VALIDATION REPORT KALLAM AGRO PRODUCTS & OILS (P) LTD

VALIDATION OF THE

1.5 MW Grid connected Wind Electricity Generation at Tirunelveli District, Tamilnadu, India by Kallam Agro Products and Oils Private Limited

REPORT NO. INDIA/VAL/185.49/2009

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BUREAU VERITAS CERTIFICATION

VALIDATION REPORT

Date of first issue:	Organizational unit:
02/07/2009	Bureau Veritas Certification Holding SAS
Client:	**Client ref.:**
Kallam Agro Products & Oils (P) Ltd	Mr. K. Mohan Reddy

Summary:

Bureau Veritas Certification has made the validation of the "1.5 MW Grid connected Wind Electricity Generation at Tirunelveli District, Tamilnadu, India by Kallam Agro Products and Oils Private Limited" located in Thiruvambalapuram village, Tirunelveli, Tamil Nadu, India on the basis of UNFCCC criteria for the CDM, as well as criteria given to provide for consistent project operations, monitoring and reporting. UNFCCC criteria refer to Article 12 of the Kyoto Protocol, the CDM rules and modalities and the subsequent decisions by the CDM Executive Board, as well as the host country criteria.

The validation scope is defined as an independent and objective review of the project design document, the project's baseline study, monitoring plan and other relevant documents, and consisted of the following three phases: i) desk review of the project design and the baseline and monitoring plan; ii) follow-up interviews with project stakeholders; iii) resolution of outstanding issues and the issuance of the final validation report and opinion. The overall validation, from Contract Review to Validation Report & Opinion, was conducted using Bureau Veritas Certification internal procedures.

The first output of the validation process is a list of Clarification and Corrective Actions Requests (CL and CAR), presented in Appendix A. Taking into account this output, the project proponent revised its project design document.

In summary, it is Bureau Veritas Certification's opinion that the project correctly applies the baseline and monitoring methodology AMS. I.D., version 13 and meets the relevant UNFCCC requirements for the CDM and the relevant host country criteria.

Report No.:	Subject Group:
INDIA-VAL/159/2009	CDM

Project Title

1.5 MW Grid connected Wind Electricity Generation at Tirunelveli District, Tamilnadu, India by Kallam Agro Products and Oils Private Limited

Work carried out by:

R. Reghu Kumar – Team Leader
R S Prem Kumar– Team member
M/s. Sushil Budhia & Associates – Financial Expert

Work verified by:

Dinesh Shetty

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Indexing terms

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Abbreviations

CAR/s	Corrective Action Request/s
CDM	Clean Development Mechanism
CEA	Central electricity authority
CER	Certified Emission Reductions
CL/s	Clarification Request/s
CO	Carbon monoxide
CO_2	Carbon Dioxide
CUF	Capacity Utilization Factor
DNA	Designated National Authority
DOE	Designated Operational Entity
DPR	Detailed project report
EF	Emission factor
EIA	Environmental Impact Assessment
GHG	Green House Gas(es)
I	Interview
IETA	International Emissions Trading Association
KW	Kilowatt
KWh	Kilowatt- hour
M/s.	Messers [i.e. organization / entity]
MoV	Means of Verification
MW	Megawatt
MWh	Megawatt-hour
NGO	Non Government Organization
O&M	Operation & Maintenance
PCF	Prototype Carbon Fund
PCN	Project Concept Note
PDD	Project Design Document
PLF	Plant load factor
PLR	Prime lending rate
PO/s	Purchase Order/s
PPA	Power purchase agreement
RBI	Reserve Bank of India
SPM	Suspended particulate matter
Suzlon	Suzlon Energy India Limited
TNEB	Tamil Nadu Electricity Board
TNERC	Tamil Nadu Electricity Regulatory Commission
UNFCCC	United Nations Framework Convention for Climate Change
VVM	Validation and verification manual
WTG/WEG	Wind Turbine Generator/ Wind Energy Generator

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1 INTRODUCTION

Kallam Agro Products & Oils (P) Ltd has commissioned Bureau Veritas Certification to validate its CDM project "1.5 MW Grid connected Wind Electricity Generation at Tirunelveli District, Tamilnadu, India by Kallam Agro Products and Oils Private Limited" (hereafter called "project activity") at Thiruvambalapuram village, Tirunelveli, Tamil Nadu, India.

This report summarizes the findings of the validation of the project, performed on the basis of UNFCCC criteria, as well as criteria given to provide for consistent project operations, monitoring and reporting.

1.1 Objective

The validation serves as project design verification and is a requirement of all projects. The validation is an independent third party assessment of the project design. In particular, the project's baseline, the monitoring plan (MP), and the project's compliance with relevant UNFCCC and host country criteria are validated in order to confirm that the project design, as documented, is sound and reasonable, and meets the stated requirements and identified criteria. Validation is a requirement for all CDM projects and is seen as necessary to provide assurance to stakeholders of the quality of the project and its intended generation of certified emission reductions (CERs).

UNFCCC criteria refer to Article 12 of the Kyoto Protocol, the CDM rules and modalities and the subsequent decisions by the CDM Executive Board, as well as the host country criteria. The report is based on the Version 1 of the CDM validation and verification manual [VVM], (Ref 21).

1.2 Scope

The validation scope is defined as an independent and objective review of the project design document, the project's baseline study and monitoring plan and other relevant documents. The information in these documents is reviewed against Kyoto Protocol requirements, UNFCCC rules and associated interpretations.

The validation is not meant to provide any consulting towards the Client. However, stated requests for clarifications and/or corrective actions may provide input for improvement of the project design.

1.3 GHG Project Description

The Kallam Agro Products & Oils (P) Ltd is a leading agro based oil producing company based in Guntur, Andhra Pradesh, India. The project activity involves the installation of a wind farm enabling generation of electricity by a Wind Electric Generator (WEG) of capacity 1.5 MW at

Thiruvambalapuram village in Tirunelveli district, state of Tamil Nadu, India. The power generated will be exported to the southern grid with a firm power purchase agreement with TNEB.

Validation team validated the accuracy of the project description through a combination of steps consisting of review of contract and purchase orders (Ref 2) related to the project activity, commissioning certificates for the WEG (Ref 8), site visit and interview of the project participant and their representatives. The confirmation that the electricity will only be exported and is not used for captive consumption is available through the PPA (Ref 10).

[CAR 1 to 6], [CL 1] and [CL 2] were raised since the PDD did not describe the project completely. Project participant corrected the project description. The validation team is of the opinion that the description of the project activity in the revised PDD (Ref 1) accurately describes the project activity design.

1.4 Validation team

The validation team consists of the following personnel:

R. Reghu Kumar
Bureau Veritas Certification,Team Leader, Climate Change Verifier

R.S.Prem Kumar
Bureau Veritas Certification, Climate Change Verifier

M/s. Sushil Budhia & Associates
Practicing chartered accountant, Financial Expert

Dinesh Shetty
Bureau Veritas Certification, Internal reviewer

2 METHODOLOGY

The overall validation, from Contract Review to Validation Report & Opinion, was conducted using Bureau Veritas Certification internal procedures.

In order to ensure transparency, a validation protocol was customized for the project, according to the Validation and Verification Manual (IETA/PCF). The protocol shows, in a transparent manner, criteria (requirements), means of verification and the results from validating the identified criteria. The validation protocol serves the following purposes:

- It organizes, details and clarifies the requirements a CDM project is expected to meet;

- It ensures a transparent validation process where the validator will document how a particular requirement has been validated and the result of the validation.

The validation protocol consists of five tables. The different columns in these tables are described in Figure 1.

The completed validation protocol is enclosed in Appendix A to this report.

Validation Protocol Table 1: Mandatory Requirements			
Requirement	**Reference**	**Conclusion**	**Cross reference**
The requirements the project must meet.	Gives reference to the legislation or agreement where the requirement is found.	This is either acceptable based on evidence provided (**OK**)**,** a **Corrective Action Request (CAR)** or a **Clarification Request (CL)** of risk or non-compliance with stated requirements. The CAR's and CL's are numbered and presented to the client in the Validation Report.	Used to refer to the relevant protocol questions in Tables 2, 3 and 4 to show how the specific requirement is validated. This is to ensure a transparent validation process.

Validation Protocol Table 2: Requirements checklist				
Checklist Question	**Reference**	**Means of verification (MoV)**	**Comment**	**Draft and/or Final Conclusion**
The various requirements in Table 1 are linked to checklist questions the project should meet. The checklist is organized in several sections. Each section is then further sub-divided. The lowest level constitutes a checklist question.	Gives reference to documents where the answer to the checklist question or item is found.	Explains how conformance with the checklist question is investigated. Examples of means of verification are document review (DR) or interview (I). N/A means not applicable.	The section is used to elaborate and discuss the checklist question and/or the conformance to the question. It is further used to explain the conclusions reached.	This is either acceptable based on evidence provided (**OK**)**,** or a **Corrective Action Request (CAR)** due to non-compliance with the checklist question. (See below). **Clarification Request (CL)** is used when the validation team has identified a need for further clarification.

Validation Protocol Table 3: Baseline and Monitoring Methodologies				
Checklist Question	**Reference**	**Means of verification (MoV)**	**Comment**	**Draft and/or Final Conclusion**
The various requirements of baseline and monitoring methodologies should be met. The checklist is organized in several sections. Each section is then further sub-divided. The lowest level constitutes a checklist question.	Gives reference to documents where the answer to the checklist question or item is found.	Explains how conformance with the checklist question is investigated. Examples of means of verification are document review (DR) or interview (I). N/A means not applicable.	The section is used to elaborate and discuss the checklist question and/or the conformance to the question. It is further used to explain the conclusions reached.	This is either acceptable based on evidence provided (**OK**)**,** or a **Corrective Action Request (CAR)** due to non-compliance with the checklist question. (See below). **Clarification Request (CL)** is used when the validation team has identified a need for further clarification.

Validation Protocol Table 4: Legal requirements				
Checklist Question	**Reference**	**Means of verification (MoV)**	**Comment**	**Draft and/or Final Conclusion**
The national legal requirements the project must meet.	Gives reference to documents where the answer to the checklist question or item is found.	Explains how conformance with the checklist question is investigated. Examples of means of verification are document review (DR) or interview (I). N/A means not applicable.	The section is used to elaborate and discuss the checklist question and/or the conformance to the question. It is further used to explain the conclusions reached.	This is either acceptable based on evidence provided (**OK**)**,** or a **Corrective Action Request (CAR)** due to non-compliance with the checklist question. (See below). **Clarification Request (CL)** is used when the validation team has identified a need for further clarification.

Validation Protocol Table 5: Resolution of Corrective Action and Clarification Requests			
Report clarifications and corrective action requests	**Ref. to checklist question in tables 2/3**	**Summary of project owner response**	**Validation conclusion**
If the conclusions from the Validation are either a Corrective Action Request or a Clarification Request, these should be listed in this section.	Reference to the checklist question number in Tables 2, 3 and 4 where the Corrective Action Request or Clarification Request is explained.	The responses given by the Client or other project participants during the communications with the validation team should be summarized in this section.	This section should summarize the validation team's responses and final conclusions. The conclusions should also be included in Tables 2, 3 and 4, under "Final Conclusion".

Figure 1 Validation protocol tables

2.1 Review of Documents

The Project Design Document (PDD) submitted by Kallam Agro Products & Oils (P) Ltd and additional background documents related to the project design and baseline, i.e. country Law, Guidelines for Completing the Project Design Document (CDM-PDD), Approved methodology, Kyoto Protocol, Clarifications on Validation Requirements to be Checked by a Designated Operational Entity were reviewed.

To address Bureau Veritas Certification corrective action and clarification requests Kallam Agro Products & Oils (P) Ltd revised the PDD and resubmitted it on July 2009.

The validation findings presented in this report relate to the project as described in the PDD (Ref 1).

This version of the PDD is in line with the latest format for the PDD and latest version of the guidance for completion of the PDD.

The PDD (Ref 1) has the following main changes with respect to the version 01 dated 02/09/2008 which was web hosted –

- Project title corrected as per host country approval
- All the units mentioned in GWh have been changed to MWh.
- The project proponent confirms that he has not implemented any renewable energy project prior to this project and all the power generated will be sold to the grid and that there is no wheeling or adjustment involved.
- The statistics of the power deficit in the state of Tamil Nadu, prior to the implementation and post implementation of the project has been provided to justify the Economic well being of the project.
- The unique features of the WEG have been provided.
- The specific reference numbers of the Tamil Nadu Electricity Regulation commission that considers lifetime the project as 20 years has been included.
- PLF considered is revised from 29.68% to 31.10% as per publicly available credible document of TNERC and relevant to the region.
- The generated CERs of the project activity have been revised to 37960 in place of 36240 T CO_2e.
- The crediting period has been changed to financial year format in place of Calendar year format.
- The project boundary and the system boundary has been defined and pictorially represented.
- The additionality section mentions about the nodal agencies and the subsidies / incentives offered by the Ministry of new and renewable energy, Govt. of India.
- The Higher Capital cost Investment barrier and technical barriers has been excluded.
- The assumptions, its values and its source considered for justifying the Low Return on Investment has been clearly defined.
- The sensitivity analysis has been explained with and without considering the CDM.
- The early consideration of CDM has been explained with project milestones.
- The import of power from the grid is included in the monitoring.
- The net power generated from the WEG has been included in the monitoring plan.
- The operational and management structure of the monitoring data has been included.
- The parameters requiring monitoring has been explained with recording procedures, audit procedures, reviews, meter accuracy and calibration procedures.

- The date of completion of baseline has been changed to 15.01.2009 in place of 30.05.2008.
- The start date of crediting period has been changed to 01.09.2009 in place of 28.02.2009.
- The stakeholder consultation has been explained in detail with all the members present along with the comments raised by them in stakeholder meeting.
- The base year considered for calculation of the combined margin emission factor has been specified.

2.2 Follow-up Interviews

On 02/12/2008 through 03/12/2008 Bureau Veritas Certification performed site visit and interviews with project stakeholders to confirm selected information and to resolve issues identified in the document review. Representatives of Kallam Agro Products & Oils (P) Ltd were interviewed (see section 6 of this report). The main topics of the interviews are summarized in Table A below.

Table A Interview topics

Interviewed organization	Interview topics
Kallam Agro Products & Oils (P) Ltd and its representative	➢ CDM consideration ➢ Methodology application ➢ Baseline determination and emission factor ➢ Benchmark analysis ➢ Additionality ➢ Local stakeholder consultation and resolution of their concerns ➢ Supporting data, evidences and documentation ➢ Resolution of CARs and CLs
Suzlon Energy, WEG supplier	➢ Stakeholder consultation process ➢ Monitoring system ➢ Metering system
LOCAL Stakeholder	➢ Views and concerns about the project activity ➢ Confirmation of local stakeholder consultation by Kallam Agro Products & Oils (P) Ltd

2.3 Resolution of Clarification and Corrective Action Requests

The objective of this phase of the validation is to raise the requests for corrective actions and clarification and any other outstanding issues that needed to be clarified for Bureau Veritas Certification positive conclusion on the project design.

To guarantee the transparency of the validation process, the concerns raised are documented in more detail in the validation protocol in Appendix A.

3 VALIDATION FINDINGS

In the following sections, the findings of the validation are stated. The validation findings for each validation subject are presented as follows:

1) The findings from the desk review of the original project design documents and the findings from interviews during the follow up visit are summarized. A more detailed record of these findings can be found in the Validation Protocol in Appendix A.
2) Where Bureau Veritas Certification had identified issues that needed clarification or that represented a risk to the fulfillment of the project objectives, a Clarification or Corrective Action Request, respectively, have been issued. The Clarification and Corrective Action Requests are stated, where applicable, in the following sections and are further documented in the Validation Protocol in Appendix A. The validation of the Project resulted in 22 Corrective Action Requests and 07 Clarification Requests.
3) The conclusions for validation subject are presented.

3.1 Project Design

The project activity involves the installation of a Wind Electric Generator (WEG) of capacity 1.5 MW in Thiruvambalapurm village, Tirunelveli district, state of Tamil Nadu, India, enabling generation of electricity. The electricity is generated at 690 V level and the voltage will be stepped upto 33 KV. The average annual estimate of power export to the grid would be around 4086 MWh. The substation to which, the WEG is connected is located at Udayathoor village which is at a distance of 10 KMs from the project site. The electricity generated by the WEG displaces the electricity from the grid that is dominated by carbon intensive fossil fuels.

Bureau Veritas Certification recognizes that this windmill project of Kallam Agro Products & Oils (P) Ltd is helping country fulfill its goals of promoting sustainable development. The project is expected to be in line with host-country specific CDM requirements because it -

- is approved for voluntary participation by DNA of India
- provides direct and indirect employment to the local people
- provides electricity to the deficient electricity grid of Southern region
- leads to reduced fossil fuel consumption
- does not release pollutants like SPM, CO_2, CO, etc.

3.1.1 Approval by parties involved

India is the only party involved in the project activity at this stage and is the host party. Project participant has obtained approval (Ref 7) from DNA of India. Project participant provided copy of this letter to the validation team. The validation team confirmed the authenticity of the approval from

the website of DNA of India[1]. The website confirms approval by DNA under project ID no: 1125-08. The validation team confirms that this letter is in accordance with paragraphs 45 – 48 of VVM version 01.

Title of the project is "1.5 MW Grid connected Wind Electricity Generation at Tirunelveli District, Tamilnadu, India by Kallam Agro Products & Oils (P) Limited." as per web hosted PDD, whereas in the HCA approval it is "1.5 MW Grid connected Wind Electricity Generation at Tirunelveli District, Tamilnadu, India by Kallam Agro Products and Oils Private Limited". CDM team, UNFCCC in mail dated 17th March 2009 clarified to project participant to change the project title as per HCA in the PDD for request for registration. Accordingly the project title is corrected in the revised PDD. Hence the validation team accepted the same.

3.1.2 Project boundary

The spatial extent of the project boundary is assessed through the description in the PDD and the grid structure in India as known from the official data available from the central electricity authority, CEA (Ref 22). The project activity boundary therefore includes the project power plant (windmills) and all power plants connected physically to the Southern electricity grid of India that the CDM project power plant is connected to.

The consideration of only CO_2 gas for the baseline emissions is conservative and in line with the methodology and hence appropriate. The electricity imported by the project activity is accounted in the net electricity exported by the project activity, EGy. There are no other sources of project emissions. Hence, in line with the methodology, project participant has considered project emissions as zero for renewable windmills. Further, it is confirmed that the project does not involve any transfer of equipment from or to the project activity and thus there is no leakage accountable to the project activity.

The project design is sound and the geographical (Thiruvambalapuram village, Tirunelveli, Tamil Nadu, India) and temporal (20 years) boundaries of the project are clearly defined. Project participant has taken a lifetime of 20 years for the WEG based on the TNERC order no: 3, dated 15/05/2006.

The validation team confirms that the only greenhouse gas relevant to the project activity is CO_2. This gas is addressed by the applied methodology.

3.2 Baseline and Additionality

This 1.5 MW Grid connected Wind Electricity Generation at Tirunelveli District, Tamilnadu, India by Kallam Agro Products and Oils Private

[1] http://cdmindia.nic.in/cdm_india.htm

Limited uses the approved consolidated baseline methodology AMS I.D, version 13 (Ref 18).

3.2.1 Assessment of applicability conditions of the methodology –

1. The Purchase order (Ref 2) for the windmills and physical verification at site indicates that the project activity involves windmill alone and therefore is a renewable energy project. The Grid connectivity was verified through PPA (Ref 10) samples of records of generation certificate (JMR) issued by TNEB and physical connection to the grid at sites.
2. Physical verification at site indicate that it is not an add up of a renewable and non-renewable component and only windmill is involved in the project activity and the capacity is 1.5 MW, which is much below the threshold limit of 15 MW for small scale.
3. The project activity does not involve any combined heat and power systems and is only a windmill based electricity generation.
4. The project activity does not involve addition of renewable energy generation units at an existing renewable power generation facility. During the site visit, it was noted and known through the stakeholder interviews that the project participant had no activity at the site of the windmills. The project participant also confirmed this. Therefore the project activity is not a fuel switch activity.
5. The purchase orders for the windmills indicate that the windmills are new and therefore amount to capacity addition. It also confirms that the project activity does not involve retrofit and/or modifications to the existing equipment.

The validation team therefore agrees that the project activity meets all the applicability conditions and all other stipulations of the selected approved methodology AMS I.D, version 13 (Ref 18).

3.2.2 Baseline identification

Validation team assessed the baseline identification by the project participant using the provisions of the applied methodology. As per the applied methodology AMS ID, version 13, the baseline is defined as the kWh produced by the renewable generating unit multiplied by an emission coefficient (measured in kg CO2e/kWh) calculated in a transparent and conservative manner as:
A combined margin (CM), consisting of the combination of operating margin (OM) and build margin (BM) according to the procedures prescribed in the 'Tool to calculate the emission factor for an electricity system'.

Project participant has used the official published data on operating and build margin emission factors (Ref 22). The version of the data used is as available on the date of validation. This data is published by central

electricity authority, CEA who is the sole authority for the publication of such data in India. This data is based on the emission factor tool (Ref 20). Project participant has applied weight factors for the OM and BM [75% & 25% respectively] as specified in the tool to arrive at the emission factor for the combined margin. The years considered for OM are 2004-05 to 2006-07 and for the BM it is 2006-07. Accordingly, the combined margin emission factor is 0.9291 tCO_2/MWh].

Validation team agrees to this emission factor since it is based on the official background data published by CEA. The validation team further notes that the emission factor is not provided by DNA but by the competent authority. The provisions of para 64 of EB43 in this regard therefore are not applicable.

[CAR 7] raised in respect of baseline is satisfactorily resolved as said in Appendix A.

3.2.3 Additionality

CDM consideration

Project participant provided copies of the Purchase orders (Ref 2) for the project activity. Since for windmills, there cannot be any other real action before the Purchase order, the validation team accepted the corresponding date as the starting date for the project activity. Accordingly, 20/01/2008, which is the date of the purchase order for civil works, is accepted as the start date of the project activity. Since the start date of the project activity was before the start of validation, the serious consideration of CDM for the project activity was assessed as under.

As evidence towards awareness of CDM, project participant has provided the link to the already web-hosted PDD pertaining to a hydro project belonging to the same group company and also the extracts of the Board resolution dated 09/01/2008.

Validation team accessed the link from UNFCCC website to note that their group company ie., Kallam spinning Mills has web hosted another hydro project on 9th June 2006 itself. Further, from the extract of the meeting of the board of directors, dated 09/01/2008 (Ref 4) it was also noted that the project participant was aware of CDM even before the start of the project activity. The validation team physically checked the ledger book (Ref 5) of board meeting records and observed that the extract provided was verbatim same as that recorded in the minutes book of the board at serial number 4. Copy of this extract of the meeting is submitted along with this validation report.

The minutes of the meeting recorded the high investment cost for the project and low returns compared to the bank lending rate 13% and that

the additional benefits from CDM will help in reducing the hardship the project is expected to bear.

Project participant provided in the PDD the chronology of events since the date of decision to go-ahead with the project activity. The validation team verified the evidences for all the events listed in the chronology. It is seen that the project participant has initiated real action in parallel to the implementation of the project activity and the CDM consultant appointment and the stakeholder consultation were completed even before the commissioning of the windmill. The validation team accessed the relevant records of appointment of consultant and also the photographic evidences for the conduct of the stakeholder meeting. It is further seen that the project participant had within a reasonable period of time from the commissioning of the windmill obtained the host country approval and appointed the DOE for validation. The project participant applied for host country approval on 25th June 2008 and obtained the same on 18th September 2008.

The validation team confirmed the appropriateness of the start date of the project activity as follows viz;
An equipment buyer can avail depreciation in the month of March if the machine is commissioned by that time. This leads to a rush for machines, e.g. WTGs in last quarter [January – March] of each financial year. The DOE is aware about this and knows that M/s. Suzlon plans for this rush by keeping in standard machines ready for quick delivery in these months. We therefore confirm the Project Proponent's statement, as above, since the prevailing practice in India, especially for wind projects, are that the WTG suppliers identify and develop the wind farms including obtaining all legal clearances and the basic infrastructure needed for wind mills. Upon receipt of a purchase order from a client, the only activity required to be done is to transfer the equipment to site, erect and commission, which, does not take more than 30 – 90 days in general (Ref 32). At times, the suppliers even erect the Wind Turbine generator's at the wind farm site. However these windmills are not commissioned. Only upon receipt of a firm purchase order from a client, the Wind Turbine generator is commissioned and all the clearances are transferred to the client. Both these activities happen / could happen parallely. In such cases, the necessary formalities can be completed within a short duration of 7 days too.

Hence we submit that the project activity start date and the commissioning dates, as indicated in the PDD are appropriate.

It is evident that the project participant requested validation within 6 months of the decision and even before the obtaining of the host country approval. This is a reasonable time within which the validation was

requested subsequent to the decision and there has been real action to secure CDM status in parallel to the implementation of the project activity.

From the above discussions, it is seen that the project participant was aware of CDM prior to the start date of the project activity and even prior to the decision for the project activity. From the minutes of the meeting, it is seen that the benefits of CDM were a decisive factor in the decision to proceed with the project activity. Further, continuing and real actions were taken by project participant to secure CDM status in parallel with the implementation of the project activity. This is in line with para 5 of Annex 46 of EB41.

The validation team therefore agrees that project participant has effectively proven that CDM was seriously considered in the decision to proceed with the implementation of the project activity.

Investment analysis
Project participant has attempted to prove the additionality using the investment analysis.

The PDD initially did not have sufficient information to conclude that the project activity was additional. [CAR 8] was raised in this regard. Project participant made the assumptions transparent and rationalized the investment analysis in response and dropped the discussions on higher capital cost Investment barrier and technical barriers.

The validation team validated the assumptions in the investment analysis as follows –

Parameter, Value	Source of information	Validation justification
Project cost INR 97.35 Million	Purchase order with Suzlon Energy Ltd and DPR	Reflects realistic values and therefore eliminates ambiguity and need for sensitivity. Since the date of decision and the purchase order date are very close, it can be agreed that the value was reasonably known at the time of decision.
Cost of wind mills, INR 59.99 Million	Purchase order with Suzlon Energy Ltd and DPR	Reflects realistic values and therefore eliminates ambiguity and need for sensitivity. Since the date of decision and the purchase order date are very close, it can be agreed that the value was reasonably known at the time of decision.
Project Capacity, MW 1.5	Purchase order & DNA approval	Self explanatory

Parameter, Value	Source of information	Validation justification
Number of machines, 1	Purchase order & DNA approval	Self explanatory
Location, Appendix 1 of PDD	Site visit and internet, PPA, commissioning certificate.	The location is confirmed through site visit, PPA and commissioning certificates. Coordinates were verified using internet.
PLF, 31.10	DPR and TNERC order	DPR submitted to PP by third party consultant reflects a projected PLF of 30% based on the power curve and after accounting for losses. The validation team cross-verified the value with TNERC order dt 18/05/2006 to note that the PLF specific to the pass (muppandal pass) in which the project activity is located is 31.10% for large machines. The validation team agrees that this assumption is reasonable since it is based on credible source (TNERC order), conservative and available to the management at the time of decision and specific to the region and type of WEG. Project participant has also conducted sensitivity analysis for PLF to an extent of +/- 10% in line with the guidance on investment analysis (Ref 23).
Insurance charges, INR 0.10 million /annum	DPR, Premium receipts for insurance, explanation by project participant in PDD	The insurance cost is reasonable and not material.
O&M cost in base year, 1.1%	TNERC tariff order (Ref 25)	As per official data and hence eliminates any ambiguity.
Escalation in O&M cost, 5% every year after five years	TNERC tariff order	As per official data and hence eliminates any ambiguity.
Tariff, INR 2.90/kWh	DPR, TNERC tariff order, cross compared in PPA	Tariff order from TNERC confirms the tariff considering the lifetime of 20 years. As per the PPA also, the tariff is fixed for 20 years. Hence it is reasonable to consider the same tariff without escalation for the life of the project.
Loan, INR 74.40 million	DPR, cross compared with actual loan documents	INR 74.40 million is as per DPR and definitely known at the time of decision. Further, the actual loan is also INR 74.40 million. Hence, sensitivity is not necessary on this value.

Parameter, Value	Source of information	Validation justification
Interest on term loan, 11.5%	DPR, actual loan documents.	Interest rate considered as per DPR and the actual interest rate are the same. Hence sensitivity analysis is not necessary on this parameter.
Loan tenure, 7 years	Loan document	This value is conservative as compared to 10 years stated in TNERC order.
Loan moratorium, 1 year	Loan document	To keep consistency with basis for loan tenure.
CER price, Euro 15/CER	Assumed by PP, cross checked with report from Carbon positive dated 06/12/2007	This value is applicable as on the decision making date.
Baseline EF, 0.9291 tCO_2/MWh]	CER spreadsheet, PDD	As explained in section 3.2.2 of this report.
Benchmark, 13.00% PLR	PLR published by RBI (Ref 24) as in http://www.rbi.org.in/scripts/AnnualReportPublications.aspx?Id=864	Official data published by the central governing bank, i.e. Reserve Bank of India for the period relevant to the date of decision. Project participant has considered a conservative value for benchmark since it only considers the lending rate by a bank and does not add the required rate of return to this value. Validation team therefore agrees that this can be acceptable as a benchmark for the project activity and is suitable since it is compared with Project IRR of the project activity.

The validation team validated the assumptions as above and observed that they are in order. The financial expert verified the IRR calculations and observed them to be in order.

The PP has chosen benchmark analysis to demonstrate additionality of the project and for this purpose, has selected project IRR as the financial indicator. As stated in the PDD, Annex 45 of EB 41 states “In cases where benchmark approach is used, the applied benchmark shall be appropriate to the type of IRR calculated. Local commercial lending rates or weighted average cost of capital (WACC) are appropriate benchmarks for a project IRR”. Since project IRR has been selected as the financial indicator, as per the guidance, commercial lending rate (Prime Lending Rate in India) has been chosen as the benchmark. Therefore the benchmark selected is appropriate to financial indicator chosen and is also in conformity with the guidance provided in Annex 45 of EB41.

At the time of decision making, i.e., 9th January 2008, the PLR was ranging from 12.75% to 13.25% and the average of the PLR, viz 13.00 % was taken as the benchmark for the project activity. The Reserve Bank of India publishes weekly statistical data on the PLR (Ref 31). Analysis of the weekly data, dated 04.01.2008 (4th January 2008), indicating the PLR values up to the week ending 21st December 2007 indicates that the PLR was in the range of 12.75 – 13.25 %. This weekly report was available to the Project Proponent while making the investment decision for the project activity. The validation team had verified this weekly report by the RBI while validating and concluding on the benchmark. However the reference to the same document was inadvertently missed out in the validation report.

In addition to the above, the validation team had also verified the annual report published in August 2008, by the same source viz RBI, to further substantiate the appropriateness of the PLR, which has been indicated in Section B.5 of the PDD. The information provided in the RBI's annual report pertains to the prime lending rates during the financial year 2007-2008. Hence even though the date of the reference publication indicated in the PDD is of a date later than the investment decision, this is merely a compilation of the information already available to project participant on the date of decision. The PLR applied for arriving at the benchmark during the investment decision viz. 9th January 2008, is still within the same range of 12.75 to 13.25 %. We submit that the benchmark selected is suitable for the financial indicator chosen and is in conformity with the Guidance on the Assessment of Investment Analysis, as stated in Annex 45 of EB 41.

The DOE therefore concluded that the benchmark adopted by the PP to establish the investment barrier and consequently the project's additionality, was correct and valid.

The financial expert and the validation team hereby confirm that project participant has applied all the statutory levies and taxes as per the then valid rules. Project participant has also applied incentives like accelerated depreciation, additional depreciation and provisions of section 80IA [deferred tax benefit] as per Indian Income Tax Act (Ref 26). However, since the project activity does not generate sufficient profits, the accelerated benefits are not absorbed within the project activity and hence do not ultimately affect the IRR value.

The validation team therefore confirms that the project IRR for the project activity without CDM is 11.30% and is less than the applicable benchmark of 13%. The IRR for the project activity with CDM benefit is 15.01% and crosses the identified benchmark. Further, this IRR is more than the interest on the loan component. This IRR is based on a rate of Euro 15

per CER. In this context, it can be considered that the project is more viable with CDM benefits.

The only variable, which is more than 20% of the project cost or the project revenue is PLF. Project participant, has conducted sensitivity analysis for PLF with +10% variation with respect to the base value of 31.10%. The project IRR values with sensitivity are 12.81% and 16.80% without and with the CDM benefit respectively. It is seen that the project IRR with sensitivity is below the benchmark value without CDM and crosses the benchmark when CDM benefits are considered. The project participant also did the sensitivity analysis for –10% variation in project cost and O&M cost to note that still the IRR is below the benchmark without the CDM benefits. The validation team therefore is of the opinion that the project activity is proven to be additional.

Barrier analysis

Project participant had earlier attempted barrier analysis through the discussions on Higher Capital cost Investment barrier and technical barriers. However, the validation team is of the opinion that none of these barriers are proven to be prohibitive in nature. Based on this assessment, project participant dropped these discussions in the revised PDD.

[CAR 8] and [CL 3] raised in respect of additionality were satisfactorily resolved as said in Appendix A.

3.2.4 Algorithm and formulae used to determine emission reductions

Project participant has used the algorithm and formulae in line with the Emission Factor tool (Ref 20). The detailed algorithm and formulae used are provided in section B.6.3 of the PDD.
Refer section 3.4 of this report for comments on the calculation of the emission reductions.

3.3 Monitoring Plan

The Project uses the approved methodology AMS ID, version 13 (Ref 18). Refer discussions on the applicability of the methodology at section 3.2.1 above.

Validation team considers the monitoring plan to be complying with the requirements of the methodology. The reasons are as follows –

1. According to the methodology, there is only one variable that a windmill project needs to monitor, ie., EG_y the net electricity generated and delivered to the grid by the renewable technology.
2. EF_y, the emission factor is fixed ex-ante. This is in line with the EF tool as required by the methodology.
3. For the emission reduction calculations, net electricity exported to the grid is considered.
4. Project participant has provided provision for monitoring these parameters and for electronic and hardcopy archiving of all the monitored data. This is stated in section B.7.1 and B 7.2 of the PDD.
5. Project participant has provided for keeping the data for 2 years after the end of the last crediting period.
6. The monitoring plan includes requirements for calibration of all the measurement equipment used for monitoring the project activity variables. The meters used for monthly joint meter recording are calibrated by the TNEB. The Joint meter readings will be used directly for calculations CERs. These readings will be crosschecked with the sales receipts.
7. The monitoring frequency for EG_y matches with that of the methodology, viz. hourly measurement and monthly recording. The cross checking is provided through the use of the sales receipts.
8. Project participant has included a few other variables in the monitoring plan to account for the electricity imported by the project activity as well as to provide for an uncertainty where the dates of the recorded data may not coincide with the verification period.
9. Under section B.7.2 of the PDD, project participant has provided additional procedures to deal with data uncertainty, problems with meters, etc.

The validation team physically verified the metering system installed at the site of the project activity. Project participant has described the

metering system in details in revised section B.7.2 of the PDD. Validation team confirms that the description now correctly represents the metering system available at the project activity sites.
The validation team hereby confirms that the defined monitoring plan can be implemented in the context of the project activity.

The validation team also interacted with the O&M service provider; M/s. Suzlon Infrastructure services Ltd, who is the windmill supplier itself. The agency is experienced in the monitoring system and is managing O&M of numerous other wind farm CDM projects.

The validation team therefore is of the opinion that the project participant through the O&M agency is capable of implementing the monitoring plan in the context of the project activity.

[CAR 12-16] and [CL 4-7] raised in respect of monitoring were satisfactorily resolved as said in Appendix A.

3.4 Calculation of GHG Emissions

As per AMS ID, version 13, the baseline is the kWh produced by the renewable generating unit multiplied by an emission coefficient (measured in kg CO2e/kWh) calculated in a transparent and conservative manner.
As required under AMS ID, version 13, project participant has calculated the baseline emissions by multiplication of the net electricity supplied by the project activity and the grid emission factor. The detailed algorithms are described later under sections B.6.3 of the PDD.

Since it is only a windmill activity, the project emissions are to be considered as zero. Project participant has however, indirectly accounted for project emissions by subtracting the measured electricity imported from the electricity exported by the project activity. The project participant confirmed that there is no transfer of equipment to or from the project activity and hence the project does not lead to any leakage.

Validation team assessed the calculations of estimated CERs as provided by project participant in a spreadsheet (Ref 12). The assumptions in this spreadsheet were validated as follows -

Parameter, Value	Source of information	Validation justification
Project Capacity, MW 1.5	POs & PPA	Self explanatory
Number of machines, 1	POs	Self explanatory
PLF, 31.10%	As per TNERC order	Refer section 3.2.3 of this report.
Baseline EF, 0.9291 tCO_2/MWh	CER spreadsheet, PDD	As explained in section 3.2.2 of this report.

The estimated annual average of approximately 3,796 tCO2e over the crediting period of emission reduction represents a reasonable estimation using the assumptions given by the project. All the assumptions for this estimate either come from the assumptions used for investment analysis or grid emission factor as taken from CEA website. These are already validated in sections 3.2.2 of this report. The validation team confirms that the estimates of baseline emissions can be replicated using the information provided. It also can be verified using the spreadsheet (Ref 12) for calculations of CERs.

[CAR 10,11 and 20-22] raised in respect of GHG calculations were satisfactorily resolved as said in Appendix A.

3.5 Sustainable Development Impacts

As per Indian legislation (Ref 27) for EIA, the impacts from windmill projects are not considered to be significant. The host country legislation does not require any environmental impact assessment to be carried out for wind energy projects. Project participant has obtained approval (Ref 7) from DNA of India and it is confirmed by the Authority that the project contributes to sustainable development in India. The project activity is in compliance with all current applicable legislations. As the project activity does not lead to generation of liquid or gaseous effluents and will partly displace fossil fuel based electricity generation, there are only benefits derived out of the project and no adverse effects are envisaged. Moreover, the location of the project activity is in remote and economically backward region and hence largely contributes to the social well being of the region.

During site visit it was noticed that Kallam Agro Products and Oils Private Limited has entrusted the operation and maintenance of the windmills with Suzlon Infrastructure services Ltd and local personnel are employed as part of the operations and maintenance team and as site security in the wind farm area, thus giving employment opportunity to the nearby villagers. It is verified from the Suzlon officials and during interview with local public that around 25 local persons were involved in this project during construction phase and 2 local persons in shift were employed as watchman, for the windmill.

3.6 Comments by Local Stakeholders

Local stakeholder consultation meeting to discuss stakeholder concerns on the Clean Development Mechanism (CDM) project – “1.5 MW Grid connected Wind Electricity Generation at Tirunelveli District, Tamilnadu, India by Kallam Agro Products and Oils Private Limited” was held on 18/03/2008 at Radhapuram village, Tirunelveli District, Tamil Nadu, India.

The list of participants, notice-inviting participation to interested stakeholders, and photographic record of the stakeholder meeting proceedings is maintained by the project participants (Ref 28). The information indicates that project participant provided sufficient time [15 days] to stakeholders for providing comments.
The stakeholders viewed this project as contributing to local environmental benefits and socio-economy. Overall, there was agreement that the project activity was a beneficial project from the local sustainable development.
During validation site visit, few villagers around were interviewed for their views about the project. The villagers confirmed that the stakeholder consultation meeting was held at the office of Suzlon Infrastructure services at Radhapuram village, Tirunelveli District, Tamil Nadu, India, as per their request. The villagers expressed satisfaction over the windmill project activity in the region and confirmed that due to the project, there is no adverse effect or damage to land, vegetation etc. It was expressed that the project activity gives employment opportunity for the local public and thus contributes to the economical growth of the region. As such the validation team was of the opinion that the local stakeholder consultation process was adequate giving fair opportunity for participation by the local stakeholders.

[CAR 18] raised in respect of stakeholder consultation is satisfactorily resolved as said in Appendix A.

4 COMMENTS BY PARTIES, STAKEHOLDERS AND NGOS

According to the modalities for the Validation of CDM projects, the DOE shall make publicly available the project design document and receive, within 30 days, comments from Parties, stakeholders and UNFCCC accredited non-governmental organizations and make them publicly available.

Bureau Veritas Certification published the project documents on the UNFCCC CDM website (http://cdm.unfccc.int) on 12/09/2008 and invited comments within 11/10/2008 by Parties, stakeholders and non-governmental organizations.

No comments were received from any parties, stakeholders or NGOs.

5 VALIDATION OPINION

Bureau Veritas Certification has performed a validation of the “1.5 MW Grid connected Wind Electricity Generation at Tirunelveli District, Tamilnadu, India by Kallam Agro Products and Oils Private Limited”. The validation was performed on the basis of UNFCCC criteria and host

country criteria and also on the criteria given to provide for consistent project operations, monitoring and reporting.

The validation consisted of the following three phases: i) a desk review of the project design and the baseline and monitoring plan; ii) follow-up interviews with project stakeholders; iii) the resolution of outstanding issues and the issuance of the final validation report and opinion.

Project participant/s used the latest tool for demonstration of the additionality. In line with this tool, the PDD provides analysis of investment to determine that the project activity itself is not the baseline scenario.

By synthetic analysis of the description of the project, it is seen that the project is likely to result in reductions of GHG emissions. An analysis of the investment demonstrates that the proposed project activity is not a likely baseline scenario. Emission reductions attributable to the project are hence additional to any that would occur in the absence of the project activity. Given that the project is implemented and maintained as designed, the project is likely to achieve the estimated amount of emission reductions.

The review of the project design documentation (version 02) and the subsequent follow-up interviews has provided Bureau Veritas Certification with sufficient evidence to determine the fulfillment of stated criteria. In our opinion, the project correctly applies and meets the relevant UNFCCC requirements for the CDM and the relevant host country criteria.

The validation is based on the information made available to us and the engagement conditions detailed in this report.

6 References

6.1 Category 1 Documents:

Documents provided by Type the DLF Limited that relate directly to the GHG components of the project.

(Ref 1) Project design document, version 02 dated 27/06/2009

(Ref 2) Purchase order for supply and commissioning of 1.5 MW wind power project, dated 20/01/2008

(Ref 3) http://cdm.unfccc.int/Projects/Validation/DB/E7H9UZF08J6PLPPC5TLI2L3T0B9OJK/view.html – web link of another CDM project of the Kallam group - as evidence for awareness of CDM before decision

(Ref 4) Extracts of the minutes of meeting of the board of Directors, dated 09/01/2008

(Ref 5) Ledger book containing original of the above minutes [maintained at administrative office of the project participant]

(Ref 6) Application for DNA approval vide letter dated 25/06/2008

(Ref 7) Host country approval letter reference no.4/20/2008-CCC dated 18/09/2008, 2 pages.

(Ref 8) Commissioning certificate no: SE/TINAEE/DVT/AE 2/F.WEG/ HTSCNO.2543/R.1288 DATED09/04/2008

(Ref 9) Loan sanction letter from Indian bank, Guntur branch dated 25/02/2008

(Ref 10) Power purchase agreement dated 28/03/2008 between Kallam Agro Products & Oils Pvt Ltd and TNEB

(Ref 11) Detailed project report on the project, January 2008

(Ref 12) CER calculation spreadsheet

(Ref 13) IRR calculations spreadsheet

(Ref 14) Insurance Policy from The Oriental Insurance company for WTG No. 432303111/2008/595 dated 31/03/2008

(Ref 15) Operation and maintenance agreement between Kallam Agro Products & Oils Pvt Ltd and Suzlon Infrastructure services Ltd

(Ref 16) Meter calibration certificate for the TNEB meter, Lr.no.AEE/MRT/WF/MPDL/F.P.T/D.2535/08 Dated 17/11/2008

6.2 Category 2 Documents:

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

(Ref 17) PDD completion guidance - Guidelines for completing the simplified project design document (CDM-SSC-PDD) and the form for proposed new small scale methodologies (CDM-SSC-NM), version 05

(Ref 18) AMS ID, Version 13 - Indicative simplified baseline and monitoring methodologies for selected small-scale CDM project activity categories – Grid connected renewable energy generation

(Ref 19) Additionality tool - Tool for the demonstration and assessment of additionality, version 05.2

(Ref 20) Emission Factor tool - Tool to calculate the emission factor for an electricity system, version 1.1

(Ref 21) Validation and Verification Manual, version 1; [VVM]

(Ref 22) CEA baseline database, version 03 dated 15/12/2007 [http://www.cea.nic.in/planning/c%20and%20e/Government%20of%20India%20website.htm]

(Ref 23) Guidance on the Assessment of Investment Analysis

(Ref 24) Web page of reserve bank of India [http://www.rbi.org.in/scripts/AnnualReportPublications.aspx?Id=864]

(Ref 25) TNERC order no.3 dated 15/05/2006 and amendment order on 18/05/2006 regarding determination of tariff in respect of renewable sources of energy

(Ref 26) Income Tax Act, Government of India [http://law.incometaxindia.gov.in/TaxmannDit/DisplayPage/dpage1.aspx]

(Ref 27) EIA notification, S.O. 1533 dated 14th September, 2006

(Ref 28) Advertisement in the daily, List of participants, photographs of the local stakeholder consultation meetings and minutes of the meeting

(Ref 29) Report in Carbon positive web site http://www.carbonpositive.net/viewarticle.aspx?articleID=960 report stating price of CERs in December 2007

(Ref 30) E mail from CDM Team, UNFCCC to the consultant dated 17th March 2009, clarifying about project title.

(Ref 31) RBI Weekly Statistical Supplement dated 04/01/2008.

(Ref 32) Letter from Suzlon regarding possibility of commissioning the Wind Turbine generator in 1 to 3 months.

6.3 Persons interviewed:

List persons interviewed during the validation or persons that contributed with other information that are not included in the documents listed above.

/1/ Mr. P. Venugopal, Director, Kallam Agro Products and Oils Private Limited

/2/ Mr. Krishna, Manager, Zenith Energy Private Limited

/3/ Mr. Subramania Pillai, CRM Manager, Suzlon Infrastructure service Ltd

/4/ Mr. B. Elamparuthi, CMS Incharge, Suzlon Infrastructure service Ltd

/5/ Mr. Easwaran, Shift Incharge, Suzlon Infrastructure service Ltd

/6/ Mr. I Murugan, Udayathoor village, farmer

/7/ Mr. R. Senthil, Thiruvambalapuram village, farmer

/8/ Mr. S. Sakthivel, Thiruvambalapuram village, motor mechanic

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7 CV OF THE DOE'S VALIDATION TEAM MEMBERS

R. Reghu Kumar: (*Team Leader*) Lead auditor in Bureau Veritas Certification for Environment Management System, Quality Management System and Occupational Health and Safety Management System. Post graduate in Environmental Engineering, Management and certified Project Management Professional from PMI, Pennsylvania, USA, with 20 years of work experience, which include teaching, Environmental Management & Monitoring as part of the environmental regulatory authority and Management system auditing with exposure to variety industrial processes. He has undergone intensive training on Clean Development Mechanism and involved in validation / verification of CDM projects.

R S Prem Kumar: (*Team Member*) Lead auditor in Bureau Veritas Certification for Environment Management System, Quality Management System and Occupational Health and Safety Management System. Graduate in the field of Environmental Engineering and has more than 12 years of Industrial work experience in the field of environmental and occupational safety management systems. He has undergone intensive training on Clean Development Mechanism. He is involved in the Validation/verification for more than 25 CDM projects.

Dinesh Shetty: (*Internal reviewer*) Chemical Engineer with over all 17 years of experience. He has worked with National Productivity Council of India as Project Consultant and trainer for projects in the field of Environment Management for thirteen years. He is working as Lead auditor and trainer in Bureau Veritas Certification for Environment Management System, Quality Management System and Occupational Health and Safety Management System. He has undergone intensive training on Clean Development Mechanism and involved in validation / verification of CDM projects. He is also a Lead Tutor for CDM.

APPENDIX A :

M/S. KALLAM AGRO PRODUCTS & OILS (P) LIMITED
CDM PROJECT VALIDATION PROTOCOL

TABLE 1 MANDATORY REQUIREMENTS FOR SMALL SCALE CLEAN DEVELOPMENT MECHANISM (CDM) PROJECT ACTIVITIES

REQUIREMENT	REFERENCE	CONCLUSION	Cross Reference/ Comment
The project shall assist Parties included in Annex I in achieving compliance with part of their emission reduction commitment under Art. 3	Kyoto Protocol Art. 12.2	Host Country Approval No: 4/20/2008-CCC Dated 18/09/2008 from MOEF, Government of India	Table 2, Section E.4.1
The project shall assist non-Annex I Parties in achieving sustainable development and shall have obtained confirmation by the host country thereof	Kyoto Protocol Art. 12.2, Simplified Modalities and Procedures for Small Scale CDM Project Activities §23a	OK	Table 2, Section A.3
The project shall assist non-Annex I Parties in contributing to the ultimate objective of the UNFCCC	Kyoto Protocol Art. 12.2.	Host Country Approval No: 4/20/2008-CCC Dated 18/09/2008 from MOEF, Government of India	Table 2, Section E.4.1
The project shall have written approval of voluntary participation from the designated national authorities of each party involved	Kyoto Protocol Art. 12.5a, Simplified Modalities and Procedures for Small Scale CDM Project Activities §23a	OK	Host country approval is received from Ministry of Environment and Forest (MOEF), DNA, India
The emission reductions should be real, measurable and	Kyoto Protocol Art.	OK	Table 2, Section E.1

REQUIREMENT	REFERENCE	CONCLUSION	Cross Reference/ Comment
give long-term benefits related to the mitigation of climate change	12.5b		to E.4
Reduction in GHG emissions must be additional to any that would occur in absence of the project activity, i.e. a CDM project activity is additional if anthropogenic emissions of greenhouse gases by sources are reduced below those that would have occurred in the absence of the registered CDM project activity	Kyoto Protocol Art. 12.5.c, Simplified Modalities and Procedures for Small Scale CDM Project Activities §26	OK	Table 2, Section B.2.1
Potential public funding for the project from Parties in Annex I shall not be a diversion of official development assistance	Marrakech Accords (Decision 17/CP.7)	OK	No public funding for the project from Annex1 parties is indicated.
Parties participating in the CDM shall designate a national authority for the CDM	Marrakesh Accords (CDM modalities§ 29)	OK	Ministry of Environment and Forest has been designated national authority by the host country i.e. India.
The host country shall be a Party to the Kyoto Protocol	Marrakesh Accords (CDM modalities§ 30)	OK	Date of accession – 26/08/2002 Source http://unfccc.int/parties_and_observers/parties/items/2109.php
The proposed project activity shall meet the eligibility criteria for small scale CDM project activities set out in § 6	Simplified Modalities and Procedures for Small	OK	Table 2, Section A.1

REQUIREMENT	REFERENCE	CONCLUSION	Cross Reference/ Comment
(c) of the Marrakesh Accords and shall not be a debundled component of a larger project activity	Scale CDM Project Activities §12a,c		
The project design document shall conform with the Small Scale CDM Project Design Document format	Simplified Modalities and Procedures for Small Scale CDM Project Activities, Appendix A	OK	PDD is as per the latest format CDM-SSC-PDD,
The proposed project activity shall confirm to one of the project categories defined for small scale CDM project activities and uses the simplified baseline and monitoring methodology for that project category	Simplified Modalities and Procedures for Small Scale CDM Project Activities §22e	OK	Table 2, Section A.1.3 and B.1
Comments by local stakeholders are invited, and a summary of these provided	Simplified Modalities and Procedures for Small Scale CDM Project Activities §22b	OK	Table 2, Section G
If required by the host country, an analysis of the environmental impacts of the project activity is carried out and documented	Simplified Modalities and Procedures for Small Scale CDM Project Activities §22c	OK	Table 2, Section F
Parties, stakeholders and UNFCCC accredited NGOs have been invited to comment on the validation requirements and comments have been made publicly available	Simplified Modalities and Procedures for Small Scale CDM Project Activities §23b,c, d	OK	PDD was made available for public comments from 12/09/2008 to 11/10/2008

TABLE 2 REQUIREMENTS CHECKLIST

CHECKLIST QUESTION	Ref.	MoV *	COMMENTS	Draft Concl.	Final Concl.
A. Project Description The project design is assessed.					
A.1. Small scale project activity It is assessed whether the project qualifies as small scale CDM project activity.					
A.1.1. Title of the project activity, version number and date of the document	1-3	DR	Title of the project is "1.5 MW Grid connected Wind Electricity Generation at Tirunelveli District, Tamilnadu, India by Kallam Agro Products & Oils (P) Limited." Version 01 Dated 02/09/2008. However the project title in PDD does not match with the title in the Host country approval dated 18/09/08.	CAR 1	OK
A.1.2. Does the project qualify as a small scale CDM project activity as defined in paragraph 6 (c) of decision 17/CP.7 on the modalities and procedures for the CDM?	1- 3	DR	Yes, because it is a renewable energy project with installed capacity of 1.5 MW, which is less than the threshold for small-scale eligibility.	OK	OK
A.1.3. The small-scale project activity is not a debundled component of a larger project activity?	1- 3	DR	In section 4.5 of PDD the project participant confirmed that the project is not a debundled component of a large-scale project activity. However in section B 5 of PDD, under investment barrier it is said that "The envisaged project activity involves an investment of Rs.97.35 million for a 1.5 MW capacity of Bundled Project"	CL 1	OK
A.1.4. Does proposed project activity conform	1- 3	DR	Yes, it conforms to Type I Category D.	OK	OK

CHECKLIST QUESTION	Ref.	MoV *	COMMENTS	Draft Concl.	Final Concl.
to one of the project categories defined for small-scale CDM project activities?					
A.2. Project Design Validation of project design focuses on the choice of technology and the design documentation of the project.					
A.2.1. Is the purpose of the project activity included?	1-3	DR	It is said in the PDD that the purpose of the project is to is to establish a 1.5 MW Wind Electric Generator (WEG) in Tirunelveli District, Tamilnadu and export the electricity generated to the State grid the Tamil Nadu Electricity Board. The PPA signed with TNEB dated 28/03/2008.	OK	OK
A.2.2. Are the project's spatial (geographical) boundaries clearly defined?	1- 3	DR I	The project activity is located at S.F.No.266/1A2A/P, Thiruvambalapuram Village, Radhapuram Taluka, Tirunelveli District, Tamilnadu, India. The geographical co-ordinates of the project location is 77o41'04"E (longitude) and 8 o 43'28"N (latitude). However the spatial extent of the project boundary is not transparent in the PDD. Also the latitude / longitude mentioned pertains to the village and not specific to the WTG location.	CAR 2	OK
A.2.3. Are the project's system (components and facilities used to mitigate GHG's) boundaries clearly defined?	1- 3	DR I	According to PDD, the project's boundary includes wind turbine installations and pooling the sub-stations. Flow diagram has not included the equipments, systems and flow of energy.	CAR 3	OK

CHECKLIST QUESTION	Ref.	MoV *	COMMENTS	Draft Concl.	Final Concl.
A.2.4. Does the project design engineering reflect current good practices?	1- 3	DR I	The PDD under A.2 provides detailed specifications of the windmills. However the good engineering practices are not discussed	CL 2	OK
A.2.5. Will the project result in technology transfer to the host country?	1- 3	DR	The project activity does not involve technology transfer to host country.	OK	OK
A.2.6. Does the project require extensive initial training and maintenance efforts in order to work as presumed during the project period? Does the project make provisions for meeting training and maintenance needs?	1- 3	DR I	As stated in PDD, that the O&M will be done by the WEG supplier for a period of 10 years. However as per O&M agreement it is for 11 yrs. What about from 12th year onwards? In P.O it is said for 6 years	CL 3	OK
A.2.7. Is the pre/ post project scenario included in the PDD?	1-3	DR I	Pre/post project scenario not included in the PDD[a]	CAR 4	OK
A.2.8. Is the information on age and average lifetime of the equipment included?	1-3	DR I	Information on age and average lifetime of the equipment is not included in section A 2	CAR 5	OK
A.3. Contribution to Sustainable Development The project's contribution to sustainable development is assessed					
A.3.1. Will the project create other environmental or social benefits than GHG emission reductions?	1- 3	DR I	PDD under section A.2 does not provide the following information – ▪ What is the situation before the implementation of the project activity? ▪ How the project activity led to the technological well being? It is said that "The project would be using the horizontal	CAR 6	OK

CHECKLIST QUESTION	Ref.	MoV *	COMMENTS	Draft Concl.	Final Concl.
			axis wind turbine (HAWT) having three rotor blades" In what way it is different than the existing wind mills?? The project is expected to create the following benefits in addition to GHG emission reductions: ▪ Employment to local personnel[b] ▪ Availability of electricity to grid ▪ Conservation of fossil fuels The following claims in the PDD are not justified with evidences. Project participant should justify these claims: ▪ Tamilnadu state is deficit in power ▪ Investment in and CDM revenues to the project activity leading to economic well-being for society ▪ continuous and sustained power to the local industries and agricultural farmers located in remote areas, thereby eliminating load shedding and low frequency of power.		
A.3.2. Will the project create any adverse environmental or social effects?	1- 3	I	The project activity is not expected to create any adverse effects.	OK	OK
A.3.3. Is the project in line with sustainable development policies of the host country?	1- 3	I	The project activity leads to some socio-economic benefits as discussed above which are in line with the renewable energy policy of India. Further, approval from DNA of India is considered to meet the respective policies.	OK	OK
A.3.4. Is the project in line with relevant	1- 3	DR	Indian government promotes renewable power generation. Indian legislation allows power	OK	OK

CHECKLIST QUESTION	Ref.	MoV *	COMMENTS	Draft Concl.	Final Concl.
legislation and plans in the host country?			generation through privately owned windmills. The project activity is therefore in line with the relevant legislation in India.		
B. Project Baseline The validation of the project baseline establishes whether the selected baseline methodology is appropriate and whether the selected baseline represents a likely baseline scenario.					
B.1. Baseline Methodology It is assessed whether the project applies an appropriate baseline methodology.					
B.1.1. Is the selected baseline methodology in line with the baseline methodologies provided for the relevant project category?	1- 3	DR I	Yes, the selected baseline methodology is in line with AMS I.D. PDD under section B.1 does not identify the tools used.	CAR 7	OK
B.1.2. Is the baseline methodology applicable to the project being considered?	1- 3	DR	Yes, the baseline methodology is applicable to the project activity.	OK	OK
B.2. Baseline Determination It is assessed whether the project activity itself is not a likely baseline scenario and whether the selected baseline represents a likely baseline scenario.					
B.2.1. Is it demonstrated that the project activity itself is not a likely baseline	1- 3	DR	The project activity started before the project participant requested validation. Project participant		OK

CHECKLIST QUESTION	Ref.	MoV *	COMMENTS	Draft Concl.	Final Concl.
scenario due to the existence of one or more of the following barriers: investment barriers, technology barriers, barriers due to prevailing practice or other barriers?		I	therefore needs to demonstrate serious consideration of CDM and also justify the delay in requesting validation taking into account guidance by EB41 meeting. It is said in PDD under B.5 that "The Board of Directors of Kallam Agro Products & Oils (P) Ltd. in their meeting held on 09/01/2008 discussed consideration of income from Carbon Credits while making the investment in a wind project, "[c] However the chronology of events from the start date to the validation with actions taken, date of action and evidences available is not discussed in the PDD under section B.5.[d] Project participant has undertaken the analysis of investment and technology barriers to prove that the project activity is additional. Following is the assessment of these barriers by the validation team – Under the investment barrier, the project participant refers to the Report of the Expert Committee on Fuels for Power Generation was submitted in February 2004[e]. However this has not restricted the investments in windmills in Tamil Nadu and hence could not be considered prohibitive. In investment analysis, the project participant has conducted benchmark analysis approach for the IRR. It is not transparent on the type of IRR and appropriateness of the benchmark chosen	CAR 8	

CHECKLIST QUESTION	Ref.	MoV *	COMMENTS	Draft Concl.	Final Concl.
			However the guidance document referred for the selection of benchmark & sensitivity is not the updated one. The project proponent has done the IRR calculations for the project. However the input values assumptions made and source for the information therein for each of the projects is not transparent in the PDD. Sensitivity analysis is done only for variations of project cost and PLF. All parameters that are likely to exceed 20% of project cost with justification is not discussed. Why not tariff & O & M cost??[f] The PP has taken 13.00% as average of the PLR and as the benchmark for demonstrating the additionality. PDD refers to TNERC order dated 18/05/2006. However there is no link provided to this order.[g] PDD refers to annex 35, page No.2 of EB 39 as the guidance document. The latest is Annex 45 of EB 41[h]. The validation team validated the following assumptions and found correct[i j] Tarrif of Rs. 2.90 / KWh – based on PPA O&M cost of 1.5 Million + service tax and annual escalation of 5% from third year.- based on PO and O&M agreement		

CHECKLIST QUESTION	Ref.	MoV *	COMMENTS	Draft Concl.	Final Concl.
			Insurance premium – Insurance policy Salvage value – P.Os Land cost – P.Os Loan component of 74.4 million – Loan sanction letter Project participant should clarify and take in to account the following for IRR calculation– 1. If the project activity involves captive use as well as export of the power generated? 2. Break up of the WTG cost (91.03 as per IRR sheet) 3. What is the guaranteed PLF and the actual PLF assumed to arrive at the generation figure in IRR calculations.?[k] The PLF assumed does not seem to be conservative as per the latest available TNERC order for the region. 4. As per PPA tarrif is fixed at Rs. 2.90. However this is not fixed for the life time considered. The reasonable escalation in tariff expected is not accounted in the IRR calculations. 5. rate of Interest on the loan component 6. Administrative expenses to be transparent 7. Is there any other benefit availed for the project like TUFs?? 8. Basis for assuming derating of 1% The barriers discussed under technological barrier are not		

CHECKLIST QUESTION	Ref.	MoV *	COMMENTS	Draft Concl.	Final Concl.
			technological barriers. However the backing down of WEGs or evacuation difficulties has not constrained the investment in windmills and cannot be considered as prohibitive barriers. Further the news clipping references are not transparent in PDD. It is said in the PDD that "In the last three to four days, according to the sources, TNEB has asked wind power generators to shut down their turbines for periods ranging from nine hours to 20 hours a day".[I] IRR calculations refer to evidences to assumptions, which are post decision making The P.O s reflect the cost inclusive of service tax, whereas in the IRR calculations service tax is again considered amounting to double counting?		
Is the application of the baseline methodology and the discussion and determination of the chosen baseline transparent and conservative?	1- 3	DR	Yes. Application of the baseline methodology, discussion and determination of the chosen baseline is transparent and conservative.	OK	OK
Are relevant national and/or sectoral policies and circumstances taken into account?	1- 3	DR I	There is no discussion on the relevant national and/or sectoral policies and circumstances.	CAR 9	OK
Is the baseline selection compatible with the available data?	1- 3	DR	Yes, the baseline selection is compatible with the available data since the baseline is determined using the official CEA data. However latest version of CEA data is not referred and discussed for conservativeness of emission factor used.	CAR 10	OK
Does the selected baseline represent the most likely scenario describing what would have occurred in absence of the project activity?	1- 3	DR	The project participant as defined by the approved methodology selected the baseline.	OK	OK

CHECKLIST QUESTION	Ref.	MoV *	COMMENTS	Draft Concl.	Final Concl.
B.3. Duration of the Project / Crediting Period It is assessed whether the temporary boundaries of the project are clearly defined.					
B.3.1. Are the project's starting date and operational lifetime clearly defined?	1- 3	DR	Project participant has considered the date 20/01/2008 (Purchase order issued for civil works to Suzlon Infrastructure Services Pvt Ltd) as the start date of the project activity. The operational life of the project activity is considered as 20 years. This is typically the lifetime considered for windmills.[m]	OK	OK
B.3.2. Is the crediting period clearly defined (seven years with two possible renewals or 10 years with no renewal)?	1- 3	DR	Fixed crediting period of 10 years is considered from the date of registration.	OK	OK
B.4. Monitoring Plan The monitoring plan review aims to establish whether all relevant project aspects deemed necessary to monitor and report reliable emission reductions are properly addressed.					
B.4.1. Monitoring Methodology It is assessed whether the project applies an appropriate monitoring methodology.					
B.4.1.1. Is the selected monitoring methodology in line with the monitoring methodologies provided for the relevant project category?	1- 3	DR	Yes, the selected monitoring methodology is in line with AMS I.D	OK	OK

CHECKLIST QUESTION	Ref.	MoV *	COMMENTS	Draft Concl.	Final Concl.
B.4.1.2. Is the monitoring methodology applicable to the project being considered?	1- 3	DR	Yes, AMS I.D is applicable to the project activity.	OK	OK
B.4.1.3. Is the application of the monitoring methodology transparent?	1- 3	DR	Yes, the application of the monitoring methodology is transparent since it includes information on imports by project activity.	OK	OK
B.4.1.4. Will the monitoring methodology give opportunity for real measurements of achieved emission reductions?	1- 3	DR	The monitoring methodology relies on metered data and hence it will give opportunity for real measurement of achieved emission reductions.	OK	OK
B.4.2. Monitoring of Project Emissions It is established whether the monitoring plan provides for reliable and complete project emission data over time.					
B.4.2.1. Are the choices of project emission indicators reasonable?	1- 3	DR	The project emissions in terms of imports are accounted in the monitoring of the baseline emission indicator. There are no other project emissions applicable.	OK	OK
B.4.2.2. Will it be possible to monitor / measure the specified project emission indicators?	1- 3	DR	As per PDD, energy meters at the interconnection points measure the export and imports, which are accounted in arriving at the net electricity supplied to the grid as a baseline emission indicator.	OK	OK
B.4.2.3. Do the measuring technique and frequency comply with good monitoring practices?	1- 3	DR	The TNEB officials and project participant representative jointly using calibrated meters do the measurements every month.	OK	OK
B.4.2.4. Are the provisions made for archiving project emission data sufficient to enable later	1- 3	DR	It is said in the PDD that "The data will be archived for two years after the crediting period or of the last	-	OK

CHECKLIST QUESTION	Ref.	MoV *	COMMENTS	Draft Concl.	Final Concl.
verification?			issuance of CER's of this project activity, whichever occur later". However, in the PDD it is not transparent if the data is going to be archived in hard copy and/or in electronic format. Refer B.4.4.4 below.		
B.4.3. Monitoring of Leakage It is assessed whether the monitoring plan provides for reliable and complete leakage data over time.					
B.4.3.1. If applicable, are the choices of leakage indicators reasonable?	1- 3	DR	Not applicable. It is confirmed during site visit that there is no transfer of equipment from or to the project activity and hence no leakage. However this is not transparent in the PDD [n]	CAR 11	OK
B.4.3.2. If applicable, will it be possible to monitor / measure the specified leakage indicators?	1- 3	DR	Not applicable.	OK	OK
B.4.3.3. If applicable, do the measuring technique and frequency comply with good monitoring practices?	1- 3	DR	Not applicable.	OK	OK
B.4.3.4. If applicable, are the provisions made for archiving leakage data sufficient to enable later verification?	1- 3	DR	Not applicable.	OK	OK
B.4.4. Monitoring of Baseline Emissions It is established whether the monitoring plan provides for reliable and complete project					

CHECKLIST QUESTION	Ref.	MoV *	COMMENTS	Draft Concl.	Final Concl.
emission data over time.					
B.4.4.1. Is the choice of baseline indicators, in particular for baseline emissions, reasonable?	1- 3	DR	The baseline emission indicator is the net electricity supplied to the grid. Methodology says "monitoring shall consist of metering the electricity generated by the renewable technology". This is not transparent in the PDD. Refer 2.1 of Table 3 below.	CAR 12	OK
B.4.4.2. Will it be possible to monitor / measure the specified baseline emission indicators?	1- 3	DR	The energy meters installed at the interconnection points facilitate measurement of the parameters for the baseline emissions.	OK	OK
B.4.4.3. Do the measuring technique and frequency comply with good monitoring practices?	1- 3	DR	The TNEB officials and project participant representative jointly using calibrated meters do the measurements.	OK	OK
B.4.4.4. Are the provisions made for archiving baseline emission data sufficient to enable later verification?	1- 3	DR	The PDD does not define requirements for archiving the data. As per methodology, 100% of the data should be monitored and the data should be archived electronically and in hard copy.	CAR 13	OK
B.4.5. Project Management Planning It is checked that project implementation is properly prepared for and that critical arrangements are addressed.					
B.4.5.1. Is the authority and responsibility of project	1- 3	DR	The project management authority, roles and	CL 4	OK

CHECKLIST QUESTION	Ref.	MoV *	COMMENTS	Draft Concl.	Final Concl.
management clearly described?		I	responsibilities are not clearly defined in the PDD.[o]		
B.4.5.2. Is the authority and responsibility for monitoring measurement and reporting clearly described?	1- 3	DR I	This is defined in section B.7.2 of the PDD. TNEB officials and project participant representative do the monitoring jointly. Refer B 4.5.1	-	OK
B.4.5.3. Are procedures identified for training of monitoring personnel?	1- 3	DR I	PDD states that since the project activity operation and maintenance is handed over to supplier, no specific training is required.	OK	OK
B.4.5.4. Are procedures identified for emergency preparedness for cases where emergencies can cause unintended emissions?	1- 3	DR I	Not applicable since no emergency leading to unintended emissions is envisaged.	OK	OK
B.4.5.5. Are procedures identified for calibration of monitoring equipment?	1- 3	DR I	The procedures for calibration of the meters at interconnection points and calibration requirements for meters at WTG, etc are not evident in PDD.	CAR 14	OK
B.4.5.6. Are procedures identified for maintenance of monitoring equipment and installations?	1- 3	DR I	Meters at interconnection points are managed and maintained by TNEB officials. Equipment suppliers maintain other meters. Project participant therefore does not need separate procedures for these activities.	OK	OK
B.4.5.7. Are procedures identified for monitoring, measurements and reporting?	1- 3	DR I	The reporting routine is not adequately defined in section B.7.2 of the PDD.	CL 5	OK
B.4.5.8. Are procedures identified for day-to-day records handling (including what records to	1- 3	DR I	Procedures for day-to-day records handling (including what records to keep, storage area of	CL 6	OK

CHECKLIST QUESTION	Ref.	MoV *	COMMENTS	Draft Concl.	Final Concl.
keep, storage area of records and how to process performance documentation)			records and how to process performance documentation are not transparent in PDD		
B.4.5.9. Are procedures identified for dealing with possible monitoring data adjustments and uncertainties?	1- 3	DR I	The monitoring data adjustments may be required in case of mismatch of dates of the JMR and verification period. This may also call for apportioning of data. The uncertainties in data monitoring will mainly arise on account of the defects in meters. The procedures to deal with defects in meters at interconnection points are defined in the respective PPA. Project participant has not defined procedure for such adjustments and uncertainties in data on account of defects in meters and apportioning.	CAR 15	OK
B.4.5.10. Are procedures identified for internal audits of GHG project compliance with operational requirements as applicable?	1- 3	DR I	Project participant has not defined the procedures for internal audits, performance reviews and corrective actions.	CAR 16	OK
B.4.5.11. Are procedures identified for project performance reviews?	1- 3	DR I	Project participant has not defined the procedures for performance reviews. Refer B 4.5.10	-	OK
B.4.5.12. Are procedures identified for corrective actions?	1- 3	DR I	Project participant has not defined the procedures for corrective actions. Refer B 4.5.10	-	OK
B.5. Calculation of GHG emission					

CHECKLIST QUESTION	Ref.	MoV *	COMMENTS	Draft Concl.	Final Concl.
It is assessed whether all material GHG emission sources are addressed and how sensitivities and data uncertainties have been addressed to arrive at conservative estimates of projected emission reductions.					
B.5.1. Project GHG Emissions The validation of predicted project GHG emissions focuses on transparency and completeness of calculations.					
B.5.1.1. Are all aspects related to direct and indirect project emissions captured in the project design?	1- 3	DR	Direct project emissions on account of electricity imports are accounted in the baseline indicator and are in the monitoring plan.	OK	OK
B.5.1.2. Have all relevant greenhouse gases and sources been evaluated?	1- 3	DR	CO_2 is the only GHG applicable. This is not evaluated adequately. Refer B.5.11 above.	OK	OK
B.5.1.3. Do the methodologies for calculating project emissions comply with existing good practice?	1- 3	DR I	Not applicable.	OK	OK
B.5.1.4. Are the calculations documented in a complete and transparent manner?	1- 3	DR	Not applicable.	OK	OK
B.5.1.5. Have conservative assumptions been used?	1- 3	DR	Not applicable.	OK	OK
B.5.1.6. Are uncertainties in the project emissions estimates properly addressed?	1- 3	DR	Not applicable.	OK	OK
B.5.2. Leakage	1- 3				

CHECKLIST QUESTION	Ref.	MoV *	COMMENTS	Draft Concl.	Final Concl.
It is assessed whether there leakage effects, i.e. change of emissions which occurs outside the project boundary and which are measurable and attributable to the project, have been properly assessed.					
B.5.2.1. Are leakage calculation required for the selected project category and if yes, are the relevant leakage effects assessed?	1- 3	DR I	Not applicable.	OK	OK
B.5.2.2. Are potential leakage effects properly accounted for in the calculations (if applicable)?	1- 3	I	Not applicable.	OK	OK
B.5.2.3. Do the methodologies for calculating leakage comply with existing good practice (if applicable)?	1- 3	I	Not applicable.	OK	OK
B.5.2.4. Are the calculations documented in a complete and transparent manner and (if applicable)?	1- 3	DR	Not applicable.	OK	OK
B.5.2.5. Have conservative assumptions been used (if applicable)?	1- 3	DR	Not applicable.	OK	OK
B.5.2.6. Are uncertainties in the leakage estimates properly addressed (if applicable)?	1- 3	DR	Not applicable.	OK	OK
B.5.3. Baseline GHG Emissions The validation of predicted baseline GHG emissions focuses on transparency and completeness of calculations.					

CHECKLIST QUESTION	Ref.	MoV *	COMMENTS	Draft Concl.	Final Concl.
B.5.3.1. Are the baseline emission boundaries clearly defined and do they sufficiently cover sources for baseline emissions?	1- 3	DR	The project boundary encompasses the physical, geographical site of the renewable generation source. However, the baseline emission boundaries are not identified in the PDD.	CAR 17	OK
B.5.3.2. Are all aspects related to direct and indirect baseline emissions captured in the project design?	1- 3	DR	Yes, the project design accounts for these through emissions from the connected electricity system.	OK	OK
B.5.3.3. Have all relevant greenhouse gases and sources been evaluated?	1- 3	DR	CO_2 is the only relevant gas and is evaluated adequately.	OK	OK
B.5.3.4. Do the methodologies for calculating baseline emissions comply with existing good practice?	1- 3	DR	The baseline emission factor is taken from the official data published by CEA. However the latest version of CEA data is not referred. This data is calculated using the latest tool for the calculation of emission factor of an electricity system. Therefore it complies with the existing good practice. Refer B 2.4	-	OK
B.5.3.5. Are the calculations documented in a complete and transparent manner?	1- 3	DR I	The CEA data and its background information is publicly available. Since project participant used the official and publicly available data, the information is transparent. However the latest version of CEA data is not referred Refer B 2.4	-	OK
B.5.3.6. Have conservative assumptions been used?	1- 3	DR	The data is official and observed to be conservative.	-	OK
B.5.3.7. Are uncertainties in the baseline emissions estimates properly addressed?	1- 3	DR	Since the emission factor data is official and fixed ex-ante, there is no uncertainty in the data. However	-	OK

* MoV = Means of Verification, DR= Document Review, I= Interview

CHECKLIST QUESTION	Ref.	MoV *	COMMENTS	Draft Concl.	Final Concl.
			the latest version of CEA data is not referred Refer B 2.4		
B.5.4. Emission Reductions Validation of baseline GHG emissions will focus on methodology transparency and completeness in emission estimations.					
B.5.4.1. Will the project result in fewer GHG emissions than the baseline case?	1- 3	DR	Subject to additionality, if the project is implemented as defined in the PDD, it is expected to result in GHG emissions less than the baseline case.	OK	OK
B.6. Environmental Impacts It is assessed whether environmental impacts of the project are sufficiently addressed.					
B.6.1.1. Does host country legislation require an analysis of the environmental impacts of the project activity?	1- 3	DR	Indian legislation does not require environmental impact assessment for windmill projects.	OK	OK
B.6.1.2. Does the project comply with environmental legislation in the host country?	1- 3	I	Indian legislation allows privately owned windmills. The project activity therefore complies with environmental legislation in India.	OK	OK
B.6.1.3. Will the project create any adverse environmental effects?	1- 3	DR	The project activity is likely to generate solid and oily waste from maintenance activities. During site visit it is noticed that the oily waste and the solid waste is collected and disposed as per the statutory requirements for safe disposal by the O&M contractor.	OK	OK

CHECKLIST QUESTION	Ref.	MoV *	COMMENTS	Draft Concl.	Final Concl.
			Project activity is not likely to lead to any other adverse environmental effects.		
B.6.1.4. Have environmental impacts been identified and addressed in the PDD?	1- 3	DR I	In section D.1 of PDD it is stated that" the project does not cause any negative impacts on the environment or socioeconomic situation in the region and does not require any environmental impact analysis by the host party".	OK	OK
B.7. Comments by Local Stakeholder Validation of the local stakeholder consultation process.					
B.7.1.1. Have relevant stakeholders been consulted?	1- 3	DR I	PDD states that the project participants invited various stakeholders through personnel invitation and public notice in the news papers (two English dailies The Hindu and The Indian Express and one local language daily ie., Dina Thanthi) published on 03.03.2008. A public notice was displayed in local gram panchayat office. About 12 (village sarpanch and electricity board officials) local people had participated in the meeting. This is confirmed through the attendance sheet and the minutes of the meeting submitted by the project participant. The participants include local farmers, business people, workers, etc. During site visit three of the local stakeholders who have attended the meeting was contacted and the stakeholder consultation process was confirmed.	OK	OK

CHECKLIST QUESTION	Ref.	MoV *	COMMENTS	Draft Concl.	Final Concl.
B.7.1.2. Have appropriate media been used to invite comments by local stakeholders?	1- 3	DR I	Public notice and media is used for invitation	OK	OK
B.7.1.3. If a stakeholder consultation process is required by regulations/laws in the host country, has the stakeholder consultation process been carried out in accordance with such regulations/laws?	1- 3	DR I	Not applicable.	OK	OK
B.7.1.4. Is a summary of the comments received provided?	1- 3	DR I	PDD under section E.2 it is said that there is no negative comments. What about positive comments based on the questionnaire circulated? Provides a summary of the comments received.	CAR 18	OK
B.7.1.5. Has due account been taken of any comments received?	1- 3	DR I	PDD under section E.2 it is said that there is no negative comments. Refer B 7.1.4 above	-	OK

TABLE 3 BASELINE AND MONITORING METHODOLOGIES: AMS – I.D VERSION 13

CHECKLIST QUESTION	Ref.	MoV *	COMMENTS	Draft Concl	Final Concl
1 Baseline Methodology					
1.1 Applicability					
1.1.1 Does the project activity generate electricity from a renewable source like such as photovoltaics, hydro, tidal/wave, wind, geothermal and renewable biomass	3	DR I	Yes, from wind.	OK	OK
1.1.2 Is the power connected to the grid or displace electricity from electricity distribution system?	3	DR I	Yes, the electricity generated by the project activity windmills is fed to the grid.	OK	OK
1.1.3 Does the project activity haves both components - renewable and non-renewable?	3	DR I	Project activity has only renewable energy component.	OK	OK
1.1.4 If answer to question 1.1.3 above is yes, then is renewable portion within small scale limits?	3	DR I	Not applicable.	OK	OK
1.1.5 Does the project activity involve the addition of renewable energy generation units at an existing renewable power generation facility,	3	DR I	Not applicable		
1.1.6 Does the project retrofit or modification an existing facility ?	3	DR I	No.	OK	OK
1.2 Project boundary					
1.2.1 Does the project boundary encompass the physical, geographical site of the renewable generation source ?	3	DR	No. Refer A.2.2 of Table 2 above.	-	OK
1.2.2 Does the spatial extent of the project boundary include the project site and all power plants connected physically to the electricity system that the CDM project power plant is connected to?	4	DR	No. Refer A.2.2 of Table 2 above.	-	OK

* MoV = Means of Verification, DR= Document Review, I= Interview

CHECKLIST QUESTION	Ref.	MoV *	COMMENTS	Draft Concl	Final Concl
1.2.3 Is the regional project electricity system identified by the spatial extent of the power plants that can be dispatched without significant transmission constraints?	4	DR	Though there are discussions in PDD about the Southern grid, it is not transparent that it is the regional project electricity system identified.	CAR 19	OK
1.2.4 Are the assumptions made in determining the project electricity system defined and justified?	4	DR	No, assumptions made in determining the project electricity system are not defined and justified. Refer 1.2.3 above	-	OK
1.2.5 Does the application of this methodology result in a clear grid boundary?	4	DR	Yes, Southern grid is defined with clear boundary.	OK	
1.2.5.1 If answer to question is no whether DNA guidance is available for defining the boundary.	4	DR	Not applicable.	OK	OK
1.2.5.2 If answer to question is no and if the host country has a layered dispatch system (e.g. state/provincial/regional/national), which is the regional grid used?	4	DR	Not applicable.	OK	OK
1.2.6 If the regional grid is not used whether the national grid is used.	4	DR	Not applicable.	OK	OK
1.2.7 Have the electricity transfers from connected electricity systems to the project electricity system are defined as electricity imports?	4	DR	Yes, such transfers are defined as imports.	OK	OK
1.2.8 Have the electricity transfers to connected electricity systems from the project electricity system are defined as electricity exports?	4	DR	Yes, such transfers are defined as exports.	OK	OK
1.2.9 For the purpose of build margin, is the spatial extent to the project boundary limited to project	4	DR	Yes.	OK	OK

CHECKLIST QUESTION	Ref.	MoV *	COMMENTS	Draft Concl	Final Concl
electricity system?					
1.2.10 Are recent or likely future additions to transmission capacity likely to significantly increase imported electricity?	4	DR I	No.	OK	OK
1.2.10.1 If answer to question is yes whether transmission capacity is considered a build margin source with the emission factor determined as for the OM imports.	4	DR	Not applicable.	OK	OK
1.2.11 Is the emission factor determined as one of the four options for the OM imports?	4	DR	Yes. Simple OM method is chosen	OK	OK
1.2.12 For determining the operating margin, is one of the four options chosen to determine the CO_2 emission factors for net electricity imports within the same host country?	4	DR	Yes.	OK	OK
1.2.13 If the import of electricity is from another country, is the CO_2 emission factors for net electricity imports considered as 0 t CO_2 per MWh.	4	DR	Not applicable.	OK	OK
1.3 Identification of alternative baseline scenarios					
1.3.1 Does the project involve recovered methane for power generation?	3	DR	No	OK	OK
1.3.2 Does the system involve all generators using exclusively fuel oil and/or diesel fuel?	3	DR I	No.	OK	OK
1.3.3 If answer to all the above questions is no, then is	3	DR	No. Calculations done on GWh	CAR	OK

	CHECKLIST QUESTION	Ref.	MoV *	COMMENTS	Draft Concl	Final Concl
	the baseline considered as the kWh produced by the renewable generating unit multiplied by an emission coefficient (measured in kg CO2e/kWh) calculated in a transparent and conservative manner as described in reference 4 to this checklist?		I		20	
1.3.4	Whether a minimum of three years data is referred and used in case the project is non-hydro?	3	DR	Yes.	OK	OK
1.3.5	Whether the typical average technical lifetime of the type equipment is determined and documented taking into account common practices in the sector and country e.g. based on industry surveys, statistics, and technical literature?	3	DR	Not applicable since the project activity does not involve retrofit.	OK	OK
1.3.6	Whether the baseline emission factor is calculated as a combined margin consisting of the combination of operating margin (OM) and build margin factors according to three steps indicated in the reference 4 to this checklist?	3	DR	Yes.	OK	OK
1.3.7	Whether the weighted average applied by project participant is fixed for a crediting period.	3	DR	Yes, the combined margin is fixed for the crediting period.	OK	OK
1.3.8	If the project is generation of electricity from wind or solar, whether weighted average takes in to account the default weights as wOM = 0.75 and wBM = 0.25 as required by reference 4 to his checklist?	3, 4	DR	Yes. weighted average takes in to account the default weights as wOM = 0.75 and wBM = 0.25. However the calculated value is not correct. More over it is not checked with the latest version of CEA data base.	CAR 21	OK
1.3.9	If the answer to the question at 1.3.8 above is no, are the weights taken as 0.25 & 0.75 for the	4	DR	Not applicable.	OK	OK

CHECKLIST QUESTION	Ref.	MoV *	COMMENTS	Draft Concl	Final Concl
operating margin and build margin respectively.					
1.3.10 Whether operating margin emission factors calculations are based on one of the four methods described?	4	DR	Refer 1.2.11 above.	-	OK
1.4 Project Emissions					OK
1.4.1 Does the project activity share limited resources with the existing units?	3	DR I	No.	OK	
1.5 Baseline Emissions					OK
1.5.1 Are the baseline emissions determined according to the formula $BE_y = EG_y \times EF_y$? in case of project activities using renewable sources but without retrofit / modification ?	3	DR	Yes.	OK	OK
1.5.2 Were the Emission Factor for displaced electricity calculated as in reference 4 to this checklist?	3	DR	Yes.	OK	OK
1.6 Leakage					
1.6.1 Is the leakage considered if any equipment transfer is evident ?	3	DR	No since there is not equipment transfer.		OK
1.7 Emission Reduction					
1.7.1 Are the emissions reductions determined according to the formula $ER_Y = BE_Y - PE_Y - LE_Y$?	3	DR	Yes. However the CER excel sheet provided is not correct as the value of PLF is not justified and the emission factor taken is not correct	CAR 22	OK
1.7.2 Were all values chosen in a conservative manner and was the choice justified?	3	DR I	Refer 1.7.1 above		OK
1.7.3 Whether an estimate of likely project emission reductions for the proposed crediting period is prepared as part of the PDD?	3	DR	There is no project emission	OK	OK

CHECKLIST QUESTION	Ref.	MoV *	COMMENTS	Draft Concl	Final Concl
1.7.4 Whether the emission factor is determined ex-post during monitoring?	3	DR	No.	OK	OK
2 Monitoring Methodology					
2.1 Does the monitoring plan include monitoring of electricity generation from the proposed project activity?	3	DR	No. Section B.7.1 of the PDD provides for monitoring of electricity supplied to the grid and not electricity generation from the proposed project activity. Refer B.4.4.1 above	--	OK
2.2 Does monitoring plan include monitoring of biomass or biomass and fossil fuel where only biomass or biomass and fossil fuel co-firing done?	3	DR	Not applicable.	OK	OK
2.3 Does the methodology require monitoring of data needed to recalculate the operating margin emission factor, if needed, based on the choice of the method to determine the operating margin (OM) as per reference 4 to this checklist?	3	DR	Not applicable.	OK	OK
2.4 Does the monitoring plan require monitoring of Data needed to recalculate the build margin emission factor, if needed?	3	DR	Not applicable.	OK	OK
2.5 Does the monitoring plan require monitoring of data needed to calculate fugitive carbon dioxide and methane emissions and carbon dioxide emissions from combustion of fossil fuels required to operate the geothermal power plant ?	3	DR	Not applicable.	OK	OK

CHECKLIST QUESTION	Ref.	MoV *	COMMENTS	Draft Concl	Final Concl
3 Quality Control (QC) and Quality Assurance (QA) Procedures					OK
3.1 Did all measurements use calibrated measurement equipment that is regularly checked for its functioning?	3	I	p		
3.2 Are the data double-checked against commercial data?	3	DR I	As per PDD, sales records would be used and kept for checking consistency of the recorded data. It is not transparent in PDD on what are the sale records?	CL 7	OK

TABLE 4 LEGAL REQUIREMENTS

CHECKLIST QUESTION	Ref.	MoV *	COMMENTS	Draft Concl	Final Concl
1. Legal requirements					
1.1. Is the project activity environmentally licensed by the competent authority?	2	DR	The wind ,mills does not require any separate licences other than the approvals from the state electricity Board. The project activity is approved for generation and export to grid.	OK	OK
1.2. Are the conditions of the environmental license being met?	2	DR	Not applicable		OK
1.3 Are the conditions of the Designated National Authority being met?	2	DR	HCA approval dated 18/08/2008 verified and no specific conditions to comply at this stage. Refer A 1.1	--	OK

TABLE 5: RESOLUTION OF CORRECTIVE ACTION AND CLARIFICATION REQUESTS

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2,3 & 4	Summary of project owner response	Validation team conclusion
CAR 1 The project title in PDD does not match with the title in the Host country approval dated 18/09/08	A 1.1 Table 2	Necessary correction made in the PDD	Title of the project is "1.5 MW Grid connected Wind Electricity Generation at Tirunelveli District, Tamilnadu, India by Kallam Agro Products & Oils (P) Limited."as per web hosted PDD, whereas in the HCA approval it is "1.5 MW Grid connected Wind Electricity Generation at Tirunelveli District, Tamilnadu, India by Kallam Agro Products and Oils Private Limited" CDM team, UNFCCC in mail dated 17th March 2009 clarified to project participant to change the project title as per HCA in the PDD for request for registration. Accordingly the project title is corrected in the revised PDD. Hence the validation team accepted the same.
CAR 2 The spatial extent of the project boundary is not transparent in the PDD. Also the latitude / longitude mentioned pertains to the village and not specific to the WTG location.	A 2.2 Table 2	Necessary corrections are made in the PDD under Sec.B.3 with respect to spatial extent of the project boundary	Correction incorporated in the revised PDD. Hence OK

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2,3 & 4	Summary of project owner response	Validation team conclusion
		The latitude and longitude specific to the WTG location is mentioned in Sec.A.4.1.4 in the PDD.	
CAR 3 According to PDD, the project's boundary includes wind turbine installations and pooling the sub-stations. Flow diagram has not included the equipments, systems and flow of energy	A 2.3 Table 2	Necessary corrections are made in the PDD Flow diagram including the equipments, systems and flow of energy is furnished in the PDD.	Flow diagram included. OK
CAR 4 Pre/post project scenario not included in the PDD	A 2.7 Table 2	Pre project scenario is included in the PDD at Sec.A.2.	Correction incorporated in the revised PDD. Hence OK
CAR 5 Information on age and average lifetime of the equipment is not included in section A 2	A 2.8 Table 2	Information on average lifetime of the equipment is included at Sec.A.4.2 as indicated in the TNERC Order dt.15.05.2006. Supplier will give performance guarantee for a period of one year and there is no specific guarantee from the supplier.	Mentioned as 20 years as per TNERC order. OK
CAR 6 PDD under section A.2 does not provide the following information – ▪ What is the situation before the implementation of the project activity?	A 3.1 Table 2	The situation before implementation of the project activity is described in the	Necessary changes / corrections included in the revised PDD OK

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2,3 & 4	Summary of project owner response	Validation team conclusion
▪ How the project activity led to the technological well being? It is said that "The project would be using the horizontal axis wind turbine (HAWT) having three rotor blades" In what way it is different than the existing wind mills?? The project is expected to create the following benefits in addition to GHG emission reductions: ▪ Employment to local personnel ▪ Availability of electricity to grid ▪ Conservation of fossil fuels The following claims in the PDD are not justified with evidences. Project participant should justify these claims: ▪ Tamilnadu state is deficit in power Investment in and CDM revenues to the project activity leading to economic well-being for society continuous and sustained power to the local industries and agricultural farmers located in remote areas, thereby eliminating load shedding and low frequency of power.		PDD. The description with regard to technological well-being is amended • As per the statistics of CEA as on April'08, Tamilnadu has a deficit power of 4.2% (source: http://www.cea.nic.in/god/gmd/Monthly_Power_Supply_position/Energy_2008_04.pdf) The deficit has increased to 7.8% during December'08.	Necessary changes / corrections included in the revised PDD Hence OK

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2,3 & 4	Summary of project owner response	Validation team conclusion
		(source: http://www.cea.nic.in/god/gmd/Monthly_Power_Supply_position/Energy_2008_12.pdf) Necessary correction made in the description of economic well being and social well being	
CAR 7 PDD under section B.1 does not identify the tools used.	B 1.1 Table 2	The tool used to calculate emission factor for an electricity system is mentioned at Sec.B.1 in the revised PDD.	Necessary changes / corrections included in the revised PDD OK
CAR 8 A. The chronology of events from the start date to the validation with actions taken, date of action and evidences available is not discussed in the PDD under section B.5 B. In investment analysis, the project participant has conducted benchmark analysis approach for the IRR It is not transparent on the type of IRR and appropriateness of the benchmark chosen.	B 2.1 Table 2	The chronology of events from the start date to the validation is furnished in the PDD under Sec.B.5. Project IRR has been calculated in the investment analysis and the same is mentioned in the PDD. The PP has chosen average Prime	Chronology of events included in revised PDD. OK In revised IRR calculations corrections made on a) The depreciation under income tax act considered @ 80%. and as per income Tax Act,1961, additional depreciation of 20 % available u/s 32

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2,3 & 4	Summary of project owner response	Validation team conclusion
		Lending Rate of 13% prevailing at the time of investment decision as the benchmark and the same is in accordance with "guidance on the assessment of investment analysis" issued in EB 41 (Annex 45), item 11, selection and validation of benchmark.	(1) in the first year. b) 80IA benefit available for 10 years in the first 15 years. c) The provisions of MAT The revised calculations are vetted by the financial expert and certified as correct. Hence OK.
C. The guidance document referred for the selection of benchmark & sensitivity is not the updated one. PDD refers to annex 35, page No.2 of EB 39 as the guidance document. The latest is Annex 45 of EB 41		Necessary correction made in the PDD.	Correction done in revised PDD. Hence OK
D. Sensitivity analysis is done only for variations of project cost and PLF. All parameters that are likely to exceed 20% of project cost with justification is not discussed. Why not tariff & O & M cost?		Since the tariff is based on fixed tariff for the PPA period it does not make any difference whether the variation is made in respect of tariff or PLF. Since sensitivity analysis is done for PLF, same is not carried out for tariff. Sensitivity analysis in respect of O & M is carried out and included in the revised PDD.	Table included corrected and justification for not considering tariff as a parameter for sensitivity included. OK

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2,3 & 4	Summary of project owner response	Validation team conclusion
E. PDD refers to TNERC order dated 18/05/2006. However there is no link provided to this order.		The link for the TNERC order dt.18/05/2006 is provided in the revised PDD.	Corrected in the revised PDD. Hence OK
F. Project participant should clarify and take in to account the following for IRR calculation–			
1. If the project activity involves captive use as well as export of the power generated?		The power generated by the project activity is exported to the grid only. The description is included under Sec.A.2	Description included in revise PDD. Hence OK
2. Break up of the WTG cost (91.03 as per IRR sheet)		Break up of WTG cost is furnished in the financial analysis worksheet.	Break-up and all assumptions with references included in PDD also. Hence OK.
3. What is the guaranteed PLF and the actual PLF assumed to arrive at the generation figure in IRR calculations? The PLF assumed does not seem to be conservative as per the latest available TNERC order for the region.		The WTG supplier has not guaranteed the PLF. The generation is estimated by the supplier based on wind parameters at site, which is expected to vary year to year. The generation is revised based	Justification for the assumed PLF included in PDD and is as per TNERC order. Hence OK

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2,3 & 4	Summary of project owner response	Validation team conclusion
		on TNERC Order dt.18.05.2006 for the respective pass.	
4. As per PPA tariff is fixed at Rs. 2.90. However this is not fixed for the life time considered. The reasonable escalation in tariff expected is not accounted in the IRR calculations.		As per Power Purchase agreement executed with Tamil Nadu Electricity Board, the tariff eligible for the project activity is Rs.2.90 per kWh and the PPA is valid till 20 years. Hence, the tariff is considered uniformly for all the 20 years in the financial analysis.	PPA also tells about a price of Rs 2.90 and the agreement is for 20 years (no escalation mentioned). Hence OK
5. Rate of Interest on the loan component		Rate of interest on loan component is considered at 11.50% and is in accordance with the loan sanction.	OK
6. Administrative expenses to be transparent		The administrative and general overhead includes administrative expenses at corporate office to meet the salary of one person who will monitor the wind machine operations and realizing the deliverable energy bills in time and it includes travelling, statutory compliance expenses etc. The breakup of the same is furnished in financial analysis.	Break-up of Administrative expenses included in the PDD. Hence OK

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2,3 & 4	Summary of project owner response	Validation team conclusion
7. Is there any other benefit availed for the project like TUFs??		The PP has not availed any other benefit	The project participant has made it transparent in PDD that it has not availed any other benefit. Hence OK
8. Basis for assuming derating of 1%		Revised the financial analysis by removing derating of 1%	Derating is removed in the revised IRR working. Hence OK.
G. The barriers discussed under technological barrier are not technological barriers. However the backing down of WEGs or evacuation difficulties has not constrained the investment in windmills and cannot be considered as prohibitive barriers. Further the news clipping references are not transparent in PDD.		The technological barrier is excluded in the revised PDD.	Technological barriers excluded in the revised PDD. Hence OK
H. It is said in the PDD that "In the last three to four days, according to the sources, TNEB has asked wind power generators to shut down their turbines for periods ranging from nine hours to 20 hours a day. But no reference given			
IRR calculations refer to evidences to		The assumptions are based on	Changes made in the revised PDD and

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2,3 & 4	Summary of project owner response	Validation team conclusion
assumptions, which are post decision making The P.O s reflect the cost inclusive of service tax, whereas in the IRR calculations service tax is again considered amounting to double counting?		feasibility report. Copy of the report is furnished. Necessary changes are made in the financial analysis. Service tax is provided only for revenue expenditure such as O & M costs and insurance. There is no double counting.	are as per documents available and relevant at the time of decision-making. Hence OK OK
CAR 9 There is no discussion on the relevant national and/or sectoral policies and circumstances	B 2.3 Table 2	Policy with reference to wind mills and available benefits / subsidies are described in the PDD under Sec.B.5.	Correction incorporated in the revised PDD. Hence OK
CAR 10 Latest version of CEA data is not referred and discussed for conservativeness of emission factor used. Further the EF used is not correct.	B 2.4 Table 2	At the time of preparation and web hosting of the PDD, Version 3 of CEA database is available and the values of OM & BM of the same are used for calculation of combined margin emission factor. The emission factor is corrected.	Explanation included in PDD. Hence OK
CAR 11 It is confirmed during site visit that there is no transfer of equipment from or to the project activity and hence no leakage. However this is not transparent in the PDD.	B 4.3.1 Table 2	Necessary correction made under Sec.B.6.1.	It is made transparent in the PDD that there is no transfer of equipment to/from the project activity. Hence OK
CAR 12 Methodology says "monitoring shall consist	B 4.4.1 Table 2	Necessary changes made in the PDD.	Correction made in the revised PDD. Hence OK

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2,3 & 4	Summary of project owner response	Validation team conclusion
of metering the electricity generated by the renewable technology". This is not transparent in the PDD in monitoring plan.			
CAR 13 The PDD does not define requirements for archiving the data. As per methodology, 100% of the data should be monitored and the data should be archived electronically and in hard copy.	B 4.4.4 Table 2	Requirements for archiving the data is included in the PDD under Sec.B.7.2.	Correction made in the revised PDD. Hence OK
CAR 14 The procedures for calibration of the meters at interconnection points and calibration requirements for meters at WTG, etc are not evident in PDD.	B 4.5.5 Table 2	The calibration procedure and its requirement are described under Section B.7.2.	Calibration procedures are now defined in the revised PDD. Hence OK
CAR 15 Project participant has not defined procedure for adjustments and uncertainties in data on account of defects in meters and apportioning	B 4.5.10 Table 2	The procedures for adjustments due to uncertainties owing to meter failures are mentioned under Sec.B.7.2.	The procedures for adjustments due to uncertainties owing to meter failures are mentioned in the revised PDD. Hence OK
CAR 16 Project participant has not defined the procedures for internal audits, performance reviews and corrective actions	B 4.5.11 Table 2	Procedure for internal audits, performance reviews and corrective actions incorporated in the PDD under Sec.B.7.2	Procedure for internal audits, performance reviews and corrective actions incorporated in the revised PDD. Hence OK

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2,3 & 4	Summary of project owner response	Validation team conclusion
CAR 17 The project boundary encompasses the physical, geographical site of the renewable generation source. However, the baseline emission boundaries are not identified in the PDD.	B 5.3.1 Table 2	The baseline emission boundaries are included in the project boundary.	The baseline emission boundaries are defined in the revised PDD. Hence OK
CAR 18 PDD under section E.2 it is said that there is no negative comments. What about positive comments based on the questionnaire circulated? Provides a summary of the comments received along with identity of stake holder who has made the comment.	B 7.1.4 Table 2	Necessary correction made at Section E.2 and the minutes of stakeholder meeting is furnished to the DOE for verification.	Correction incorporated in the revised PDD. Hence OK
CAR 19 Though there are discussions in PDD about the Southern grid, it is not transparent that it is the regional project electricity system identified.	1.2.3 of Table 3	The project is installed in the state of Tamilnadu and falls under southern regional grid electricity system and is included in the revised PDD	Correction incorporated in the revised PDD. Hence OK
CAR 20 Calculations of the emission reductions are done on GWh.	1.3.3 of Table 3	Baseline calculations have been changed to MWh in Sec.B.6.3	Correction incorporated in the revised PDD. Hence OK
CAR 21 Weighted average takes in to account the default weights as wOM = 0.75 and wBM = 0.25. However the calculated value is not	1.3.8 of Table 3	The latest version of CEA database available at the time of preparation and webhosting of the PDD is Version 3 and values of OM & BM are used from the	Correction incorporated in the revised PDD. Hence OK

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2,3 & 4	Summary of project owner response	Validation team conclusion
correct. More over it is not checked with the latest version of CEA data base.		same to calculate Combined margin emission factor. The EF is corrected.	
CAR 22 The CER excel sheet provided is not correct as the value of PLF is not justified and the emission factor taken is not correct	1.7.1 of Table 3	The PLF is considered as per TNERC Order dt.15.05.2006. Emission factor is corrected in the CER excel sheet.	Correction incorporated in the revised PDD and CER sheet. Hence OK
CL 1 In section 4.5 of PDD the project participant confirmed that the project is not a debundled component of a large-scale project activity. However in section B 5 of PDD, under investment barrier it is said that "The envisaged project activity involves an investment of Rs.97.35 million for a 1.5 MW capacity of Bundled Project. Also in investment analysis in sensitivity it is said of bundled project.	A 1.3 Table 2	Necessary correction made in Section B 5 under investment barrier.	Correction incorporated in the revised PDD. Hence OK
CL 2 The PDD under A.2 provides detailed specifications of the windmills. However the good engineering practices are not discussed	A 2.4 Table 2	Good engineering practices of wind mill is incorporated under Section A 4.2.	Correction incorporated in the revised PDD. Hence OK
CL 3 As stated in PDD, that the O&M will be done by the WEG supplier for a period of 10 years. However as per O&M agreement it is for 11	A 2.6 Table 2	Necessary correction made under Section 7.2. Though it is indicated in the P.O. dt.20.1.08 as 6 years, the O &	Correction incorporated in the revised PDD. Hence OK

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2,3 & 4	Summary of project owner response	Validation team conclusion
yrs. What about from 12th year onwards? In P.O it is said for 6 years.		M agreement is executed after the date of the P.O i.e., on 17.09.08. As per the O & M agreement the contract is for 11 years. The PP envisages continuation of the O & M agreement with the same contractor.	
CL 4 The project management authority, roles and responsibilities are not clearly defined in the PDD	B 4.5.1 Table 2	The roles and responsibilities are clearly defined in the revised PDD	Correction incorporated in the revised PDD. Hence OK
CL 5 The reporting routine is not adequately defined in section B.7.2 of the PDD	B 4.5.7 Table 2	Reporting routine is mentioned in the PDD at Sec.B.7.2	Correction incorporated in the revised PDD. Hence OK
CL 6 Procedures for day-to-day records handling (including what records to keep, storage area of records and how to process performance documentation are not transparent in PDD	B 4.5.8 Table 2	The procedures for day to day record handling is mentioned under Sec.B.7.2 (recording procedures).	Procedures incorporated in the revised PDD. Hence OK
CL 7 As per PDD, sales records would be used and kept for checking consistency of the recorded data. It is not transparent in PDD on what are the sale records?	3.3 of Table 3	The sales records are basically the invoices raised on the utility for power exported to the grid. Necessary corrections are incorporated in the PDD.	Correction incorporated in the revised PDD. Hence OK

References

1. Guidelines for completing the simplified project design document, version 05
2. Appendix B of the simplified modalities and procedures for small scale CDM project activities.
3. Indicative simplified baseline and montiroing methodologies – AMS I.D, version 13
4. Tool to calculate the emission factor for an electricity system, version 01.1

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