
<p>F. Environmental and Social Indicators <i>A Monitoring Plan may comprise environmental and/or social indicators which could be necessary to monitor for the success of the project activity.</i></p>			
<p>F.1. Implementation of measures <i>A project activity may demand for the installation of measures (e.g. filtering systems or compensation areas), which are exceeding the local legal requirements. A check of the implementation or realization of such measures should be part of the initial verification.</i></p>		<p>The project activity is not expected to lead to any adverse environmental impacts.</p>	<p>OK</p>
<p>F.2. Monitoring equipment <i>Check where necessary whether the required metering systems have been installed. The meters have to comply with appropriate quality standards applicable for the used technology.</i></p>		<p>As on F.1.</p>	<p>OK</p>
<p>F.3. Quality assurance procedures <i>What quality assurance procedures will be applied for such data?</i></p>		<p>As on F.1.</p>	<p>OK</p>
<p>F.4. External data <i>Check the quality, reproducibility and uncertainty</i></p>		<p>As on F.1.</p>	<p>OK</p>

OBJECTIVE	Ref.	COMMENTS	Concl.(incl FARs/CARs)
<i>of external data.</i>			
<p>G. Management and Operational System <i>In order to ensure a successful operation of a Client project and the credibility and verifiability of the ERs achieved, the project must have a well defined management and operational system.</i></p>			
<p>G.1. Documentation <i>The system should be documented by manuals and instructions for all procedures and routines with relevance to the quality of emission reductions. The accessibility of such documentations to persons working on the project has to be secured.</i></p>		The procedures are documented, controlled and available for personnel working for the project.	OK
<p>G.2. Qualification and training <i>The system should describe the requirements on qualification and the need of training programs for all persons working on the emission reduction project. Performed training programs and certificates should be archived by the system.</i></p>		Defined procedures ensure the methodology and criteria for training of personnel working on emission reductions. And the mechanism of evaluation of effectiveness for the training imparted is clear in the procedures defined.	OK
<p>G.3. Allocation of responsibilities <i>The allocation of responsibilities should be documented in written manner.</i></p>		Roles and responsibilities are defined in procedures and are in place.	OK
<p>G.4. Emergency procedures <i>The system should contain procedures which provide emergency concepts in case of unexpected problems with data access and/or data quality.</i></p>		The system procedures define the back up mechanism for data protection	OK
<p>G.5. Data archiving <i>The system should provide routines for the archiving of all data which is required for verifying the project’s performance in the context of</i></p>		All the data required by the methodology were made available to DNV and the effectiveness of document control was satisfactory.	OK

OBJECTIVE	Ref.	COMMENTS	Concl.(incl FARs/CARs)
<i>consecutive verifications.</i>			
<p>G.6. Monitoring report <i>The system includes procedures for the calculation of emission reductions and the preparation of the monitoring report.</i></p>		<p>Yes, the mechanism for the calculation of emission reductions and preparation of monitoring report is in place.</p> <p>Data pertaining to the export of electricity for the billing month of 15 June 2007 to 16 July 2007 has been incorrectly indicated in the monitoring report. This needs to be revised and presented.</p>	<p>CAR</p>
<p>G.7. Internal audits and management review <i>The system includes internal control procedures, which allow the identification and solution of problems at an early stage.</i></p>		<p>The procedures are defined</p>	<p>OK</p>

- o0o -