



FINAL VERIFICATION REPORT

- 8TH PERIODIC –

TAMILNADU SPINNING MILLS ASSOCIATION

BUNDLED WIND POWER PROJECT IN TAMILNADU, INDIA
COORDINATED BY THE TAMILNADU SPINNING MILLS
ASSOCIATION (TASMA)

UNFCCC REF. No. : 0991

Monitoring Period: 2009-07-01 to 2010-03-31
(incl. both days)

Report No: 8000384427 – 10/20

Date: 2010-08-20

TÜV NORD CERT GmbH
JI/CDM Certification Program
Langemarckstraße, 20
45141 Essen, Germany
Phone: +49-201-825-3335
Fax: +49-201-825-3290
www.tuev-nord.de
www.global-warming.de



Verification Report:	Report No.	Rev. No.	Date of 1st issue:	Date of this rev.
	8000384427 – 10/20	0	2010-08-20	-
Project:	Title:		Registration date:	UNFCCC-No.:
	Bundled wind power project in Tamilnadu, India coordinated by the Tamilnadu Spinning Mills Association (TASMA)		2007-06-10	0991
Project Participant(s):	Host party:		Other involved parties:	
	India		Sweden, Switzerland	
Applied methodology/ies:	Title:		No.:	Scope:
	Consolidated methodology for grid-connected electricity generation from renewable sources		ACM0002 ver. 6	1
Monitoring:	Monitoring period (MP):		No. of days:	MP No.
	2009-07-01 to 2010-03-31- both days included		273	8
Monitoring report:	Title:		Draft version:	Final version:
	Bundled wind power project in Tamilnadu, India coordinated by the Tamilnadu Spinning Mills Association (TASMA)		1	2
Verification team / Technical Review and Final Approval	Verification Team:		Technical review:	Final approval:
	Ma.Paa.Puratchikkanal A.Kirthika B.J.M.Amarnath G.Ezhilarasu S.Stalin N.Narendrakumar		Emilio Martin, Martin Saalmann	Martin Saalmann
Emission reductions: [t CO_{2e}]	Verified amount		As per draft MR:	As per PDD:
	690,908t		690,909t	801,520 t /a
Summary of Verification Opinion:	<p>Tamilnadu Spinning Mills Association has commissioned the TÜV NORD JI/CDM Certification Program to carry out the 8th periodic verification of the project: “<i>Bundled wind power project in Tamilnadu, India coordinated by the Tamilnadu Spinning Mills Association (TASMA)</i>”, with regard to the relevant requirements for CDM project activities. The project reduces GHG emissions due to generate electricity by making use of available wind turbine generators at the site to meet the regional electricity demand. This verification covers the period from 2009-07-01 to 2010-03-31- both days included.</p> <p>In the course of the verification 5 Corrective Action Requests (CAR) and 4 Clarification Requests (CL) were raised and successfully closed. Furthermore 1 FARs is raised to improve the monitoring system in the future. The verification is based on the draft monitoring report, revised monitoring report, the monitoring plan as set out in the registered PDD, the validation report, emission reduction calculation spreadsheet and supporting documents made available to the TÜV NORD JI/CDM CP by the project participant.</p> <p>As a result of this verification, the verifier confirms that:</p> <ul style="list-style-type: none">• all operations of the project are implemented and installed as planned and described in the validated project design document.• the monitoring plan is in accordance with the applied approved CDM methodology ,i.e., ACM0002 ver. 6• the installed equipment essential for measuring parameters required for calculating emission reductions are calibrated appropriately.• the monitoring system is in place and functional. The project has generated GHG emission reductions. <p>As the result of the 8th 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:</p> <p>Emission reductions: 690,908 t CO_{2e}</p>			



Document information:	<i>Filename:</i>	<i>No. of pages:</i>
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Abbreviations:

CA	Corrective Action / Clarification Action
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CER	Certified Emission Reduction
CO₂	Carbon dioxide
CO_{2eq}	Carbon dioxide equivalent
CL	Clarification Request
ER	Emission Reduction
FAR	Forward Action Request
GHG	Greenhouse gas(es)
MP	Monitoring Plan
MR	Monitoring Report
PDD	Project Design Document
PP	Project Participant
QA/QC	Quality Assurance / Quality Control
UNFCCC	United Nations Framework Convention on Climate Change
XLS	Emission Reduction Calculation Spread Sheet
TNEB	Tamil Nadu Electricity Board
GR	Generation Report
TASMA	Tamil Nadu Spinning Mills Association.

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1. INTRODUCTION

M/s Tamil Nadu Spinning Mills Association has commissioned the TÜV NORD JI/CDM Certification Program (CP) to carry out the 8th periodic verification of the project

“Bundled wind power project in Tamilnadu, India coordinated by the Tamilnadu Spinning Mills Association (TASMA)”

with regard to the relevant requirements for CDM project activities. The verifiers have reviewed the implementation of the monitoring plan (MP) in the registered CDM project number 0991¹.

GHG data for the monitoring period covering 2009-07-01 to 2010-03-31 was verified in detailed manner applying the set of requirements, audit practices and principles as required under the Validation and Verification Manual ^{/VVM/} of the UNFCCC.

This report summarizes the findings and conclusions of this 8th periodic verification of the above mentioned UNFCCC registered project activity.

1.1. Objective

The objective of the verification is the review and ex-post determination by an independent entity of the GHG emission reductions. It includes the verification of the:

- implementation and operation of the project activity as given in the PDD,
- compliance with applied approved methodology and the provisions of the monitoring plan,
- data given in the monitoring report by checking the monitoring records, the emissions reduction calculation and supporting evidence,
- accuracy of the monitoring equipment,
- quality of evidence,
- significance of reporting risks and risks of material misstatements.

1.2. Scope

The verification of this registered project is based on the validated project design document ^{/PDD/}, 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.

¹ <http://cdm.unfccc.int/Projects/DB/TUEV-SUED1173364563.43/view>

The verification is carried out on the basis of the following requirements, applicable for this project activity:

- Article 12 of the Kyoto Protocol ^{/KP/},
- guidelines for the implementation of Article 12 of the Kyoto Protocol as presented in the Marrakech Accords under decision 3/CMP.1 ^{/MA/}, and subsequent decisions made by the Executive Board and COP/MOP,
- other relevant rules, including the host country legislation,
- CDM Validation and Verification Manual ^{/VVM/},
- monitoring plan as given in the registered PDD ^{/PDD/},
- Approved CDM Methodology ACM0002 ver.6: Consolidated methodology for grid-connected electricity generation from renewable sources

2. GHG PROJECT DESCRIPTION

2.1. Project Characteristics

Essential data of the project is presented in the following Table 2-1.

Table 2-1: Project Characteristics

Item	Data
Project title	Bundled wind power project in Tamilnadu, India coordinated by the Tamilnadu Spinning Mills Association (TASMA)
Project size	<input checked="" type="checkbox"/> Large Scale <input type="checkbox"/> Small Scale
Project Scope (according to UNFCCC sectoral scope numbers for CDM)	<input checked="" type="checkbox"/> 1 Energy Industries (renewable- /non-renewable sources)
	<input type="checkbox"/> 2 Energy distribution
	<input type="checkbox"/> 3 Energy demand
	<input type="checkbox"/> 4 Manufacturing industries
	<input type="checkbox"/> 5 Chemical industry
	<input type="checkbox"/> 6 Construction
	<input type="checkbox"/> 7 Transport
	<input type="checkbox"/> 8 Mining/Mineral production
	<input type="checkbox"/> 9 Metal production
	<input type="checkbox"/> 10 Fugitive emissions from fuels (solid, oil and gas)
	<input type="checkbox"/> 11 Fugitive emissions from production and consumption of halocarbons and hexafluoride
	<input type="checkbox"/> 12 Solvents use
	<input type="checkbox"/> 13 Waste handling and disposal
	<input type="checkbox"/> 14 Afforestation and Reforestation
	<input type="checkbox"/> 15 Agriculture
Applied Methodology	<i>Consolidated methodology for grid-connected electricity generation from renewable sources</i>
Technical Area(s)	T: Renewables - Wind
CDM registration No.	0991
Crediting period	<input type="checkbox"/> Renewable Crediting Period (7 y) <input checked="" type="checkbox"/> Fixed Crediting Period (10 y)

2.2. Project Verification History

Essential events since the registration of the project are presented in the following Table 2-2.

Table 2-2: Project verification history

#	Item	Time	Status
1	Date of registration	2007-06-10	<i>Registered</i>
2	Start of crediting period	2003-01-01	-
3	1 st Monitoring period	2003-01-01 to 2003-12-31	Issued
4	2 nd Monitoring period	2004-01-01 to 2004-12-31	Issued
5	3 rd Monitoring period	2005-01-01 to 2005-12-31	Issued

#	Item	Time	Status
6	4 th Monitoring period	2006-01-01 to 2006-12-31	Issued
7	5 th Monitoring period	2007-01-01 to 2007-12-31	Issued
8	6 th Monitoring period	2008-01-01 to 2008-08-31	Issued
9	7 th Monitoring period	2008-09-01 to 2009-06-30	Issued
10	8 th Monitoring period	2009-07-01 to 2010-03-31	Awaiting issuance request
11	Request for revision of / deviation from the monitoring plan	2008-07-14	Approved

2.3. Involved Parties and Project Participants

The following parties to the Kyoto Protocol and project participants are involved in this project activity (Table 2-3).

Table 2-3: Project Parties and project participants

Characteristic	Party	Project Participant
Host party	India	Tamil Nadu Spinning Mills Association
Other involved party/ies	Switzerland	Carbon Asset Management Sweden AB
	Sweden	Carbon Asset Services Sweden AB

2.4. Project Location

The details of the project location are given in table 2-4:

Table 2-4: Project Location

No.	Project Location
Host Country	India
Region:	Tamil Nadu
Project location address:	Coimbatore, Tirunelveli and Kanyakumari Districts
Latitude:	Udumalpet, Coimbatore: from 10 34'7''S to 10 35'6''S and from 77 17'39''E to 77 18'19''E
Longitude:	Ayakudi (Sencottah), Tirunelveli: from 8 55'42''S to 8 56'45''S and from 76 40'5''E to 76 41'7''E Aralvaimozhi, Kanyakumari from 8 14'9''S to 8 15'5''S and from 77 31'39''E to 77 32'19''E

2.5. Technical Project Description

The project activity involves supply, erection, and commissioning and operation 704 nos. of Wind Turbine Generators (WTGs) of different capacities varying from 225kW to 1.65 MW, aggregating to a total installed capacity of 467.81MW.

The project activity comprises generation of electricity using renewable energy based on wind power and its supply to the Southern grid. It hence displaces the electricity which would have otherwise been generated from the power plants connected to the grid. The electricity thus generated from the above wind turbines is being sold to the grid and wheeling to their industrial units under power purchase/wheeling agreement with Tamil Nadu Electricity Board. The project activity is in operation since commissioning period and is located at Kanyakumari, Tirunelveli and Coimbatore districts of Tamil Nadu. The emission reduction is based on net electricity exported to TNEB in the southern regional grid from the project activity. The validated ex-ante emission factor (0.932 tCO_{2e}/MWh) is in accordance with ACM0002^{/ACM0002/} version 6. The value has been sourced from the carbon dioxide database (CEA Version 4). The net electricity exported from WTG's is calculated based on the difference between the total electricity exported to the grid from the project activity and the total electricity imported from the grid to the project activity. The project has generated net electricity of 741,318,418 kWh during this reported monitoring period from 2009-07-01 to 2010-03-31.

3. METHODOLOGY AND VERIFICATION SEQUENCE

3.1. Verification Steps

The verification consisted of the following steps:

- Contract review
- Appointment of team members and technical reviewers
- Publication of the monitoring report
- A desk review of the Monitoring Report^{/MR/} submitted by the client and additional supporting documents with the use of customised verification protocol^{/CPM/} according to the Validation and Verification Manual^{/VVM/},
- 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 3.1 below:

Table 3.1: Verification sequence

Topic	Time
Assignment of verification	2010-01-07
Uploading of Monitoring Report	2010-06-25
On-site visit	2010-07-19 to 2010-07-23
Draft reporting finalised	2010-08-06
Final reporting finalised	2010-08-18
Technical review finalised	2010-08-19

3.2. Contract review

To assure that

- the project falls within the scopes for which accreditation is held,
- the necessary competences to carry out the verification can be provided,
- Impartiality issues are clear and in line with the CDM accreditation requirements

a contract review was carried out before the contract was signed.

3.3. Appointment of team members and technical reviewers

On the basis of a competence analysis and individual availabilities a verification team, consistent of one team leader and 5 additional team members, was appointed. Furthermore also the personnel for the technical review and the final approval was determined.

The list of involved personnel, the tasks assigned and the qualification status are summarized in the table 3-1 below.

Table 3-1: Involved Personnel

	Name	Company	Function ¹⁾	Qualification Status ²⁾	Scheme competence	Technical competence ⁴⁾	Host country Competence	Team Leading competence
<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms.	Ma .Paa. Puratchikkanal	TUV India Pvt. Ltd	TL	A	<input checked="" type="checkbox"/>	T	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms.	B.J.M.Amarnath	TUV India Pvt. Ltd	TM	A	<input checked="" type="checkbox"/>	T	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms.	S.Stalin	TUV India Pvt. Ltd	TM	E	<input checked="" type="checkbox"/>	T	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms.	G.Ezhilarasu	TUV India Pvt. Ltd	TM	E	<input checked="" type="checkbox"/>	-	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Mr. <input checked="" type="checkbox"/> Ms.	A.Kirthika	TUV India Pvt. Ltd	TM	E	<input checked="" type="checkbox"/>	T	<input checked="" type="checkbox"/>	<input type="checkbox"/>

	Name	Company	Function ¹⁾	Qualification Status ²⁾	Scheme competence	Technical competence ⁴⁾	Host country Competence	Team Leading competence
<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms.	R.Narendra Kumar	TUV India Pvt. Ltd	-	T	<input type="checkbox"/>	-	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms.	Emilio Martín	TN CERT	TR ³⁾	E	<input checked="" type="checkbox"/>	T	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Mr. <input type="checkbox"/> Ms.	Martin Saalman	TN CERT	TR ³⁾ /FA	SA	<input checked="" type="checkbox"/>	-	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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

³⁾ No team member

⁴⁾ As per S01-MU03 or S01-VA070 A2 (such as A, B, C.....)

3.4. Publication of the Monitoring Report

In accordance with the CDM M&P (§ 62) the draft monitoring report, as received from the project participants, has been made publicly available on the dedicated UNFCCC CDM website prior to the verification activity commenced. Comments received are taken into account in the course of the verification, if applicable.

3.5. Verification Planning

In order to ensure a complete, transparent and timely execution of the verification task the team leader has planned the complete sequence of events necessary to arrive at a substantiated final verification opinion.

Various tools have been established in order to ensure an effective verification planning.

Risk analysis and detailed audit testing planning

For the identification of potential reporting risks and the necessary detailed audit testing procedures for residual risk areas table A-1 is used. The structure and content of this table is given in table 3-2 below.

Table 3-2: Table A-1; Identification of verification risk areas

Table A-1: GHG calculation procedures and management control testing / Detailed audit testing of residual risk areas and random testing				
Identification of potential reporting risk	Identification, assessment and testing of management controls	Areas of residual risks	Additional verification testing performed	Conclusions and Areas Requiring Improvement (including Forward Action Requests)
<i>The following potential risks were identified and divided and structured according to the possible areas of occurrence.</i>	<i>The potential risks of raw data generation have been identified in the course of the monitoring system implementation. The following measures were taken in order to minimize the corresponding risks. The following measures are implemented:</i>	<i>Despite the measures implemented in order to reduce the occurrence probability the following residual risks remain and have to be addressed in the course of every verification.</i>	<i>The additional verification testing performed is described. Testing may include:</i> <ul style="list-style-type: none"> - Sample cross checking of manual transfers of data - Recalculation - Spreadsheet 'walk throughs' to check links and equations - Inspection of calibration and maintenance records for key equipment - Check sampling analysis results <i>Discussions with process engineers who have detailed knowledge of process uncertainty/error bands.</i>	<i>Having investigated the residual risks, the conclusions should be noted here. Errors and uncertainties are highlighted.</i>

The completed table A-1 is enclosed in the annex 1 (table A-1) to this report.

Project specific periodic verification checklist

In order to ensure transparency and consideration of all relevant assessment criteria, a project specific verification protocol has been developed. The protocol shows, in a transparent manner, criteria and requirements, means and results of the verification. The verification protocol serves the following purposes:

- It organises, details and clarifies the requirements a CDM project is expected to meet for verification
- It ensures a transparent verification process where the verifying DOE documents how a particular requirement has been proved and the result of the verification.

The basic structure of this project specific verification protocol for the periodic verification is described in table 3-3.

Table 3-3: Structure of the project specific periodic verification checklist

Table A-2: Periodic verification checklist				
Checklist Item	Reference	Verification Team Comments	Draft Conclusion	Final Conclusion
<i>The checklist items in Table A-2 are linked to the various requirements the monitoring of the project should meet. The checklist is organised in various sections as per the requirements of the topic and the individual project activity. It further includes guidance for the verification team.</i>	<i>Gives reference to the information source on which the assessment is based on.</i>	<i>The section is used to elaborate and discuss the checklist item in detail. It includes the assessment of the verification team and how the assessment was carried out. The reporting requirements of the VVM shall be covered in this section.</i>	<i>Assessment based on evidence provided if the criterion is fulfilled (OK), or a CAR, CL or FAR (see below) is raised. The assessment refers to the draft verification stage.</i>	<i>In case of a corrective action or a clarification the final assessment at the final verification stage is given.</i>

The periodic verification checklist (verification protocol) is the backbone of the complete verification starting from the desk review until final assessment. Detailed assessments and findings are discussed within this checklist and not necessarily repeated in the main text of this report.

The completed verification protocol is enclosed in the annex (table A-2) to this report.

3.6. Desk review

During the desk review all documents initially provided by the client and publicly available documents relevant for the verification were reviewed. The main documents are listed below:

- the last revision of the PDD including the monitoring plan^{/PDD/},
- the last revision of the validation report^{/VAL/},
- the monitoring report, including the claimed emission reductions for the project^{/MR/},
- the emission reduction calculation spreadsheet^{/XLS/}.

Other supporting documents, such as publicly available information on the UNFCCC website and background information were also reviewed.

3.7. On-site assessment

As most essential part of the verification exercise it is indispensable to carry out an inspection on site in order to verify that the project is implemented in accordance with

the applicable criteria. Furthermore the on-site assessment is necessary to check the monitoring data with respect to accuracy to ensure the calculation of emission reductions. The main tasks covered during the site visit include, but are not limited to:

- The on-site assessment included an investigation of whether all relevant equipment is installed and works as anticipated.
- The operating staff was interviewed and observed in order to check the risks of inappropriate operation and data collection procedures.
- Information processes for generating, aggregating and reporting the selected monitored parameters were reviewed.
- The duly calibration of all metering equipment was checked.
- The monitoring processes, routines and documentations were audited to check their proper application.
- The monitoring data were checked completely.
- The data aggregation trails were checked via spot sample down to the level of the meter recordings.

Four members of the team including the Technical Expert had conducted the site visit and check of the turbines.

Before and during the on-site visit the verification team performed interviews with the project participants to confirm selected information and to resolve issues identified in the document review.

Representatives of Tamil Nadu Spinning Mills Association and the operational staff of the plant were interviewed. The main topics of the interviews are summarised in Table 3-4.

Table 3-4: Interviewed persons and interview topics

Interviewed Persons / Entities	Interview topics
1. Projects & Operations Personnel ^{1/IM01/}	<ul style="list-style-type: none"> - General aspects of the project - Technical equipment and operation - Changes since validation - Monitoring and measurement equipment - 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 emission reduction calculation - Procedural aspects of the verification - Maintenance - Environmental aspect

3.8. Draft verification reporting

On the basis of the desk review, the on-site visit, follow-up interviews and further background investigation the verification protocol is completed. This protocol together with a general project and procedural description of the verification and a detailed list of the verification findings form the draft verification report. This report is sent to the client for resolution of raised CARs, CLs and FARs.

3.9. Resolution of CARs, CLs and FARs

Nonconformities raised during the verification can either be seen as a non-fulfilment of criteria ensuring the proper implementation of a project or where a risk to deliver high quality emission reductions is identified.

Corrective Action Requests (CARs) are issued, if:

- Non-conformities with the monitoring plan or methodology are found in monitoring and reporting, or if the evidence provided to prove conformity is insufficient;
- Mistakes have been made in applying assumptions, data or calculations of emission reductions which will impair the estimate of emission reductions;
- Issues identified in a FAR during validation or previous verifications requiring actions by the project participants to be verified during verification have not been resolved.

The verification team uses the term Clarification Request (CL), which is issued if:

- information is insufficient or not clear enough to determine whether the applicable CDM requirements have been met.

Forward Action Requests (FAR) indicate essential risks for further periodic verifications. Forward Action Requests are issued, if:

- the monitoring and reporting require attention and / or adjustment for the next verification period.

For a detailed list of all CARs, CLs and FARs raised in the course of the verification pl. refer to chapter 4.

3.10. Final reporting

Upon successful closure of all raised CARs and CLs the final verification report including a positive validation opinion can be issued. In case not all essential issues could finally be resolved, a final report including a negative validation opinion is issued.

The final report summarizes the final assessments w.r.t. all applicable criteria.

3.11. Technical review

Before submission of the final verification report a technical review of the whole verification procedure is carried out. The technical reviewer is a competent GHG auditor being appointed for the scope this project falls under. The technical reviewer is not considered to be part of the verification team and thus not involved in the decision making process up to the technical review.

As a result of the technical review process the verification opinion and the topic specific assessments as prepared by the verification team leader may be confirmed or revised. Furthermore reporting improvements might be achieved.

3.12. Final approval

After successful technical review an overall (esp. procedural) assessment of the complete verification will be carried out by a senior assessor located in the accredited premises of TÜV NORD.

After this step the request for issuance can be started.

4. VERIFICATION FINDINGS

In the following paragraphs the findings from the desk review of the monitoring report^{/MR/}, the calculation spreadsheet^{/XLS/}, PDD^{/PDD/}, the Validation Report^{/VAL/} and other supporting documents, as well as from the on-site assessment and the interviews are summarised.

The summary of CAR, CL and FAR issued are shown in Table 4-1:

Table 4-1: Summary of CAR, CL and FAR

Verification topic	No. of CAR	No. of CL	No. of FAR
H - Project history	0	1	0
U - Update on Changes and Incidents	2	1	0
R - Monitoring Report – General	2	1	1
P - Monitoring Parameters	0	0	0
C - Emission Reduction Calculation	1	1	0
Q - Quality Management	0	0	0
SUM	5	4	1

The following tables include all raised CARs, CLs and FARs and the assessments of the same by the verification team. For an in depth evaluation of all verification items it should be referred to the verification protocols (see Annex).

Finding:	H1		
Classification	<input type="checkbox"/> CAR	<input checked="" type="checkbox"/> CL	<input type="checkbox"/> FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	With reference to FAR 1 in the 7 th verification report (dated 27 th Jan 2010, Revision No: 2) by DNV states that “The management system procedures have not been adequately implemented in reporting/ collecting the required information regarding the variations in the performance of the WTGs and related meters”. In this regard PP need to justify whether the current management system procedures captures above requirement.		

Finding:	H1
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	<p>The management system procedures have now been adequately implemented and even the monitoring report format for capturing the generation data has been modified to accommodate the details of changed meters etc. The format is attached. Based on the same, new meter serial Nos. have been provided as Annexure to MR. Hence, the current management system procedures capture all requirements of monitoring.</p>
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-2. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	<p>Based on the response to the FAR in previous verification report and the above justification, the management system procedures implemented has been adequately followed. The same has been verified during site visit based on the review of management review meeting minutes and conducting interviews with authorized personnel from TASMA. The data collection formats for generation details, changes in meters and calibration records has been verified and found appropriate and correct. Hence CL H1 is closed.</p>
Conclusion <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the next periodic verification <input checked="" type="checkbox"/> Appropriate action was taken <input type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken <input checked="" type="checkbox"/> The project complies with the requirements

Finding:	U1
Classification	<input checked="" type="checkbox"/> CAR <input type="checkbox"/> CL <input type="checkbox"/> FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	<p>During Site visit and review of documents, it was found that some of the WTGs has been sold out to new owners; also name changes are found in the WTG Owners. The details /proofs of the ownership change and name change of the organization during the monitoring period need to be submitted to verifier.</p>
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	<p>CDM registered WTGs are sometimes sold to other parties, this is very common in any market and has happened since the beginning of the project. TASMA collects the name transfer certificates issued by TNEB and the same have been provided to the DOE.</p>
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-2. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	<p>The documents^{OWN} related to ownership change and authorisation extended by new owners to TASMA has been submitted and verified. The verification team concluded that the monitoring procedures were not affected by the ownership change, since the entire monitoring activities are carried out by the trained monitoring personnel from respective service providers of WTG. Hence CAR U1 is closed.</p>
Conclusion <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the next periodic verification <input checked="" type="checkbox"/> Appropriate action was taken <input type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken <input checked="" type="checkbox"/> The project complies with the requirements

Finding:	U2		
Classification	<input checked="" type="checkbox"/> CAR	<input type="checkbox"/> CL	<input type="checkbox"/> FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	During Site visit it was evident that some of the energy meters have been replaced by new energy meters. PP should provide the justification/Proof for the meter change.		
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	As the power cut and Restriction and Control Measures are in force in Tamilnadu, the generation of wind energy is being adjusted in five slots at consumption ends. The earlier practice is adjustment in three slots. Earlier both at windmills and also at consumption end, the meters of three slot types. After introduction of power cut and R&C measures, the meter at consumption end was changed to five slot type. Hence, to coordinate with the same, meters at WTGs are also being changed in to five slot types in a phased manner. Hence, there are changes in meters, particularly in captive consumption categories. The details of new meters such as serial Nos., make and date of test/calibration are enclosed as Annexure to MR and in line with the monitoring plan as registered on the UNFCCC webpage.		
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-2. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	Based on the recent Comprehensive tariff order on wind energy dated on 20/03/2009 the TNEB is in the process of installing five slot meters at the consumption point to monitor electricity consumption at different periods like peak hour, off peak hour and normal hours. In this process the WTGs involved in the project activity which are wheeling the electricity to their consumption points have to adjust accordingly. Hence, the generation points also mandated to change five slot meters. Hence, the new meters have been installed at some of the WTGs. The new meter calibration records at the time of installation have been checked. This meter changes do not create impact on the monitoring plan. Hence, CAR U2 is closed.		
Conclusion <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the next periodic verification <input type="checkbox"/> Appropriate action was taken <input checked="" type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken <input checked="" type="checkbox"/> The project complies with the requirements		

Finding:	U3		
Classification	<input type="checkbox"/> CAR	<input checked="" type="checkbox"/> CL	<input type="checkbox"/> FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	The validation team observed a small deviation between the registered PDD and the actual installed WTG. This deviation refers to the amount of WTGs installed with capacity of 225 kW and 230 kW. PDD refers to 144 WTGs with capacity each 225 kW (page 6) while actually installed are 148 WTGs. Same for 230 kW: 10 are addressed in the PDD but 6 are actually installed. It is requested to provide clarification.		

Finding:	U3
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	Indeed, this is a minor typo in the PDD with no impact on the installed capacity and output and hence the verified emission reductions.
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-2. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	The actual figures and past figures show that an impact regarding this deviation is low. Considering the capacity magnitude the effects are negligible for quantification of CERs.
Conclusion <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the next periodic verification <input checked="" type="checkbox"/> Appropriate action was taken <input type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken <input type="checkbox"/> The project complies with the requirements

Finding:	R1		
Classification	<input checked="" type="checkbox"/> CAR	<input type="checkbox"/> CL	<input type="checkbox"/> FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	MR needs to be revised with respect to the requirements of Monitoring Report form, Version 1 (EB 54 Annex 34).		
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	MR relates to the period from July 2009 to March 2010. EB 54 Annex 34 requests projects to use the new format from September onward only. However, the MR is revised accordingly.		
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-2. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	The revised MR is in line with the latest available template and sections in the MR have been filled as per the guidelines (Annex 34, EB54). Hence CAR R1 is closed.		
Conclusion <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the next periodic verification <input checked="" type="checkbox"/> Appropriate action was taken <input checked="" type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken <input checked="" type="checkbox"/> The project complies with the requirements		

Finding:	R2		
Classification	<input checked="" type="checkbox"/> CAR	<input type="checkbox"/> CL	<input type="checkbox"/> FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	The reason for higher generation during the monitoring period has not been adequately described in the Monitoring Report. Correction		

Finding:	R2																																										
<i>biguous style; address the context (e.g. section)</i>	requested.																																										
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	<p>The reason for higher generation is due to wind pattern, which is a natural force and may vary from time to time. This cannot be predictable at any point i.e. at time of validation. A comparative chart is provided below which shows the generation details from the year 2005 to 2010 taken for the same period namely July-March:</p> <table><tr><th colspan="6">Comparative Analysis</th></tr><tr><th>Sl. No.</th><th>Period</th><th>Generation in kWh (Net Export) July to March</th><th>No of WTGs</th><th>Capacity in MW</th><th>Average Generation per MW in MWh</th></tr><tr><td>1</td><td>July 05 to March 06</td><td>664629927</td><td>704</td><td>467.79</td><td>1420.78695</td></tr><tr><td>2</td><td>July 06 to March 07</td><td>720066454</td><td>704</td><td>467.79</td><td>1539.29424</td></tr><tr><td>3</td><td>July 07 to March 08</td><td>705233480</td><td>704</td><td>467.79</td><td>1507.58563</td></tr><tr><td>4</td><td>July 08 to March 09</td><td>643108536</td><td>704</td><td>467.79</td><td>1374.78043</td></tr><tr><td>5</td><td>July 09 to March 10</td><td>741318418</td><td>704</td><td>467.79</td><td>1584.72481</td></tr></table> <p>From the above, it could be seen that due to the wind pattern, the generation is getting influenced either with higher generation or with lower generation, depending upon the wind flow of that period. However, there is no much variation when compared to the previous periods. As one example if it is compared with last monitoring report, due to the fact that the period in the last MR relates to low wind period, it is felt that as if there was abnormal variation in generation. Hence, we have taken the exact periods in each year and accordingly, comparison is made as shown above.</p>	Comparative Analysis						Sl. No.	Period	Generation in kWh (Net Export) July to March	No of WTGs	Capacity in MW	Average Generation per MW in MWh	1	July 05 to March 06	664629927	704	467.79	1420.78695	2	July 06 to March 07	720066454	704	467.79	1539.29424	3	July 07 to March 08	705233480	704	467.79	1507.58563	4	July 08 to March 09	643108536	704	467.79	1374.78043	5	July 09 to March 10	741318418	704	467.79	1584.72481
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3	July 07 to March 08	705233480	704	467.79	1507.58563																																						
4	July 08 to March 09	643108536	704	467.79	1374.78043																																						
5	July 09 to March 10	741318418	704	467.79	1584.72481																																						
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-2. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	<p>Based on the above argumentation it is evident the monitoring period is from July to March which falls under the high wind regimes also the wind availability is not a predictable phenomenon. Because of the high wind regime during the considered monitoring period the PLF is slightly higher which resulted in higher emission reduction than the estimated. Based on the sectoral experience of the verification team the grid infrastructure is improving year on year</p>																																										

Finding:	R2
	because of the large gap between demand and supply in the state of Tamil Nadu. Since the power generated is effectively transmitted. The figures provided above have been verified by the verification team. The explanation for the increase in power export has been accepted. Hence CAR R2 is closed.
Conclusion <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the next periodic verification <input checked="" type="checkbox"/> Appropriate action was taken <input type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken <input checked="" type="checkbox"/> The project complies with the requirements

Finding:	R1
Classification	<input type="checkbox"/> CAR <input type="checkbox"/> CL <input checked="" type="checkbox"/> FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	MR lack of information about the location of the project activity. PP should provide complete information of the location of the project activity along with GPS coordinates.
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	The complete information on project location is provided and still in line with the information available on the UN webpage, the location has not changed.
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-2. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	The PP has provided the geographical coordinates of the regions where the wind mills are located. However, the verification team recommended providing the coordinates for each wind turbine at next periodic verification to ensure accurateness and unique identification.
Conclusion <i>Tick the appropriate checkbox</i>	<input checked="" type="checkbox"/> To be checked during the next periodic verification <input type="checkbox"/> Appropriate action was taken <input type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken <input type="checkbox"/> The project complies with the requirements

Finding:	R2
Classification	<input type="checkbox"/> CAR <input checked="" type="checkbox"/> CL <input type="checkbox"/> FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	Meter serial numbers for all the HTSC connections are missing in the MR.
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	Meter serial Nos. have now been provided as separate Annexure to MR.

Finding:	R2
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-2. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	The annexure with serial numbers and calibration dates have been cross checked with the calibration records and found OK. Hence CL R2 is closed.
Conclusion <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the next periodic verification <input checked="" type="checkbox"/> Appropriate action was taken <input checked="" type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken <input type="checkbox"/> The project complies with the requirements

Finding:	C1
Classification	<input type="checkbox"/> CAR <input checked="" type="checkbox"/> CL <input type="checkbox"/> FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	During the document review it was absorbed that some of the WTGs Export and Import readings are mentioned as zero during the monitoring period. Clarification requested in this context.
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	The reasons were too little wind, maintenance and/or temporary breakdown of equipment.
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-2. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	As discussed above, due to the low availability of wind and maintenance or temporary breakdown of WTG has been checked with records of respective WTGs given by the WTG owners. The reasons stated in the recods for downtime or failure is found ok. Hence CL C1 is closed.
Conclusion <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the next periodic verification <input checked="" type="checkbox"/> Appropriate action was taken <input checked="" type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken <input type="checkbox"/> The project complies with the requirements

Finding:	C2
Classification	<input checked="" type="checkbox"/> CAR <input type="checkbox"/> CL <input type="checkbox"/> FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	The total emission reductions shall be down rounded
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	The value has been corrected.

Finding:	C2
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-2. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	<p>Ok, correction has been conducted. The total emission reductions have been reduced by 1 ton compared to the published MR. CAR is closed.</p>
Conclusion <i>Tick the appropriate checkbox</i>	<p> <input type="checkbox"/> To be checked during the next periodic verification <input checked="" type="checkbox"/> Appropriate action was taken <input checked="" type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken <input type="checkbox"/> The project complies with the requirements </p>

5. SUMMARY OF VERIFICATION ASSESSMENTS

The following paragraphs include the summary of the final verification assessments after all CARs and CRs are closed out. For details of the assessments pl. refer to the discussion of the verification findings in chapter 4 and the verification protocol (Annex 1).

5.1. Implementation of the project

The project activity involves supply, erection, and commissioning and operation of 704 nos. of Wind Turbine Generators (WTGs) of different capacities varying from 225 kW to 1.65 MW, aggregating to a total installed capacity of 467.81 MW. The electricity thus generated from the above wind turbines is being sold to the grid and wheeling to their industrial units under power purchase/wheeling agreement with Tamil Nadu Electricity Board. During the eighth monitoring period (2009-07-01 to 2010-03-31) the project activity has exported a total net electricity of 741,318,418 kWh ^{/GR/} and thus the total emissions reductions result in 690,908 tCO_{2e}. During the site visit, the verification team verified the actual implementation of the data management procedure and subsequent reporting into the emission reduction sheet ^{/IM01/IM02/}. The verification team also assessed the implementation of the monitoring plan and deemed it in line with requirements of registered monitoring plan (please refer section 5.4 for more details). Furthermore, the verification team has checked and found the monitored parameters, installed metering instruments, their accuracy, compliance to calibration schedule calibration ^{/CAL/}, reported in monitoring report ^{/MR/} in line with the registered monitoring plan ^{/PDD/}. The verification team through the site visit interviews ^{/IM01/IM02/} cross verified the competency of the involved personnel engaged in the monitoring by inspection of the maintained records ^{/LOG/} and training records ^{/CC/}.

During the verification a site visit was carried out by the assessment team on 2010-07-19 to 2010-07-23 ^{/IM01/IM02/}. On the basis of this site visit and the reviewed project documentation it can be confirmed that w.r.t. the realized technology, the project equipments, as well as the monitoring and metering equipment, the project has been implemented and operated as described in the registered PDD (Please also refer to section 2.4, Table 2-4: Technical data of the plant).

5.2. Project history

A forward action request (FAR) was issued by DNV during the last periodic verification stage, where the actual project monitoring and reporting practices requires attention in terms of variations in the performance of the WTGs and related meters. The corresponding CL H1 has been raised by the verification team

concerning the present management system procedures captures the above requirement and closed after reviewing the documents^{/MRM/} submitted by the project participants.

5.3. Special events

During the monitoring period the verification team identified that some of the WTGs have been sold out to new owners; also name changes are found in the WTG Owners. Also energy meters of some WTGs have been replaced by the New Energy meters. Corresponding CARs were raised by the verification team. The documents^{/OWN/} related to ownership change and authorisation extended to TASMA has been verified. The verification team concluded that the monitoring procedures were not affected by the ownership change, since the entire monitoring activities are carried out by the trained monitoring personnel from the respective service providers. Based on the recent Comprehensive tariff order on wind energy dated 20/03/2009 the TNEB is in the process of installing five slot meters at the consumption point to monitor electricity consumption at different periods like peak hour, off peak hour and normal hours. In this process the WTGs involved in the project activity who are wheeling the electricity to their consumption points has to adjusted accordingly, hence the generation points also mandated to change five slot meters. Hence, the new meters have been installed in some of the WTGs. The new meter calibration records at the time of installation have been checked. This meter changes do not create impact on the monitoring plan.

It is evident from the monitoring data that the monitoring system ensures for continuous operation (except some routine breakdowns or outage), no major break down has been found during the monitoring period. No special events with effect on the monitoring of the project have been observed during the monitoring period.

Nevertheless, CAR U1 and U2 were raised and closed. No special events with effect on the monitoring of the project have been observed during the monitoring period.

5.4. Compliance with the monitoring plan

The monitoring system and all applied procedures are completely in compliance to the registered monitoring plan. The reporting^{/MR/ /XLS/} is in line with the requirements of the validated monitoring plan as well as with the applied methodology ACM0002 version 6^{/ACM0002/}. All necessary monitoring instruments are installed. The measuring devices are well known and state of the art. All required instruments including stand by and operating procedures for the same have been implemented in an appropriate manner. For the metering purpose, there are individual sealed meters for every wind turbine generator. The meters are installed in the switch yard near the plant. The meter reading^{/GR/} is recorded once in every month. Calibration procedures and test reports of the all online energy meters covering the reported monitoring period were

verified for their frequency and traceability to industry standards. Calibration records of all installed meter were checked and found OK.

The submitted monitoring report which forms the basis of the verification was prepared by summarizing consolidated monthly data over the whole monitoring period in accordance with the monitoring plan of the registered PDD^{/PDD/}. During the monitoring period covering 2009-07-01 to 2010-03-31, the project exported 741,318,418 kWh of net electricity to the TNEB grid, which is a part of southern grid. This was verified by the verification team during the on site visit by checking the records maintained by the project participants and power sales billing^{/GR/}. The verification team found no inconsistencies in the monitoring report with respect to approved monitoring plan. The monitoring system and all applied procedures are completely in compliance to the registered monitoring plan.

5.5. Compliance with the monitoring methodology

The reporting^{/MR/ /XLS/} is in line with the requirements of the validated monitoring plan as well as with the applied methodology ACM0002 version 6^{/ACM0002/}. The reporting procedures reflect the requirements of the monitoring plan^{/PDD/}. For the considered verification period, all indicators stated in the applicable monitoring methodology ACM0002 (Version 6) were correctly monitored and reported.

5.6. Monitoring parameters

During the verification the relevant monitoring parameter (as listed in chapter B.7.1) of the PDD) have been verified with regard to the appropriateness of the applied measurement / determination method, the correctness of the values applied for ER calculation, the accuracy, and applied QA/QC measures. The results as well as the verification procedure are described parameter-wise in the project specific verification checklist. After appropriate corrections were carried out by the project participant it can be confirmed that all monitoring parameters have been measured / determined without material misstatements and in line with all applicable standards and relevant requirements.

The monitoring period of the project activity covers the period from 2009-07-01 to 2010-03-31. The only key monitoring parameter with impact on the calculation of the emission reductions is the power exported to the TNEB grid. Data regarding the electricity exported to grid and import from grid is obtained from the statement provided by the TNEB and Meter Cards. The monitoring parameters are recorded as per the monitoring plan. The power is measured with a high accuracy and duly calibrated class 0.5 power meters. Individual meters have been provided at the time of installation of each Wind Mill. These meters are tested by TNEB before commissioning. At the time of commissioning the meter is sealed by the TNEB Officials. The meter readings are carried out once in a month by TNEB official with the presence of representative of project participants. The meters are calibrated at

required intervals by state electricity board ensuring error free measurements. Also the log books are maintained for panel meter by the operating personnel has been verified by the site engineer of respective service providers of the WTG. In actual monitoring process as verified by the verification team the net electricity generation is taken from monthly electricity generation statement issued by TNEB, which is authentic source based on the energy meter reading attached to each WTG. Calibration procedures and test reports of the all online energy meters covering the reported monitoring period were verified for their frequency and traceability to industry standards. The energy meters have been calibrated once in five years by the TNEB officials as per CEA Norms.

All relevant evidences were fully checked by the verification team during the on-site visit. All evidences are clearly identifiable and assessed to be correct. It could be evidenced that the monitoring system ensures for continuous (except some routine breakdowns or outage) operation.

All records needed for monitoring are archived in line with the requirements of the registered monitoring plan ^{/PDD/}. No significant, lack of evidence and missing data were detected during on-site verification.

5.7. Monitoring report

A draft monitoring report ^{/MR/} was submitted to the verification team by the project participants. The team has made this report publicly available prior to the start of the verification activities. No comments were received.

During the verification, mistakes and needs for clarification were identified. The PP has carried out the requested corrections so that it can be confirmed that the Monitoring report is complete and transparent and in accordance with the registered PDD and other relevant requirements.

Nevertheless, CAR R1 and R2 were raised and successfully closed

5.8. ER Calculation

The value of the emission reductions depends on the net electricity exported by the project activity. The emissions reductions are based on the net electricity supplied by the project, which is the difference between the electricity exported and the amount of electricity imported due to the project activity. The project emissions are zero as there is no use of any fossil fuel. Leakage is considered to be zero as per applied methodology. Therefore the baseline emission equals the Emission Reductions. The total net electricity supplied by the 704 WTGs during the monitoring period is 741,318,418 kWh. The baseline emission factor has been fixed ex-ante as 0.932 tCO₂/MWh based on the CEA data base version 1.1 for Southern Grid ^{/CEA/}. Based on the net electricity supplied and the emission factor, the baseline emissions are 690,908 tCO_{2e}. The emission reductions were calculated correctly on the basis of the approved CDM baseline and monitoring methodology ACM0002 Version 6,

formulae given in the monitoring report and validated PDD. Project proponent provided the spreadsheets used for calculating the emission reductions including the algorithms used in the calculations. The calculations of above parameters were checked in the spreadsheets and found to be correct. The spreadsheet of emission reduction calculation contains information on capacity and net electricity exported to grid. This information is taken from monthly generation statements issued by TNEB.

The verification team crosschecked the emission reduction calculations by comparing TNEB statements with corresponding monthly invoices, which were found to be correct and accurate. There are no possible transposition errors between data sets since the monitoring of the net electricity generated is through calibrated electronic meters with high accuracy. Also all the recorded data are verified by the team of project proponent as described monitoring plan of registered PDD. During the verification mistakes in the ER calculation were also identified. All raised issues were addressed appropriately so that all corresponding CLs could be closed out. Thus it is confirmed that the ER calculation is overall correct.

5.9. Quality Management

Proper data management including of data acquisition, aggregation and data management system is being followed in project activity. All records needed for monitoring are archived in line with the requirements of the validated monitoring plan /PDD/. No significant, lack of evidence and missing data were detected during on-site verification. The data pertaining to the monitoring are maintained in identified records for the entire monitoring period. All the data is in compliance with the figures stated in the monitoring report. Hence, the quality of evidence provided is found to be credible and inline with monitoring plan of the validated PDD^{/PDD/}. Tamil Nadu Spinning Mills Association is responsible for conducting the monitoring task strictly as per revised and approved monitoring plan. TASMA also calculates the emission reductions regularly and writes the monitoring report. The organisational structure includes site incharges who is responsible for O & M monitoring and coordinate with O & M contractor for smooth functioning of WTGs. He is also responsible for recording the required monitored parameters along with the TNEB officials and to report the monitoring results to TASMA. Chief Advisor of TASMA is responsible for overall project management. The O&M Monitoring Personnel have followed systematic maintenance procedures. The monitoring personnel are well trained and follow reproducible routines. Thus, they have the necessary competence to carry out the relevant tasks with sufficient accuracy. The training schedules for the monitoring personnel's were checked by the verification team during the on-site verification. Day to day operation is supervised by Site Engineer of respective service providers of the WTG. They have the responsibility to supervise the O&M personnel for around the clock operation and maintenance of the WTGs. All monitored data are archived in Physical and Electronic form. The data will be kept for the whole crediting period and additional 2 years as given in the PDD^{/PDD/}. During onsite visit the verification team

confirmed that the monitoring and reporting carried out consistently and inline with established procedures.

5.10. Overall Aspects of the Verification

All necessary and requested documentation was provided by the project participants so that a complete verification of all relevant issues could be carried out.

Access was granted to all installations of the plant which are relevant for the project performance and the monitoring activities.

No issues have been identified indicating that the implementation of the project activity and the steps to claim emission reductions are not compliant with the UNFCCC criteria and relevant guidance provided by the COP/CMP and the CDM EB (clarifications and/or guidance).

5.11. Hints for next periodic Verification

In the course of this 8th periodic verification FAR R1 has been raised for the completeness of monitoring report regarding the geographical coordinates of the WTGs involved in the project activity.

6. VERIFICATION OPINION

Tamilnadu Spinning Mills Association has commissioned the TÜV NORD JI/CDM Certification Program to carry out the 8th periodic verification of the project: “*Bundled wind power project in Tamilnadu, India coordinated by the Tamilnadu Spinning Mills Association (TASMA)*”, with regard to the relevant requirements for CDM project activities. The project reduces GHG emissions due to generate electricity by making use of available wind turbine generators at the site to meet the regional electricity demand. This verification covers the period from 2009-07-01 to 2010-03-31- both days included.

In the course of the verification 5 Corrective Action Requests (CAR) and 4 Clarification Requests (CL) were raised and successfully closed. Furthermore 1 FARs is raised to improve the monitoring system in the future. The verification is based on the draft monitoring report, revised monitoring report, the monitoring plan as set out in the registered PDD, the validation report, emission reduction calculation spreadsheet and supporting documents made available to the TÜV NORD JI/CDM CP by the project participant.

As a result of this verification, the verifier confirms that:

- all operations of the project are implemented and installed as planned and described in the validated project design document.
- the monitoring plan is in accordance with the applied approved CDM methodology ,i.e., ACM0002 ver. 6
- the installed equipment essential for measuring parameters required for calculating emission reductions are calibrated appropriately.
- the monitoring system is in place and functional. The project has generated GHG emission reductions.

As the result of the 8th 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: **690,908** t CO_{2e}

Bangalore, 2010-08-20

Essen, 2010-08-20



Ma. Paa. Purachikkanal

TÜV NORD JI/CDM Certification
Program

Verification Team Leader



Martin Saalman

TÜV NORD JI/CDM Certification
Program

Senior Assessor

7. REFERENCES

Table 7-1: Documents provided by the project participant(s)

Reference	Document
/COM/	Commissioning certificates for all the Wind Turbine Generators.
/GR/	Monthly generation statements issued by Tamil Nadu Electricity Board covering the Monitoring Period.
/CAL/	Calibration Report for all the energy meters covering entire monitoring period.
/O&M/	Copy of O& M Agreement with Technology Suppliers.
/ORG/	Organization Chart and responsibilities
/PPA/	Power Purchase Agreements/Energy Wheeling Agreement.
/TD/	Technical particulars of Wind Electric Generator.
/CC/	Qualification certificates and Training records of the operating personnel at the project site
/OWN/	Ownership change, Name Change and Related documents of the bundle.
/XLS/	1. Excel calculation sheets provided by the project participant (related to MR1). 2. Excel calculation sheets provided by the project participant (related to MR2).
/MRM/	Minutes of Management review meeting
/MR/	Monitoring Report ' <i>Bundled wind power project in Tamilnadu, India coordinated by the Tamilnadu Spinning Mills Association (TASMA)</i> ' for the period 2009-07-01 to 2010-03-31, version 1, dated 2010/06/25. Monitoring Report ' <i>Bundled wind power project in Tamilnadu, India coordinated by the Tamilnadu Spinning Mills Association (TASMA)</i> ' for the period 2009-07-01 to 2010-03-31, version 2, dated 2010/08/13.
/LOG/	Plant Log Sheets related to daily generation reports & Monthly generation

Reference	Document
	reports.

Table 7-2: Background investigation and assessment documents

Reference	Document
/ACM0002/	Approved CDM Methodology ACM0002, version 06: “Consolidated methodology for grid-connected electricity generation from renewable sources”
/CPM/	TÜV NORD JI / CDM CP Manual (incl. CP procedures and forms)
/IPCC/	1. 1996 IPCC Guidelines for National Greenhouse Gas Inventories: work book 2. 2006 IPCC Guidelines for National Greenhouse Gas Inventories: work book
/KP/	Kyoto Protocol (1997)
/MA/	Decision 3/CMP. 1 (Marrakesh – Accords)
/PDD/	Project Design Document for CDM project: “ <i>Bundled wind power project in Tamilnadu, India coordinated by the Tamilnadu Spinning Mills Association (TASMA)</i> ” version 9, dated 2007-03-01
/VAL/	Validation Report for CDM project “ <i>Bundled wind power project in Tamilnadu, India coordinated by the Tamilnadu Spinning Mills Association (TASMA)</i> ” version 03, dated 2007-03-12
/VER/	7 th Periodic Verification Report for CDM Project “ <i>Bundled wind power project in Tamilnadu, India coordinated by the Tamilnadu Spinning Mills Association (TASMA)</i> ” version 2, dated 2010-01-27
/CEA/	CO2 Baseline Database for Indian Power Sector -User Guide, Ver 1.1 dated October 2006 published by CEA.
/VVM/	UNFCCC Validation and Verification Manual (Version 1.2 as per EB 55 Annex 1)

Table 7-3: Websites used

Reference	Link	Organisation
/dna-HP/	http://cdmindia.nic.in/	DNA of INDIA
/dna-SP/	http://www.energimyndigheten.se/dna-dfp	DNA of Sweden
/dna-SP/	http://www.bafu.admin.ch/	DNA of Switzerland
/unfccc/	http://cdm.unfccc.int	UNFCCC
/ipcc/	www.ipcc-nggip.iges.or.jp	IPCC publications

Table 7-4: List of interviewed persons

Reference	Mol ¹		Name	Organisation / Function
/IM01/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	K.Venkatachalam	Chief Advisor-TASMA
/IM01/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	V.Bharthi Kannan	Head CDM Projects -TASMA
/IM01/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	Thirumalai Kannan	Regional Representative-TASMA
/IM01/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	Sakthivel	Regional Representative-TASMA
/IM01/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	Karthick	Regional Representative-TASMA
/IM01/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	R.C.Gopinath	CDM Executive
/IM01/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	M.Paramsivam	Site In charge-Enercon
/IM01/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	T.Pradeep	Senior Engineer-MEEL
/IM01/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	E.Shanmugam	Site In charge-

Reference	Mol ¹		Name	Organisation / Function
/IM01/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	K.Palani Kumar	Site In charge
/IM01/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	R.Uthiravasgam	Sr.Engineer(Suzlon)
/IM01/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	D.Arulselvam	Sr.Engineer(Suzlon)
/IM01/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	P.Elango	Sr.Engineer(Suzlon)
/IM01/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	S.Kathiravan	Site In charge
/IM01/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	K.Selvaraj	CDM Analyst

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

ANNEX

- A1:** Verification Protocol
- A2:** Appointment / Authorisation
statements

ANNEX 1: VERIFICATION PROTOCOL

Table A-1: GHG calculation procedures and management control testing / detailed audit testing of residual risk areas and random testing

Identification of potential reporting risk	Identification, assessment and testing of management controls	Areas of residual risks	Additional verification testing	Conclusions and Areas Requiring Improvement (including <i>Forward Action Requests</i>)
Raw data generation				
<ul style="list-style-type: none"> • Installation of measuring equipment • Dysfunction of installed equipment • Maloperation by operational personnel • Downtimes of equipment • Exchange of equipment • Change of measurement equipment characteristic • Insufficient accuracy • Change of 	<ul style="list-style-type: none"> • Installation of modern and state of the art equipment • Process control automation • Internal data review • Regular visual inspections of installed equipment • Only skilled and trained personnel operates the relevant equipment • Daily raw data checks • Immediate exchange of dysfunctional equipment • Stand-by duty is 	<ul style="list-style-type: none"> • Inadequate installation / operation of the monitoring equipment • Inadequate exchange of equipment • Change of personnel • Undetected measurement errors • Inappropriateness of Management system procedures w.r.t. monitoring plan requirements (e.g. substitute value strategies) • Non-application of management system • Insufficient accuracy 	<ul style="list-style-type: none"> • Site – visit (maintenance dept., gas supplier) • Check of equipment • Check of technical data sheets • Check of suppliers information / guarantees • Check of calibration records, if applicable • Check of maintenance records • Counter-check of raw data and commercial data • Check of CDM management system 	<ul style="list-style-type: none"> • See Table A-2

Identification of potential reporting risk	Identification, assessment and testing of management controls	Areas of residual risks	Additional verification testing	Conclusions and Areas Requiring Improvement (including <i>Forward Action Requests</i>)
<ul style="list-style-type: none"> technology Accuracy of values supplied by Third Parties 	<ul style="list-style-type: none"> organized Training Internal audit procedures Internal check of QA/QC measures of involved Third Parties 	<ul style="list-style-type: none"> Inappropriate QA/QC measures of Third Parties 	<ul style="list-style-type: none"> Check of CDM related procedures Application of CDM management system procedures Check of trainings Check of responsibilities Check of QA/QC documentation / evidences of involved Third Parties 	
Raw data collection and data aggregation				
<ul style="list-style-type: none"> Wrong data transfer from raw data to daily and monthly aggregated reporting forms IT Systems Spread sheet programming Manual data transmission 	<ul style="list-style-type: none"> Cross-check of data Plausibility checks of various parameters. Appropriate archiving system Clear allocation of responsibilities Application of CDM Management system procedures 	<ul style="list-style-type: none"> Unintended usage of old data that has been revised Incomplete documentation Ex-post corrections of records Ambiguous sources of information Non-application of management system procedures 	<ul style="list-style-type: none"> Check of data aggregation steps Counter-calculation Data integrity checks by means of graphical data analysis and calculation of specific performance figures Check of management system certification 	<ul style="list-style-type: none"> See Table A-2

Identification of potential reporting risk	Identification, assessment and testing of management controls	Areas of residual risks	Additional verification testing	Conclusions and Areas Requiring Improvement (including <i>Forward Action Requests</i>)
<ul style="list-style-type: none"> Data protection Responsibilities 	<ul style="list-style-type: none"> Usage of standard software solutions (Spreadsheets) Limited access to IT systems Data protection procedures 	<ul style="list-style-type: none"> Manual data transfer mistakes Unintended change of spread sheet programming or data base entries Problems caused by updating/upgrading or change of applied software 	<ul style="list-style-type: none"> Check of data archiving system Check of application of Management system procedures 	
Other calculation parameters				
<ul style="list-style-type: none"> Emission factors, oxidation factors, coefficients 	<ul style="list-style-type: none"> The values and data sources applied are defined in the PDD and monitoring plan 	<ul style="list-style-type: none"> Unintended or intended Modification of calculation parameters Wrong application of values Misinterpretations of the applied methodology and/ or the PDD Missing update of applicable regulatory framework (e.g. IPCC values) 	<ul style="list-style-type: none"> Update-check of regulatory framework Countercheck of the applied MP in the MR against the methodology and the PDD 	<ul style="list-style-type: none"> See Table A-2
Calculation Methods				

Identification of potential reporting risk	Identification, assessment and testing of management controls	Areas of residual risks	Additional verification testing	Conclusions and Areas Requiring Improvement (including <i>Forward Action Requests</i>)
<ul style="list-style-type: none"> Applied formulae Miscalculation Mistakes in spread-sheet calculation 	<ul style="list-style-type: none"> Advanced calculation and reporting tools Tamil Nadu Spinning Mills Association is in charge of the CDM related calculations Usage of tested / counterchecked Excel spreadsheets Involvement of external consultants 	<ul style="list-style-type: none"> The danger of miscalculation can only be minimized. 	<ul style="list-style-type: none"> Countercheck on the basis of own calculation. Spread sheet walk-through. Plausibility checks Check of plots 	<ul style="list-style-type: none"> See Table A-2
Monitoring reporting				
<ul style="list-style-type: none"> Data transfer to the author of the monitoring report Data transfer to the monitoring report Unintended use of outdated versions 	<ul style="list-style-type: none"> Tamil Nadu Spinning Mills Association is responsible for monitoring reporting. CDM QMS procedures are defined 	<ul style="list-style-type: none"> The danger of data transfer mistakes can only be minimized Inappropriate application of QMS procedures 	<ul style="list-style-type: none"> Counter check with evidences provided. Audit of procedure application 	<ul style="list-style-type: none"> See Table A-2

Table A-2: (Project specific) Periodic Verification Checklist

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
1. Project history				
1.1 Open issues from validation (EB 55 Annex 1, §§ 180-182, 187c, 189c, 217 f) <i>Check (esp. in case of 1st periodic verification) whether there are any open issues indicated in the validation report (e.g. FAR)?</i>	/VAL/ /unfccc/ /IM01/ /IM02/	<i>Description:</i> All raised CARs and CLs were successfully closed during the validation of the project design. <i>Justification of evidences:</i> The validation report has been checked by the verification team. <i>Conclusion:</i> No further actions are necessary to be taken in this respect.	OK	
1.2 Open issues from previous verification (EB 55 Annex 1, § 192) <i>Check in case of further periodic verifications whether there are any open issues indicated in previous verification reports (FAR) and take into consideration the guidance as specified in VVM.</i>	/unfccc/ /VER/ /MR/ /IM01/ /MRM/	<i>Description:</i> A forward action request was issued during the 7 th verification stage regarding implementation of management system procedures related to reporting/ collecting the required information regarding the variations in the performance of the WTGs and related meters. In this regard Verification team raised CL H1 to justify the whether the current management system procedures captures requirement of FAR of the previous verification. According to response of FAR, the MRM (Management Review Meeting) has been conducted once in 3 months. During the MRM, all such matters relating to WTGs performance and meters changes during the monitoring period were discussed and reviewed suitably. Minutes were recorded and wherever necessary, suitable follow up action has been taken by the project participant. <i>Justification of evidences:</i> By means of interview and minutes of MRM has been verified by the verification team.	CL H1	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
		<i>Conclusion:</i> Based on the response to the FAR in previous verification report the above justification the management system procedures implemented has been adequately followed. The same has been verified during site visit based on the review of management review meeting minutes and conducting interview with the TASMA. The data collection formats for generation details, changes in meters and calibration records has been verified and found appropriate.		
1.3 Requests for Deviations / Revisions of MP (EB 55 Annex 1, §§ 200, 202, 211, 218) <i>Check if there have been any requests for deviations from the registered monitoring plan or requests for revisions of the monitoring plan. If any, make sure that the monitoring report reflects the application of the approved guidance from the CDM EB regarding the Rfdev. and that those issues are subject to verification?</i>	/unfccc/ /Rev-MP/	<i>Description:</i> The request for Revision of MP submitted by the PP was approved by EB on 14 th July 2008. The MP was revised the actual practices of monitoring at the project site. <i>Justification of evidences:</i> The verification team checked the UNFCCC homepage of the project activity in order to verify whether Requests for Deviations / Revisions of MP was submitted. <i>Conclusion:</i> Since the current monitoring procedures reflects the approved revision of Monitoring plan the verification team concluded that no further actions are necessary to be taken in this respect.	OK	
1.4 Initial verification <i>In case an initial verification has been carried out, check if all FARs, recommendations etc. have been addressed appropriately.</i>	/IM01/ /VAL/	<i>Description:</i> Not Applicable This is the 8 th periodic verification for the project activity. Also There are no open issues, including FARs from validation. <i>Justification of evidences:</i> The validation report has been checked by the verification team. <i>Conclusion:</i> No further actions are necessary to be taken in this respect.	OK	
1.5 Initial project implementation	/IM01/	Not Applicable. Refer section 1.4.	OK	

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
<p>(EB 55 Annex 1, §§ 181, 194-200)</p> <p><i>In case of first periodic verification: Assess whether the project has been implemented and operated as per the registered PDD and are all physical features of the project in place? Further focus on the potential phase wise implementation and report on the corresponding statuses and starting dates accordingly.</i></p> <p><i>Also, discuss – if applicable – any approvals of the necessary request of notification or request for approval of changes from the project activity as described in the registered PDD (EB 48 Annex 66/67).</i></p> <p><i>In case of further periodic verifications: Go to next chapter.</i></p>	<p>/VAL/ /VER/</p>			
<p>2. Update on Changes and Incidents (during the Monitoring Period)</p>				
<p>2.1 Technical equipment (EB 55 Annex 1, § 186)</p> <p><i>Check if relevant technical equipment of the project activity has been exchanged or modified during the monitoring period. Further ensure that consistent designations of key equipment (meters etc.) in PDD, MR and calculation spreadsheet are applied</i></p> <p><i>Consider e.g. interviews with operational personnel, QMS records, maintenance records, instrument</i></p>	<p>/IM01/ /CAL/ /COM/ /PDD/ /TD/ /MR/ /VER/</p>	<p><i>Description:</i> The rated capacity of each wind turbines mentioned in the registered PDD has been verified through the instruments specifications during the site visit. Also it was identified that the energy meters connected to the some of the WTGs particularly the captive consumption categories in the bundle has been replaced by the new energy meters. This due to the introduction of Power cut and Restriction and Control measures in the state of tamilnadu.As per that the meter at consumption end was changed to five slot type meters. Hence, to coordinate with the same, meters at WTGs are also changed in to five slot types in</p>	<p>CAR-U2 GL-U2</p>	<p>OK</p>

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
<p><i>specifications.</i></p> <p><i>In case of changes, check whether the project is still in line with the registered PDD and assure that these changes have been considered in the monitoring report and the emission reduction calculation.</i></p> <p><i>Also, discuss –if applicable- any approvals of the necessary request of notification or request for approval of changes from the project activity as described in the registered PDD (EB 48 Annex 66/67).</i></p>		<p>a phased manner.</p> <p><i>Justification of evidences:</i> All supporting documents, such as the certificate of approval from the electricity board^{/COM/}, calibration reports^{/CAL/} and technical particulars^{/TD/} were verified during the site visit. Also the details of new meters such as serial Nos., make and date of test/calibration submitted by the PP has been verified.</p> <p><i>Conclusion:</i></p> <p>Based on the recent comprehensive tariff order on wind energy dated on 20/03/2009 the TNEB is in the process of installing five slot meters at the consumption point to monitor electricity cosine at different periods like peak hour, off peak hour and normal hours. In this process the WTGs involved in the project activity who are wheeling the electricity to their consumption points has to adjust accordingly; hence the generation points also mandated to change five slot meters. Hence the new meters have been installed some of the WTGs. The new meter calibration records at the time of installation have been checked. This meter change does not create impact on the monitoring plan. No other relevant equipment was exchanged or modified within the monitoring period and no further actions are necessary to be taken in this respect. Nevertheless the verification team raised CAR U1 and CL U3 in this context and closed.</p>		
<p>2.2 Operation modes</p> <p>(EB 55 Annex 1, § 194)</p> <p><i>Check if relevant operation modes of the project activity have been exchanged or modified during the</i></p>	<p>/IM01/ /CAL/ /PDD/ /TD/</p>	<p><i>Description:</i> No deviating operation modes have been identified during verification. The WTGs are operating as described in the registered PDD. The operations are carried out by the trained personnel from the respective service providers of the WTG.</p>	OK	

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
<p><i>monitoring period.</i></p> <p><i>Consider e.g. interviews with operational personnel, operation log sheets, data management system records.</i></p> <p><i>In case of changes, check whether the project is still in line with the registered PDD and assure that these changes have been considered in the monitoring report and the emission reduction calculation.</i></p> <p><i>Also, discuss – if applicable – any approvals of the necessary request of notification or request for approval of changes from the project activity as described in the registered PDD (EB 48 Annex 66/67).</i></p>	<p>/MR/ /VER/</p>	<p><i>Justification of evidences:</i> By means of interviews with the operational personnel it was confirmed that no relevant operation modes were exchanged or modified within the monitoring period. All supporting documents ^{/LOG/GR/} has been verified by the verification team during the site visit.</p> <p><i>Conclusion:</i> No deviating operation modes have been identified during verification and no further actions are necessary to be taken in this respect.</p>		
<p>2.3 Incidents (EB 55 Annex 1, § 186, 207a)</p> <p><i>Identify if there have been any significant incidents, deviant operation modes and / or downtimes of the equipment?</i></p> <p><i>Consider e.g. interviews with operational personnel, operational log sheets, analysis of performance data.</i></p>	<p>/IM01/ /CAL/ /PDD/ /MR/ /LOG/ /GR/</p>	<p><i>Description:</i> It is evident from the monitoring data that the monitoring system ensures for continuous operation (except some routine breakdowns or outage), no major break down has been found during the monitoring period. The project is operated as described in the PDD.</p> <p><i>Justification of evidences:</i> By means of interviews with the operational personnel it was confirmed that no relevant operation modes were exchanged or modified within the monitoring period. All supporting documents ^{/LOG/GR/} has been verified by the verification team during the site visit.</p> <p><i>Conclusion:</i> No significant incidents with effect on the monitoring of the project have been observed during the monitoring period w.r.t the operation modes, downtimes in equipment , etc.</p>	OK	
<p>2.4 Personnel</p>	<p>/IM01/</p>	<p><i>Description:</i> Exchange of relevant monitoring personnel could</p>	CAR-U4	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
<p><i>Identify, if relevant personnel w.r.t. monitoring has been exchanged?</i></p> <p><i>In case of changes, assure that the implemented monitoring procedures have not been affected.</i></p>	<p>/IM02/ /CC/ /OWN/</p>	<p>not be identified during the site visit.</p> <p><i>Justification of evidences:</i> During the site visit the verification team interviewed representatives of the PPs and operating personnel of the project activity. Also the documents related to ownership & Name change and authorisation extended by the new owner of WTG to TASMA has been submitted and verified.</p> <p><i>Conclusion:</i> The verification team concluded that the monitoring procedures were not affected by the ownership change, Since the entire monitoring activities are carried out by the trained monitoring personnel of respective service providers of the WTG. However CAR U1 has been raised regarding the ownership & name change in the bundle and closed.</p>		
<p>2.5 Legislation</p> <p>Find out whether relevant legislation with effect on the project activity in the host country has been changed. In any case data source shall be referenced.</p>	<p>/IM01/ /IM02/ /PDD/ /VAL/ /PPA/</p>	<p><i>Description:</i> Legislation with effect on the project activity has not been changed.</p> <p><i>Justification of evidences:</i> Relevant legislation was considered</p> <p><i>Conclusion:</i> No relevant changes since validation were identified.</p>	OK	
3. Monitoring Report – General				
<p>3.1 Monitoring period</p> <p><i>Check if the monitoring period is in line with a) the crediting period and/or b) previous monitoring periods?</i></p>	<p>/unfccc/ /VER/ /MR/</p>	<p><i>Description:</i> The monitoring period starts from 2009-07-01 to 2010-03-31(both days are included).</p> <p><i>Justification of evidences:</i> The 7th periodic verification report and published monitoring report has been verified by the verification team.</p> <p><i>Conclusion:</i> The monitoring period lasts from 2009-07-01 to 2010-03-31(both days are included). The last day of the</p>	OK	

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
		previous monitoring period was 2008/06/30. There is no overlapping between the previous and this monitoring period. The monitoring period is in line with the crediting period (2003/01/01 to 31/12/2012).		
3.2 Publication of the Monitoring Report <i>Check if the monitoring report has been made publicly available on the UNFCCC website before the verification commenced.</i>	/unfccc/ /MR/	<i>Description:</i> PP submitted the draft MR to TÜV NORD in order to initiate the global stakeholder commenting process. <i>Justification of evidences:</i> UNFCCC website <i>Conclusion:</i> The draft monitoring report, as received from the project participants, has been made publicly available prior to the start of the verification activities. No comments have been received.	OK	
3.3 References <i>Check if the monitoring report provides the correct references, in detail: project title, UNFCCC registration No., applied methodology/ies, meth tools.</i>	/MR/ /unfccc/ /PDD/ /ACM002/	<i>Description:</i> The monitoring report provides the correct title, UNFCCC reference number and methodology of ACM002. <i>Justification of evidences:</i> http://cdm.unfccc.int/Projects/DB/TUEV-SUED1173364563.43/view <i>Conclusion:</i> All references are given in the monitoring report. All references are correct.	OK	
3.4 Completeness (EB 55 Annex 1, §§ 181, 194, 201, 205) <i>Assess if the monitoring report is complete, i.e. have</i>	/MR/ /XLS/ /PDD/	Yes all relevant issues are covered; in detail: <input checked="" type="checkbox"/> (i) Implementation status <input checked="" type="checkbox"/> (ii) Monitoring systems and procedures (esp. QA/QC)	CAR-R1 CAR-R2 CL-R2	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
<i>all relevant issues been addressed? The MR shall include: (i) The implementation status of the project during the monitoring period (ii) Monitoring systems and procedures incl. QA/QC system employed (iii) all parameters to be monitored and reported at the intervals required by the MP and the Meth (iv) information on calibration of monitoring instruments (v) Emission factors, IPCC default values etc. (vi) reference to any deviation request approved by the EB, (vii) calculation of ER including reference to formulae and methods used (viii) comparison of the actual ER claimed in the MP with the estimate in the registered PDD and explanation in case of significant increase.</i>	/CAL/	<input checked="" type="checkbox"/> (iii) All parameters and corresponding intervals <input checked="" type="checkbox"/> (iv) Information on calibration of monitoring instruments <input checked="" type="checkbox"/> (v) Emission factors, IPCC default values etc. <input checked="" type="checkbox"/> (vi) Reference to deviations, if applicable <input checked="" type="checkbox"/> (vii) Calculation of emission reductions <input checked="" type="checkbox"/> (viii) Comparison of actual ER with estimated ER as per PDD During draft verification stage CAR R1 and R2 have been raised by the verification team regarding the completeness of the monitoring report and successfully closed. FAR R1 has been raised for the completeness of monitoring report regarding the geographical coordinates of the WTGs involved in the project activity.	FAR R1	
3.5 Comparison of estimated and actual ER (EB 55 Annex 1, § 197c) <i>Have differences between the monitored ER and the ex-ante ER been reported and appropriately justified? Please assess potential impacts on baseline and additionality.</i>	/IM01/ /IM02/ /PDD/ /MR/ /GR/	<i>Description:</i> The estimated ER as per the registered PDD is 801,520 tCO ₂ /annum and the actual ER for the current monitoring period is 690,908 tCO ₂ . The actual emission reduction is higher than the estimated ER for the covering monitoring period. <i>Justification of evidences:</i> The revised Monitoring report and registered PDD has been verified by the verification team. <i>Conclusion:</i> It is evident that the monitoring period from July to March which falls under the high wind regimes also the wind availability is not a predictable phenomenon. Because of the high wind regime during the considered monitoring period the PLF is slightly higher which resulted in higher emission reduction than the estimated. Based on the sectoral experience	CAR R2	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
		of the verification team the grid infrastructure is improving year on year because of the large gap between demand and supply in the state of Tamil Nadu. Since the power generated is effectively transmitted. Hence the increase in power export has been acceptable. However CAR R2 was raised by the verification team during draft verification stage and closed.		
3.6 Transparency <i>Assess if the monitoring report is transparent, i.e. clear and unequivocal in all respect?</i>	/MR/ /XLS/	<i>Description:</i> The monitoring report can be assessed to be transparent. No ambiguous statements have been identified. <i>Justification of evidences:</i> The monitoring report and supporting documents provided by the project participant has been verified by the verification team. <i>Conclusion:</i> The monitoring report has been prepared in line with the registered monitoring plan.	OK	
3.7 Misstatements on general issues <i>Assess whether the monitoring report is free of material misstatements regarding issues other than the monitoring parameters.</i> <i>Discuss the monitoring parameters in detail in chapter "Monitoring Parameters".</i>	/MR/	No material misstatements in the MR have been observed during verification.	OK	
3.8 Deviations from the validated monitoring plan (EB 55 Annex 1, §§ 195-196, 203-205, 210-211) <i>Assess whether the MR is in line with the validated monitoring plan?</i> <i>In case of intended changes: Have they been approved by the UNFCCC?</i>	/MR/ /PDD/ /unfccc/	<i>Description:</i> The request for Revision of MP submitted by the PP was approved by EB on 14 th July 2008. The MP was revised the actual practices of monitoring at the project site. <i>Justification of evidences:</i> The verification team checked the UNFCCC homepage of the project activity in order to verify whether Requests for Deviations / Revisions of MP was submitted.	OK	

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
		<i>Conclusion:</i> Since the current monitoring procedures reflects the approved revision of Monitoring plan the verification team concluded that no further actions are necessary to be taken in this respect.		
3.9 Deviations from the approved methodology (EB 55 Annex 1, §§ 199, 200, 202) <i>Assess whether the MR in line with the applied monitoring methodology?</i>	/MR/ /PDD/ /unfccc/	<i>Description:</i> No deviations from the applied methodology ACM0002 Version 6 have been observed during verification. The PP has monitored all relevant parameters in line with the methodology. <i>Justification of evidences:</i> Project participant provided MR and supporting documents for review by the verification team. The same has been verified. <i>Conclusion:</i> The MR is in line with the monitoring methodology and further action is not required.	OK	
4. Monitoring Parameters <i>(List all parameters of the PDD chapter B.7.1; pl. copy the 6 lines below for each parameter)</i>				
4.1. EGy		Description: Net electricity supplied to the southern grid of India by the project activity.		
a) Measurement / Determination method (EB 55 Annex 1, §§ 183-184, 201-202) <i>Describe how the monitoring parameter was measured / determined.</i> <i>Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the</i>	/IM01/ /PDD/ /ACM0002/ /CAL/ /COM/ /TD/	<i>Description:</i> The electricity generated from the each WTG is individually measured by an energy meter also common sealed meter for group of WTGs (for the same project promoters) on continuous basis which is owned by the state electricity board. EGy was determined as the difference of the electricity supplied to the grid and imported from the grid. <i>Justification of evidences:</i> The verification team had interviewed the operating personnel and also verified the supporting	CAR-U2	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
<i>frequency of measurements as per the requirements. Assess whether the measurement / determination method is in line with the registered monitoring plan of the PDD and the applied methodology.</i>		documents, such as the certificate of approval from the electricity board ^{/COM/} , calibration reports ^{/CAL/} and technical particulars ^{/TD/} during site visit. <i>Conclusion:</i> The measurement method is in accordance with the monitoring plan of the PDD. No deviations from the validated monitoring plan have been identified. No other relevant equipment was exchanged or modified within the monitoring period and no further actions are necessary to be taken in this respect. Also Refer Section 2.1 and CAR U2 regarding the meter changes in the bundle.		
b) Correctness (EB 55 Annex 1, §§ 201, 205, 220e) <i>Determine whether the value given in the monitoring report is correct and sufficiently justified. In case of mistakes pl. provide details and descriptions of the CARs raised.</i>	/MR/ /GR/ /XLS/	<input checked="" type="checkbox"/> Correct <input type="checkbox"/> Not correct <i>Description:</i> The values such as generation and emission reductions given in the monitoring report and the corresponding excel sheets are correct. <i>Justification of evidences:</i> PP provided the monthly generation statement issued by the tamilnadu state electricity board for review by the verification team. <i>Conclusion:</i> The monthly generation was found tally with the reported data in the monitoring report and emission reduction calculation sheets. Nevertheless during draft verification stage CL C1 was raised by the verification team regarding the meter readings and closed successfully	CL C4	OK
c) QA/QC Procedure (EB 55 Annex 1, §§ 183b (vii), 204c, 205) <i>Describe whether all applicable QA/QC procedures are met. Assess further if the calibration and</i>	/CAL/ /IM01/ /IM02/ /GR/	<i>Description:</i> The calibration of meters has been done by TNEB. Calibration certificates issued by TNEB after carrying out the calibration were verified and were found in order. All the meter seals were found intact and there were no evidence of	OK	

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
<i>maintenance of the monitoring equipment has been carried out by competent personnel.</i>	/XLS/	<p>tampering. The daily generation report is consolidated and is compared against monthly generation report. Breakdown duration is analyzed as well as reasons or non-generation are recorded and reviewed. The monitoring personnel are from the respective WTG service providers They are well trained and follow reproducible routines. Thus, they have the necessary competence to carry out the relevant tasks with sufficient accuracy.</p> <p><i>Justification of evidences:</i> The calibration reports^{/CAL/} covering the monitoring period, log sheets^{/LOG/} and the training records^{/CC/} of the operating personnel has been verified by the verification team during site visit.</p> <p><i>Conclusion:</i> From the above it is concluded that QA/OC procedures for determination of EGy are sufficient and acceptable.</p>		
<p>d) Accuracy (EB 55 Annex 1, §§ 204c, 205a)</p> <p><i>In case of measured (or estimated) values, check whether the accuracy of equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan or if significant inaccuracies occur; in this case, make sure that the most conservative assumptions theoretically possible have been made for calculating ERs.</i></p>	<p>/CAL/ /IM01/ /GR/ /MR/ /PDD/ /XLS/</p>	<p>The electricity is measured with a high accuracy class 0.5 trivector energy meters which can measure both import and export. The energy meters have been calibrated once in five year by the TNEB official.</p> <p><i>Justification of evidences:</i> Calibration records^{/CAL/} covering the monitoring period has been verified by the verification team during site visit.</p> <p><i>Conclusion:</i> The electricity is measured with a high accuracy and duly calibrated energy meters and in line with the applied national standard. So no significant inaccuracies have been identified for this parameter</p>	OK	
<p>e) Verification (EB 55 Annex 1, §§ 183a, 183b, 185, 202, 204,</p>	<p>/IM01/ /GR/</p>	<p><i>Description:</i> The Proper data management including of data acquisition, aggregation and data management system is being</p>	CAR-U2	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
205b) <i>Describe how the information flow (from data generation, aggregation, to recording, calculation and reporting) for these parameters including the value was verified. Consider the measurement / determination procedure, accuracies, QA/QC procedures. Consider as well plausibility checks as far as possible. Check if the applied value could be backed up by corresponding evidences (external / internal, oral or documented). Further whether sufficient evidence is available, both in terms of frequency (time period between evidence) and in covering the full monitoring period.</i>	/XLS/ /LOG/ /TD/ /COM/ /CAL/ /MR/	<p>followed in project activity. The verification team crosschecked the emission reduction calculations by comparing TNEB statements with corresponding monthly invoices raised by the project proponent and generation details noted by the operating personnel which were found to be correct and accurate.</p> <p><i>Justification of evidences:</i> The verification team had interviewed the operating personnel and also verified the supporting documents, such as the certificate of approval from the electricity board^{/COM/}, calibration reports^{/CAL/}, generation statements^{/GR/}, log sheets^{/LOG/} and technical particulars^{/TD/} during site visit</p> <p><i>Conclusion:</i> No significant, lack of evidence and missing data were detected during on-site verification. The data pertaining to the monitoring are maintained in identified records for the entire monitoring period. All the data is in compliance with the figures stated in the monitoring report. Also refer section 4.1 a, b, c & d.</p>	CL-G4	
5. ER Calculation				
5.1 Traceability (EB 55 Annex 1, § 181) <i>Assess if the calculation is fully traceable. In case of complex calculations an Excel calculation spreadsheet shall be used. All applied formulae must be visible.</i>	/XLS/ /unfccc/ /MR/	<p><i>Description:</i> Project proponent provided the spreadsheets used for calculating the emission reductions including the algorithms used in the calculations.</p> <p><i>Justification of evidences:</i> The emission reduction spreadsheets covering the monitoring period has been verified by the verification team.</p> <p><i>Conclusion:</i> The mentioned documents are sufficiently traceable with formulae and No information gaps have been identified.</p>	OK	

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
5.2 Parameter consistency (EB 55 Annex 1, § 185) <i>Assess whether all internal and external parameters and data used for calculation are applied consistently in the monitoring report and the calculation spreadsheet?</i> <i>Consider only the correct data exchange between the monitoring report and the calculation spreadsheet (if any). Further ensure that consistent designations for parameters in PDD, MR, calculation spreadsheet are applied. The evaluation of the correctness of the parameter values itself should be discussed in the chapter "Monitoring Parameters".</i>	/XLS/ /unfccc/ /MR/ /GR/	<p><i>Description:</i> No inconsistencies between emission reduction calculation spread sheets and monitoring report w.r.t. the parameters applied have been identified.</p> <p><i>Justification of evidences:</i> Emission Reduction calculation sheets, monitoring report, Monthly energy statements supplied by TNEB has been crosschecked by the verification team for adequacy, correctness and completeness.</p> <p><i>Conclusion:</i> The data exchange between MR and ER calculation is consistent to each other and no further actions are required. However, the total emission reductions shall be down rounded. Therefore CAR C2 has been raised.</p>	CAR-C2	OK
5.3 Applied formulae (EB 55 Annex 1, §§ 203-205) <i>Check if the applied formulae and methods for calculating baseline emissions, project emissions and leakage are in accordance with the monitoring plan and / or the approved methodology.</i>	/XLS/ /unfccc/ /ACM 0002/ /PDD/ /MR/ /GR/	<p><i>Description:</i> The applied formulae and methods for calculating the baseline emissions, project emissions and leakage are in accordance with the monitoring plan and the approved methodology.</p> <p><i>Justification of evidences:</i> Emission Reduction calculation sheets, monitoring report, Monthly energy statements supplied by TNEB has been crosschecked by the verification team for adequacy, correctness and completeness.</p> <p><i>Conclusion:</i> The formulae and methods for calculating the baseline, project and leakage emissions are correct. No further actions need to be taken.</p>	OK	
5.4 Completeness of calculation	/XLS/	<p><i>Description:</i> The ER-calculation is complete w.r.t. the relevant</p>	OK	

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<p>(EB 55 Annex 1, § 204a)</p> <p><i>Assess whether the provided calculations are complete and reflect all requirements of the monitoring plan.</i></p> <p><i>Check especially that no standard or old values have been used for calculation where calculations based on up-to-date data is required.</i></p>	<p>/MR/ /PDD/ /GR/ /CEA/</p>	<p>parameters which were monitored and accordingly utilised in the ER-calculation. Emission factor is considered as 0.932 tCO₂/MWh on ex-ante basis as per the CEA's annual energy generation data, version 1.1, emission factor for Southern Grid. The baseline emission factor is fixed on ex-ante basis for the entire crediting period as per validation report. Thus the baseline emission reduction achieved during the 8th verification period is 690,908 tCO₂e, project emission is 0 tCO₂e and leakage is 0 tCO₂e. Hence the net emission reduction achieved during the first verification period is 690,908 tCO₂e,</p> <p><i>Justification of evidences:</i> Emission Reduction calculation sheets, monitoring report, Monthly energy statements supplied by TNEB has been verified by the verification team for adequacy, correctness and completeness.</p> <p><i>Conclusion:</i> The calculation is completely traceable and in line with the requirements of the validated monitoring plan. No information/calculation gaps have been identified</p>		
<p>6. Quality Management; defined organisational structure, responsibilities and competencies Internal QA/QC and document control</p>				
<p>6.1 Management System</p> <p>(EB 55 Annex 1, § 183 a (iii))</p> <p><i>Check if the GHG data monitoring system is embedded in a (certified) company quality management system, if so, check if all CDM</i></p>	<p>/IM02/ /O&M/ /MR/ /PDD/</p>	<p><i>Description:</i> Tamil Nadu Spinning Mills Association is responsible for conducting the monitoring task strictly as per monitoring plan in the registered PDD and also calculates the emission reductions regularly and writes the monitoring report. Each project owner in the bundle has executed Operations and Maintenance Agreement with respective service</p>	OK	

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
<i>monitoring procedures been fully integrated in the project participant's quality management system. If not how the GHG management system has been implemented.</i>	/ORG/	<p>providers of WTG. They also have adequate and technically qualified site in charge to ensure constant monitoring of wind turbines installed.</p> <p><i>Justification of evidences:</i> The monitoring procedures and responsibilities as described in the MR and PDD have been cross checked on site during interviews with project participants and operating personnel.</p> <p><i>Conclusion:</i> No misstatements or deviations from the procedures described in the MR and PDD have been observed</p>		
<p>6.2 Roles and Positions</p> <p><i>Check if all roles and positions of each person in the GHG data management process are clearly defined and implemented as stated in the monitoring plan. Please consider the complete data trail from raw data generation to submission of the final data.</i></p> <p><i>Check further if only duly qualified personnel is involved in the monitoring procedures.</i></p>	<p>/IM01/ /IM02/ /O&M/ /MR/ /PDD/ /CAL/ /CC/ /ORG/ /LOG/</p>	<p><i>Description:</i> The overall authority of the project activity belongs to Tamil Nadu Spinning Mills Association. Day to day operation is supervised by the technically qualified site in charges. They have the responsibility to supervise the various technical staff for around the clock who engage in operation and maintenance of project activity. Maintenances and calibration of all monitoring instrument is carried out by TNEB. The personnel responsible for the project management including monitoring are academically qualified and have adequate knowledge of these procedures. The monitoring personnel are well trained and follow reproducible routines. The competency of personnel performing work is enhanced by appropriate training</p> <p><i>Justification of evidences:</i> This was verified during the site visit by interviewing the monitoring personnel and O&M agreement between project participants with respective service providers of the WTG.</p> <p><i>Conclusion:</i> All roles and positions of each person are clearly defined and implemented with regard to the CDM project activity. The GHG data management and responsibilities have</p>		

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
		been implemented as per the approved MP.		
6.3 Trainings <i>Check if initial trainings have been carried out, in case deemed necessary.</i>	/IM01/ /IM02/ /MR/ /PDD/ /CC/ /LOG/	<p><i>Description:</i> The personnel engaged for running, maintaining, and monitoring the performance of the plant are well qualified and are trained to discharge their duties satisfactorily. The training needs of the monitoring personnel are identified and necessary training programs are conducted by qualified personnel in the field of wind energy.</p> <p><i>Justification of evidences:</i> PP provided the training records of the monitoring personnel for review by the verification team.</p> <p><i>Conclusion:</i> Proper training was provided by the project participant as needed.`</p>	OK	
6.4 Troubleshooting procedures <i>Describe relevant troubleshooting measures and assess whether these troubleshooting procedures have been implemented.</i>	/IM01/ /IM02/ /MR/ /PDD/ /LOG/	<p>A procedure for emergency case has been established. To ensure traceability of data, all deviations from normal operation conditions, failure of the monitoring equipment and other incidents relevant for the project activity are documented in the logbooks.</p> <p><i>Justification of evidences:</i> This was verified by the verification team during the site visit.</p> <p><i>Conclusion:</i> Troubleshooting procedures in place are sufficient.</p>		
6.5 Maintenance procedures Are appropriate maintenance procedures in place?	/IM01/ /IM02/ /MR/ /PDD/ /LOG/	<p><i>Description:</i> The operating personnel have followed systematic maintenance procedures.</p> <p><i>Justification of evidences:</i> The same has been verified during site visits and records maintained by the maintenance team</p> <p><i>Conclusion:</i> Proper maintenance procedures are in place.</p>	OK	

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
6.6 Internal QA/QC <i>Assess whether there are any procedures in place on when, where and how checks and reviews of relevant monitoring parameters as well as further processing of the same are to be carried out. Please determine the evidences to be documented. (This might include spot checks by a second person not performing the calculations over manual data transfers, changes in assumptions and the overall reliability of the calculation processes.)</i>	/IM01/ /IM02/ /MR/ /PDD/ /LOG/ /MRM/	<p><i>Description:</i> The net electricity exported to the grid is taken from energy meter reading which forms the basis for emission reduction calculations. The log books maintained for panel meter by the operating personnel has been verified by the site engineer and the same is forwarded to the individual project promoters. If any major deviation between TNEB readings and panel meter readings, the same would be informed to TNEB for further action.</p> <p><i>Justification of evidences:</i> The same has been verified during site visit by conducting interview with the monitoring personnel and verified records maintained by the maintenance team.</p> <p><i>Conclusion:</i> The procedures related to internal QA/QC are in place.</p>	OK	
6.7 Data archive Check whether all records of monitoring parameters are archived according to the monitoring plan.	/IM01/ /IM02/ /MR/ /PDD/ /LOG/	<p><i>Description:</i> All monitored data are archived in physical and also in electronic form. The data will be kept for the whole crediting period and additional 2 years. The monitoring related records and documents were archived in forms of hard and softcopy. Copies are maintained at the corporate office of O&M, WTG Owners and TASMA as back up, and updated regularly. All documents are physically available.</p> <p><i>Justification of evidences:</i> This was evidenced during the site visit by interviewing the project participants and operating personnel.</p> <p><i>Conclusion:</i> All the records of monitoring parameters are archived according to the validated monitoring plan</p>	OK	
6.8 Data protection	/IM01/	<p><i>Description:</i> All data stored and archived in a daily generation</p>	OK	

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
Assess whether appropriate measures have been taken in order to avoid unintended or intended manipulation of the measured data.	/IM02/ /MR/ /PDD/	<p>data sheet. Only responsible personnel are allowed to maintain the details for further cross-checking with the monthly generation reports. The key parameters are being measured and recorded in the respective documents/registers in paper and electronic form. Also the systems are password protected.</p> <p><i>Justification of evidences:</i> This was evidenced during the site visit by interviewing the project participants and operating personnel.</p> <p><i>Conclusion:</i> The PP has implemented appropriate measures in order to avoid unintended or intended manipulation of the measured data.</p>		

ANNEX 2: STATEMENTS OF COMPETENCE OF TEAM MEMBERS

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