

# VALIDATION REPORT

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**Senok Wind Power (Private) Limited**

**Mampuri Wind Power Project**

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**SGS Climate Change Programme**

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<b>Date of Issue:</b>	<b>Project Number:</b>
18/12/2012	CDM.VAL2746
<b>Project Title:</b>	
Mampuri Wind Power Project	
<b>Organisation:</b>	<b>Client:</b>
SGS United Kingdom Limited	Senok Wind Power (Private) Limited
<b>Publication of PDD for Stakeholders Consultation</b>	
<b>Commenting Period:</b>	29/05/2009 – 27/06/2009
First PDD Version and Date:	Version 01 (Web-hosted PDD does not mention date and version, however same is considered as version 01)
Final PDD Version and Date:	Version 11 dated 18/12/2012
<b>Summary:</b>	
<p>Senok Wind Power (Private) Limited has commissioned SGS to perform the validation of the project: Mampuri Wind Power Project.</p> <p>Methodology Used: AMS I.D - Grid Connected Renewable Electricity Generation</p> <p>Sectoral Scope – 1, Energy Industries (renewable / non-renewable sources)</p> <p>Version and Date: Version 17 and valid from 17 June 2011</p> <p>The scope of the validation 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 CDM Validation and Verification Manual (Version 01.2), Kyoto Protocol requirements, CDM Executive Board/UNFCCC rules.</p> <p>The report is based on the assessment of the project design document undertaken through stakeholder consultations, application of standard auditing techniques including but not limited to document reviews, follow up actions (e.g. site visit, telephone or e-mail interviews) and also the review of the applicable simplified methodology and underlying formulae and calculations.</p> <p>The report and the annexed validation describes a total of 18 findings which include:</p> <ul style="list-style-type: none"> <li>• 09 Corrective Action Requests (CARs);</li> <li>• 08 Clarification Requests (CLs);</li> <li>• 01 Forward Action Requests (FARs); and</li> </ul> <p>All findings have been closed satisfactorily. The project is recommended to the CDM Executive Board for registration</p>	
<b>Subject:</b>	<b>Document Distribution</b>
CDM Validation	
<b>Validation Team:</b>	
Vikas Bankar – Lead Assessor/Team Leader & Sectoral Scope Expert (TA 1.2 Wind) Ramkrishna Patil – Assessor Batuvita Sumanasiri – Local Assessor Anshul Sharma – Financial Expert	<input checked="" type="checkbox"/> No Distribution (without permission from the Client or responsible organisational unit)
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Date: 19- 12-2012 Name: Nayan Jyoti Deka	
<b>Authorised Signatory:</b>	<input type="checkbox"/> Unrestricted Distribution
Name: Siddharth Yadav Date: 21/12/2012	

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## Abbreviations

AWDR	Average Weighted Deposit Rate
AWFDR	Average Weighted Fixed Deposit Rate
AWPLR	Average Weighted Prime Lending rate
BM	Build Margin
CAR	Corrective Action Request
CBSL	Central Bank of Sri Lanka
CCD	Coast Conservation Department
CDM	Clean Development Mechanism
CDM EB	CDM Executive Board
CEB	Ceylon Electricity Board
CER	Certified Emission Reduction
CL	Clarification Request
COP	Conference of Parties
CUF	Capacity Utilization Factor
DFCC	Development Finance Credit Corporation Bank
DNA	Designated National Authority
DOE	Designated Operational Entity
EB	Executive Body
EIA	Environmental Impact Assessment
FAR	Forward Action Request
GHG	Greenhouse gas(es)
GN	Grama Niladhari (a locality)
GWh	Giga Watt Hour
HCA	Host Country Approval
IEE	Initial Environmental Examination
IPCC	Intergovernmental Panel on Climate Change
IRR	Internal Rate of Return
kW	Kilo Watt
Ltd.	Limited
MOC	Modalities of Communication
MOP	Meeting of Parties
MP	Monitoring Plan
MW	Mega Watt
MWh	Mega Watt Hour
NCRES	Non-Conventional Renewable Energy Sources
NGO	Non Governmental Organization
NWP	North-Western Province
NHDA	National Housing Development Agency
NSB	National Savings Bank
OM	Operating Margin
PDD	Project Design Document
PEA	Provincial Environmental Authority
PO	Purchase Order
PP	Project Participant
PPA	Power Purchase Agreement
Pvt	Private
PLF	Plant Load Factor
SEA	Sri Lanka Sustainable Energy Authority
SEDEC	Social & Economic Development Centre
SMIB	State Mortgage and Investment Bank
SPP	Small Power Project
SPPA	Small Power Purchase Agreement

SSC	Small Scale
SWPL	Senok Wind Power (Private) Limited
TA	Technical Area
UNFCCC	United Nations Framework Convention on Climate Change
USD	United States Dollar
WTG	Wind Turbine Generator

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## 1. Validation Opinion

SGS United Kingdom Ltd has been contracted by Senok Wind Power (Private) Limited to perform a validation of the project: "Mampuri Wind Power Project" in Sri Lanka.

The Validation was performed in accordance with the UNFCCC criteria for the Clean Development Mechanism (CDM), Validation and Verification Manual (Version 1.2) and host country criteria, as well as criteria given to provide for consistent project operations, monitoring and reporting.

The aim of the project activity "Mampuri Wind Power Project" is to harness the wind energy potential in the North West coastal belt of Sri Lanka. It uses eight wind turbines, each rated at 1.25 MW summing up to a total capacity of 10 MW. The power plant is expected to generate 27.638 GWh (=27,638 MWh) per year, which will be supplied to Ceylon Electricity Board (CEB), the national electricity utility, through a dedicated transmission line.

By installation of eight 1.25 MW wind turbines the project activity will result in reductions of greenhouse gas (GHG) emissions that are real, measurable and give long-term benefits to the mitigation of climate change.

In our opinion, the project meets all relevant UNFCCC, CDM criteria and all relevant host country criteria. The project correctly applies methodology AMS I.D. version 17. It is demonstrated that the project 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.

The total emission reductions from the project are estimated to be 187,680 t of CO<sub>2</sub>e over a 10 year fixed crediting period, averaging 18,768 t of CO<sub>2</sub>e annually. The emission reduction forecast has been checked and it is deemed likely that the stated amount is achieved given the underlying assumptions do not change.

The project will hence be recommended by SGS for registration with the UNFCCC.

**Signed on Behalf of the Validation Body by Authorized Signatory**



Signature:

Name: Siddharth Yadav

Date: 21/12/2012

## 2. Introduction

### 2.1 Objective

Senok Wind Power (Private) Limited has commissioned SGS to perform the validation of the project: Mampuri Wind Power Project with regard to the relevant requirements for Clean Development Mechanism (CDM) project activities. The purpose of a validation is to have an independent third party assess 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 seen as necessary to provide assurance to stakeholders of the quality of the project and its intended generation of certified emission reduction (CER). UNFCCC criteria refer to the Kyoto Protocol criteria and the CDM rules and modalities and related decisions by the COP/MOP and the CDM Executive Board.

### 2.2 Scope

The scope of the validation 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. SGS has employed a risk-based approach in the validation, focusing on the identification of significant risks for project implementation and the generation of CERs.

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.

### 2.3 GHG Project Description

The aim of the project activity "Mampuri Wind Power Project" is to harness the wind energy potential in the North West coastal belt of Sri Lanka. It uses eight wind turbines, each rated at 1.25 MW summing up to a total capacity of 10 MW. The power plant is expected to generate 27.638 GWh (=27,638 MWh) per year, which will be supplied to Ceylon Electricity Board (CEB), the national electricity utility, through a dedicated transmission line.

In the absence of the project activity the equivalent amount of electricity would have been generated in the power plant connected national electricity utility through the mix of power plants. The Mampuri Wind Power Project is estimated to displace 18,768 tCO<sub>2</sub> per year and thus will help in mitigating GHG emissions. During a site visit to the project activity, it is confirmed that project activity is not a debundled component of large scale project activity.

### 2.4 The Names and Roles of the Validation Team Members

Assessment Team	Role
Vikas Bankar	Lead Assessor/Team Leader & Sectoral Scope Expert (TA 1.2 Wind)
Ramkrishna Patil	Assessor
Batuvita Sumanasiri	Local Assessor
Anshul Sharma	Financial Expert

Technical Review	Role
Nayan Jyoti Deka	Technical Reviewer Sectoral Scope Expert (TA 1.2 Wind)



### 3. Methodology

#### 3.1 Review of CDM-PDD and Additional Documentation

The validation is performed primarily as a document review of the publicly available Project Design Document version 01 undated (version and date of PDD was not mentioned, thus the web hosted PDD is considered as version 01 by the validation team) and the subsequent versions, version 02 dated 31/08/2009, version 03 dated 23/11/2009, version 04 dated 15/02/2010, version 05 dated 29/04/2010, version 06 dated 21/02/2012, version 07 dated 12/03/2012, version 08 dated 21/09/2012, version 09 dated 30/09/2012, version 10 dated 28/11/2012 and version 11 dated 18/12/2012 (final version). The assessment is performed by trained assessors using a validation protocol attached as Annex 2 Table 2

The site visit was performed on 27/07/2009 to 28/07/2009. The results are summarized in the local assessment check list of this report (please see Annex 1),

The team has collectively checked the baseline, PDD related documents, CDM consideration, additionality and applicability and the results are summarised in Annex I: Local Assessment checklist. A few key stakeholders were interviewed and various environmental laws, sustainability issues, energy statistics and all relevant data were cross checked. The assessment team has confirmed the statements of the PDD through review of documents.

#### 3.2 Use of the Validation Protocol

The validation protocol used for the assessment is designed in accordance with the Validation and Verification Manual, Version 1.2 dated 30 July 2010. It serves the following purposes:

- it organises, details and clarifies the requirements the project is expected to meet; and
- it documents both how a particular requirement has been validated and the result of the validation (reporting).

The validation protocol consists of several tables. The different columns in these tables are described below.

Checklist Question	Ref ID	Means of Verification (MoV)	Comment	Conclusion/ CARs/CLs
The various requirements are linked to checklist questions the project should meet.	Lists any references and sources used in the validation process. Full details are provided in the table at the bottom of the checklist.	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 (Y), 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.

The completed validation protocol for this project is attached as Annex 2 to this report

#### 3.3 Findings

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

**A Clarification Request (CL)** is raised if information is insufficient or not clear enough to determine whether the applicable CDM requirements have been met

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

- I. The project participants have made mistakes that will influence the ability of the project activity to achieve real, measurable additional emission reductions;
- II. The CDM requirements have not been met;
- III. There is a risk that emission reductions cannot be monitored or calculated.

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

**A Forward Action Request (FAR)** is raised during validation to highlight issues related to project implementation that require review during the first verification of the project activity. FARs shall not relate to the CDM requirements for registration.

Corrective Action Requests and Clarification Requests are raised in the draft validation protocol and detailed in a separate form (Annex A.3). In this form, the Project Developer is given the opportunity to "close" outstanding CARs and respond to CLs and FARs.

### **3.4 Internal Quality Control**

Following the completion of the assessment process and a recommendation by the Assessment team, all documentation will be forwarded to a Technical Reviewer. The task of the Technical Reviewer is to check that all procedures have been followed and all conclusions are justified. The Technical Reviewer will either accept or reject the recommendation made by the assessment team. Findings can be raised at this stage and client must address them within agreed timeline.

## 4. Validation Findings

### 4.1 Approval

The project activity titled 'Mampuri Wind Power Project' developed by Senok Wind Power (Private) Limited in Sri Lanka. The host Party Sri Lanka, Party to the Kyoto Protocol, meets all the requirements for participating in a CDM project as verified from <http://maindb.unfccc.int/public/country.pl?country=LK>.

The Host Country Approval (HCA) confirms that:

- (a) The Government of Sri Lanka has ratified the Kyoto Protocol in September 2002
- (b) The HCA is an approval of voluntary participation in the proposed CDM project activity
- (c) The project contributes to Sustainable Development in Sri Lanka
- (d) The HCA refers to the precise proposed CDM project activity – "Mampuri Wind Power Project" – mentioned in the PDD being submitted for registration

The Host Country Approval is unconditional with respect to (a) to (d) mentioned above. Thus the HCA is in accordance with paragraphs 45-49 of the Validation and Verification Manual (VVM) version 1.2.

As the HCA does not mention the PDD document version/date and/or the DOE validation report version/date, therefore paragraph 50 of VVM version 1.2 is not applicable.

#### Discussion on findings:

The host country approval from the Sri Lankan DNA was not available during the site visit, therefore, **CL#01** was raised to provide HCA from host Party. In response, the Project Participant submitted the HCA, however the submitted HCA mentioned the project title in subject line as "Host Country Approval for Mampuri Wind Power Project -10 MW" which is inconsistent with project title mentioned in the PDD. Thus the PP submitted a revised HCA. The revised letter from Host Country DNA Ministry of Environment, Sri Lanka dated 27/01/2012 having Ref No. 04/04/05/851<sup>/4/</sup> has been checked for the Project Title and the letter confirms that the project title has been changed from "Mampuri Wind Power Project -10 MW" to "Mampuri Wind Power Project". Thus the project title is consistent with the web hosted PDD and also with the final PDD. This is in line with para 45 d of VVM version 1.2 and is accepted and **CL#01** was closed out.

#### Validation opinion:

The Project Participant Senok Wind Power (Private) Limited received an HCA<sup>/4/</sup> dated 04/05/2009 and revised letter dated 27/01/2012 having reference number 04/04/05/851 from the host Party DNA towards the project activity.

The HCA, referenced above, was obtained directly from the Project Participant and its authenticity has been confirmed via an email communication<sup>/9/</sup> dated 15/01/2010 from the representative on host Party DNA. The HCA clearly confirms the requirement stipulated in paragraph 45 to 48 of VVM V1.2 and is unconditional.

### 4.2 Participation Requirements

The project is proposed as a unilateral project and no Project Participant from an Annex I Party has yet been identified. The Project Participant Senok Wind Power (Private) Limited is approved by the host Party (Sri Lanka) vide HCA<sup>/4/</sup> dated 27/01/2012 having reference number 04/04/05/851. The information provided in section A.2 and Annex 1 of the PDD version 11<sup>/1.11/</sup>, and HCA<sup>/4/</sup> are mutually consistent. The assessment team confirms that no entities other than those approved as Project Participants are included in these sections (A.2 and Annex 1) of the PDD. This is found to be in line with paragraph 52 of VVM version 1.2.

No Annex I Party has been identified in the PDD at the validation stage and therefore no HCA from an Annex 1 country is required at this stage. It is observed that the CDM EB has agreed that the registration of a CDM project activity can take place without an Annex I Party being involved at the stage of registration although it

should be noted that before CER can be transferred to an Annex 1 Party, a HCA from an Annex 1 Party will need to be submitted.

The web-hosted PDD<sup>/1.1/</sup> mentions Senok Wind Power (Private) Limited as the Project Participant in section A.3 and SGS has a contractual relationship with this Project Participant. They are mentioned as the Project Participant in section A.3 of the final PDD as well. This fulfils paragraphs 7 and 8 of Annex 48 of EB 50. Contact details provided in the Modalities of Communication dated 23/01/2012<sup>/5.3/</sup> is found to be consistent with those provided in Annex 1 of the final PDD. This is found to be appropriate and it is accepted.

No public funding from an Annex I Party is involved in the project and the validation (on site assessment) did not reveal any information that raises any concern on the diversion of official development assistance (ODA) funding towards Sri Lanka.

### **Discussion on findings:**

**CL#03** was raised to obtain the Modalities of Communication (MOC) from the PP in accordance with Annex 60 EB 45. In response, the PP provided the duly filled in MOC dated 24/08/2009<sup>/5.1/</sup>, which is found duly consistent against the project title and information mentioned in Annex 1 of the PDD version 11<sup>/1.11/</sup>. Thus, **CL#03** was closed out. However, it was later requested during the advanced stages of validation to use the latest MOC form and a revised MOC<sup>/5.3/</sup> dated 23/01/2012 was received which was also consistent with the MOC requirements.

Further, **CL#06** was raised to cross check the ownership of the project activity and to verify whether the project has obtained required licenses to implement the project activity. In response, the PP, provided the required permits (energy permit<sup>/10/</sup>, generation license<sup>/11/</sup>, power purchase agreement<sup>/12/</sup> and certificate of site clearance<sup>/14/</sup>) which sufficiently demonstrated the ownership of the project activity with the project participant. Thus, **CL#06** was closed out.

**CL#18** was raised asking the PP to confirm whether any public funding is involved in the project activity and in response a declaration<sup>/15/</sup> was received from the PP. This was corroborated with the site visit (for any sign of donor agencies etc.) and interaction with local stakeholders. Thus, **CL#18** was closed out.

### **Validation opinion:**

The participation of the sole Project Participant Senok Wind Power (Private) Limited is approved by a Party to the Kyoto Protocol. The confirmation is drawn based on the HCA<sup>/4/</sup> issued towards the proposed CDM project activity to the Project Participant.

### ***4.3 Project Design Document including Project Description***

The project activity involves the installation of eight wind turbines, each rated 1.25 MW (=1,250 kW), in the North West coastal belt of Sri Lanka aggregating to a total capacity of 10 MW. The entire wind turbines are purchased from Suzlon bearing model number Suzlon S64/1250. The electricity would be generated at 690 Volt and will be stepped up to 33 kV in order to achieve synchronization with the connected electricity system. The accuracy of the project description has been confirmed from the purchase order<sup>/16/</sup> placed to Suzlon (wind turbine supplier) and power purchase agreement<sup>/12/</sup> with CEB. The project activity is located at Puttalam district in the Province of North Western in Sri Lanka. The location of the project activity mentioned in the PDD is checked during the site visit and is accepted.

The physical site inspection was conducted and it is confirmed that the project activity is not a bundled small scale project. The project description in the section A and C of the PDD are found to be complete and transparent and are discussed below;

The electricity generated from the project activity will be sold to national grid<sup>/12/</sup> state utility Ceylon Electricity Board (connected electricity system), which in the absence of the project activity would have been generated in the power plants connected to the electricity system. The project activity is expected to generate a net quantity of 27,638 MWh per year leading to emission reductions of 18,768 tCO<sub>2</sub> on average annual basis. The project activity is a green field project as verified during site visit by the assessment team and also through the review of purchase orders<sup>/16/</sup> of WTGs.

It is found that the project description provided in section A.2 in the final PDD gives clear understanding of the nature of the project activity and its technical aspects as it sufficiently covers all relevant elements of the project activity. Also description of the project activity is found to be accurate and complete. It is found to be

consistent with the observations made during the site visit. This is found in line with paragraphs 58 and 59 of VVM version 1.2. The final PDD has been found to be prepared in the latest available PDD template version 3 and it is found in accordance with the "Guidance for completion of Project Design Document (CDM-SSC-PDD)" version 5; thus it is acceptable. This is checked and is found to be appropriate as per paragraph 55 and 56 of VVM (version 1.2).

The technical lifetime of the project activity is mentioned as 20 years in section C.1.2 of the PDD. The same is checked and verified from WTG specifications for the project activity. This is found to be appropriate and is accepted.

The project activity entitled "Mampuri Wind Power Project" is a unique title of the project activity. This has been checked and verified from the UNFCCC <http://cdm.unfccc.int/Projects/Validation/DB/8RC02H6OYG4AC1UL1BGP22O99VQENW/view.html>. The PDD is providing the information on purpose of project activity, type of technology used and contribution of project activity to the sustainable development which has been found to be acceptable.

The operation and maintenance is being carried out by Suzlon Energy Limited and has proper procedures for providing training to its employees. Since Suzlon being ISO 9001:2008 certified organization; the ISO certificates is checked for appropriateness and is acceptable.

#### **Discussion on findings:**

**CAR#04** was raised to indicate and discuss the issues pertaining to sustainable development in section A.2 of the PDD as required by "Guidelines for completing the simplified project design document" version 5. In response, the PP, provided the revised PDD, which incorporated sustainable development criteria. Thus, **CAR#04** was closed out. **CAR#04** was reopened asking the PP to include brief description of the monitoring system involved in the project activity in section A.2 of the PDD. In response, the PP submitted the revised PDD and it is accepted; hence **CAR#04** was closed out.

**CAR#05** was raised as the geographical co-ordinates of these wind turbines were not been identified in the the webhosted PDD. In response, the PP included the identified geographical co-ordinates of the eight turbines location in the revised PDD the same are checked with Google search and found to be appropriate. Thus **CAR#05** was closed out. **CAR#05** was reopened asking the PP to provide latitude and longitude in DD MM SS format. In response, the PP has provided latitude longitude in DD MM SS format, it is found satisfactory and hence **CAR#05** was closed out.

**CL#07** was raised to incorporate the implementation of the project activity as well as technical specifications of the Wind Turbine Generators (WTGs). In response, the PP provided detailed the WTGs specifications. It has been verified with the technical specifications<sup>/17/</sup> given at Suzlon website. The same has been verified form purchase orders and found to be appropriate. The letter from Ceylon Electricity Board (CEB) dated 17/05/2010 indicates that two WTGs has been connected to CEB grid on 06/05/2010 and as per letter of CEB dated 19/07/2010, the complete project activity is commissioned on 05/06/2010. Thus the complete project activity is commissioned on 05/06/2010 and is accepted. Thus, **CL#07** was closed out.

#### **Validation opinion:**

It is confirmed that the final PDD is prepared using the latest CDM-SSC-PDD template (available at <http://cdm.unfccc.int/Reference/index.html>) Version 03 (effective 22 December 2006) and also in accordance with the 'Guidelines for completing the simplified project design document (CDM-SSC-PDD)' version 5 (available at <http://cdm.unfccc.int/Reference/index.html>).

It is confirmed that the description of the project activity as described in the final PDD is clear, accurate and complete.

#### ***4.4 Eligibility as a Small Scale Project***

The proposed project activity involves the installation of 8 wind turbines of capacity 1.25 MW each. The total installed capacity aggregates to 10 MW, which is less than the threshold capacity of 15 MW for Type I small scale project activity. This has been verified from the technical specifications<sup>/17/</sup> of WTGs, purchase orders<sup>/16/</sup> and power purchase agreement<sup>/12/</sup> specific to the project activity. Thus, it is confirmed that project activity complies with the paragraph 1 of AMS I D Version 17<sup>/7.2/</sup>. This is found in line with Glossary of terms for CDM (CDM-Glos-01, EB 28), renewable energy project activities with a maximum output capacity equivalent to up



to 15 megawatts falls under small scale project thresholds [http://cdm.unfccc.int/EB/028/eb28\\_repan32.pdf](http://cdm.unfccc.int/EB/028/eb28_repan32.pdf). This is found in line with paragraph 61 of VVM (version 1.2).

According to Paragraph 2 of Appendix C of the Simplified Modalities and Procedures for Small Scale CDM project activities, the project is not a debundled component of a large scale project activity. This has been checked according to debundling criteria during the site visit and confirmed that project activity is not a debundled component of large scale project activity. The Project Participant does not have any other registered or applied for registration CDM project activity in the 1 km area from the present project activity by the same Project Participant within 2 years in the same project category and technology. The project activity is not a de-bundled project activity as mentioned in the PDD; this has been checked through the UNFCCC website and during the site visit by the validation team. This is also found to be in line with Annex 13, EB 54 i.e. Guidelines on Assessment of Debundling for SSC Project Activities, version 3. This is found to be appropriate and it is accepted.

#### **Discussion on findings:**

**CAR#08** was raised as the de-bundling criteria were not defined properly in the webhosted PDD. The Project Participant revised the PDD to incorporate the same as per Annex 32, EB 47 and submitted to assessment team. The updated information was checked and found that project activity does not raise concerns as defined in EB47 Annex32 and therefore eligible as small scale project activity. Thus, **CAR#08** was closed out. It was further cross checked that as per revised guidance on this matter (EB54 Annex13), there are still no concerns.

#### **Validation opinion:**

Therefore, it has been concluded that project activity is not deemed to be the debundled component of large scale project activity and, hence, is eligible to be considered as SSC CDM project activity.

As per the requirements of paragraphs 134-136 of VVM version 01.2, the validation team is of the opinion that the proposed project activity is eligible as a small-scale CDM project activity.

### **4.5 Applicability of selected methodology to the project activity**

The selected methodology for the proposed project activity is AMS I D Version 17<sup>7.2/</sup>. The applicability criteria as defined in the paragraphs 1 to 8 have been discussed in the final PDD. The relevant paragraph in the context of the project activity are 1 and 2, which allows the installation of renewable energy generating units (wind) and power, thus generated, is fed to the connected electricity system. It is noteworthy to mention that in year 2007 (December) installed capacity of power plants using fossil fuels was approximately 44.8% and in terms of energy generation 59.8% as checked from the Sales and Generation Data Book, CEB, 2007.

Therefore, it is confirmed that selected methodology is the most suitable in the context of the project activity and it complies with the paragraph 1 (as it is wind project activity) and paragraph 2 (as it is Greenfield installation) of AMS I D Version 17<sup>7.2/</sup>.

The other paragraphs (specifically 3 to 8) are not relevant to the project activity as project activity is neither a hydro or a cogeneration project as checked during site visit by the members of the assessment team and considering the project activity is a Greenfield project (new installation) at a site where no power generation was occurring in the past (therefore no capacity addition either).

The following applicability criteria as per AMS I.D Version 17 have been checked and found that AMS I.D version 17<sup>7.2/</sup> is applicable to the project activity:

1. *This methodology comprises renewable energy generation units, such as photovoltaic, hydro, tidal/wave, wind, geothermal and renewable biomass: a) Supplying electricity to a national or a regional grid; b) Supplying electricity to an identified consumer facility via national/regional grid through a contractual arrangement such as wheeling.*

Project activity fulfils this applicability criterion as it is power generation project from renewable energy i.e. wind which supplies electricity to national grid i.e. Ceylon Electricity Board.

2. *Illustration of respective situations under which each of the methodology (i.e. AMS-I.D, AMS-I.F and AMS-I.A) applies as included in Table 2 of the methodology.*

Project activity fulfils this applicability criterion as it is as per Option 1 of Table 2 under AMS I.D. Version 17. This project activity supplies electricity to national grid i.e. Ceylon Electricity Board.

3. *This methodology is applicable to project activities that (a) install a new power plant at a site where there was no renewable energy power plant operating prior to the implementation of the project activity (Greenfield plant); (b) involve a capacity addition<sup>1</sup>; (c) involve a retrofit of (an) existing plant(s); or (d) involve a replacement<sup>3</sup> of (an) existing plant(s).*

Project activity fulfils this applicability criterion as it is Greenfield project activity. These has been confirmed during the site visit and from WTG supply agreement<sup>16/</sup> raised for the project activity.

4. *Hydro power plants with reservoirs that satisfy at least one of the following conditions are eligible to apply this methodology: The project activity is implemented in an existing reservoir with no change in the volume of reservoir, The project activity is implemented in an existing reservoir, where the volume of reservoir is increased and the power density of the project activity, as per definitions given in the Project Emissions section, is greater than 4 W/m<sup>2</sup> and the project activity results in new reservoirs and the power density of the power plant, as per definitions given in the Project Emissions section, is greater than 4 W/m<sup>2</sup>*

The project activity involves power generation from wind power project, hence this criteria is not applicable.

5. *"If the unit new added has both renewable and non-renewable components (e.g. a wind/diesel unit), the eligibility limit of 15MW for a small-scale CDM project activity applies only to the renewable component. If the unit added co-fires fossil fuel, the capacity of the entire unit shall not exceed the limit of 15MW."*

The proposed project activity is Greenfield Wind Power Project with installed capacity of 10 MW. The same has been checked from purchase WTG supply agreement<sup>16/</sup> for the project activity and it is also confirmed about the installed capacity of the project activity during the site visit. Thus no non-renewable component or co-firing of fossil fuel is involved in the project activity.

6. *"Combined heat and power (co-generation) systems are not eligible under this category."*

The project activity is a wind power project and not cogeneration system; thus not applicable.

7. *"In the case of project activities that involve the addition of renewable energy generation units at an existing renewable power generation facility, the added capacity of the units added by the project should be lower than 15 MW and should be physically distinct from the existing units."*

The project activity is a green-field Wind Power Project with installed capacity of 10 MW. Thus no capacity addition of renewable energy generation unit is involved in the project activity.

8. *"In the case of retrofit or replacement, to qualify as a small-scale project, the total output of the retrofitted or replacement unit shall not exceed the limit of 15 MW."*

The project activity is Greenfield Wind Power Project with installed capacity of 10 MW. Thus no retrofitting or modification in an existing facility for renewable energy generation is involved in the project activity.

All applicability criteria of the methodology are detailed in section B.2 of the final PDD in a transparent manner. Since project activity involves electricity generation from renewable energy source i.e. wind, project activity falls into category I and its being electricity generation from renewable energy source i.e. wind, AMS I.D is applicable methodology for the project activity. Thus all the applicability conditions of the applied methodology are confirmed in line with paragraph 70 – 75 of VVM (version 1.2). Based on the above discussion, that validation team confirms that the proposed CDM project activity meets all the applicability conditions and all other stipulations of the selected methodology AMS I.D Version 17.

### **Discussion on findings:**

**CAR#02** was raised as sections A.1, A.3 and B.6.4 were not completed fully. In response, the PP provided a revised PDD, with correctly updated referred sections. Thus, **CAR#02** was closed out. **CAR#02** was reopened to provide realistic date of CER estimation under A.4.3 and B.6.3. In response, the PP has provided appropriate date for CER estimation, it is found satisfactory and hence **CAR#02** was closed out.

However, during the course of validation the applied version of the methodology (AMS I D Version 13) expired and the PDD was revised as per the latest version of the methodology. The final PDD applied AMS I D Version 17<sup>7.2/</sup>. Since the applied methodology in the web hosted PDD had expired during the course of validation, the PP has modified the PDD in the revised versions of applied methodologies. As per the EB 43 Annex 12 para 6, if the methodology is revised to a newer version, the PDD need not be re-published for global stakeholder's comments on UNFCCC web-site. Thus, the new versions of methodologies applied for the project activity are accepted. This was found appropriate and was accepted.

#### **Validation opinion:**

It is confirmed that the selected methodology by the proposed CDM project activity complies with the applicability conditions, as illustrated above.

It is established from the review of the final PDD and assessment on site that there are no greenhouse gas emissions occurring within the proposed CDM project activity boundary as a result of the implementation of the proposed CDM project activity, which are expected to contribute more than 1% of the overall expected emission reductions. All the emissions regarding the project activity occurring within the boundary have been duly included in the monitoring plan in accordance with the applied methodology.

#### **4.6 Project Boundary**

As per the requirements mentioned in the applied methodology AMS I D Version 17<sup>7.2/</sup> "The physical, geographical site of the renewable generation source delineates the project boundary."

The project boundary covers all the eight wind turbine generators, auxiliary requirements like housing, workshops, yard lighting etc., and the evacuation point, where the generated electricity will be delivered to CEB Grid. This has been confirmed through the commissioning details<sup>18/</sup> and found to be satisfactory.

#### **Discussion on findings:**

**CAR#09** was raised as project boundary was not clear in section B.3 of the PDD Version 01. In response, the Project Participant incorporated a schematic diagram of the project boundary in the revised PDD. Thus, **CAR#09** was closed out.

#### **Validation opinion:**

The identified project boundary and the selected sources and gases are justified for the project activity and no emission sources that will be affected by the project activity are left out, which are not addressed by the selected approved methodology. It is confirmed that no GHG emission occurring within the project activity boundary as a result of the implementation of the propose project constitute more than 1% of overall expected annual average emission reductions. No leakage emissions involved as equipment isn't transferred from another activity or to another activity. This is in line with paragraph 77 of VVM version 1.2. The project boundary in section B.3 of the PDD properly explains the physical description of the project activity. Also it is found that all the components and facilities to mitigate GHG gases are included in the project boundary.

The project boundary as included in the final PDD is completely in line to the applicable requirements of the applied methodology and has been confirmed during the site visit and review of commissioning details<sup>18/</sup>. The validation team is of the opinion that the project boundary has been correctly identified in the PDD in line with paragraph 79 of VVM version 1.2

#### **4.7 Baseline Selection and Additionality**

The PP has correctly identified the baseline of the proposed CDM project activity as per paragraph 10 of the selected methodology AMS I.D Version 17<sup>7.2/</sup>:

*"the baseline scenario is that the electricity delivered to the grid by the project activity would have otherwise generated by the operation of grid-connected power plants and by the addition of new generation sources into the grid."*

The PDD describes the baseline for this project as the emissions from the electricity generating system in Sri Lanka supplying the national grid, which is owned and managed by Ceylon Electricity Board (CEB), the state-owned electricity utility.

The baseline emissions have been calculated as per paragraph 11 of the methodology:



*“The baseline emissions are the product of electrical energy baseline  $EG_{BL,y}$  expressed in MWh of electricity produced by the renewable generating unit multiplied by the grid emission factor.”*

$$BE_y = EG_{BL,y} * EF_{CO2, grid, y}$$

Where:

$BE_y$  Baseline Emissions in year y (t CO2)

$EG_{BL,y}$  Quantity of net electricity supplied to the grid as a result of the implementation of the CDM project activity in year y (MWh)

$EF_{CO2, grid, y}$  CO2 emission factor of the grid in year y (t CO2/MWh)”

The emission factor has been calculated as per paragraph 12(a) of the methodology:

*“The Emission Factor can be calculated in a transparent and conservative manner as follows:*

*(a) 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’.”*

The PP has referred to version 02.2.1 of the tool to calculate emission factor for an electricity system, which is latest available tool on UNFCCC website

The final PDD clearly describes the historic, present and future electricity generation where the thermal source has domination over the other source of electricity generation. The PP has clearly demonstrated that the share of hydropower is estimated by CEB to reduce from 40.2% in 2007 to 19.5% by 2020, while coal-fired thermal generation is estimated to reach 77.7% by 2020. Oil-fired thermal generation which accounted for 59.8% of energy input to the grid in 2007 would be phased out and will provide 9.6% of energy by 2020. The information was found consistent with the sources (Long-term Generation Expansion Plan, CEB, December 2005 [http://www.localpower.org/documents/w\\_model\\_srilankashort.pdf](http://www.localpower.org/documents/w_model_srilankashort.pdf))<sup>19/</sup> mentioned in the final PDD.

The credible alternatives to the proposed CDM project as described in the PDD are,

1. The proposed project activity undertaken without being registered as a CDM project activity
2. Other realistic and credible alternative scenario(s) to the proposed CDM project activity scenario that deliver outputs services (e.g., cement) or services (e.g. electricity, heat) with comparable quality, properties and application areas, taking into account, where relevant, examples of scenarios identified in the underlying methodology
3. If applicable, continuation of the current situation (no project activity or other alternatives undertaken)

It is also noted that as per para 10 of methodology, *The baseline scenario is that the electricity delivered to the grid by the project activity which would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources into the grid.* Thus a third alternative would be the baseline scenario for the project activity.

### **Discussion on findings:**

**CL#10** was raised to justify the PP's various statements in section B.4 with documentary evidences while selecting the baseline and its description. The PP was also asked to describe how it has developed the Grid Emission factor and to provide the authentic sources of all data.

In response, the PP has provided all the documents<sup>19, 20, 21, 22, 23/</sup> supporting the development of Grid Emission factor and the selection of baseline for the project. Thus, **CL#10** was closed out. **CL#10** was reopened asking the PP to use latest tool of additionality. In response, the PP has now used the latest tool of additionality version 06.1.0. This is found satisfactory and hence **CL#10** was closed out. The step by step validation for the grid emission factor has been detailed in section 4.8 of this report.

### **Validation opinion:**

Based on the requirements of paragraphs 81-88 of the VVM version 1.2, the validation team confirm that:

- (a) All the assumptions and data used by the project participants are listed in the PDD, including their references and sources;
- (b) All documentation used is relevant for establishing the baseline scenario and correctly quoted and interpreted in the PDD;
- (c) Assumptions and data used in the identification of the baseline scenario are justified appropriately, supported by evidence and can be deemed reasonable;
- (d) Relevant national and/or sectoral policies and circumstances are considered and listed in the PDD;
- (e) The approved baseline methodology has been correctly applied to identify the most reasonable baseline scenario and the identified baseline scenario reasonably represents what would occur in the absence of the proposed CDM project activity.

It is further confirmed that the steps taken, and sources of information used, by the assessment team to cross check the information contained in the PDD on this matter are included in the section above.

#### **4.7.1 Additionality**

The additionality of the project has been demonstrated by using the methodological tool "Tool for the demonstration and assessment of additionality" Version 7.0.0, which is not mandatory for SSC CDM project activity but acceptable. The PP has identified the realistic and credible alternative, which is in compliance with mandatory legislation and regulations taking into account the enforcement in the country.

The step wise approach of the used tool has been discussed in detail in the section 4.7.3 to section 4.7.6 of this report. The data, rationales, assumptions & justifications and documentation provided have been checked using local knowledge and sectoral expertise, the same has been cross checked with various documents provided by PP during validation.

The following key documents, inter alia, were reviewed by the assessment team on this matter;

- 1) Power Purchase Agreement dated 16/12/2008<sup>/12/</sup>
- 2) Technical Specifications of the Suzlon S64-1250 WTG<sup>/17/</sup>
- 3) Technical Feasibility Study Final, June 2008 (S64) for Capacity Utilization Factor<sup>/25/</sup>
- 4) Quotation/proposals (Cost estimate) by Suzlon for the project activity dated 15/02/2008<sup>/26/</sup>
- 5) Consolidated project cost estimates by RMA dated 17/03/2008<sup>/27/</sup>
- 6) Transmission and Interconnection cost revised estimates dated 12/04/2008<sup>/28/</sup>
- 7) Purchase orders (Wind turbine, commission and warranty agreement) dated 23/08/2008<sup>/16/</sup>
- 8) Interest rates published by Central Bank (June 2008)<sup>/29/</sup>
- 9) Published Exchange Rate 01/08/2008<sup>/30/</sup>
- 10) Published Standardized Tariff 2008 (Explanatory Note to Tariffs 18/03/2008)<sup>/31,32/</sup>

Based on the responses to the various CARs and CLs (detailed in investment analysis section), the assessment team confirms that the documents & information provided for the project activity are appropriate. Hence, the data, rationales, assumptions, & justifications provided in the PDD are accepted as reliable and credible.

### **Validation opinion:**

The additionality of the project activity has been demonstrated using the investment analysis (as included in the section 4.7.4 of this report) and barrier due to prevailing practice (as included in the section 4.7.5 of this report) in accordance with the "Tool for the demonstration and assessment of additionality" Version 7.0.0, which not mandatory for SSC CDM project activities but acceptable.

#### 4.7.2 Prior Consideration of the Clean Development Mechanism

The start date of the proposed CDM project activity has been mentioned in the final PDD as 23/08/2008. The start date has been confirmed from the purchase order<sup>16/</sup> issued by the PP to the WTG supplier (Suzlon Energy Limited) and found to be consistent. The considered start date is found to be in line with the definition of start date as per paragraph 67 of EB41 as it is the earliest commitment by the Project Participant towards the expenditure related to the implementation of the proposed CDM project activity.

Considering the start date of the project activity is later to 02/08/2008 therefore in accordance with EB41 Annex46 paragraph 2 the project activity is termed as new project activity (also as per latest guidance EB62 Annex13, the proposed CDM project activity is New project activities with a start date later to 2 August 2008).

Further, the PP was required to submit a notification to host Party DNA and/or UNFCCC within 6 months from the project activity start date as per paragraph 2 of EB41 Annex46, which was latest available guidance on these matters to the PP at the project start date.

The next version of the guidance on this matter i.e. Version 02 dated 17/07/2009 (EB48 Annex61) required such notification using standardized form F-CDM-Prior CDM Consideration. In the case of project activity it was not possible for the PP to notify the UNFCCC and the host Party DNA simultaneously as the guidance (requiring this) was publicly available almost 11 months later to the start date of the project activity. In the same way, the most recent guidance on prior CDM consideration<sup>8.4/</sup> i.e. Version 04 (EB62 Annex13) became available dated 15/07/2011, whereas the PP notified<sup>33/</sup> host Party DNA on 14/11/2008 i.e. much earlier to the issue of latest guidance.

Therefore, it is confirmed that the Project Participant notified the host Party DNA within 6 months from the project activity start date and therefore prior CDM consideration is duly established. This is in line with paragraph 2 of EB41 Annex46, which was latest available guidance at the time of project start date.

Chronology of events and means of Validation are tabulated as below:

Sr. No.	Chronology of Events	Date / Duration	Means of Validation
1	Start date of the project activity	23/08/2008	Signing of equipment supply contract is checked for real action taken for this project activity.
2	Applied to DNA for approval to PIN	14/11/2008	Application to DNA is checked for intimation to host DNA. Validation team has checked the appropriateness of the notification made to the Host Country DNA based on the review of the copy of the letter from Senok Wind Power (PVT) Limited dated 14/11/2008 to Climate Change Division, Ministry of Environment and Natural Resources and it is found to be accepted.
3	Received DNA approval for PIN	08/12/2008	DNA approval for this project activity is checked for appropriateness.

#### Discussion on findings:

In the webhosted PDD, section B.5 did not include the chronology of events which can show the prior consideration of CDM for the project activity. Thus, **CAR#12** was raised to include and substantiate the followings:

- The PP were aware of CDM benefits at the time of decision making
- The CDM benefits were decisive to go ahead with the project activity
- The parallel efforts have been undertaken to secure the CDM status of the project activity along with its implementation

In response, the PP included a table in section B.5 of the revised PDD showing chronology of key CDM activities taken up by the project participant.

Responding to point a) of CAR#12, the PP mentioned that it had discussions with companies and consultants from as early as December 2006<sup>/34/</sup>. The director of the PP attended seminars and meetings in Carbon Expo Asia. The director was also enquired by Carbon Assets Lanka Private Limited about the proposed CDM project activity, when it was in initial stages of conceptualization. The supporting documents, in lieu of this were reviewed by the assessment team and found adequate. This sufficiently ensures the CDM awareness for the Project Participant.

Responding to point b) of CAR#12, the PP mentioned that the project start date as 23 August 2008, the date on which the agreement<sup>/16/</sup> for the supply of wind turbine was executed, prior to which the Project Participant held a Board meeting on 12 August 2008 and resolved<sup>/36/</sup> to proceed with the signing of the contract subject to CDM benefits. A copy of Board Resolution was obtained and found credible.

Responding to point c) of CAR#12, the PP mentioned that it made the following parallel efforts to secure CDM benefits, while proceeding to the first phase of project implementation (to secure land rights, firming up lender commitments and securing of energy permit and the execution of the power purchase agreement).

1. Appointed<sup>/37/</sup> the CDM consultant on 15 August 2008, shortly after the Board's decision to execute the equipment supply agreement.
2. Applying<sup>/33/</sup> for DNA approval to the PIN on 14 November 2008 (DNA approval (for PIN) was issued on 8 December 2008). As the project start date is after 2 August 2008, and the DNA has been informed of the intention to seek CDM status on 14th November 2008, by submitting the PIN. This fulfils the requirements of EB41 Annex 46 Clause 2.
3. Applying<sup>/39/</sup> for DNA approval on 7 April 2009 for the project activity, by submitting the PDD and securing the HCA<sup>/4/</sup> dated 4 May 2009.
4. Signed validation contract<sup>/56/</sup> with the DOE on 14 May 2009 and provided the PDD for publication on 15 May 2009 (the PDD was publicly made available on 29 May 2009)

The assessment team contacted the DNA of Sri Lanka, Dr W. L. Sumathipala (Head Climate Change Division, Ministry of Environment and Natural Resources, Government of Sri Lanka, No.342, Pitakotte Junction, Kotte via) via e-mail<sup>/40/</sup> dated 6<sup>th</sup> January 2010 and over telephone to validate the authenticity of the Host Country approval letter<sup>/4/</sup>. The office of the DNA, Sri Lanka has confirmed the HCA has been issued by the DNA of Sri Lanka via e-mail dated 15 January, 2010<sup>/9/</sup>.

Thus, **CAR#12** was closed out after validating and verifying all the supporting documents and the PP's responses to the queries raised by the assessment team.

**CAR#15** was raised asking the PP to provide evidence considering the start date of the project activity, life time of the project activity and realistic date for start of crediting period. In response, the PP has provided supportive documents for the appropriateness of the dates used and corrected the dates accordingly. This is found satisfactory and hence CAR#15 was closed out.

#### **Validation opinion:**

In the opinion of the assessment team,

- (a) The starting date of the project activity is 23 August 2008.
- (b) The prior CDM consideration is valid as the host Party DNA was notified for the intention to seek CDM status for the proposed CDM project activity within 6 months of the starting date of the project activity.
- (c) The proposed CDM project activity have demonstrated the prior CDM consideration in accordance with the "Guidelines on the demonstration and assessment of prior consideration of the CDM" Version 01, which was the latest available guidance within the 6 months of the starting date of the project activity. The later versions (02 to 04) of the referred guidance were publicly available appeared after the 6 months of the starting date of the project activity and therefore cannot be complied with.

On the other hand, it was also ensured during validation that the Project Participant was completely aware of CDM and considered CDM benefits to proceed with the project activity. The parallel efforts shown in the final PDD to secure CDM status also confirmed that there is no gap of more than 2 years (between project activity

start date (23 Aug 2008) and publication of the PDD on the UNFCCC website (29 May 2009) in any of documented CDM efforts. Though, this requirement is not mandatory (after it has been validated the start date of the project activity is 23 August 2008) for the project activity considering the validated project activity start date, which is after 2 August 2008. Thus the validation team is of the opinion that the Project Participant was seriously considered CDM in their decision to go ahead with the implementation of the project activity. This is found to be appropriate and it is accepted

#### 4.7.3 Identification of alternatives

The PDD has identified the baseline scenario by using the “Tool for the demonstration and assessment of additionality” Version 7.0.0 dated 23/11/2012<sup>/8.1/</sup>. As per para 89 of EB65 meeting report, this version of tool 6.1.0 is applicable as the PDD is was uploaded no later than 25/07/2012.

The project activity has chosen the baseline as per the approved small scale methodology AMS I D Version 17<sup>/7.2/</sup>, “Grid connected renewable electricity generation.”

The alternatives of the project activity have been analysed step by step approach of the “Tool for the demonstration and assessment of additionality” Version 7.0.0 dated 23/11/2012<sup>/8.1/</sup>

#### Step 0: Demonstration whether the proposed project activity is the first-of-its-kind

The project activity is the “first of its kind”.

The proposed CDM project activity is first of its kind as there is no other similar project activity commercially operating in the country. The only other activity which is 3 MW wind power system is not found similar to the project activity as demonstrated below;

Criteria (Analysis)	Proposed project activity: 10 MW wind power plant	The only other activity: CEB's 3 MW wind power plant	Assessment Remarks
Country/region	Sri Lanka/North-western Province	Sri Lanka/Southern province	The regions are different but in the same country
Scale	10 MW	3 MW	The installed capacity of 3 MW power plant is outside the $\pm 50\%$ rated capacity
Vintage	WTG equipment to be ordered and built in year 2009	WTG equipment ordered and built in 1999 <sup>/47,52/</sup>	The investment decision time is significantly different
Regulatory framework	Private investor absorbing all the risks	Utility demonstration plant with no clear need or desire to be profitable	First private wind power plant
Tariff for the sale of electricity	Standardized and non-negotiable, fixed for 20 years	No tariff defined. Whatever produced is fed to the utility's own grid.	The constrain of fixed tariff for 20 years
Project income	Only from tariff-based payments after meter reading	No specific requirements for project incomes	The 3 MW wind power plant is demonstration project by state utility
Investment rules/climate	Private equity (50%) and commercial lenders' debt (50%)	Very low equity by Govt-owned CEB, and Global Environmental Facility (GEF) funding on concessionary terms <sup>/48/</sup>	No private equity in the 3 MW wind power plant vis a vis 10 MW proposed CDM project activity



It has been confirmed that the 3 MW wind power plant was existing in year 2000 refer page 2 (section 1.2) of Sri Lanka Wind Farm Analysis<sup>/47/</sup> and Site Selection Assistance prepared by National Renewable Energy Laboratory (U.S. Department of Energy), Aug 2003 (available at <http://www.nrel.gov/docs/fy03osti/34646.pdf>) therefore it is not considered to have occurred in the same investment climate.

Furthermore, it was confirmed<sup>/48/</sup> that the 3 MW wind power plant by Ceylon Electricity Board, Sri Lanka could occur only with the financial grant secured through GEF as per page 5 of <http://siteresources.worldbank.org/EXTRENEENERGYTK/Resources/5138246-1238175210723/Sri0Lanka0RE0Program0mini1hydro0.pdf>. Therefore, the proposed CDM project activity is considered different in terms of investment perspective.

It has been confirmed that the proposed CDM project activity is the first sanctioned<sup>/49/</sup> project by the Sri Lanka Sustainable Energy Authority ([http://www.energy.gov.lk/sub\\_pgs/develop\\_permits\\_wind.html](http://www.energy.gov.lk/sub_pgs/develop_permits_wind.html)). At the time of start date of proposed project activity only 3 MW wind power project (<http://www.windpower.lk/>) was installed in the Sri Lanka. Hence, proposed project activity is the first commercial wind power plant built in Sri Lanka, this is checked from <http://www.lankabusinessonline.com/fullstory.php?nid=1223352553> dated 19/03/2010.

It was further crosschecked using UNFCCC project search website (<http://cdm.unfccc.int/Projects/Validation/index.html>) in Sri Lanka and following other two wind projects were found which are under CDM validation

Project Title	Host Country	Methodologies	Reductions *	Period for Comments
Vidatamunai Wind Project	Sri Lanka	AMS-I.D. ver. 16	17,613	26 M-r 11 - 24 Apr 11
Seguwantivu Wind Project	Sri Lanka	AMS-I.D. ver. 16	16,259	26 M-r 11 - 24 Apr 11

The rated capacity in the webhosted PDD (undergoing validation) indicate that these project are using 800 kW wind turbines which is smaller in comparison to the technology employed by this CDM project activity i.e. 1250 kW.

Further, during the course of validation "Guidelines on additionality of first-of-its-kind project activities" Version 02.0 was approved in EB69 Annex 07, which provides guidance to identify the first-of-its-kind project activity as under;

## **II. Identification of a First-of-its-kind project activity**

5. A proposed project activity is the First-of-its-kind in the applicable geographical area if :

- (a) The project is the first in the applicable geographical area that applies a technology that is different from any other technologies able to deliver the same output and that have started commercial operation in the applicable geographical area before the start date of the project; and
- (b) Project participants selected a crediting period for the project activity that is .a maximum of 10 years with no option of renewal.

The final PDD has identified entire host country as default applicable geographical area, which is reasonable in the context of the proposed CDM project activity. In the opinion of the assessment team, the applied technology in the project activity has no operational history and performance records, which only strengthen the PP's selection of entire host country.

There is only one installation of 3 MW in the applicable geographical area as described above, which uses wind energy to generate electricity and supplying to the national grid. However, the size of installation of 3 MW power plant is considered to be different than the proposed CDM project activity in accordance with paragraph 4(c)(i) being a micro scale project. In the opinion of the assessment team, there are also other differences, as described above, which provides and additional information with regards to the difference between the proposed CDM project activity and the other one. This is cross checked from the wind power in Sri Lanka website <http://www.windpower.lk/> and confirmed that only 3 MW wind power was existing in 2008.

The PP has now chosen the 10 year fixed crediting period in place of 7 year renewable crediting period (as mentioned in the webhosted PDD) in order to comply with the para 5(b) of EB69 Annex 07.

Therefore, it can be concluded that the proposed CDM project activity is indeed *first of its kind* and no other similar commercially operating wind project was found at the start date of the project activity. Furthermore, considering that this proposed project activity has come up almost a decade later to a government own small size wind power plant (3 MW), which is clearly different to the proposed CDM project activity, confirms the existence of the prevailing practice barrier.

Therefore, it has been accepted by the assessment team that project activity is facing barriers due to prevailing practice in the country for the wind energy and is confirmed to be additional being a first-of-its-kind project activity.

#### **Validation opinion:**

In the opinion of the assessment team, the identified barrier is credible, as demonstrated above, which is significant enough to determine that the project activity is first-of-its-kind and is adequate to prevent the implementation of the proposed CDM project activity but would not prevent the alternative i.e., continuation of current practice and power being generated in the power plants connection to the national grid of Sri Lanka.

#### ***Step 1: Identification of alternatives to the project activity consistent with current laws and regulations***

##### ***Sub-step 1a: Define alternatives to the project activity:***

Identification of alternatives to the project participant or to similar project developers:

The realistic and credible analysis of alternatives in accordance with the “Tool for the demonstration and assessment of additionality” (Version 7.0.0), were selected among the following:

- 1) The proposed project activity undertaken without being registered as a CDM project activity
- 2) Other realistic and credible alternative scenario(s) to the proposed CDM project activity scenario that deliver outputs services (e.g., cement) or services (e.g. electricity, heat) with comparable quality, properties and application areas, taking into account, where relevant, examples of scenarios identified in the underlying methodology
- 3) If applicable, continuation of the current situation (no project activity)

Accordingly, identified, credible alternatives to the proposed CDM project are,

The credible alternatives to the proposed CDM project as described in the PDD are,

- 1) Proposed project activity undertaken without being registered as a CDM project activity
- 2) Scenario 2 is not applicable to this project activity as only alternative to the project activity identified is electricity generation from grid connected power plants which is nothing but alternative 3 i.e. continuation of the current situation (scenario). Thus it is not considered in further analysis.
- 3) Continuation of the current situation (no project activity or other alternatives undertaken)

**Outcome of Sub-step 1a:** The above alternatives (1) and (3) both are the identified realistic and credible alternatives or alternative scenario(s) to the project activity.

##### ***Sub-step 1b: Consistency with mandatory laws and regulations:***

The mandatory laws and regulations applicable to the CDM project activity are also applicable to the project activity without being registered as CDM project activity (which is considered as one of the alternative).

Alternative (1), the proposed project activity undertaken without being registered as a CDM project activity, is consistent with mandatory laws and regulations, because all the laws applicable to the proposed CDM activity will also apply to this alternative. This is checked and confirmed from Sri Lanka Sustainable Energy Authority Act No 35 of 2007: Part 2 (<http://faolex.fao.org/docs/pdf/srl78121.pdf>) : all applicable clauses related to renewable energy, along with the following regulations issued under this Act)

Alternative (3), implementation of projects in the long-term generation expansion plan (continuation of current situation) to serve the growing demand for electricity in Sri Lanka, is consistent with mandatory laws and regulations, because (i) CEB is a government-owned institution and (ii) CEB's project implementation is subject to all mandatory laws and regulations. CEB has to fulfill all the regulations related to environmental

impact assessment and approval process, similar to the proposed project activity. This is checked and confirmed from Sri Lanka Electricity Act No 20, 2009: Chapter 3 (<http://www.cebeu.lk/index.php/topic.38.msg49.html#msg49> : all applicable clauses related to licensing)

The laws and regulations are mandatory, they are applicable to the alternatives, and they are being enforced. The laws and regulations have objectives other than GHG reductions. These objectives include renewable energy resource allocation, air quality management, water quality management, etc.

**Outcome of Sub-step 1b:** Identified realistic and credible alternative scenario(s) to the project activity are in compliance with mandatory legislation and regulations taking into account the enforcement in the country

#### **Discussion on findings:**

In the webhosted PDD, the PP identified the credible alternatives as

- 1) A Mini Hydro Power Plant
- 2) A biomass power plant

**CL#11** was raised to know how in the absence of the project activity the Project Participant would have invested in these two alternatives and how these two alternatives are comparable to wind project activity and also if these were credible baseline alternatives how they were eliminated from further discussion in the PDD.

In response, the PP has revised its discussion on alternatives in the revised PDD. However, the assessment team found the discussion inadequate on Sub Step 1(a) and Sub Step 1(b) as per the Tool for the demonstration and assessment of additionality" (Version 7.0.0) and thus requested the PP to correct the same.

In response, the PP submitted the revised PDD with clear information. The assessment team examined the same and found the description and discussion on alternatives as per the tool used and thus point a) and b) were accepted and closed.

**CL#11** was reopened as the PP has not considered the project cost under sensitivity analysis and hence clarification was asked. In response, the PP has considered the project cost under sensitivity and hence it is accepted and closed. Also it is noted that as per methodology, it is not required to identify the baseline alternatives as baseline scenario for the project activity is in line with para 10 of methodology AMS I.D version 17 hence closed. **CL#11** was reopened to ask the PP to correctly demonstrate why alternative 2 was not considered in further steps of additionality tool. In response, the PP clarified that the only alternative scenario to project activity is electricity generation by the grid which is the same as alternative 3 i.e. continuation of the current scenario. Hence it was not considered in further steps of additionality tool. This is found to be appropriate and it is accepted. **CL#11** was further extended to ask the PP to clarify why stepwise approach is not followed to demonstrate additionality of the project activity in section B.5 of the PDD in line with "Tool for the demonstration and assessment of additionality" (Version 07.0.0). In response the PP submitted revised PDD with section B.5 revised in line with "Tool for the demonstration and assessment of additionality" (Version 07.0.0). This is found to be appropriate and it is accepted. Hence **CL#11** is closed out.

Considering the proposed CDM project activity without being registered as CDM project activity is neither financially attractive (as demonstrated in the investment analysis section of this report) nor it is prevailing practice in the country (as demonstrated in the barrier analysis section of this report). Therefore, the continuation of the existing situation has been considered as the most plausible baseline for the proposed CDM project activity. This alternative is same as electricity generated by the operation of grid-connected power plants and by the addition of new generation sources as mentioned in para 10 of methodology.

#### **Validation opinion:**

In the opinion of the assessment team the listed alternatives are in accordance with the applied methodology AMS I D Version 17<sup>[7.2]</sup>, complete and credible.

#### **4.7.4 Investment analysis**

The PP applied (Step 2) the investment analysis to demonstrate the additionality as per the "Tool for the demonstration and assessment of additionality" Version 7.0.0.



## **Step 2: Investment analysis**

To demonstrate and assess additionality of the project activity, investment analysis requires to determine whether the proposed project activity is the economically or financially less attractive without the revenue from the sale of certified emission reductions (CERs).

The final PDD includes the investment analysis applying the following sub-steps of "Tool for the demonstration and assessment of additionality" Version 7.0.0 and the investment guideline stipulated in 'Guidelines on the Assessment of Investment Analysis' Version 05<sup>8.3/</sup>.

### **Sub-step 2a: Determine appropriate analysis method:**

The Project Participant has applied benchmark analysis as the most appropriate analysis method considering the PP have choice not to invest at all. The selected method of investment analysis is found in line to EB62 Annex5 para 19 as accepted as suitable approach.

### **Sub-step 2b: Option III. Apply benchmark analysis**

The Project Participant has chosen the project IRR as financial indicator for representing the economic viability of the project activity and local commercial lending rate as project benchmark. In accordance with EB62 Annex5 para 12, the local commercial lending rates, is determined to be the appropriate benchmark for project IRR.

Considering that the project could be developed by any entity, the Project Participant demonstrated that the project benchmark is based on the publicly available data and standard in the market to the type of power sector. The small scale CDM project activity requires long-term financing and thus project participant selected the long term lending rate published<sup>29/</sup> by Central Bank of Sri Lanka (CBSL). For each month, the Central Bank of Sri Lanka (CBSL) publishes long-term lending rate of four banks. These banks are

- 1) State Mortgage and Investment Bank (SMIB, primarily a bank providing housing loans) - <http://www.smib.lk/products/loan-schemes>
- 2) Development Finance Credit Corporation Bank (DFCC, a bank providing long term loans to development project, including renewable energy projects) - <http://www.dfcc.lk/sme-project-finance/project-financing>
- 3) National Savings Bank (NSB, a savings bank, lending to mainly housing projects) - [http://www.nsb.lk/Loan\\_centers.php](http://www.nsb.lk/Loan_centers.php)
- 4) National Housing Development Agency (NHDA, a housing bank) - <http://www.nhda.lk/>

As referred in the web links above, the SMIB, NHDA and the NSB primarily give loans either for housing/ infrastructure projects and personal loans. Thereby it was mandatory to use the DFCC lending rates, as DFCC bank rates can be used as a benchmark for other banks in this sector too. The Project Participant selected the rates published for DFCC bank to establish the benchmark IRR as this bank provides long term loan to renewable energy projects (DFCC Bank has been appointed as the Project Administrative Unit for the Project, which aims to expand the commercial provision and utilisation of renewable energy resources and improve the quality of life in rural areas in Sri Lanka, [http://www.dfccbank.com/data/products/product\\_service.html](http://www.dfccbank.com/data/products/product_service.html)). The interest rates of DFCC bank<sup>29/</sup> for one year at the time of investment decision of the proposed small scale CDM project were considered.

The average of the maximum and minimum interest rates for 12 months ending in June 2008, the month before the investment decision, of the CDM project activity considered benchmark as 23.5%. The PP has considered average lending rate for one year prior to decision making. Minimum lending rate would have been more conservative against average lending rate however in the opinion of assessment team selection of an average value was reasonable considering it is the first commercial wind power project in Sri Lanka, where private equity is involved. The published long term lending rates of DFCC Bank have been confirmed (Monthly Selected Economic Indicators published by CBSL) from [http://www.cbsl.gov.lk/htm/english/cei/ei/e\\_2.asp](http://www.cbsl.gov.lk/htm/english/cei/ei/e_2.asp) and found to be consistent with the investment decision date.

The validation team is of the opinion that the above benchmark, which is based on the parameters that are standard in the market, is suitable in the context of underlying project activity.

Suitability of benchmark considered for the project activity is confirmed in line with paragraph 112 of VVM as follows:

112 (a) The financial indicator used for the project investment analysis is pre-tax Project IRR and the benchmark has been calculated as Local Commercial Lending rate which is suitable to the type of financial indicator chosen by the PP.

(b) Since this is a wind energy generation project, the risk estimate for the project is on the basis of Local Commercial Lending rate. It is understood that risky businesses are likely to have higher rate than safer businesses; projects in riskier businesses will have to cover these higher costs. Hence, investors demand a higher return from renewable energy projects than from conventional energy ones, given the higher risks in renewable, including risks of technology, risks from significantly varying and unpredictable resource availability (e.g. wind), and a lower established support base for such projects relative to that for conventional power (e.g. grid connections, bank finance, suppliers, etc.).

c) The financial analysis of the project at the time of investment decision along with the respective sensitivity analysis, shows that the pre-tax Project IRR of the project not crosses the benchmark returns. Therefore it can be concluded that the project is not financially viable and hence it can be assumed that no investment would be made at a rate lower than the benchmark return.

Reliability and credibility of all the data, assumptions, justifications and documentation has been assessed in line with Paragraph 95 of VVM (version 1.2).

Other financial parameters used in the investment analysis are specific to the project, and described in the PDD as below:

#### **Project cost:**

#### **Investment for the Mampuri Wind Power Project: Calculation of project costs**

<b>Project Cost</b>	<b>LKR Million</b>
Project development / implementation	52.53
Infrastructure development	58.62
Equipment price	1,522.10
Project supervision	8.21
Clearing & transport	89.69
Civil works	187.44
Erection	217.16
Transmission and Interconnection	120.75
Consultancy fees (WTG)	20.00
Bank charges and legal fees	115.58
<b>Total Project Cost</b>	<b>2,392.08</b>

The project cost estimated have been confirmed from the cost estimates<sup>/26,27/</sup> provided K. Sunith Fernando, Consultant Mechanical Engineer, which were based on quotes received from supplier (for wind turbine dated 15/02/2008) and estimates as on 17/03/2008. The total project cost was estimated at that time to be approximately 2,392.08 million LKR. The project cost does not include the land cost and thus lower project cost is conservative and accepted.

Since, the revised project cost were available (valid and applicable) at the time of investment decision, same has been considered appropriate in line to EB62 Annex5 para 6.

There are no other similar wind power projects (between 5 MW to 15 MW i.e. based on 50% range from rated capacity on higher or lower side) and therefore no publicly available information is available to cross check the project costs independently. In these situations, the reliability of project costs was confirmed

through the actual expenditure occurred. It is confirmed that the actual expenditure in the project activity was 2,475 million LKR as on 28/10/2010. The actual expenditure has been cross checked from the consolidated information from the PP and review of actual purchase orders. This increase in project cost is approximately 3.47% to what was considered at the time of investment decision. It was further confirmed through an offer made by National Development Bank (NDB) dated 21/08/2009 where project cost was defined as 2392 million LKR, which is almost same as the project cost considered at the time of investment decision. Therefore, it is confirmed that the actual project cost is actually on higher side than what was considered at the time of investment decision. Thus being the lower project cost considered at the time of investment decision is conservative as compared with actual cost.

The project cost for wind power projects have been considered to be 200 million LKR/MW while determining the tariff rates in an explanatory note<sup>/32/</sup> issued by Sri Lanka Sustainable Energy Authority, which is comparable to the project activity (on per MW basis) [http://www.energy.gov.lk/pdf/explanatory\\_note\\_march\\_2008.pdf](http://www.energy.gov.lk/pdf/explanatory_note_march_2008.pdf). It shall be understood that the actual project cost tend to vary depending on various factors e.g. negotiation capabilities of PP timing of investment decision and prevailing costs at that time, prevailing exchange rates (LKR/USD) and technical specification of the turbines and others. Thus the project cost considered at the time of investment decision is comparable and 10% variation (higher side) with explanatory note issued by Sri Lanka Sustainable Energy Authority is acceptable as actual project cost is more than considered in financial calculations.

#### **Assessment period:**

The investment analysis is conducted for a period of 20 years, which is deemed appropriate and accepted by the technical expert in the context of the proposed CDM project activity. It has been further confirmed through a third party certification<sup>/42/</sup> GL-wind that the life of WTG are 20 years and corroborated by the fact that the power purchase agreement<sup>/12/</sup> (specific for the project activity) has also been signed for 20 years.

#### **Debt to Equity ratio:**

The debt component has been considered to be 46% based on the common indicative terms<sup>/44/</sup> issued by the lender bank. The amount which bank has been ready to disburse as term loan was equal to 1,100 million LKR, which represents 46% as debt considering the project cost as 2392.08 million LKR.

The explanatory note (by Sri Lanka Sustainable Energy Authority) to tariff order<sup>/32/</sup> was reviewed by the assessment team and it was noted that the referred tariff order assumed debt portion as 60%, which is higher than what was actually available to the project participant. During the site visit discussion it was ascertained that the bankers were apprehensive to loan higher debt portion and therefore it was not possible for project participant to achieve 60% as debt component for the project cost. Therefore, the debt as 46% has been accepted by the assessment team, which was available at the investment decision. As per paragraph 17 of EB 62 Annex 5, the PP has provided calculation based on 50:50 debt equity ratio. This was checked by assessment team and it is confirmed that project IRR comes to 18% similar to actual scenario and project activity still remains additional.

#### **Exchange rate (LKR/USD):**

The payments for the project activity were supposed to made in USD to the technology provider and therefore an exchange rate of 115 LKR/USD was taken. The construction period as per proposals<sup>/26,27,28/</sup> was estimated to be 12 months. The exchange rate<sup>/30/</sup> at the time of investment decision was noted to be 108.16 LKR, which has been adjusted for nearly 6.5% yearly escalation<sup>/30/</sup> (based on escalation observed between year 2000 to 2007). Therefore, the consideration of 115 LKR/USD was found appropriate at the time of investment decision and time horizon expected for the expenditure.

Base Data	LKR/USD
Exchange rate (investment decision)	108.16
Yearly escalation (2000 to 2007)	6.5%
Adjusted exchange rate	115

### **Installed capacity:**

The proposed installed capacity was assessed to be 10 MW based on the 8 units of Suzlon S64 1.25 MW as part of project activity. The installed capacity has been confirmed from the proposals <sup>/26/</sup> from Suzlon Energy Limited. It was further cross checked from the power purchase agreement <sup>/12/</sup> and purchase order <sup>/16/</sup> placed for the supply of WTGs.

Technical Parameter	Unit	Value
Turbine Capacity	kW	1250
No of Turbines	Nos.	8
Total Power Plant Capacity	MW	10
Average net plant factor	%	31.55

### **Average net plant factor:**

The average net plant factor for the project activity has been considered to be 31.55%, which has been ascertained by a third party RMP Private Ltd in its Technical Feasibility Study <sup>/25/</sup> in June 2008 and specific to the project activity location and specifications. It is confirmed that the considered PLF is in accordance with the EB48 Annex11 as it is based on data provided by the third party contracted by the Project Participant,

The average net plant factor was comparable (as a cross check) with the annual plant (capacity) factor as 32% as noted in the explanation note <sup>/32/</sup> to tariff order announcement. Also same parameter is included in sensitivity analysis.

### **Power Tariff:**

The considered power tariff for the project activity is based as follows.

SPP Tariff (LKR/kWh) <sup>/32/</sup>	O&M base Tariff (yrs 1-20)	2.14
	Annual Escalation	6.52%
	Fixed Tariff (yrs 1-8)	18.66
	Fixed Tariff (yrs 9-15)	7.03
	Base year tariff as 1.30 LKR/kWh escalable up to 20 <sup>th</sup> year (yrs 16-20)	2.46, 2.57, 2.68, 2.80, 2.92

**Tariff from 16-20 year:** For determination of tariff from 16<sup>th</sup> year to 20<sup>th</sup> year, approach indicated in paragraph of 4.5 of explanatory note on tariff determination as on 2008 is used. Paragraph 4.5 of the explanatory note mentions that considering base year tariff as 1.30 LKR/kWh ([http://www.energy.gov.lk/pdf/explanatory\\_note\\_march\\_2008.pdf](http://www.energy.gov.lk/pdf/explanatory_note_march_2008.pdf)), escalated tariff is calculated at a rate 2/3 of the O&M escalation rate considered for the project activity and the values for the years 16 – 20 are considered in the calculations of effective tariff for the project activity throughout lifetime of the project. This is found to be appropriate and it is accepted.

Tariff for the wind power project is fixed for 18.61 LKR/kWh. Hence, there is no chance for change in the tariff rate for this project activity. This has been confirmed from the Purchase of Electricity to the National Grid under Small Power Purchase Agreements (SPPA) Explanatory notes to the Press Release dated 18/03/2008 issued by Sri Lanka Sustainable Energy Authority ([http://www.energy.gov.lk/pdf/explanatory\\_note\\_march\\_2008.pdf](http://www.energy.gov.lk/pdf/explanatory_note_march_2008.pdf)). Only O & M tariff is escalable and hence it is considered under sensitivity. This document is publicly available; also it was available at the time of decision making.

The power tariff has been confirmed from the explanatory note to the tariff announcement<sup>/32/</sup> for SPP (up to 10 MW installed capacity). It has been further confirmed from the actual agreed project specific power purchase agreement<sup>/12/</sup> and found to be consistent. The tariff has been defined as non-negotiable and fixed for 20 years, as stated above.

### **Energy generation:**

The energy generation from the project activity has been considered as 27,638 GWh/year as follows;

Technical Parameter	Unit	Value
Turbine Capacity	kW	1250
No of Turbines	Nos.	8
Total Power Plant Capacity	MW	10
Average net plant factor	%	31.55%
Operation hours	Hours	8760
Energy generation (10 MW * 8760 Hours * 31.55% /1000)	GWh	27,638

The energy generation calculation has been found to be correct.

### **O&M Cost & Escalation:**

The O&M cost have been verified from the proposals<sup>/26/</sup> submitted by Suzlon and found to be consistent. It has been checked that as per the proposal the project participant are not required to pay O&M charges for first 2 years and same is appropriately reflected in the investment analysis spreadsheet. The information was also found consistent with the actual O&M agreement<sup>/43/</sup>. The proposal mentioned different O&M cost from year 3 to 7 years. The O&M cost was mentioned in USD and same is converted to LKR with annual escalation of 6.52 %. The proposal did not mention O&M cost from 8<sup>th</sup> year onwards, thus in absence of availability of O&M cost, the PP has considered O&M tariff rate<sup>/32/</sup> ([http://www.energy.gov.lk/pdf/explanatory\\_note\\_march\\_2008.pdf](http://www.energy.gov.lk/pdf/explanatory_note_march_2008.pdf))(i.e Escalated O&M Tariff (LKR/kWh) \* energy delivered) from 8<sup>th</sup> year onwards and found to be appropriate. For robustness of calculations, the O&M cost is considered in sensitivity analysis. The escalation of 6.52% is considered to calculate the tariff, thus 6.52% escalation for O&M cost is appropriate and same has been confirmed with actual O&M agreement. O & M and its escalation was cross checked from the Purchase of Electricity to the National Grid under Small Power Purchase Agreements (SPPA) Explanatory notes to the Press Release dated 18/03/2008 issued by Sri Lanka Sustainable Energy Authority ([http://www.energy.gov.lk/pdf/explanatory\\_note\\_march\\_2008.pdf](http://www.energy.gov.lk/pdf/explanatory_note_march_2008.pdf)). This is found appropriate and in line with the publicly available document.

### **Interest rates:**

The debt amount has been verified to be 1,100 million LKR, which represents approximately 49.5% of the total project cost. The common indicative terms from lenders<sup>/44/</sup> from the lenders at the time of investment decision indicated that 80% of debt would be subject to following interest rate (upon refinancing): The three months data from March 2008 to May 2008 are considered for interest rate calculation which was available at the time of decision made.

$$\text{Interest rate} = \frac{\text{AWDR} + \text{AWFDR}}{2} + 7\% \quad \text{for 80\% of debt}$$

The interest rate on the remaining 20% of debt amount would be subject to following interest rate;

$$\text{Interest rate} = \text{AWPLR} + 4\% \text{ for 20\% of debt}$$

The considered values at the time of investment decision were checked from commercial bank lending and deposit rates by CBSL<sup>/45/</sup> and were found consistent. The repayment period was verified to be 7 years<sup>/44/</sup> after the commissioning of the project activity considering the commissioning time<sup>/26/</sup> of 12 months.



Financial Parameter	Unit	Dates	Rate	Average Value
AWDR	%	31/03/2008	10.47	10.60%
		30/04/2008	10.58	
		31/05/2008	10.76	
AWFDR	%	31/03/2008	15.76	15.92%
		30/04/2008	15.89	
		31/05/2008	16.12	
AWPLR	%	31/12/2007	18.1	18.5%
		31/03/2008	18.3	
		30/06/2008	19.1	
Repayment Period	Years			7

The Average Weighted Deposit Rate (AWDR), Average Weighted Fixed Deposit Rate (AWFDR) and Average Weighted Prime Lending Rate (AWPLR) were crosschecked with the commercial bank lending and deposit rates<sup>145/</sup> and were found consistent.

#### **Depreciation:**

The straight line method (SLM) depreciation has been applied on the project cost and is as per the standard accounting practice. The annual depreciation has been evenly spread over the entire assessment period. The PP has considered the 4% of equipment cost as scrap value and same is considered in revenue generation. Thus, all the input parameters used in the investment analysis are validated from the relevant sources available (and valid) at the time of the investment decision and crosschecked wherever appropriate and possible. It shall further be considered that the proposed CDM project activity is first commercial installation in the country and therefore not much independent information is available either on performance and financials. The financial calculations were carried out using standard practices as reflected in the investment analysis spreadsheet.

The pre-tax project IRR for the project activity comes out to be 18.0%, which is below the pre-tax project benchmark value of 23.5%, clearly demonstrating that the project activity is not financially attractive without CDM revenues. The consideration of project benchmark IRR as 23.5% is also found suitable in the context of the project activity as it is based on commercial lending rates of DFCC Bank (which provides loan to renewable sector in the country). The proposed CDM project activity is the first venture by the project participant (and also by any private investor) and therefore there is no other benchmark that has been used by them in the past, therefore, selection of published benchmark is reasonable, appropriate and acceptable.

All the evidence was checked for their validity and applicability at the time of the investment decision and found appropriate as per paragraph 6 of 'Guidelines on the Assessment of Investment Analysis' version 05 (EB62 Annex5); thus it is acceptable.

#### ***Sub-step 2c: Calculation and comparison of financial indicators***

The identified project IRR is 18.0% which is a pre tax financial indicator. The project IRR has been compared with commercial lending rate, which is a comparable benchmark for the pre tax project IRR.

#### ***Sub-step 2d: Sensitivity analysis***

The PP has used sensitivity analysis as per the "Tool for the demonstration and assessment of additionality" Version 7.0.0 and the investment guideline stipulated in 'Guidelines on the Assessment of Investment Analysis' version 05 (EB62 Annex5) to examine the robustness of the investment analysis and demonstrate the project additionality under realistic variation in the input values constituting more than 20% of project cost or total project revenue.

The following table has been presented in the PDD to show the additionality of the project.

<b>Without CER revenues, one sensitive parameter changed at a time</b>				
Change in exchange rate	-10%	0%	+10%	Benchmark project IRR
Value (LKR/USD)	103.5	115.0	126.5	
<b>Calculated project IRR</b>	<b>18.2%</b>	<b>18.0%</b>	<b>17.9%</b>	<b>23.50%</b>
Annual O&M escalation in tariff	-10%	0%	10%	
Value	5.87%	6.52%	7.17%	
<b>Calculated project IRR</b>	<b>18.0%</b>	<b>18.0%</b>	<b>18.0%</b>	<b>23.50%</b>
Annual capacity factor	-10%	0%	10%	
Value	28.40%	31.55%	34.71%	
<b>Calculated project IRR</b>	<b>15.0%</b>	<b>18.0%</b>	<b>21.0%</b>	<b>23.50%</b>
Project cost	-10%	0%	10%	
Value	2152.87	2392.08	2631.29	
<b>Calculated project IRR</b>	<b>21.1%</b>	<b>18.0%</b>	<b>15.5%</b>	<b>23.50%</b>

The PP has also submitted the one year actual electricity generation data (from January 2011 to December 2011) and found that annual PLF is 31.1% and the PP has considered the PLF of 34.71% during sensitivity analysis. Thus it is unlikely that PLF will increase more than 34.71%.

The sensitivity on the two other input values was not considered under sensitivity analysis viz., the project cost and power tariff due to following reasons.

**Project cost:** The actual expenditure (2,475 million LKR) in the project activity has been confirmed to an actual escalated by approximately 3.47% based on the consolidated project expenditure<sup>/46/</sup> as compared to the revised project cost that was available at the time of investment decision. Therefore, it is not realistic to consider any reduction in the project cost. However, project cost is considered under sensitivity analysis to check the impact on project IRR and it is confirmed that even after reduction in project cost by 10% will not cross the benchmark.

**Power tariff:** The power tariff has been agreed as not negotiable (confirmed from the tariff announcement<sup>/32/</sup> and actual power purchase agreement<sup>/12/</sup>). Furthermore, the power purchase agreement<sup>/12/</sup> in its page 26 states that "The tariff will be adjusted on the basis of  $\pm 15\%$  energy generation (the range will be 27.2%–36.8 % including both numbers) of based plant factor of 32 % on condition that the seller should agree to supply the electricity at no cost basis to the CEB if the quantum of energy generated beyond 32 % of the base." This confirms that project participant shall receive the same revenue in the event plant factor varies upto 15% on either side. The tariff will be adjusted so that the PP do not obtain additional revenue in case it goes on the higher side and will be compensated in the event it goes down upto 15% from the central value.

This special cushion was offered to the commercial wind power plants in Sri Lanka, provided the power purchase agreement was signed before 31 December 2008. This can also be confirmed from the announcement of this condition by the Sri Lanka Sustainable Energy Authority<sup>/32/</sup> from their website. This information is also stated in the power purchase agreement<sup>/12/</sup> along with the formulae for the adjustment of tariff in case the annual capacity factor varies against the benchmark of 32.0%. It has been confirmed from the pages 27-28 of the project specific power purchase agreement<sup>/12/</sup> which provide the calculation for the adjustment of tariff.

#### **Discussion of findings:**

**CL#11** was raised to provide the documentary evidences and reference for all the components included in the project costs, basis of benchmark determinations (formulae) and to incorporate the sensitivity on all required components in the PDD.

In response, the PP provided the evidences/sources of information, which were found verifiable and credible.

However the PP was further requested to justify the appropriateness of benchmark selected in line with the “Guidelines on the Assessment of Investment Analysis” version 05 (EB62 Annex5) with appropriate documentary evidence. In response the PP provided the revised PDD and the revised Investment Analysis Sheet. It is confirmed that the type of project IRR and project benchmark both are pre tax indicator.

The sensitivity analysis was carried out on Exchange Rate, annual O & M and annual capacity factor and under nominal departure of 10% either side, it was confirmed that project IRR is not able to surpass the project benchmark 23%. The exclusion of parameters from the umbrella of sensitivity analysis viz., the project cost and power tariff was justified after the review of the referenced sources and found to be reasonable. Thus, **CL#11** was closed out.

#### **Validation opinion:**

In the opinion of the assessment team,

- The parameters used in the financial calculations in the PDD version 11<sup>/1.11/</sup> and corresponding spreadsheet – investment analysis<sup>/3/</sup> are sufficiently validated in accordance with the applied “Tool for the demonstration and assessment of additionality” Version 7.0.0 and the latest version of “Guidelines on the Assessment of Investment Analysis” version 05 (EB62 Annex5).
- The applied benchmark is in accordance with the EB62 Annex5 para12 as the local commercial lending rates are suitable benchmark for the project IRR.
- The underlying assumptions are correct and appropriate and were available at the time of investment decision.
- The financial calculations are carried out in standard accounting manner, reproducible and correct.

It was confirmed and ascertained that the project activity is likely to remain financially unattractive under the reasonable/realistic variation in the input values. Further, in accordance with the VVM Version 1.2 the proposed CDM project activity is not financial feasible without the revenue from the sale of CERs. Therefore, the proposed CDM project activity is found to be additional.

#### **4.7.5 Barrier analysis**

##### **Step 3: Barrier Analysis:**

PP opted for step 2 of the tool i.e. investment analysis and step 3 is optional to step 2 as per Tool for the demonstration and assessment of additionality” Version 7.0.0; hence PP didn’t demonstrated step 3 of the Tool for the demonstration and assessment of additionality” Version 7.0.0. This is found to be appropriate and it is accepted.

#### **4.7.6 Common practice analysis**

The project participant has applied the common practice analysis in the final PDD as per (Step 4) the “Tool for the demonstration and assessment of additionality” Version 7.0.0 and “Guidelines on common practice” Version 02.0 (EB69 Annex 08). The assessment team has examined the common practice analysis as below:

##### **Step 4: Common practice analysis**

As per referenced Tool, this test is a credibility check to complement the investment analysis (Step 2) and barrier analysis (Step 3) as discussed above in validation report. The PP has identified and discussed the existing common practice through the following Sub-steps in the final PDD:

##### **Sub-step 4a: Analyze other activities similar to the proposed project activity**

The PP claimed the following differences:

Analysis	Proposed project activity: 10 MW wind power plant	The only other activity: CEB’s 3 MW wind power plant <sup>/70/</sup>
Country/region	Sri Lanka/North-western Province	Sri Lanka/Southern province



Wind Regime	Coastal zone	Interior to coastal zone
Scale in terms of Sri Lanka's small power investment magnitude	Large	not applicable
Vintage	WTG equipment to be ordered and built in year 2009	WTG equipment ordered and built in 1999
Regulatory framework	Private investor absorbing all the risks	Utility demonstration plant with no clear need or desire to be profitable
Tariff for the sale of electricity	Standardized and non-negotiable, fixed for 20 years	No tariff defined. Whatever produced is fed to the utility's own grid.
Project income	Only from tariff-based payments after meter reading	No specific requirements for project incomes
Investment rules/climate	Private equity (50%) and commercial lenders' debt (50%)	Very low equity by Govt-owned CEB, and GEF funding on concessionary terms
Access to financing	Commercial terms, no guarantee from any state or private funds	CEB investment carries a sovereign guarantee

In accordance with the recently approved "Guidelines on common practice" Version 02.0 (EB69 Annex 08) the step wise approach is demonstrated below;

*Step 1: Calculate applicable output range as +/-50% of the design output or capacity of the proposed project activity.*

The entire host country has been chosen as default geographical area owing to country specific policies, tariff and investment climate. The selection of host country is justified in the opinion of the assessment team. The calculated range in the final PDD is 5 MW to 15 MW, which confirms to the instruction given in para 5 (step 1) of EB69 Annex 08.

*Step 2: In the applicable geographical area, identify all plants that deliver the same output or capacity, within the applicable output range calculated in Step 1, as the proposed project activity and have started commercial operation before the start date of the project. Note their number Nall. Registered CDM project activities shall not be included in this step;*

As there are no other project activities existing in the applicable geographical area, as described above, the value of Nall is taken as '0', which is correct.

*Step 3: Within plants identified in Step 2, identify those that apply technologies different that the technology applied in the proposed project activity. Note their number Ndiff.*

As there are no other project activities existing leading to the value of Nall as '0', the value of Ndiff can only be '0' in this case. The consideration of Ndiff as '0' is correct.

*Step 4: Calculate factor  $F = 1 - N_{diff}/N_{all}$  representing the share of plants using technology similar to the technology used in the proposed project activity in all plants that deliver the same output or capacity as the proposed project activity.*

The value of F, in the situation where Nall and Ndiff are '0', the expression gives the value of 1, on simplified basis.

*The proposed project activity is a .common practice. within a sector in the applicable geographical area if the factor F is greater than 0.2 and Nall-Ndiff is greater than 3.*

It has been determined that Nall-Ndiff is equal to '0' and therefore clearly not greater than '3', the proposed CDM project activity is not identified as common practice. Therefore, it can be confirmed that the proposed CDM project activity is additional.

The proposed CDM project activity is the first commercial venture in Sri Lanka by any private entity whereas the other 3 MW wind power project is completely government owned and financed by World Bank and Global Environmental Facility<sup>48/</sup>. The foreign fund constituted almost 66% of the project cost (280 million LKR) of which 25% was received as foreign grant. Therefore, based on the ownership and funding arrangement, it is confirmed that these two projects are not similar in nature.

There is a gap of almost 10 years between 3 MW wind power plant and the proposed CDM project activity, which itself is considerable and separates these two projects in terms of investment climate. The 3 MW wind power plant was developed as pilot project whereas the proposed CDM project activity is being implemented as a business venture with CDM benefits kept in mind. It is also ascertained by the assessment team that in spite of all efforts the implementation of 3 MW wind power plant by state utility CEB could not incite enough encouragement in the mind of the private investors to pursue the wind potential for almost 10 years.

In addition, the assessment team with the help of the Local Assessor came to the conclusion that there were no other wind power projects other than the 3 MW wind power project by CEB. The assessment team has also made the consultation with local stakeholders during site visit and confirmed the same.

Therefore, it is confirmed that there is no similar project activity that is implemented at the time of project start date, investment decision date. The first project activity that was webhosted on the UNFCCC website for GSP and validation purposes is the proposed CDM project activity.

#### ***Sub-step 4b: Discuss any similar Options that are occurring***

According to the "Tool for the demonstration and assessment of additionality" Version 7.0.0, Step 4b is required if similar activities were widely observed and commonly carried out. As it has been concluded in step 4a that there are no similar activities, there are no distinctions to make.

The referred tool states that "If Sub-steps 4a and 4b are satisfied, i.e.(i) similar activities cannot be observed or (ii) similar activities are observed, but essential distinctions between the project activity and similar activities can reasonably be explained, then the proposed project activity is additional."

Therefore, taking note of the outcome of the Step 4 (Common practice analysis), it can be concluded that the proposed CDM project activity is additional, firstly) on account of the investment analysis (as demonstrated in step 2), as under all realistic variation in the key input variables (covered under sensitivity analysis) the financial indicator (project IRR) of the project activity is not able to cross the project benchmark IRR, secondly) the demonstration of the prevailing practice barrier (first of its kind) as demonstrated in step 3.

The outcome of step 4 of the additionality tool also confirms that there is no similar project activity found implemented and ensures the credibility of the additionality arguments (investment analysis and barrier due to prevailing practice) and the proposed CDM project activity is determined to be additional.

Also as per EB65 Annex21, common practise analysis is required if project has not demonstrated first of it's kind. Thus validation team has concluded that project activity is not a common practise.

#### **Validation opinion:**

In the opinion of the assessment team, common practice analysis is though not mandatorily required for SSC projects and in particular the first of its kind project activity. However, considering that the investment analysis has also been used as means to demonstrate the additionality of the proposed CDM project activity, the inclusion of Step 4 is reasonable. The assessment team confirm that:

- (a) The identification of entire country as geographical scope is reasonable owing to country specific policies and tariff, economic situation and location specific issues.
- (b) The interview with local stakeholders, consultation with country specific local assessor (in assessment team), publicly available information on internet (from various governmental agencies) and database reviewed for historical power generation (which has also been used in the determination of emission factor for an electricity system) was sufficient to determine the existence of other wind projects (though not similar)
- (c) There are no distinctions to be made with the other existing project activity, which is not found similar or comparable to the proposed CDM project activity, as established above.

- (d) The proposed CDM project activity is not common practice in the country, which further substantiates the barrier as the 'first-of-its-kind' and investment analysis (not financial viable without the benefit of CERs)

In accordance with paragraph 28 of the simplified modalities and procedures for small scale CDM projects, a simplified baseline and monitoring methodology listed in Appendix B may be used if the PP can demonstrate that project activity would otherwise not be implemented due to the existence of one or more barrier(s) listed in the Attachment A to Appendix B. As per EB 68 Annex 27 i.e. Guidelines on demonstration of additionality of small-scale project activities, version 09.0 and EB 35 Annex 34 i.e. Non-binding best practice examples to demonstrate additionality for small scale project activities, the PP shall provide the explanation to show that project activity would not have occurred anyway due to at least one of the barriers like Investment Barrier, Access to Finance Barrier, Technological Barrier, barrier due to Prevailing practice and other barrier. For proposed project activity, the PP has demonstrated investment barrier and prevailing practise barrier by using additionality tool, thus project activity is additional.

#### **4.8 Application of Baseline Methodology and Calculation of Emission Factors**

The project activity uses the simplified baseline and monitoring methodology AMS I.D Version 17<sup>/7.2/</sup>. The applicability conditions of the methodology have been discussed in section 4.5 above. The PP has correctly identified the baseline as per paragraph 10 of AMS I.D Version 17<sup>/7.2/</sup>. This has been described in section 4.7 above.

Baseline emissions ( $BE_y$ ) – The combined margin emission factor, baseline emissions and emission reductions calculations have been mentioned in the spreadsheet – calculation of baseline emission factors<sup>/2/</sup> and the PDD. The baseline emissions equivalent to tCO<sub>2</sub> due to the project have been calculated as the product of the net electricity supplied to the grid and the grid emission factor as per the combined margin approach described in the 'Tool to calculate the emission factor for an electricity system' (version 02.2.1) which is valid available tool. The power produced will be exported to the national grid. Hence, the grid emission factor and the corresponding baseline emissions have been calculated for the national grid of Sri Lanka.

The grid emission factor has been calculated as per paragraph 12(a) of AMS I.D Version 17<sup>/7.2/</sup> (as mentioned in section 4.7 above) in the following manner. The Grid Emission Factor has been determined using "Tool to calculate emission factor for an electricity system" Version 02.2.1 using the latest information available at the time of webhosting and reported data was found to be 0.6791 tCO<sub>2</sub>/MWh. The calculated combined margin emission factor fixed throughout the crediting period. The information required while following Step 1 to 6 in the PDD B.6.1 and B.6.3 is verified from <http://www.ceb.lk/> and hard bound Sale and Generation data for year 2005 to year 2007, using the latest available data at the time of webhosting. The approach to determine combined margin ( $EF_{grid,CM,y}$ ) is in accordance with the applied "Tool to calculate emission factor for an electricity system" (as above). The validation of grid emission factor is mentioned below as per each step involved;

##### **Step 1: Identify the relevant electricity systems:**

The entire country has been identified as relevant electricity system for the project activity i.e. national grid of Sri Lanka (Ceylon Electricity Board). The selection of entire host country is reasonable as host Party has not published any delineation of the grid.

##### **Step 2- Choose whether to include off-grid power plants in the project electricity system (optional)**

Out of the two options available, option 1 has been chosen by the PP, which includes only the grid connected power plants in the calculation. The information on off grid power plants is not available in the referenced source or any other public domain to that extent that allows the complete determination of combined margin. Therefore, the choice is justified and appropriate as this step is an optional step.

##### **Step 3- Select a method to determine the operating margin (OM)**

Step 3: The Simple OM approach out of 4 options listed in the "Tool to calculation emission factor for an electricity system," has been identified as the contribution from low-cost/must run sources constitute 43.7%

(simple average) and 43.9% (weighted average), which is less than 50% of total grid generation in the country, in the last 5 years (i.e from year 2003 to year 2007). A three year weighted average (year 2005 to year 2007) has been considered as an ex ante approach define in the aforesaid tool.

#### **Step 4- Calculate the operating margin emission factor according to the selected method**

Step 4: The operating margin factor has been determined using the Option A, i.e. based on data on fuel consumption and net electricity generation of each power plant/unit, taking the input values from the publicly available document at <http://www.ceb.lk/> and Sales and Generation Data Book, Ceylon Electricity Board (year 2005, 2006, 2007).

The NCV for various fuels (Fuel Oil, Diesel, Residual Fuel Oil and Naphtha) has been adapted from the publication Sri Lanka Energy Balance 2007 prepared by Sri Lanka Sustainable Energy Authority (available at <http://www.energy.gov.lk/pdf/Sri%20Lanka%20Energy%20Balance%202007.pdf>) and the default emission factor for these fuels have been adapted from IPCC (Table 2.2 of Volume 2: Energy). The emission factors have been chosen conservatively as the lower bound values for these fuels.

The ex ante approach has been taken by the PP, which is acceptable in accordance with the applied tool. It has been confirmed that the data has been publicly available at the time of webhosting (in hard bound books, as checked during site visit). The value of simple operating margin is 0.6921 tCO<sub>2</sub>/MWh.

#### **Step 5- Calculate the build margin (BM) emission factor**

The identification of group of power plants for determination of Build Margin has been undertaken by taking (as per option (b) of step 5) which constitutes more than 20% of grid share (as five most recently constructed (one from year 2006 and four from year 2007) power plant, based on the information available in Sales and Generation Data Book, CEB 2007, only constitutes approximately 18% of net electricity generation in the year 2007) therefore meeting the requirement.

The determination of Build Margin based on the set of power units/plant identified as above and adding more power plants (by counting backwards from the list of recent power plant added to the grid) using the respective electricity generation and emission factor of type of fuel concerned is found to be 0.6405 tCO<sub>2</sub>e/MWh, which is correct and in line to the requirement. The selection of choice (b) and calculation (as done in the spreadsheet – calculation of baseline emission factors <sup>12/</sup> and represented in Annex 3 of the PDD) were found correct and in accordance with the applied Tool.

#### **Step 6- Calculate the combined margin (CM) emission factor**

The Simple Operating Margin (weighted average for year 2005 to year 2007) and Build Margin (year 2007) has been given 0.75 weight and 0.25 weight respectively to determine the ex ante combined margin as 0.6791 tCO<sub>2</sub>e/MWh. The combined margin emission factor will be fixed throughout the crediting period. The selection of weight is in accordance with the applied tool and appropriate for wind generation project activities.

The PP has used the latest version of CO<sub>2</sub> baseline database published by Central Electricity Authority, Govt. of India available at the time of the PDD submission for validation ([http://www.cea.nic.in/reports/planning/cdm\\_co2/cdm\\_co2.htm](http://www.cea.nic.in/reports/planning/cdm_co2/cdm_co2.htm)) for emission factor computation. This is in line with paragraph 85 of VVM version 1.1. The grid emission factor calculations are found to be appropriate as per “Tool to calculate the emission factor for an electricity system version 2.2.1”. This is found to be appropriate in line with paragraph 14 of EB 34 Annex 7 which mentions “The revision of an approved SSC methodology or tool referred to in a SSC methodology shall not affect the project activities that have been published for public comments for validation using the previously approved methodology or tool, so long as the project activity is submitted for registration within 8 months of the date when the revision became effective”. Also it is found to be in line with “Tool to calculate the emission factor for an electricity system version 2.2.1” which is found to be currently latest available tool for calculation of emission factor of an electricity system.

Project emissions (**PE<sub>y</sub>**) – The project activity involves the generation of electricity using wind energy. Hence, there are no project emissions associated with this project activity as per paragraph 19 of AMS I.D Version 17<sup>/7.2/</sup>.

Leakage (**LE<sub>y</sub>**) – Leakage has not been considered for the project activity. According to paragraph 20 of AMS I.D Version 17<sup>/7.2/</sup>, if the energy generating equipment is transferred from another activity or if the existing equipment is transferred to another activity, leakage is to be considered. The proposed project activity uses new energy generating equipment which has been verified from the purchase order<sup>/16/</sup>. Therefore, there are no leakages due to the project activity.

Emission Reductions (**ER<sub>y</sub>**) – The emission reductions for the project activity have been calculated as per paragraph 21 of AMS I.D Version 17<sup>/7.2/</sup> as follows: **ER<sub>y</sub> = BE<sub>y</sub> – PE<sub>y</sub> – LE<sub>y</sub>**

Based on the values of baseline emissions, project emissions and leakage the average annual emission reductions have been calculated to be 18,768 tCO<sub>2</sub>/year.

#### **Validation opinion:**

Based on the above discussion and the requirements of paragraphs 89-93 of the VVM version 01.2 (EB 55 Annex 1), the assessment team confirms that:

- (a) All assumptions and data used by the PP are listed in the PDD and/or annexures (spreadsheet – calculation of baseline emission factors<sup>/2/</sup>), including their references and sources
- (b) All documentation used by the PP as the basis for assumptions and source of data is correctly quoted and interpreted in the PDD
- (c) All values used in the PDD are reasonable in the context of the proposed CDM project activity
- (d) The baseline methodology AMS I.D Version 17<sup>/7.2/</sup> has been applied correctly to calculate project emissions, baseline emissions, leakage and emission reductions
- (e) All estimates of the baseline emissions can be replicated using the data and parameter values provided in the PDD and spreadsheet – calculation of baseline emission factors<sup>/2/</sup>.

In the opinion of the assessment team the section above includes the information how the information relevant to this section was verified for the data and parameters that are used in the equations, including references to any other data sources that has been used.

#### **4.9 Application of Monitoring Methodology and Monitoring Plan**

The final PDD contains following parameters to be monitored during the crediting period;

1. Gross Energy Sales to Ceylon Electricity Board
2. Energy purchased from Ceylon Electricity Board
3. Net Energy Sales to Ceylon Electricity Board

The monitoring plan contains all necessary parameters (as included above) as per the monitoring requirements of AMS I D Version 17<sup>/7.2/</sup> paragraph 22. The net electricity supplied to grid is calculated from the measured parameters of gross energy sale to CEB and energy purchased from CEB. The measured parameters are continuously monitored, hourly measured and monthly recorded in line with methodology. It has been confirmed through the review of the final PDD (sections B.7.1 and B.7.2 and Annex 4) that the means of monitoring described in the plan complies with the requirements of the methodology.

However, based on the review of the PDD and discussion during the site visit it is confirmed that the project participant have abilities to ensure the implementation of the monitoring provisions (are completely feasible) and adequate means are defined to ensure proper management of monitored data and associated quality assurance and quality control. The monitoring provisions (as described in sections B.7.1, B.7.2 and Annex4) sufficiently allow the emission reductions to be determined ex post and be verified in accordance with AMS I D Version 17<sup>/7.2/</sup>.



### **Discussion on findings:**

**CAR#13** was raised to define clearly how the baseline emissions, project emissions and leakages are calculated along with basis of assumptions and to incorporate the values of parameters in data to be monitored tables of the PDD.

In response, the PP mentioned that the emission reduction calculations have been conducted in accordance with the methodological tool EB35 Annex 12 (later changed to Version 02.2.1) and the section B.6.1 and Annex3 of the PDD clearly showed how the tool has been used to establish baseline emissions, project emissions and leakage. The PP has also incorporated all the values in data to be monitored tables as required by the applied methodology Version 17<sup>/7.2/</sup>.

The PP was also requested to tabulate each monitoring parameter (Gross, Import and Net) separately and also to justify how the CSR activity can become a monitoring parameter, which has been included in Table 13 of the webhosted PDD in context to the requirement of monitoring methodology applied.

The PP has submitted the revised PDD tabulating each monitoring parameter separately and also removing the CSR activity from table 13.

During further validation, assessment team has observed that monitoring of CSR activity was a part of the monitoring plan and thus requested the PP to justify the same. The PP has removed the same from monitoring plan and submitted a revised PDD and thus **CAR#13** was closed out.

The project activity was not constructed at the time of the validation site visit, therefore, implementation of monitoring plan could not be visualized in person. The letter from Ceylon Electricity Board (CEB) dated 17/05/2010 indicates that two WTGs has been connected to CEB grid on 06/05/2010 and as per letter of CEB dated 19/07/2010, the complete project activity is commissioned on 05/06/2010. Thus the complete project activity is commissioned on 05/06/2010 and is accepted. However, at the time of the SV, the positioning of meter cannot be ascertained due to early stage of project implementation. The same will be checked during first verification. Therefore, this has been considered as FAR for future evaluation as it does not constitute to be a requirement of CDM registration. Thus **FAR# 14** was raised. These elements do not affect the validation process.

### **Validation opinion:**

Based on the above discussion and the requirements of paragraphs 122-124 of the VVM version 01.2 (EB 55 Annex 1), the assessment team confirms that:

- (a) The monitoring plan included in the PDD is based on the approved methodology AMS I.D Version 17<sup>/7.2/</sup> which has been applied to the proposed CDM project activity
- (b) The monitoring plan is in compliance with the applied methodology AMS I.D Version 17<sup>/7.2/</sup>
- (c) The monitoring arrangements described in the monitoring plan are feasible within the project design
- (d) The PP has the ability to implement the monitoring plan as contained in the PDD

### **4.10 Environmental Impacts**

The project participant has mentioned that as required by Sri Lanka's environmental regulations, an application was made to the Provincial Environmental Authority of the North-Western Province (PEA-NWP) where the Mampuri Wind Power Project is located. As the project activities lies within the coastal zone as defined by Coast Conservation Act No 57 of 1981, the evaluation of the project for its environmental impacts was conducted by the Coast Conservation Department (CCD) acting as the Project Approving Agency, with the participation of all stakeholder institutions. As required by the CCD, an Initial Environmental Examination (IEE)<sup>/52/</sup> study was conducted in September 2008 and submitted.

The approval of both the CCD and the PEA-NWP were issued for the project to proceed to construction activities.

### **Discussion on findings:**

**CAR#16** was raised to provide the Initial Environmental Impact Examination (IEE) report and also to include the overall impact on environment because of the project activity.

In response, the PP submitted the IEE report along with the revised PDD, which incorporates the overall impact on environment.

The PP, Senok Wind Power (Private) Limited, does not consider the environmental impacts to be significant as the host party, represented by the PEA-NWP and CCD has not indicated that the project environmental impacts would be significant, in which case, a full Environmental Impacts Assessment (EIA) would have been required to be conducted in accordance with the laws. The approval for the project was granted based on the IEE.

The assessment team has verified the Initial Environmental Examination report. The revised PDD now includes the project's overall impact on environment. The IEE report confirms the PP's claim in the PDD that there will be no significant environmental impact of the project on local environment. The assessment team has confirmed that the project activity did not require EIA from the host Party as confirmed from the various permits<sup>/10, 11, 12, 13, 14/</sup> obtained for the project activity. The contribution of project activity to the sustainable development is confirmed through the HCA<sup>/4/</sup> from the host Party DNA. Thus, **CAR#16** was closed out satisfactorily.

#### **Validation opinion:**

It is in the opinion of the assessment team, the proposed CDM project activity does not require EIA as the conducted IEE did not reveal any significant environmental impact and is duly endorsed by the PEA-NWP and CCD on relevant entities in the host Party. This is found to be in line with paragraphs 131-132 of VVM version 1.2.

#### **4.11 Local Stakeholder Comments**

The local stakeholder consultation process has been described in detail, by the PP, in section E of the PDD.

The PP has conducted several informal meetings with small groups during the initial stages of project development and their views were sought about the proposed CDM project activity. The stakeholders of the project activity in the local area include land owners in the vicinity of the project, fishermen and others using the beach adjoining the project activity, villagers in Mampuri and other villages to north and south of the power plant site, community and religious leaders and government officials. The information was provided about the benefits and the probable constraints caused by the project activity at a very early stage of project development, to allow the local stakeholders time to think about the issues, consider implications, and formulate their views. The assessment team confirmed this information during the onsite visit by having interactions with representatives of local stakeholders.

A formal public consultation meeting by the three wind project developers who have been allocated blocks at Mampuri (Senok Wind Power Private Limited), Narakkalli (Lanka Transformers Limited) and Nirmalapuru (Hayleys Limited) was held at 10.00am at on 15<sup>th</sup> December 2007, at the Mampuri Church with the coordination of SEDEC and Mampuri Catholic Priest Reverend Father Viamon. SEDEC is a community service organisation (<http://www.caritaslk.org/>), affiliated to the Catholic Church of Sri Lanka. The meeting was organized by SEDEC and Father Viamon based on the request jointly made by the three developers. One week's notice was given to all the stakeholders. Invitations were sent by the Catholic Church to Buddhist Priests, Muslim Priests, Hindu Priests of the area, the Kalpitiya Divisional Secretary, Pradesiya Sabha Chairman, Govi Kamitu (Agrarian Community), Dheewara Kamitu (Fisheries Community) and the villagers of Mampuri, Daluwa. The meeting was attended by 30 persons. The attendance was on a voluntary basis, at the participants' choice.

The information about the proposed project activity was sufficiently provided in accessible and culturally appropriate ways. The written information was distributed in all the three languages, Sinhala, Tamil and English. A formal presentation covering specific locations of wind turbines, equipment sizes, foundation details, turbine height, blade sizes, noise that it can generate, power it generates, installation procedure of turbines and path forward in the project development and subsequent operation and maintenance was made to the audience. Each issue in the presentation was discussed in detail, including questions raised by the stakeholders throughout the presentation.

A second informal stakeholder meeting was additionally held on 25 February 2009, to discuss the launch of the road works and to clarify the project activities to the residents of the area. The information was found consistent during the on site visit when the local stakeholders were interviewed.

#### **Discussion on findings:**

**CL#17** was raised to know, how the stakeholders for project activity were identified, what media was used to invite them for local stakeholder consultation process and how the comments were received and resolved and also to know the status of community social responsibility as indicated on page 42 of the PDD Version 01.

In response to the queries, project participant has stated that the stakeholders to the project activity were identified with the assistance of the Catholic Church and the Grama Niladhari (GN) of the area. In keeping with the traditions of the area, the Catholic Church was requested to take the leadership, identify and invite the stakeholders. The focus was on persons living adjacent to affected locations identified for wind generators and the NGOs in the area.

The Catholic Church used the traditional system to invite the stakeholders to the meeting<sup>/53/</sup>. At the meeting, printed information prepared in all the three languages spoken in the area about the project was circulated<sup>/54/</sup>.

The comments were orally received and resolved. The comments from individuals personally affected (such as landowners) were specifically and personally handled. The PP has also mentioned that SWPL has requested St. Sebastians Sports Club to provide their requirements to upgrade a playground.

Regarding the Community Social Responsibility activities, project participant has stated that the Quotations have been called from contractors to build the Midwives' clinic and the other activity of constructing a Nursery School has not been agreed.

The assessment team has verified the revised PDD and various documents submitted as supporting to the PP's claim regarding the stakeholder process. Thus, **CL#17 was closed out.**

#### **Validation opinion:**

In the opinion of the assessment team, the local stakeholder consultation was conducted before the publication of the PDD for validation purposes and relevant stakeholders were identified for this purpose. The desk review of meeting meetings, interview with local stakeholders during the onsite visit confirmed that the local stakeholder consultation was properly planned and executed giving adequate opportunity to raise comments and resolve them. The assessment team confirms the adequacy of the local stakeholder consultation process for the proposed CDM project activity found it to be satisfactory.



## 5. Comments by Parties, Stakeholders and NGOs

In accordance with sub-paragraphs 40 (b) and (c) of the CDM modalities and procedures, the project design document of a proposed CDM project activity shall be made publicly available and the DOE shall invite comments on the validation requirements from Parties, stakeholders and UNFCCC accredited non-governmental organizations and make them publicly available. This chapter describes this process for this project.

### 5.1 Description of How and When the PDD was Made Publicly Available

The Project Design Document for this project was made available on the UNFCCC website <http://cdm.unfccc.int/Projects/Validation/DB/8RC02H6OYG4AC1UL1BGP22O99VQENW/view.html> and was open for comments from 29/05/2009 until 27/06/2009. Comments were invited through the UNFCCC CDM homepage.

### 5.2 Compilation of all Comments Received

Comment Number	Date Received	Submitter	Comment
No comment was received.	-	-	-

### 5.3 Explanation of How Comments Have Been Taken into Account

Not Applicable.

## 6. List of Persons Interviewed

Date	Name	Position	Short Description of Subject Discussed
27/07/2009	Mr. Tilak Siyambalapitiya	Consultant	Substantiation of the statements in the PDD, grid emission factor, baseline, emission reductions calculations
27/07/2009	Mr. M. C. Alexander	Opposition leader of provincial council	Confirmed the project activity contributes to the sustainable development of the area
27/07/2009	Mr. S. S. Patric	Local stakeholder	He provided 2 acre land to the project activity and consented towards the project activity as sustainable activity
27/07/2009	J.M.A.D.A Gemunu	Local stakeholder	A village head, confirmed that the project activity and other developmental issues associated with it will help local area
28/07/2009	Mr. Noel Selvanayagam	Director, SWPL	Investment decision, prior CDM consideration, investment analysis and main considerations for the project activity
28/07/2009	Ms. Pantherine Dias	Group Finance Director, SWPL	Investment analysis and barrier analysis (additionality), modalities of communication, approval of the project by DNA

## 7. Document References

Category 1 Documents (documents provided by the Client that relate directly to the GHG components of the project, (i.e. the CDM Project Design Document, confirmation by the host Party on contribution to sustainable development and written approval of voluntary participation from the designated national authority):

- /1/      /1.1./ PDD Version 01 undated (webhosted PDD)
- /1.2./ PDD Version 02 dated 31/08/2009
- /1.3./ PDD Version 03 dated 23/11/2009
- /1.4./ PDD Version 04 dated 15/02/2010
- /1.5./ PDD Version 05 dated 29/04/2010
- /1.6./ PDD Version 06 dated 21/02/2012
- /1.7./ PDD Version 07 dated 12/03/2012
- /1.8./ PDD Version 08 dated 21/09/2012
- /1.9./ PDD Version 09 dated 30/09/2012
- /1.10./ PDD Version 10 dated 28/11/2012
- /1.11./ PDD Version 11 dated 18/12/2012 (Final PDD)
  
- /2/      Spreadsheet - Calculation of Baseline Emission Factors (Annexure to Final PDD)
- /3/      Spreadsheet - Investment Analysis (Annexure to Final PDD)
- /4/      HCA from Sri Lankan DNA dated 04/05/2009 and revised letter dated 27/01/2012 vide ref 04/04/05/851
- /5/      /5.1./ MOC dated 24/08/2009
- /5.2./ MOC dated 30/05/2011
- /5.3./ MOC dated 23/01/2012 (Final)

Discuss the key changes (summary, not exhaustive) in the final PDD against the version published for the international stakeholder consultation

PDD Version 01	PDD Version 10	Main changes reason for Revision
Undated	18/12/2012	<ul style="list-style-type: none"> <li>Change in input parameters of Investment analysis. Change in Benchmark approach.</li> <li>Project cost parameter is removed from sensitivity analysis.</li> <li>Technological and investment barrier (high investment cost) are removed and prevailing practise barrier is included. Steps of tool to calculate emission factor has been revised in line with version 2.</li> <li>Years are changed in emission reduction table, alternative 2 is revised, para 4 of methodology is added in PDD</li> <li>The version 17 of methodology has been used in PDD.</li> <li>The monitoring plan is revised.</li> <li>Additionality tool is updated to version 06.1.0</li> <li>Justifications on selection of alternative scenarios are now transparently mentioned.</li> <li>Project description included in section A.2 of the PDD is now includes brief description of monitoring system involved in the project activity.</li> <li>Additionality tool is updated to latest version 07.0</li> <li>References of the input values are now transparently mentioned in section B.5 of the PDD.</li> <li>Section B.5 of the PDD is appropriately revised in line with latest "Tool for the demonstration and assessment of additionality" (Version 07.0.0).</li> </ul>

Category 2 Documents (background documents used to check project assumptions and confirm the validity of information given in the Category 1 documents and in validation interviews):

- /6/ Clean Development Mechanism Validation and Verification Manual Version 1.2 (EB55 Annex1)
- /7/ Approved methodology version/s
  - /7.1./ AMS I D Version 13 (applied in webhosted PDD) (EB36 Annex26)
  - /7.2./ AMS I D Version 17 (applied in final PDD)
- /8/ Tools and Guidance applied
  - /8.1./ Tool for the demonstration and assessment of additionality, V 07.0.0 (EB70 Annex 8) dated 23/11/2012
  - /8.2./ Tool to calculate the emission factor for an electricity system, Version 2.2.1 (EB63 Annex19)
  - /8.3./ Guidelines on the assessment of investment analysis, Version 05 (EB62 Annex5)
  - /8.4./ Guidance on the demonstration and assessment of prior consideration of CDM, Version 04 (EB62 Annex13)
  - /8.5./ Guidelines on assessment of de-bundling for SSC project activities, Version 02 (EB47 Annex32)
  - /8.6./ Guidelines on assessment of de-bundling for SSC project activities, Version 03 (EB54 Annex13)
  - /8.7./ Note on the barrier first-of-its-kind (MP34 Annex10 as an indicative guidance, in the absence of EB63 Annex11)
  - /8.8./ Guidelines for the reporting and validation of Plant Load Factors (EB48 Annex11)
  - /8.9./ Guidelines on additionality of first-of-its-kind project activities (EB69 Annex 07)
  - /8.10./ Guidelines on common practice (EB69 Annex 08)
- /9/ E-mail communication 15/01/2010 from DNA, Sri Lanka (to confirm authenticity of HCA)
- /10/ Renewable Energy Permit (Ref No. 304301 dated 05/12/2008) issued by Sri Lanka Sustainable Energy Authority
- /11/ Generation License (No. EI/L/173/08 dated 17/12/2008) issued by Ministry of Power and Energy
- /12/ Power purchase agreement (Ref. DGM (EPT)/WP/2420 dated 16/12/2008) between CEB and Senok Wind Power (Private) Limited
- /13/ Permit No. P/8/357 dated 02/10/2008 by Director, Coast Conservation under Coast Conservation Act No. 57 of 1981
- /14/ Site Clearance Ref. WP/M/193/2008 dated 13/10/2008 issued by Director, Provincial Environmental Authority (North West Province)
- /15/ Declaration on public funding by Director, Senok Wind Power (Private) Limited dated 26/08/2009
- /16/ Wind turbine supply, commissioning and warranty agreement dated 23/08/2011 between Suzlon Energy Limited and Senok Wind Power (Private) Limited (**the project start date**)
- /17/ Technical Specifications of the Suzlon S64-1250 (available at <http://www.suzlon.com/products/l2.aspx?l1=2&l2=6> )
- /18/ Project implementation schedule prepared by Senok Wind Power (Private) Ltd as on 25/08/2009
- /19/ Long-term Generation Expansion Plan, CEB, December 2005  
[http://www.localpower.org/documents/w\\_model\\_srilankashort.pdf](http://www.localpower.org/documents/w_model_srilankashort.pdf)
- /20/ Sales and Generation Data Book, CEB, 2007
- /21/ Sales and Generation Data Book, CEB, 2003 to 2006
- /22/ Sri Lanka Energy Balance 2007 (Published by Sri Lanka Sustainable Energy Authority)
- /23/ National Energy Policy & Strategies of Sri Lanka No. 1553/10 dated 10/06/2008
- /24/ IPCC 2006 (Guidelines for National Greenhouse Gas Inventories) Volume 2, Energy, Table 2.2
- /25/ Technical Feasibility Study (Final), June 2008 (S64) by RMA Private. Limited for location specific CUF
- /26/ Quotation (for 8 WTGs) by Suzlon Energy Limited dated 15/02/2008
- /27/ Consolidated project cost estimates dated 17/03/2008 by RMA Private. Limited
- /28/ Transmission and Interconnection (reduced) cost estimate dated 08/08/2008 by DG Rienzie Fernando, Consulting Engineer
- /29/ Long term lending rates (Monthly Selected Economic Indicators published by CBSL) for DFCC Bank (loan provider to renewable projects) for June 2008 (available at

- /30/ [http://www.cbsl.gov.lk/htm/english/cei/ei/e\\_2.asp](http://www.cbsl.gov.lk/htm/english/cei/ei/e_2.asp)  
Published exchange rates (LKR/USD) dated 01/08/2008 (available at [http://www.cbsl.gov.lk/htm/english/cei/er/e\\_1.asp](http://www.cbsl.gov.lk/htm/english/cei/er/e_1.asp) )
- /31/ Non-conventional Renewable Energy (NCRE) Tariff Announcement 2008
- /32/ Purchase of Electricity to the National Grid under Small Power Purchase Agreements (SPPA) Explanatory notes to the Press Release dated 18/03/2008 issued by Sri Lanka Sustainable Energy Authority ([http://www.energy.gov.lk/pdf/explanatory\\_note\\_march\\_2008.pdf](http://www.energy.gov.lk/pdf/explanatory_note_march_2008.pdf) )
- /33/ Official communication to host Party DNA by PP dated 14/11/2008
- /34/ Email dated 08/12/2006 to PP from Dailwa Securities Principal Investment Co. Limited
- /35/ Email enquiry from Carbon Assets Lanka Private Limited dated 24/03/2008
- /36/ Board Resolution (with CDM consideration) towards the project activity dated 12/08/2008 (**the investment decision date**)
- /37/ Agreement with CDM consultant RMA dated 15/08/2008
- /38/ DNA approval letter for PIN dated 8/12/2008 Ref. No. 04/03/05/851
- /39/ Request for DNA approval (Host Country Approval - HCA) from PP dated 7/04/2009
- /40/ Email from SGS to DNA, Sri Lanka (to confirm the authenticity of issued HCA) dated 6/01/2010
- /41/ Loan offer letter from NDB Bank dated 21/08/2009
- /42/ Durability Certification of Wind Turbines at GL-Wind which each turbine carries (please see page 2 of technical brochure (under certification and standards) <http://www.suzlon.com/pdf/S64%20product%20brochure.pdf> ), LMS Engineering Innovation
- /43/ O&M Agreement dated 23/08/2008 (between PP and Suzlon Energy Ltd.)
- /44/ Common Indicative terms issued by lenders (Internal document prepared by the PP)
- /45/ Commercial Bank Lending and Deposit Rates ([http://www.cbsl.gov.lk/htm/english/cei/ir/i\\_4.asp](http://www.cbsl.gov.lk/htm/english/cei/ir/i_4.asp) )
- /46/ Consolidated expenditure on the project activity dated 28/10/2010
- /47/ Sri Lanka Wind Farm Analysis and Site Selection Assistance prepared by National Renewable Energy Laboratory (U.S. Department of Energy), Aug 2003 (available at <http://www.nrel.gov/docs/fy03osti/34646.pdf> )
- /48/ <http://siteresources.worldbank.org/EXTRENEENERGYTK/Resources/5138246-1238175210723/Sri0Lanka0RE0Program0mini1hydro0.pdf>
- /49/ [http://www.energy.gov.lk/sub\\_pgs/develop\\_permits\\_wind.html](http://www.energy.gov.lk/sub_pgs/develop_permits_wind.html)
- /50/ <http://www.windpower.lk/>
- /51/ <http://www.lankabusinessonline.com/fullstory.php?nid=1223352553>.
- /52/ Initial Environmental Examination (IEE) study report September 2008
- /53/ Letter from the Bishop of Chilaw dated 11/10/2007
- /54/ Handout at Stakeholder Meeting December 2007
- /55/ Voice Recording of the stakeholder meeting and Photograph of stakeholder meeting dated 15/12/2007
- /56/ Validation contract with SGS dated 14/05/2009
- /57/ Electrical Installation contract dated 15/01/2010 (between PP and DIMO Private Ltd.)
- /58/ Common Indicative terms issued by lenders
- /59/ Letter from CEB to all developers dated 17/07/2009
- /60/ Letter from CEB to all developers dated 17/07/2009
- /61/ Grid connection proposal to CEB dated 29/07/2009
- /62/ CEB instructions to North Western Province dated 27/10/2009
- /63/ [http://www.priu.gov.lk/news\\_update/Current\\_Affairs/ca200906/20090630chinese\\_grant\\_us\\$891mn\\_for\\_norochcholai.htm](http://www.priu.gov.lk/news_update/Current_Affairs/ca200906/20090630chinese_grant_us$891mn_for_norochcholai.htm)
- /64/ <http://www.lbo.lk/fullstory.php?nid=1719154716>
- /65/ Sri Lanka Electricity Act No 20, 2009: Chapter 3 (<http://www.cebeu.lk/index.php?topic=38.0>)
- /66/ Sri Lanka Sustainable Energy Authority Act No 35 of 2007 dated 18/09/2007 <http://faolex.fao.org/docs/pdf/srl78121.pdf>
- /67/ National Environmental Act No 47 of 1980 dated (<http://www.cea.lk/pdf/act47-80.pdf>)  
Amendment to Act No. 56 of 1988 dated 12/12/1988 (<http://www.cea.lk/pdf/act56-88.pdf>)  
Amendment to Act No. 53 of 2000 dated 18/08/2000 (<http://www.cea.lk/pdf/act53-2000.pdf>)
- /68/ North-west Province Environmental Statute No 12 of 1990<sup>68/</sup> dated 10/01/1991 (<http://faolex.fao.org/docs/pdf/srl13500.pdf>)
- /69/ Coast Conservation Act 57 of 1981 (<http://faolex.fao.org/docs/pdf/srl5289.pdf>)

/70/ CEB's 3 MW wind power plant [http://www.energy.gov.lk/pdf/guideline/Grid\\_Renewable.pdf](http://www.energy.gov.lk/pdf/guideline/Grid_Renewable.pdf) and  
<http://www.windpower.lk/>

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## A.1 Annex 1: Local Assessment

This checklist is designed to provide confirmation of in-country data and information provided in the Project Design Document for Mampuri Wind Power Project

It serves as a “**reality check**” on the project that is completed by a local assessor from SGS Sri Lanka

Issue	Findings	Source/Mean of Verification	Further Action / Clarification / Information Required?
Purchase orders for the wind mills	Wind turbine supply, commissioning and warranty agreement dated 23/08/2011 between Suzlon Energy Limited and Senok Wind Power (Private) Limited	DR	Checked and found acceptable
Host Country Approval	HCA from Sri Lankan DNA dated 04 May 2009 vide ref 04/04/05/851	DR	Checked and found acceptable
Excel for calculation of emission reduction with sources of data	Excel sheet emission reduction has been submitted by the project participant.	DR	Checked and found acceptable
Power Purchase Agreement for each wind mill	Power purchase agreement (Ref. DGM (EPT)/WP/2420 dated 16/12/2008) between CEB and Senok Wind Power (Private) Limited	DR	Checked and found acceptable
Financial calculation sheets, IRR calculations and source of each assumptions used, Suitability of Benchmark	Investment analysis and benchmark calculation excel sheet is submitted along with documentary evidences	DR	Checked and found acceptable
Proof for investment decision and Seriousness of CDM consideration	Board Resolution (with CDM consideration) towards the project activity dated 12 Aug 2008 ( <b>the investment decision date</b> ) DNA approval letter for PIN dated 8 Dec 2008 Ref. No.	DR	Checked and found acceptable

Issue	Findings	Source/Mean of Verification	Further Action / Clarification / Information Required?
	04/03/05/851		
Evidence for start date of the project activity.	Wind turbine supply, commissioning and warranty agreement dated 23/08/2011 between Suzlon Energy Limited and Senok Wind Power (Private) Limited	DR	Checked and found acceptable
Consents and approval from GPCB, EIA requirement needs to be checked.	The project activity doesn't requires EIA study as per the schedule 1 of Ministry of Environment and Forest notification dated 14/09/2006 <a href="http://envfor.nic.in/legis/eia/so1533.pdf">http://envfor.nic.in/legis/eia/so1533.pdf</a>	DR	Checked and found acceptable
Baseline data to establish a emission factor	The input values from the publicly available document at <a href="http://www.ceb.lk/">http://www.ceb.lk/</a> and Sales and Generation Data Book, Ceylon Electricity Board (year 2005, 2006, 2007) for OM calculation.  The NCV for various fuels (Fuel Oil, Diesel, Residual Fuel Oil and Naphtha) has been adapted from the publication Sri Lanka Energy Balance 2007 prepared by Sri Lanka Sustainable Energy Authority (available at <a href="http://www.energy.gov.lk/pdf/Sri%20Lanka%20Energy%20Balance%202007.pdf">http://www.energy.gov.lk/pdf/Sri%20Lanka%20Energy%20Balance%202007.pdf</a> )	DR	Checked and found acceptable
Proof for local stakeholder meeting undertaken	Letter from the Bishop of Chilaw, Handout at Stakeholder Meeting, Voice Recording of the stakeholder meeting and Photograph of stakeholder meeting	DR	Checked and found acceptable
QA/QC procedures for data monitoring or ISO certificates for the company (if applicable) and personnel training programme, Operation & maintenance procedure	ISO 9001:2008 Certificate dated 26/04/2010 for Suzlon Group of companies  Suzlon Corporate Management Manual for training procedures and annual/half yearly maintenance checklist	DR	Checked and found acceptable



Issue	Findings	Source/Mean of Verification	Further Action / Clarification / Information Required?
Modalities of Communication for the project activity.	Modalities of Communication dated 23/01/2012	DR	Checked and found acceptable

## A.2 Annex 2: Validation Checklist

**Table 1 Participation Requirements for Clean Development Mechanism (CDM) Project Activities (Ref PDD, Letters of Approval and UNFCCC website)**

Requirement	Means of Validation Reference	Comments	Conclusion/ CARs/ CLs
<p>1. All Parties involved have approved the project activity</p> <p>1.1. Has the DNA of each Party involved in the proposed CDM project activity in section A.3 of the PDD provided a written letter of approval which confirms</p> <p>1.1.1. The country is a Party to the Kyoto Protocol</p> <p>1.1.2. Participation is Voluntary</p> <p>1.1.3. The Host Party confirming that the proposed CDM project activity contributes to sustainable development of the country Non-Annex 1 Party shall submit a letter of approval</p> <p>1.1.4. It refers to the precise proposed CDM project activity title in the PDD being submitted for registration</p>	<p>Annex 3, Clean Development Mechanism, Validation and Verification Manual, Version 01.2 (from this point forwarded referenced as VVM) – 45/49a-d /54a-b/127</p> <p>Paragraph 37 CDM Modalities and procedures</p>	<p>The host Party Sri Lanka, Party to Kyoto Protocol, meets all the requirements for participating in a CDM project as verified from <a href="http://maindb.unfccc.int/public/country.pl?country=LK">http://maindb.unfccc.int/public/country.pl?country=LK</a>. <a href="http://maindb.unfccc.int/public/country.pl?country=LN">http://maindb.unfccc.int/public/country.pl?country=LN</a></p> <p>CL#01 was raised to provide the HCA from DNA of Sri Lanka obtained for the project activity. PP has submitted the same and is accepted.</p>	<p>CL#01 closed. Y</p>
<p>1.2. If the project participant(s) listed in the PDD published at international stakeholder<sup>1</sup> consultation are not included in the PDD submitted with request for registration, a letter should be obtained from the withdrawn project participant(s) confirming its voluntary withdrawal from the proposed project activity.</p>	<p>EB 30 Para. 41. EB50 Annex 48 para. 8</p>	<p>Not Applicable</p>	<p>Not applicable</p>

<sup>1</sup> Stakeholders mean the public, including individuals, groups or communities affected, or likely to be affected, by the proposed CDM project activity or actions leading to the implementation of such an activity

Requirement	Means of Validation Reference	Comments	Conclusion/ CARs/ CLs
1.3. The letter/s of approval are unconditional with respect to 1.1.1 to 1.1.4 above	VVM Para. 49/ 53,54	Pending closure of CL#01	CL#01 closed. Y
2. Parties, stakeholders and UNFCCC accredited NGOs shall have been invited to comment on the validation requirements for a minimum of 30 days, and the project design document and comments have been made publicly available	VVM Para. 128  Marrakech Accords, CDM Modalities, §40	The project was webhosted on UNFCCC site from 29/05/2009 to 27/06/2009 at <a href="http://cdm.unfccc.int/Projects/Validation/DB/8RC02H6OYG4AC1UL1BGP22O99VQENW/view.html">http://cdm.unfccc.int/Projects/Validation/DB/8RC02H6OYG4AC1UL1BGP22O99VQENW/view.html</a> Number of comments received: 0 No issues	Y
3. The project design document is in accordance with the applicable CDM requirements for completing PDDs.	VVM Para. 57  Marrakech Accords, CDM Modalities, Appendix B, EB Decisions	CAR#02 was raised The section A.1 of PDD webhosted does not indicate the date and version number. The section A.3 of PDD webhosted does not contain table required to indicate project participants and Parties involved. The section B.6.4 of PDD webhosted does not contain the table earmarked to indicate summary of ex-ante emission reductions The Annex 5 is used in place of Annex 4 to indicate monitoring information.	CAR#02 closed Y
4. The project participants shall submit a completed modalities of communication (MoC) Form	F_CDM_MOC form available on UNFCCC website	CL#03 was raised Kindly provide duly signed Modalities of Communication by project participants as per EB45 Annex60	CL#03 closed Y

**Table 2 PDD**

Checklist Question	Ref. ID	MoV*	Comments	Conclusion/ CARs/CLs
<b>A. General Description of Project Activity</b>				
<b>A.1. Project Title</b>				
A.1.1. Does the used project title clearly enable the reader to identify the unique CDM activity?	VVM Para.56 Guidelines for completing a CDM-PDD (PDD) section A.1	DR	The title of the project activity mentioned is "Mampuri Wind Power Project". The uniqueness of the title was verified by checking the same on the UNFCCC website.	Y
A.1.2. Is there an indication of a revision number and the date of the revision?	VVM Para.56 PDD section A.1	DR	Pending closure of CAR#02 The section A.1 of PDD webhosted does not indicate the date and version number.	CAR#02 closed Y
<b>A.2. Description of the Project Activity</b>				
A.2.1. Does the description of the proposed CDM project activity as contained in the PDD sufficiently cover all relevant elements accurately?	VVM Para.59 PDD section A.2 see also A.4, A.4.3 and B.3	DR	The project activity involves installation of WECs for power generation and supplying the same to the CEB. Information regarding the purpose, type of technology used has been described in the PDD.  CAR#04 was as the PDD does not indicate (in section A.2) the aspects pertaining to sustainable development.	CAR#04 closed Y
A.2.2. Is all information provided consistent and in compliance with the actual situation or planning?	VVM Para.64 PDD section A.2 see also A.4, A.4.2 and B.3	DR SV	The proposed CDM project activity, which was in the initial construction phase at the time of site visit involves the installation of 8 WECs of total capacity 10 MW which will generate electricity and export it to the CEB. The information provided by the PP in the PDD was found to be consistent and in compliance with the planning.	Y



Checklist Question	Ref. ID	MoV*	Comments	Conclusion/ CARs/CLs
A.2.3. Is all information provided consistent with details provided in further chapters of the PDD?	VVM Para.64 PDD section A.2	DR	The information was found consistent with further chapters in the PDD.	Y
<b>A.3. Project Participants</b>				
A.3.1. Is the table required for the indication of project participants correctly applied?	VVM Para. 51 PDD section A.3	DR	The section A.3 of PDD webhosted does not contain table required to indicate project participants and Parties involved. Pending to CAR#02	CAR#02 closed. Y
A.3.2. Is all information provided in consistency with details provided by further chapters of the PDD (in particular annex 1)?	VVM Para. 51 PDD section A.3	DR	The information is consistent.	Y
<b>A.4. Technical Description of the Project Activity</b>				
A.4.1. Does the information provided on the location of the project activity allow for a clear identification of the site(s)? Are the latitude and longitude of the site indicated (decimal points)	VVM Para.64 PDD section A.4	DR	CAR#05 is raised The geographical coordinates (in decimal points) of all the proposed 8 wind turbines are not included in section A.4.1.4.	CAR#05 closed Y

Checklist Question	Ref. ID	MoV*	Comments	Conclusion/ CARs/CLs
A.4.2. Does the proposed CDM project activity involve the alteration of existing installations or process?	VVM Para.64 PDD section A.4	DR SV	The proposed CDM project activity is a green field project. PP has submitted the purchase orders of the equipments used. The project does not involve the alteration of existing installations or processes. This was also verified during the site visit.	OK
A.4.3. Do the project participants possess ownership or licenses which will allow the implementation of the project at that site / those sites?	VVM Para.64 PDD section A.4	DR	CL#06 was raised Kindly provide the documentary evidences to establish the project participants possess the ownership/licenses to implement the project.	CL#06 closed  Y
A.4.4. Is the category(ies) of the project activity correctly identified?	VVM Para.64 PDD section A.4	DR	The PDD mentions that the proposed CDM project activity falls under type – I, and project category is 'D' - Grid connected renewable electricity generation. This has been correctly identified.	Y
A.4.5. Is all information provided in compliance with actual situation or planning as available by the project participants?	VVM Para.64 PDD section A.4 EB 52 Para. 13	DR SV	The information provided by the PP in the PDD was found to be consistent and in compliance with the actual situation and planning. CL#07 was raised Kindly provide the project implementation schedule. Please provide further information on the rated specification of wind mill in section A.4.2 of PDD.	CL#07 closed Y
A.4.6. Is the table required for the indication of projected emission reductions correctly applied?	VVM Para.64 PDD section A.4	DR	The table for the projected emission reductions has been correctly applied in section A.4.3 of the PDD in accordance with the guidelines for completing the CDM-SSC-PDD.	Y
<b>A.5. Debundling</b>				
A.5.1. Is the small-scale	VVM Para. 136c	DR	No the project activity is not a debundled component of a large	CAR#08

Checklist Question	Ref. ID	MoV*	Comments	Conclusion/ CARs/CLs
project activity a debundled component of a large scale project activity	EB54 para 35 & Annex 13		scale project activity CAR#08 is raised The criteria for debundling are not appropriately defined. Please update the basis of debundling in the PDD and confirm if the project is meeting these criteria or not?	closed Y
A.5.2. If the project is a debundled component of a larger project, does the larger project fall within the limits for small-scale CDM project activities	VVM Para. 136c	DR	The project activity is not a de-bundled project activity as mentioned in the PDD. Pending to closure of CAR#08	CAR#08 closed Y
<b>A.6. Public Funding</b>				
A.6.1. Does the information on public funding provided conform to the actual situation or planning as presented by the project participants?	PDD section A.4.4	DR SV	The PDD mentions that there is no public funding for the project activity. PP has provided a declaration regarding the same. No signs of donor funding was visible on the site. The information provided by the PP conforms to the actual situation. CL#18 is raised Kindly provide documentary evidence that the project activity has not received public funding in any form.	CL#18 closed Y
A.6.2. Is all information provided consistent with details provided by further chapters of the PDD (in particular annex 2)?	PDD section A.4.4	DR	The information provided by the PP in section A.4.4 of the PDD is consistent with Annex 2 of the PDD.	Y
A.6.3. In case of public funding from Annex I Parties is it	PDD section A.4.4	DR	Not applicable, as there is no public funding for the proposed CDM project activity. Pending to closure of CL#18	CL#18 closed Y

Checklist Question	Ref. ID	MoV*	Comments	Conclusion/ CARs/CLs
confirmed that such funding does not result in a diversion of official development assistance				
<b>B. Baseline and Monitoring Methodology</b>				
<b>B.1. Choice and Applicability</b>				
B.1.1. Is the baseline methodology previously approved by the CDM Methodology Panel?	VVM Para.68 PDD section B.1	DR	The webhosted PDD applied AMS I D version 13, which was latest methodology version available at the time of publication.  During the course of validation the applied version expired and the revised PDD applies AMS I D Version 17, which is in grace period for request for registration.	Y
B.1.2. Has the methodology (incl. the tools) been altered from the original version as referenced in the PDD?	VVM Para.70 PDD section B (B.1-B.2)	DR	The methodology AMS I.D version 17 and relevant tools used for the project activity have been correctly quoted and applied without any alteration. This has been verified by comparing it against the version available on the UNFCCC website.	Y
B.1.3. Does the project activity qualify as small scale project?	VVM Para. 136a	DR SV	The project uses the methodology AMS I D version 17; the total rated capacity of project activity is 10 MW, which is less than the specified limit of 15 MW for a small-scale project activity. The same was cross-checked during the site visit. Hence the project qualifies as a small scale project.	Y
B.1.4. Is the category(ies) of the project activity correctly identified in accordance with		DR	The project type and category identified in section B.1 of the PDD is I.D – grid connected renewable electricity generation. The project activity involves electricity generation using WECs and supplying the same to CEB. Hence, the project type and category have been correctly identified in accordance with	Y

Checklist Question	Ref. ID	MoV*	Comments	Conclusion/ CARs/CLs
Appendix B to the simplified modalities and procedures for small-scale CDM project activities?			Appendix B of the simplified modalities and procedures for small-scale CDM project activities.	
B.1.5. Is the selected simplified methodology applicable to the project activity in the PDD?	VVM Para.75/66a/68/73 PDD section B (B.1-B.2)	DR	Section B.2 of the PDD discusses the applicability of the methodology AMS I.D./Version 17 to the proposed project activity. The proposed CDM project activity will supply electricity to the CEB, Sri Lankan grid from a renewable source (i.e. wind) and the capacity of the project activity (10 MW) is below the 15 MW limit for small scale projects. Hence, AMS I.D./version 17 is applicable to the project activity.	Y
B.1.6. Does the project activity conform to one of the approved small-scale categories?	VVM Para. 136b EB55 Annex 35 EB61 Annex 21	DR	The proposed project activity confirms to AMS I.D./Version 17 under sectoral scope – 01 (Energy industries renewable - Non-renewable sources) and Type I and justification for the applicability criteria has been mentioned in section B.2 of the PDD.	Y
B.1.7. Is the project activity a bundle of several small scale activities and if so does it contain any sub-bundles?		DR	The project activity is not a bundled project activity. Pending to closure of CAR#08	CAR#08 closed Y

Checklist Question	Ref. ID	MoV*	Comments	Conclusion/ CARs/CLs
B.1.8. If the project activity is a bundle of several small scale activities, does the sum of the total bundle (including any subbundles) fall within the limits for small scale projects		DR	Not applicable since the project activity is not a bundled project activity. Pending to closure of CAR#08	CAR#08 closed Y
B.1.9. If the project activity is a bundle of several small scale activities, has the form with information related to the bundle been submitted and is it correctly used		DR	Not applicable since the project activity is not a bundled project activity. Pending to closure of CAR#08	CAR#08 Y
B.1.10. Is the discussion in the PDD in conformance with all applicability criteria of the applied methodology?	VVM Para.75/66b/68 PDD section B (B.1-B.2)	DR	Section B.2 of the PDD discusses the applicability of the methodology AMS I.D./Version 17 to the proposed project activity. The proposed CDM project activity will supply electricity to the CEB, Sri Lankan grid from a renewable source (i.e. wind) and the capacity of the project activity (10 MW) is below the 15 MW limit for small scale projects. Hence, AMS I.D./version 17 is applicable to the project activity.	Y
<b>B.2. Project Boundary</b>				
B.2.1. Are all emission sources and gases related to the baseline scenario, project scenario and leakage clearly identified and	VVM Para.79/77 /67a PDD section B.3	DR	The PDD correctly describes the project boundary, including the physical delineation of the proposed CDM project activity. CAR#09 is raised The project boundary is not clear in the description in section B.3 of PDD. A schematic layout is requested to provide the overall boundary indicating the windmills, energy conversion and dispatch to grid.	CAR#09 closed Y



Checklist Question	Ref. ID	MoV*	Comments	Conclusion/ CARs/CLs
described in a complete and transparent manner? Is there information on GHG emissions in proposed CDM project activity boundary as a result of the implementation of the proposed CDM project activity which are expected to contribute more than 1% of the overall expected average annual emissions reductions, which are not addressed by the applied methodology.			The identification of electricity system and grid emission factor is inappropriately described in section B.6.3. in place of B.4/B.6.1.	
B.2.2. In case of grid connected electricity projects: Is the relevant grid correctly identified in accordance with the tool to calculate emission factor of electricity system (wherever applicable) and the underlying	VVM Para.79 PDD section B.3	DR	The project activity involves generation of electricity using WECs. The electricity generated is exported to the CEB, Sri Lankan Grid. This grid is identified in accordance with the tool to calculate emission factor version.	Y

Checklist Question	Ref. ID	MoV*	Comments	Conclusion/ CARs/CLs
methodology?				
B.2.3. Does the project boundary include the physical delineation of the proposed CDM project activity?	VVM Para.78/79 PDD section B.3 also see section A.4.2	DR	The project boundary of the proposed CDM project activity has been delineated in section B.3 of the PDD. The delineation is correct and meets the requirements of the selected baseline methodology AMS I.D./Version 17	Y
B.2.4. Are the project's geographical boundaries and the project's system boundaries (components and facilities used to mitigate GHGs) clearly defined?	VVM Para.76/79 PDD section B.3 also see section A.4.2	DR	The project boundary has been described clearly as per the selected methodology AMS I D version 17. Pending to closure of CAR#08	CAR#08 closed Y
<b>B.3. Identification of the Baseline Scenario</b>				
B.3.1. Does the PDD discuss the identification of the most likely baseline scenario? Does the PDD follow the steps to determine the baseline scenario required by the methodology and is the application of the methodology and the discussion and determination of the chosen baseline	VVM Para.67b.80/82/86 PDD Section B.4/B.5	DR	The baseline for the proposed CDM project activity has been identified in accordance with the methodology AMS I D version 17 and mentioned clearly in the PDD.	Y

Checklist Question	Ref. ID	MoV*	Comments	Conclusion/ CARs/CLs
transparent?				
B.3.2. Are all tools/procedures in the methodology correctly applied to identify the most reasonable baseline scenario? This includes all potential realistic and credible baseline scenarios in the discussion taking into account relevant national and/or sectoral policies, macro-economic trends and political aspirations?	VVM Para.81-84/87a-d/ PDD Section B.4/B.5	DR	<p>The discussion and determination of the chosen baseline is transparent and supported by the available data. CL#10 is raised Please substantiate with documentary evidences</p> <ul style="list-style-type: none"> <li>a) Table 1 and input values indicating the types of power plant in Sri Lankan grid</li> <li>b) Table 2 and input values indicating the share of electricity by source</li> <li>c) The these figures are the latest available at the time of webhosting of PDD</li> <li>d) The SPP Development Program</li> <li>e) Future electricity generation in Sri Lanka will be dominated by coal based power plants</li> <li>f) Table 3 and input values for Sri Lanka's long term generation expansion plan 2005, and comment if this is the latest one available?</li> <li>g) The policy initiatives as mentioned in Table 4 and on page 12 of webhosted PDD.</li> <li>h) The development of Grid Emission Factor and sources of input values</li> </ul>	CL#10 closed Y
B.3.3. Is the choice of the baseline compatible with the available data?	VVM Para.87b-c/95 PDD Section B.4/B.5	DR	<p>The baseline has been identified for proposed project activity as per the methodology AMS I D version 17 and mentioned clearly in the PDD. Pending to closure of CL#10</p>	CL#10 closed Y
B.3.4. Is conservativeness addressed in the way of identifying the baseline?	VVM Para.90 PDD Section B.4/B.5	DR	<p>The baseline for the proposed project activity has been identified as per the methodology AMS I D version 17 and mentioned clearly in the PDD. The baseline for the project activity has been conservatively identified. Pending to closure of CL#10</p>	CL#10 closed Y

Checklist Question	Ref. ID	MoV*	Comments	Conclusion/ CARs/CLs
B.3.5. Does the selected baseline represent the most likely scenario among other possible and/or discussed scenarios?	VVM Para.90/91 PDD Section B.4/B.5	DR	The methodology AMS I.D. Version 17 does not requires the identification of alternative baseline scenarios if the electricity is supplied to grid. Pending to closure of CL#10	CL#10 closed Y
B.3.6. Is there a verifiable description of the baseline scenario? Does this include a description of the technology that would be employed and/or the activities that would take place in the absence of the proposed CDM project activity?	VVM Para.87e/85 PDD Section B.4/B.5	DR	Not required as per methodology AMS I.D. Version 17	Y
<b>B.4. Additionality</b>				
B.4.1. Does the PDD clearly demonstrate the additionality using the approach as specified in the methodology and by following all the required steps?	VVM Para 137 EB 54, annex 15 EB 68 Annex 26 EB 68 Annex 27	DR	CL#11 is raised to substantiate <ul style="list-style-type: none"> <li>a) The alternatives identified to the project activity as mini hydro and biomass. In the absence of the project activity the PP would have invested in these alternatives? How these two alternatives are comparable to wind project activity?</li> <li>b) If these are credible alternative baseline alternatives how they are eliminated from further discussion</li> <li>c) How the benchmark analysis method is appropriate in that sense?</li> <li>d) As part of investment barrier, how the identified barriers</li> </ul>	CL#11 closed Y

Checklist Question	Ref. ID	MoV*	Comments	Conclusion/ CARs/CLs
	VVM Para.67d/95 PDD Section B.1/B.4/B.5		<p>are related with access to money? Please substantiate with documentary evidence, if relevant.</p> <ul style="list-style-type: none"> <li>e) The technological barriers illustrated are apparently indicating that the location where these mills are proposed to be installed is quite conducive, refer CUF considered 32%</li> <li>f) The identified limited technical knowledge and facilities available in Sri Lanka for wind mill operation, particularly when the entire operation is awarded to equipment supplier for seven years.</li> <li>g) The timing of crane purchase and crane and special transport requirements</li> <li>h) Considering the project activity as first of its kind, when there is already 3MW wind mills are already installed by CEB</li> <li>i) The organizational barriers with documentary evidence</li> <li>j) The justification and purpose of including table titled 'Analysis of the impacts of barriers'</li> <li>k) The common practice is not demonstrated as per the tool</li> </ul>	
B.4.2. In case of using the additionality tool: Is the 'Additionality Tool' used in the PDD latest version? If an earlier version has been used, do the changes impact the discussion in the PDD? Are all steps followed in a	PDD Section B.1/B.4/B.5	DR	Yes, the latest "Tool for the demonstration and assessment of additionality" has been used and the steps are followed in consistent manner. The version 07.0.0 is applicable and valid .	Y

Checklist Question	Ref. ID	MoV*	Comments	Conclusion/ CARs/CLs
transparent manner?				
B.4.3. Has all information been backed up with references, sources and certification? Is the data presented credible and reliable with complete transparency to all available data and documentation?	VVM Para.93/91 PDD Section B	DR	Pending closure of CL#11.	CL#11 closed  Y
B.4.4. Is the discussion on additionality and the evidence provided consistent with the starting date of the project? If the project activity start date is prior to the validation is it discussed how the CDM was taken into account in the decision to go ahead with the project activity	VVM Para.102b PDD Section B.5 EB62 Annex 13	DR	The section B.5 did not include the CDM chronology of the project activity CAR#12 is raised to include and substantiate d) The PP were aware of CDM benefits at the time of decision making e) The CDM benefits were decisive to go ahead with the project activity f) The parallel efforts have been undertaken to secure the CDM status of the project activity along with its implementation	CAR#12 closed Y
B.4.5. If an investment analysis has been used, has it been demonstrated that	VVM Para. 106, 107, 108, 109 112a-c PDD Section B.5	DR	Pending closure of CL#11	CL#11 closed. Y



Checklist Question	Ref. ID	MoV*	Comments	Conclusion/ CARs/CLs
the proposed project activity is economically or financially less attractive than at least one other alternative without the revenue from the sale of CERs?				
B.4.6. If a benchmark is used, is it ensured that it is selected in accordance with the requirements of the tool /methodology and it represents standard returns in the market (not linked to the subjective profitability expectation or risk profile of a particular project developer).	VVM Para. 110 PDD Section B.5	DR	Pending closure of CL#11	CL#11 closed. Y
B.4.7. If a barrier analysis has been used, has it been shown that the proposed project activity faces barriers that prevent the implementation of this type of proposed project activity but would	VVM Para. 114 116a-b/117 PDD Section B.5 EB50, Annex 13	DR	Pending closure of CL#11	CL#11 closed Y

Checklist Question	Ref. ID	MoV*	Comments	Conclusion/ CARs/CLs
not have prevented the implementation of at least one of the alternatives?				
B.4.8. Is the discussion on additionality consistent with the identification of all plausible and credible baseline scenarios?	VVM Para. 105 PDD Section B.5	DR	The methodology AMS I.D. Version 17 does not require the identification of alternative baseline scenarios. The baseline scenario is pre defined in the applied methodology.	Y
B.4.9. If a barrier analysis has been used have the 'guidelines for objective demonstration and assessment of barriers' been followed? Have all applicable steps been considered and substantiated with objective evidence?	VVM Para 113 EB 50 Annex 13	DR	Pending to closure of CL#11	CL#11 closed Y
B.4.10. Do the identified baseline scenarios include technologies and practices that include outputs or services comparable with the proposed CDM project activity. Do	VVM Para. 105 PDD Section A.4.2/B.5	DR	The methodology AMS I.D. Version 17 does not require the identification of alternative baseline scenarios.	Y

Checklist Question	Ref. ID	MoV*	Comments	Conclusion/ CARs/CLs
they also abide by the same applicable laws and legislations?				
B.4.11. Has it been shown that the project is not common practice?	VVM Para. 119-121 PDD Section B.5 EB 69 Annex 08	DR	Yes, it has been clearly demonstrated that the project activity is not common practice. Pending to closure of CL#11	CL#11 closed. Y
B.4.12. What are they key distinctions between the project activity and any similar projects that are widely used as common practice?	VVM Para. 119-121 PDD Section B.5 EB 69 Annex 8 EB 68 Annex 28 EB69 Annex 7	DR	Pending to closure of CL#11	CL#11 closed Y
<b>B.5. Application of the Simplified Methodology</b>				
B.5.1. Has the simplified methodology been applied correctly for determining <b>baseline emissions</b> ?	VVM Para. 92d PDD Section B (B.6.1 -B.71)	DR	CAR#13 is raised It is not clear how the emission reductions calculations have been performed in line to the methodology a) Please define clearly how the baseline emissions, project emissions and leakages are calculated along with basis of assumptions, if any b) In data to be monitored the applied values are not included	CAR#13 closed Y
B.5.2. Has the simplified methodology been applied correctly for determining <b>project</b>	VVM Para. 90/92d PDD Section B	DR	Pending to closure of CAR#13.	CAR#13 closed Y

Checklist Question	Ref. ID	MoV*	Comments	Conclusion/ CARs/CLs
<b>emissions?</b>	(B.6.2-B.71)			
B.5.3. Has the simplified methodology been applied correctly for determining <b>leakage</b> ?	VVM Para. 92d PDD Section B (B.6.2 -B.71)	DR	Pending to closure of CAR#13.	CAR#13 closed Y
B.5.4. Where applicable, has the simplified methodology been applied correctly for the <b>direct calculation of emission reductions</b> ?	VVM Para. 90/91/92 PDD Section B (B.6.2 -B.71)	DR	Pending to closure of CAR#13.	CAR#13 closed Y
B.5.5. Where there is an option between different equations or parameters, has the methodological choices for the project been explained, have they been properly justified and are they correct?	VVM Para. 90/91/92 PDD Section B (B.6.2 -B.71)	DR	The methodology has been correctly applied for the calculation of emission reductions. Pending to closure of CAR#13	CAR#13 closed Y
B.5.6. Are uncertainties in the GHG emissions estimates properly addressed in the documentation?	PDD Sections B.5-C	DR	The project activity involves the generation of electricity using wind energy and hence not applicable.	Y
<b>B.6. Ex-ante Data and Parameters Used</b>				
B.6.1. Are the data	VVM Para.	DR	The data provided in the excel spreadsheet are in compliance	Y

Checklist Question	Ref. ID	MoV*	Comments	Conclusion/ CARs/CLs
provided in compliance with the methodology?	92/67c PDD Section B.6.3B.6.4		with the approved methodology AMS I.D./Version 17.	
B.6.2. Is all the data derived from official data sources or replicable records and have these been correctly quoted?	VVM Para. 92a/b PDD Section B.6.3/B.6.4	DR	All data in the excel spreadsheet have been quoted from official data sources or from replicable records and have been correctly quoted.	Y
B.6.3. Is the vintage of the baseline data correct?	PDD Section B.6.3/B.6.4	DR	The vintage of the baseline data is correct.	Y
B.6.4. Is all the data appropriate and correctly applied to the CDM project activity?	VVM Para. 92c PDD Section B.6.3/B.6.4	DR	PP has applied all the data appropriately and correctly to the CDM project activity.	Y
B.6.5. Are data and parameters that are not being monitored and remained fixed throughout the crediting period appropriately assessed, correct, and will they result in conservative estimates?	VVM Para. 90 PDD Section B.6.3/B.6.4	DR	Yes, the data has been conservatively chosen from verifiable sources.	Y
B.6.6. If the project activity uses the PLF does it follow the guidance provided	EB48 Annex 11.	DR	Yes, the PLF is in accordance with the EB48 Annex11	Y

Checklist Question	Ref. ID	MoV*	Comments	Conclusion/ CARs/CLs
in EB48 annex 11?				
<b>B.7. Calculation of Emissions Reductions</b>				
B.7.1. Has the simplified methodology been applied correctly for determining <b>emission reductions</b> ?	VVM Para. 92d PDD Section A.4.3/B.6	DR	The methodology has been applied exactly as defined for determining the emission reductions. Section B.6.1 of the PDD clearly states the equations to be used and follows all required steps as per the methodology. The same has been reflected in the ER excel sheet.  Pending to closure of CAR#13	CAR#13 closed Y
B.7.2. Are the emission reduction calculations documented in a complete and transparent manner?	VVM Para. 92e PDD Section B.6	DR	Section B.6.3 of the PDD documents indicates how each equation has been applied to calculate the emission reductions. It has been indicated in a reproducible manner. The same has been reflected in the ER excel sheet.  Pending to closure of CAR#13	CAR#13 closed Y
B.7.3. Is the projection based on same procedures as used for later monitoring or acceptable alternative models?	PDD Section B.6	DR	Project participant has provided a transparent <i>ex ante</i> calculation of baseline emissions expected during the crediting period, applying all relevant equations provided in the approved methodology AMS I.D. Version 17  Pending to closure of CAR#13	CAR#13 closed Y
B.7.4. Is the calculation of the emission reduction correct?	VVM Para. 91e PDD Section B.6	DR	The application of formulae to calculate emission reductions are found to be correct and reproducible in the PDD as well as the excel sheet. All estimates can be replicated using the parameters mentioned in the PDD.  Pending to closure of CAR#13	CAR#13 closed Y
<b>B.8. Emission Reductions</b>				
B.8.1. Is the form/table required for the indication of	PDD Section A.4.3/ Section B.6	DR	The tables in section A.4.3 and B.6 of the PDD have been correctly applied.	CAR#2 closed



Checklist Question	Ref. ID	MoV*	Comments	Conclusion/ CARs/CLs
projected emission reductions correctly applied?			Pending to closure of CAR#2	Y
B.8.2. Is the projection in line with the envisioned time schedule for the project's implementation and the indicated crediting period?	PDD Section A.4.3/ Section B.6	DR	Yes.	Y
<b>B.9. Monitoring Methodology</b>				
<p>B.9.1. Does the monitoring methodology provide a consistent approach in the context of all parameters to be monitored and further information provided by the PDD?</p> <p>Are all parameters and data that are available at validation consistent with the simplified methodology. Has this data been interpreted and applied correctly?</p>	<p>VVM Para. 67e PDD Section B.7-B.8 see also Annex 4 EB69 Annex 4 EB69 Annex 5</p>	DR	The monitoring methodology has been applied correctly in representing all the parameters to be monitored.	Y

Checklist Question	Ref. ID	MoV*	Comments	Conclusion/ CARs/CLs
B.9.2. Does the monitoring methodology apply consistently the choice of the option selected for monitoring both of project and baseline emissions?	PDD Sections B and C	DR	The monitoring plan has been applied correctly for monitoring of both project and baseline emission.	Y
<b>B.10. Data and Parameters Monitored</b>				
B.10.1. Does the monitoring plan in the PDD comply with the simplified methodology? Provide for the collection and archiving of all relevant data necessary for estimation or measuring the emission reductions within the project boundary during the crediting period?	VVM Para. 92a/92d/123/79 PDD Section B.7-B.7.2	DR	The Monitoring plan contains all necessary parameters and means of monitoring described in the plan complies with the requirements of the methodology AMS I.D Version 17.	Y
B.10.2. Are the choices of project GHG indicators reasonable and in conformance with the requirements set by the simplified methodology	PDD Section B.7-B.7.2/B.6.2	DR	Choices of project GHG indicators are not required as per methodology AMS I.D Version 17	Y

Checklist Question	Ref. ID	MoV*	Comments	Conclusion/ CARs/CLs
applied?				
B.10.3. Will it be possible to determine the specified project GHG indicators?	PDD Section B.6.2-B.8	DR	Project GHG indicators are not required as per methodology AMS I.D Version 17	Y
B.10.4. Is the information given for each monitoring variable by the presented table sufficient to ensure the verification of a proper implementation of the monitoring plan?	PDD Section B.6.2-B.7.1 EB 55, annex 35 EB61 Annex 21	DR	The information given for each monitoring variable by the presented table is sufficient to ensure the verification of a proper implementation of the monitoring plan	Y
B.10.5. Is the information given for each monitoring variable by the presented table sufficient to ensure the delivery of high quality data free of potential for biases or intended or unintended changes in data records?	PDD Section B.6.2-B.7.1	DR	The information given for each monitoring variable by the presented table is sufficient to ensure the delivery of high quality data free of potential for biases or intended or unintended changes in data records.	Y
B.10.6. Is the monitoring approach in line with current good practice, i.e. will it deliver data in a reliable and	PDD Section B.5-B.7.2	DR	The monitoring approach will deliver data in a reliable and reasonably acceptable accuracy.	Y

Checklist Question	Ref. ID	MoV*	Comments	Conclusion/ CARs/CLs
reasonably acceptable accuracy?				
B.10.7. Are all formulae used to determine project emission clearly indicated and in compliance with the monitoring methodology.	PDD Section B.6.2-B.7.1	DR	The proposed project activity is the generation of electricity using wind energy, so project emission has not been taken into account that is inline with methodology AMS I.D Version 17	Y
<b>B.11. Quality Control (QC) and Quality Assurance (QA) Procedures</b>				
B.11.1. Is the selection of data undergoing quality control and quality assurance procedures complete?	VVM Para. 121 Refer to all data within the PDD Inc. B.6.2-B.7.1	DR	QA/QC procedures have been described for all the parameters in the PDD.	Y
B.11.2. Is the belonging determination of uncertainty levels done correctly for each ID in a correct and reliable manner?	Refer to all data within the PDD Inc. B.4/B.7.2/Annex 4	DR	The uncertainty levels for each parameter have been addressed in the PDD.	Y
B.11.3. Are quality control procedures and quality assurance procedures sufficiently described to ensure the delivery of high quality data?	VVM Para 121	DR	QA/QC procedures have been described for all the parameters in the PDD.	Y

Checklist Question	Ref. ID	MoV*	Comments	Conclusion/ CARs/CLs
B.11.4. Is it ensured that data will be bound to national or internal reference standards?	VVM Para. 87d	DR SV	The data provided will be bound by national references.	Y
B.11.5. Is it ensured that data provisions will be free of potential conflicts of interests resulting in a tendency of overestimating emission reductions?	VVM Para. 19	DR	QA/QC procedures have been described for all the parameters in the PDD through which data manipulation can be avoided.	Y
<b>B.12. Operational and Management Structure</b>				
B.12.1. Is the authority and responsibility of project management clearly described?	PDD Section B.8/Annex 1	DR SV	Management and operational structure for the project activity has been correctly described in the PDD.	Y
B.12.2. Is the authority and responsibility for registration, monitoring, measurement and reporting clearly described?	PDD Section B.8/Annex 1	DR	The same has been correctly described in the PDD.	Y
B.12.3. Are procedures identified for training of monitoring personnel?	PDD Section B.8/Annex 1	DR	The same has been mentioned in section B.7.2 of the PDD	Y

Checklist Question	Ref. ID	MoV*	Comments	Conclusion/ CARs/CLs
<b>B.13. Monitoring Plan (Annex 4)</b>				
B.13.1. Is the monitoring plan developed in a project specific manner clearly addressing the unique features of the CDM activity?	VVM Para. 124a	DR	The monitoring plan has been developed specifically for this project activity and is mentioned in Section B.7.2 and annex 4 of the PDD.	Y
B.13.2. Does the monitoring plan completely describe all measures to be implemented for monitoring all parameter required, including measures to be implemented for ensuring data quality?	VVM Para. 124b EB55 Annex 35 EB61 Annex 21	DR	Section B.7.2 and annex 4 of the PDD describes all measures to be implemented for monitoring all parameters, including measures to be implemented for ensuring data quality.	Y
B.13.3. Does the monitoring plan provide information on monitoring equipment and respective positioning in order to safeguard a proper installation?	VVM Para. 124b	DR SV	FAR#14 has been raised as att the time of SV, the positioning of meter can not be ascertained due to early stages of projects. The same will be checked during first verification. Therefore this has been considered as FAR for future evaluation. These elements do not affect the validation process. To be verified during the verification of the project activity	FAR#14 Open
B.13.4. Are procedures identified for calibration of monitoring equipment?	VVM Para. 123a-b EB55 Annex 35 EB61 Annex 21	DR	The PDD has described the calibration procedure, frequency of calibration and has identified the entity responsible for the same.	Y



Checklist Question	Ref. ID	MoV*	Comments	Conclusion/ CARs/CLs
B.13.5. Are procedures identified for maintenance of monitoring equipment and installations?	VVM Para. 123a-b	DR	The procedure for maintenance of monitoring equipment and installations are identified.	Y
B.13.6. Are procedures identified for day-to-day records handling (including what records to keep, storage area of records and how to process performance documentation)	VVM Para. 123a-b EB55 Annex 35 EB61 Annex 21	DR SV	PP has mentioned procedures for day to day records and storage of records.	Y
B.13.7. Are procedures identified for dealing with possible monitoring data adjustments and missing data allowing redundant reconstruction of data in case of monitoring problems?	VVM Para. 124a-c	DR	The procedures for dealing with monitoring problems have been covered in section B.7.2 and annex 4 of the PDD.	Y
B.13.8. Are procedures identified for internal audits of GHG project compliance with operational requirements where applicable?	VVM Para.124a-c	DR	Management structure for the project activity has been correctly described in the PDD.	Y

Checklist Question	Ref. ID	MoV*	Comments	Conclusion/ CARs/CLs
B.13.9. Are procedures identified for project performance reviews before data is submitted for verification, internally or externally?	VVM Para. 124a-c	DR	It is covered under the management structure mentioned in section B.7.2 of the PDD.	Y
B.13.10. Describe the ability of the project participants to implement the monitoring plan.	VVM Para. 124c	DR SV	Though, the project participant has no previous experience of either a CDM registered project nor they had exposure to wind mill. However, the section B.7.1 and B.7.2 sufficiently describes the measures to be in place to accept that the project participant will have this ability.	Y
<b>B.14. Baseline Details</b>				
B.14.1. Is there any indication of a date when determining the baseline?	PDD Section B.8/Annex 3	DR	The baseline has been determined on 15/04/2009, as mentioned in the PDD.	Y
B.14.2. Is this consistent with the time line of the PDD history?	Also see revision history of the PDD	DR	The webhosted PDD did not contain any date but assuming it has been webhosted on 29/05/2009 same has been accepted.	Y
B.14.3. Is all data required provided in a complete manner by annex 3 of the PDD?	PDD Annex 3	DR	All the data required for baseline determination is mentioned in section B.6.2 of PDD.	Y
<b>C. Duration of the Project / Crediting Period</b>				
C.1.1. Are the project's starting date and operational lifetime clearly defined and	VVM Para. 102a-b PDD Section C.1.1/C.1.2	DR	The operation lifetime is 20 years as described in the PDD. PP has provided purchase orders as evidence to support the start date of the project activity which is as per para 67 of EB 41 meeting report. Hence the start date is appropriate.	CAR#15 closed Y

Checklist Question	Ref. ID	MoV*	Comments	Conclusion/ CARs/CLs
reasonable?			CAR#15 is raised Kindly provide evidence for considering a) the start date of the project activity in line to EB41 para 67 b) the operational lifetime of the project activity as 20 years c) consider the realistic timeline of the project activity crediting period start date	
C.1.2. Is the assumed crediting time clearly defined and reasonable (renewable crediting period of max 7 years with potential for 2 renewals or fixed crediting period of max. 10 years)?	VVM Para. 102a PDD Section C.2/C.2.1/C.2.2	DR	Fixed crediting period of 10 years has been selected for the project activity and it is reasonable. PP has carried out the investment analysis for the entire lifetime of the project activity i.e. 20 years.	Y
C.1.3. Does the project's operational lifetime exceed the crediting period	VVM Para. 102a PDD Section C.1.2/C.2.1.1/C.2.1.2	DR	The project operational life is expected to be 20 years, which exceeds the crediting period of 10 years. Pending to closure of CAR#15	CAR#15 closed Y
C.1.4. Does the start date indicate whether this is a new project activity or a pre-existing project activity?	VVM Para. 102a-104/ 98 PDD Section C.1.1/C.2.1.1	DR	The start date of the project activity 23/08/2008 which is after 2nd August 2008 and thus it is a new project activity. Pending to closure of CAR#15	CAR#15 closed Y
<b>D. Environmental Impacts</b>				
D.1.1. Does the project	VVM Para.	DR	The project complies with the environmental legislation in the	CAR#16

Checklist Question	Ref. ID	MoV*	Comments	Conclusion/ CARs/CLs
comply with environmental legislation in the host country?	133/136d PDD section D		host country. CAR#16 is raised to provide the IEE conducted for the project activity and indicate in the PDD the overall impact on environment because of the project activity?	closed Y
D.1.2. Has an analysis of the environmental impacts of the project activity been sufficiently described?	VVM Para. 133 PDD section D	DR	The proposed project activity involves the establishment of a wind energy based power plant and hence there are no adverse environmental impacts. Pending to closure of CAR#16.	CAR#16 closed Y
D.1.3. Are there any Host Party requirements for an Environmental Impact Assessment (EIA), and if yes, is an EIA approved?	VVM Para. 133 PDD section D	DR	There are no such requirement in the host Party. Pending to CAR#16	CAR#16 closed Y
D.1.4. Will the project create any adverse environmental effects?	VVM Para. 133 PDD section D	DR	The proposed project activity involves the establishment of a wind energy based power plant and there are no adverse environmental effects expected. Pending to closure of CAR#16	CAR#16 closed Y
D.1.5. Are trans-boundary environmental impacts considered in the analysis?	VVM Para. 133 PDD section D	DR	Not applicable since an EIA in not required to be carried out for the project activity.	Y
D.1.6. Have identified environmental impacts been addressed in the project design?	VVM Para. 133 PDD section D	DR	Not applicable since an EIA in not required to be carried out for the project activity.	Y

Checklist Question	Ref. ID	MoV*	Comments	Conclusion/ CARs/CLs
<b>E. Stakeholder Comments</b>				
E.1.1. Have relevant stakeholders been consulted?	VVM Para. 130a PDD Section E.1	DR SV I	The stakeholders identified are relevant to the proposed project activity.	Y
E.1.2. Have appropriate media been used to invite comments by local stakeholders?	VVM Para. 130a PDD Section E.1	DR SV I	The stakeholders have been invited through individual invitation letters and a public notice. PP has submitted evidence for the same and it was cross verified during the site visit. CL#17 was raised to clarify and substantiate a) How the stakeholders for project activity were identified b) What media was used to invite them for local stakeholder consultation process c) How the comments were received and resolved d) The status of community social responsibility as indicated on page 42 of PDD	CL#17 closed. Y
E.1.3. Is the undertaken stakeholder process described in a complete and transparent manner?	VVM Para. 130b PDD Section E.1	DR SV I	The stakeholder process has been completely described in section E.1 of the PDD. It was cross verified during the site visit. Pending to closure of CL#17	CL#17 closed. Y
E.1.4. Is a summary of the stakeholder comments received provided?	VVM Para. 130b PDD Section E.2	DR SV I	The summary of stakeholder comments has been provided in section E.2 of the PDD. It was cross verified during the site visit. Pending to closure of CL#17	CL#17 closed. Y
E.1.5. Has due account been taken of any stakeholder comments received?	VVM Para. 130b PDD Section E.3	DR SV I	The comments received from the stakeholder are positive in nature and hence no action needs to be taken. This is reflected in section E.3 of the PDD and was cross verified during the site visit. Pending to closure of CL#17	CL#17 closed. Y

### A.3 Annex 3: Overview of Findings

#### Findings Overview Summary

	CARs	CLs	FARs
<b>Total Number raised</b>	09	08	01

Date:	16/08/2009		Raised by:	Assessment Team	
Type:	CL	Number:	01	Reference:	Table 1/AU4
Lead Assessor Comment:				Date: 16/08/2009	
Kindly provide the HCA from DNA of Sri Lanka obtained for the project activity					
Project Participant Response:				Date: 31/08/2009	
DNA approval for PIN has been obtained on 15 <sup>th</sup> Nov 2008, and approval for PDD has been obtained on 4 <sup>th</sup> May 2009.					
Documentation Provided by Project Participant:					
Please see the attached soft copy. File name: CL01 Host Country Approval For contact information of DNA for independent verification of the approval, please see under CAR12.					
Information Verified by Lead Assessor:					
CL01 – Host Country Approval from DNA for CDM in Sri Lanka CAR12-c4 – Host Country approval for PIN					
Reasoning for not Acceptance or Acceptance and Close Out:					
<p>The information and documentary evidences have been verified. However, as mentioned by the Project Participant (PP) the DNA approval for PIN is on 8<sup>th</sup> Dec, 2008 instead of 15<sup>th</sup> November, 2008. PP needs to clarify the same.</p> <p>The Host Country Approval from DNA for CDM in Sri Lanka mention the project title as “Mampuri Wind Power Project –10MW”, while the PDD of the project as well as the DNA approval for PIN mention the project title as “Mampuri Wind Power Project” . Please clarify the same.</p> <p>Thus CL 01 is still open.</p>					
Project Participant Response:				Date: 23/11/2009	
<p>The DNA approval for PIN was on 8<sup>th</sup> December 2008, as stated in the scanned file CAR12-c4. The date 15<sup>th</sup> November 2008 has been mistakenly placed in our previous response dated 31/08/2009.</p> <p>The application written on 7<sup>th</sup> April 2009, by Senok Wind Power (Private) Limited to DNA for the host country approval is attached herewith (CL01x Senok Request for DNA Approval dated 7 April 2009) which clearly shows the name of the project as “Mampuri Wind Power Project”, which name has been consistently maintained in all the documentation, including previous communications between the PP and DNA (please see DNA approval for PIN dated 8<sup>th</sup> Dec 2008, where the project name has been correctly stated by the DNA). However, in their approval dated 4<sup>th</sup> May 2009, the DNA has on their own initiative stated the project name in the style “Mampuri Wind Power Project – 10 MW”. We confirm that they are one and the same project, and that the suffix “-10 MW” merely refers to the installed capacity of the proposed CDM project activity.</p>					
Documentation Provided by Project Participant:					
See attached file: CL01x Senok Request for DNA Approval dated 7 April 2009					
Information Verified by Lead Assessor:					



CL01 – Host Country Approval from DNA for CDM in Sri Lanka	
CAR12-c4 – Host Country approval for PIN	
CL01x Senok Request for DNA Approval dated 7 April 2009	
Reasoning for not Acceptance or Acceptance and Close Out:	
<p>The HCA has been verified and found that project title in the subject line includes extraneous element of 10 MW in the main letter body though in first paragraph, second line the title is consistent with the PDD, The consistent name of project participant, ratification by host Party, contribution to sustainable development in host Party and voluntary participation is acceptable .</p> <p>However CL#01 is reopened due to below reason.</p> <p>The submitted HCA mentioned the project title in subject line as “Host Country Approval for Mampuri Wind Power Project -10 MW “ which is inconsistent with project title mentioned in PDD. Thus PP need to submit revised HCA with consistent project title or PDD need to re-web host with consistent project title.</p>	
Acceptance and Close out by Lead Assessor: Open	<b>Date:</b> 30/12/2011
Project Participant Response:	<b>Date:</b> 21/02/2012
HCA letter confirming the change of project title has been obtained.	
Documentation Provided by Project Participant:	
DNA's letter dated 27 Jan 2012 is attached. (file name: R1 Revised Host country approval)	
Information Verified by Lead Assessor:	
Letter from Host Country DNA Ministry of Environment, Sri Lanka dated 27/01/2012 having Ref No. 04/04/05/851 has been checked for the Project Title and same letter confirms that project title has been changed from “Mampuri Wind Power Project -10 MW” to “Mampuri Wind Power Project “ .	
Reasoning for not Acceptance or Acceptance and Close Out:	<b>Date:</b> 27/02/2012
<p>The revised letter from Host Country DNA Ministry of Environment, Sri Lanka dated 27/01/2012 having Ref No. 04/04/05/851 has been checked for the Project Title and same letter confirms that project title has been changed from “Mampuri Wind Power Project -10 MW” to “Mampuri Wind Power Project. Thus the project title is consistent with web hosted PDD and also with Final PDD. This is in line with para 45 d of VVM version 1.2 and is accepted.</p> <p>Thus CL 01 is closed out.</p>	
Acceptance and Close out by Lead Assessor:	<b>Date:</b> 27/02/2012

Date:	16/08/2009	Raised by:	Assessment Team
Type:	CAR	Number:	02
Reference:	Table 1/AU4		
Lead Assessor Comment:	<b>Date:</b> 16/08/2009		
<p>The section A.1 of PDD webhosted does not indicate the date and version number.</p> <p>The section A.3 of PDD webhosted does not contain table required to indicate project participants and Parties involved.</p> <p>The section B.6.4 of PDD webhosted does not contain the table earmarked to indicate summary of ex-ante emission reductions</p> <p>The Annex 5 is used in place of Annex 4 to indicate monitoring information.</p> <p>Please correct and submit the revised PDD reflecting the changes incorporated in track changed mode.</p>			
Project Participant Response:	<b>Date:</b> 31/08/2009		

Section A.1: Date and version number included	
Section A.3: Table required to indicate project participants and Parties included.	
Section B.6.4: The table has been added.	
Annex numbering has been corrected.	
Corrected PDD is submitted herewith.	
Documentation Provided by Project Participant:	
Revised PDD in tracking mode. File name: PDD for Mampuri Wind Power Project (Version 2, 31 Aug 09)	
Information Verified by Lead Assessor:	
1. Revised PDD, Version 2, dated 31 <sup>st</sup> Aug 09	
Reasoning for not Acceptance or Acceptance and Close Out:	
<p>The revised PDD has been verified and it incorporates all the necessary changes.</p> <p>The CAR#02 was re-opened as PP is requested to revise the project documentation as per the latest available version of the applicable baseline &amp; monitoring methodology. PP needs to follow all the latest available guidelines and tools while revising. Thus CAR 02 is open</p>	
Project Participant Response:	<b>Date:</b> 3/10/2011
<p>The PDD has been revised to reflect AMS-I.D “Indicative simplified baseline and monitoring methodologies for selected small-scale CDM project activity categories” version 16. Further, Methodological Tool (Version 02.2.1) “Tools to calculate the emission factor of an electricity system”, has been considered.</p> <p>Additionally, the PDD has been revised to reflect (i) changes in start date of the first crediting period, given the progress of the project to date, and corresponding changes to A.4.3 and B.6.3] (ii) change in the designation of “plant supervisor” to “power plant superintendent”, and the fact that power plant manager will be based in headquarters [B.7.2].</p> <p>The appendix 2 (Investment Analysis) has been revised to ensure that the project Investment Analysis based on gross revenue from the project, without deducting tax or any other payments.</p>	
Documentation Provided by Project Participant:	
Revised PDD Version	
Appendix 2 Investment Analysis	
Information Verified by Lead Assessor:	
Revised PDD Version 03 dated 23/11/2009	
Appendix 2 Investment Analysis	
Reasoning for not Acceptance or Acceptance and Close Out:	<b>Date:</b> 18/10/2011 Reopen: 18/08/2012
<p>The above documents have been verified and found to be satisfactory.</p> <p>The discussion on the sustainable development of project activity is not sufficient discussed in the PDD. Please clarify</p> <p>Please clarify why the Latitude and Longitude are not mentioned in DD,MM,SS format in PDD.</p> <p>Please mention the realistic date for CER estimation under section A.4.3 &amp; b.6.3 of PDD.</p> <p>Thus CAR 02 is open.</p>	
Project Participant Response:	<b>Date:</b> 29/08/12

<p><b>The contribution of the project activity to sustainable development:</b> As per the latest policy communication dated 12<sup>th</sup> January 2011 “ The development Framework of the Government of Sri Lanka” requires that 20 % of electricity generation from Non conventional Renewable Energy Sources by 2020 with 10% of the target to be met by 2016. The project activity pioneered the development of wind power using private sector financing. Therefore, the project activity contributes to sustainable development by (a) displacing fossil fuel used for electricity generation in the national grid of Sri Lanka in the long-term, (b) contributing to achieving the renewable energy targets in the National Energy Policy, and (c) pioneering the development of wind power, being the first private sector initiative to diversify the sustainable energy portfolio into wind energy, thus catalysing the growth of wind energy development in Sri Lanka.</p> <p>The renewable energy project is keeping in line with the latest policy decisions in Sri Lanka. It is thereby contributing to the sustainable growth of the country.</p> <p>Lat/ Long have been updated in they DD MM SS format in the PDD</p> <p>Realistic date for CER transactions has been updated to 1st January 2013.</p>	
Documentation Provided by Project Participant:	
Revised PDD version 7 dated 12/03/2012	
Information Verified by Lead Assessor:	
<p>Revised PDD version 7 dated 12/03/2012 was checked for appropriateness of the response.</p> <p>Latitude and Longitude are checked for appropriateness of the DD MM SS format in revised PDD version 7 dated 12/03/2012.</p>	
Reasoning for not Acceptance or Acceptance and Close Out:	
<p>Description of the sustainable development in Sri Lanka is now included in the revised PDD. Hence it is accepted.</p> <p>Latitude and longitude under section A.4.1.4 of the revised PDD are now represented in DD MM SS format and hence it is accepted.</p> <p>PP has now revised crediting period start date to 01/12/2012, however this issue will be closed subject to closure of rest of the CAR and CLs.</p>	
Project Participant Response:	<b>Date:</b> 21/09/2012
The crediting period start date has been amended to 01/01/2013	
Documentation Provided by Project Participant:	
PDD version 08 dated 21/09/2012	
Information Verified by Lead Assessor:	
Start date of crediting period mentioned under section C.2.2.1 of PDD version 08 dated 21/09/2012 for appropriateness.	
Reasoning for not Acceptance or Acceptance and Close Out:	<b>Date:</b> 28/09/2012
<p>Start date of crediting period 01/01/2013 is revised appropriately and seems realistic, this is found satisfactory and hence accepted.</p> <p>Thus CAR 02 is closed out.</p>	
Acceptance and Close out by Lead Assessor:	<b>Date:</b> 28/09/2012

Date:	16/08/2009		Raised by:	Assessment Team	
Type:	CL	Number:	03	Reference:	Table 1/AU4
Lead Assessor Comment:				<b>Date:</b> 16/08/2009	
Kindly provide duly signed Modalities of Communication by project participants as per EB45 Annex60					
Project Participant Response:				<b>Date:</b> 31/08/2009	
Modalities of Communication are provided herewith.					
Documentation Provided by Project Participant:					
Modalities of Communication.					
File name: CL03 Modalities of Communication.					
Information Verified by Lead Assessor:					
1. CL03 Modalities of communication					
Reasoning for not Acceptance or Acceptance and Close Out:					
<p>Modalities of Communication has been verified and the contact details are consistent with the contact detail mentioned in the PDD Annex 1. However, the MoC was later received as per the latest format dated 30/05/2011 and found to be consistent with the Annex 1 of the PDD.</p> <p>The CL 03 is reopened due to below issues</p> <p>The submitted MOC does not follow latest template of MOC available on UNFCCC web site. Also submitted MOC is hand written which is not acceptable and PP name is inconsistent for the word Private and Pvt. PP is requested to submit the revised MOC as per template available on UNFCCC web site</p>					
Acceptance and Close out by Lead Assessor: Open				<b>Date:</b> 30/12/2011	
Project Participant Response:				<b>Date:</b> 21/02/2012	
MOC was revised on the basis of the new template.					
Documentation Provided by Project Participant:					
MOC is provided herewith. (file name: R4 MOC resubmitted on new template)					
Information Verified by Lead Assessor:					
MOC dated 23/01/2012					
Reasoning for not Acceptance or Acceptance and Close Out:					
<p>The MOC has mentioned telephone as 0094-112-580017 and FAX as 0094-112-584791. Please confirm if these numbers are correct. Also these numbers are not consistent with Annex 1 of PDD. Please clarify the inconsistency observed.</p> <p>Thus CL03 is open</p>					
Project Participant Response:				<b>Date:</b> 12/3/2012	
Inconsistency arose owing to additional direct telephone numbers being available for the primary authorised signatory, when the MOC was revised.					
Documentation Provided by Project Participant:					
Revised MOC attached.					
Information Verified by Lead Assessor:					
MOC dated 23/01/2012					

Reasoning for not Acceptance or Acceptance and Close Out:	<b>Date:</b> 13/03/2012
The submitted MOC is consistent with Annex 1 of final PDD and is accepted. Thus CL 03 is closed out.	
Acceptance and Close out by Lead Assessor:	<b>Date:</b> 13/03/2012

Date:	16/08/2009	Raised by:	Assessment Team		
Type:	CAR	Number:	04	Reference:	A.2/AU4
Lead Assessor Comment:				Date: 16/08/2009	
The PDD does not indicate (in section A.2) the aspects pertaining to sustainable development.					
Project Participant Response:				Date: 24/08/2009	
Section A.2 has been revised to include aspects of sustainable development.					
Documentation Provided by Project Participant:					
Revised PDD in tracking mode. File name: PDD for Mampuri Wind Power Project (Version 2, 31 Aug 09)					
Information Verified by Lead Assessor:					
Revised PDD, Version 2, dated 31 <sup>st</sup> Aug 09					
Reasoning for not Acceptance or Acceptance and Close Out:				Date: 02/10/2009 Reopen: 21/11/2012	
The revised PDD now includes the aspects of Sustainable Development from the project. Further, it is also endorsed by HCA received from the host Party towards the project activity. Accepted					
The project description does not indicate that whether WTGS of other project are also in the located in the same region and how the metering or apportioning of the electricity generated has been taken care for the project activity under section A.2.					
Thus, CAR 04 is open.					
Project Participant Response:				Date: 28/11/12	
This project is the first wind power project in Sri Lanka. The energy generated by the project is to be supplied to the sole purchaser of electricity in the country, the Ceylon Electricity Board. The metering of the generation will take place at the panel room of the project, where all eight WTGs will be connected. The metering of the project is done by the CEB, and at the commissioning of the project, the officials from the CEB will connect the meters for the metering to be done as described in Section B7.2.					
Documentation Provided by Project Participant:					
Revised PDD version 10 dated 28/11/2012					
Information Verified by Lead Assessor:					
Revised PDD version 10 dated 28/11/2012 is checked for the appropriateness of the response against query raised.					
Reasoning for not Acceptance or Acceptance and Close Out:				Date: 28/11/2012	
PP has included project description and metering process under section A.2. This is found satisfactory and hence it is accepted.					
Thus, CAR 04 is closed out					
Acceptance and Close out by Lead Assessor:				Date: 28/11/2012	

Date:	16/08/2009	Raised by:	Assessment Team		
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Type:	CAR	Number:	05	Reference:	A.4/AU4
Lead Assessor Comment:				Date: 16/08/2009	
The geographical coordinates (in decimal points) of all the proposed 8 wind turbines are not included in section A.4.1.4.					
Project Participant Response:				Date: 24/08/2009	
Coordinates of the proposed turbine locations have been identified since the web-hosted version of the PDD was submitted. Figure 1 has been revised by removing coordinates of the site boundary and including the coordinates of the identified turbine locations.					
Documentation Provided by Project Participant:					
Revised PDD in tracking mode. File name: PDD for Mampuri Wind Power Project (Version 2, 31 Aug 09)					
Information Verified by Lead Assessor:					
Revised PDD, Version 2, dated 31 <sup>st</sup> August 2009					
Reasoning for not Acceptance or Acceptance and Close Out:				Date: 02/10/2009	
				Reopen: 18/08/2012	
<p>Geographical Location verified by the following weblinks</p> <p><a href="http://www.gorissen.info/Pierre/maps/googleMapLocation.php?lat=8.010200&amp;lon=79.723300">http://www.gorissen.info/Pierre/maps/googleMapLocation.php?lat=8.010200&amp;lon=79.723300</a></p> <p><a href="http://www.gorissen.info/Pierre/maps/googleMapLocation.php?lat=8.007300&amp;lon=79.724400">http://www.gorissen.info/Pierre/maps/googleMapLocation.php?lat=8.007300&amp;lon=79.724400</a></p> <p><a href="http://www.gorissen.info/Pierre/maps/googleMapLocation.php?lat=8.002400&amp;lon=79.726000">http://www.gorissen.info/Pierre/maps/googleMapLocation.php?lat=8.002400&amp;lon=79.726000</a></p> <p><a href="http://www.gorissen.info/Pierre/maps/googleMapLocation.php?lat=7.992600&amp;lon=79.727300">http://www.gorissen.info/Pierre/maps/googleMapLocation.php?lat=7.992600&amp;lon=79.727300</a></p> <p><a href="http://www.gorissen.info/Pierre/maps/googleMapLocation.php?lat=7.989700&amp;lon=79.728700">http://www.gorissen.info/Pierre/maps/googleMapLocation.php?lat=7.989700&amp;lon=79.728700</a></p> <p><a href="http://www.gorissen.info/Pierre/maps/googleMapLocation.php?lat=7.986800&amp;lon=79.729200">http://www.gorissen.info/Pierre/maps/googleMapLocation.php?lat=7.986800&amp;lon=79.729200</a></p> <p><a href="http://www.gorissen.info/Pierre/maps/googleMapLocation.php?lat=7.983200&amp;lon=79.730200">http://www.gorissen.info/Pierre/maps/googleMapLocation.php?lat=7.983200&amp;lon=79.730200</a></p> <p><a href="http://www.gorissen.info/Pierre/maps/googleMapLocation.php?lat=7.979800&amp;lon=79.731100">http://www.gorissen.info/Pierre/maps/googleMapLocation.php?lat=7.979800&amp;lon=79.731100</a></p> <p>and found to be correct.</p> <p>Please clarify why the Latitude and Longitude are not mentioned in DD,MM,SS format in PDD.</p> <p>Thus, the CAR 05 open.</p>					
Project Participant Response:				Date: 29/08/12	
The Latitude and Longitude have been mentioned in the DD MM SS format in the PDD					
Documentation Provided by Project Participant:					
PDD version 7 dated 12/03/2012.					
Information Verified by Lead Assessor:					
Latitude and Longitude are checked for appropriateness of the DD MM SS format in revised PDD version 7 dated 12/03/2012.					
Reasoning for not Acceptance or Acceptance and Close Out:					
Latitude and longitude under section A.4.1.4 of the revised PDD are now represented in DD MM SS format and hence it is accepted.					
Thus, CAR 05 is closed out					
Acceptance and Close out by Lead Assessor:				Date: 31/08/2012	



Date:	16/08/2009		Raised by:	Assessment Team	
Type:	CL	Number:	06	Reference:	A.4.3/AU4
Lead Assessor Comment:				<b>Date:</b> 16/08/2009	
Kindly provide the documentary evidences to establish the project participants possess the ownership/licenses to implement the project.					
Project Participant Response:				<b>Date:</b> 31/08/2009	
<p><u>Resource allocation</u>: Permission to use the wind resource is provided by the Energy Permit under the Sri Lanka Sustainable Energy Authority Act, issued by Sri Lanka Sustainable Energy Authority (Issued: dated 5<sup>th</sup> December 2008)</p> <p><u>Generation License</u>: Permission to generate electricity is provided by the Generation License under the Electricity Act, issued by the Ministry of Power and Energy (Issued: dated 17<sup>th</sup> December 2008)</p> <p><u>Sale of Electricity</u>: The Power Purchase Agreement specifies the conditions and prices for the sale of electricity to Ceylon Electricity Board (executed: dated 16<sup>th</sup> December 2008)</p> <p><u>Permit under Coast Conservation Act</u>: The Permit for a Development Activity under the Coast Conservation Act issued by the Coast Conservation Department (Issued: dated 2<sup>nd</sup> October 2008)</p> <p><u>Environmental Approval</u>: The Certificate of Site Clearance (leading to the Environmental License under the North Western Provincial Environmental Statute No 12 of 1990, once the project reaches commercial operation) issued by the Provincial Environmental Authority (Issued: dated 13<sup>th</sup> October 2008)</p> <p><u>Ownership to Land</u>: Lease agreements covering three wind turbine locations (WTG3, 5 and 6) have been executed, and an outright purchase deed for one location (WTG4) has been executed. Lease agreements to sites WT1-2-7-8 have been approved and awaiting the signature of HE the President. These will be provided as soon as they are available.</p>					
Documentation Provided by Project Participant:					
<p>The following soft copies are attached:</p> <p>CL06-1 Energy Permit</p> <p>CL06-2 Generation License</p> <p>CL06-3 Power Purchase Agreement</p> <p>CL06-4 Permit under the Coast Conservation Act</p> <p>CL06-5 Site Clearance under the Environment Statute</p> <p>CL06-6 Ownership Documents WTG 3-4-5-6</p>					
Information Verified by Lead Assessor:					
<p>The following soft copies are verified :</p> <p>CL06-1 Energy Permit</p> <p>CL06-2 Generation License</p> <p>CL06-3 Power Purchase Agreement</p> <p>CL06-4 Permit under the Coast Conservation Act</p> <p>CL06-5 Site Clearance under the Environment Statute</p> <p>CL06-6 Ownership Documents WTG 3-4-5-6</p>					
Reasoning for not Acceptance or Acceptance and Close Out:					

The supporting documents provided by the PP states that owner of "Mampuri Wind Power Project" is Senok Wind Power (Private) Limited.

However, in the Site Clearance under the Environmental Statute (Doc No CL06-5) shows the PP as Senok Trade Combine Limited PP needs to clarify the same.

PP also needs to provide the Ownership Documents for remaining WTGs.

The PPA provided is a soft copy. Please provide the PPA with signature of the authorized persons. PP also needs to clarify, why the maximum power capacity of the project is mentioned as 10kW.

Thus the CL 06 is still open.

Project Participant Response:

**Date:** 23/11/2009

Senok Trade Combine is the holding company of Senok Wind Power (Private) Limited. It is the usual practice in the formative stages in a project, for the holding company to apply for approvals, permits and certificates, and they will be later assigned to the special purpose project company. Meanwhile the site clearance certificate for the Mampuri Wind Power Project lapsed on 12<sup>th</sup> Oct 2009, and the PP applied for an extension and has obtained the same. This extension is issued in the correct name of the company Senok Wind Power (Private) Limited

The updated status of the Ownership Documents is attached. In summary, ownership of four Wind Turbine Generator (WTG) locations (3,4,5,6) has been fully cleared, while the other four WTG locations have been cleared for "possession" as given in the attached documents. Two final lease agreements are still pending, but approval for possession has been issued for this land as well. Thus, the project participant is in legal possession of all the WTG locations.

(a) Please see attached PPA softcopy, in which page 19 is the signature page, which is an image of the original signature page. A hardcopy of the same PPA can be provided if so requested. (b) Sri Lanka regulations for small power developers limit the capacity to 10 MW. Please see the web links stated below. The PP will follow the standardised PPA and the standardised tariffs by limiting the project capacity to 10 MW. There is no mechanism established by the Government, Sri Lanka Sustainable Energy Authority or the off-taker Ceylon Electricity Board to build renewable energy power plants above 10 MW by the private sector.

Documentation Provided by Project Participant:

Extension for the Site Clearance Certificate by North Western Provincial Environmental Authority: Filename: CL06x-1: Site Clearance under the Environmental Statute Extension dated 22 Oct 2009

CL06x-2 Update on the Status of Land Approvals

CL06x-3a Power purchase agreement inclusive of signature page. For the 10 MW limitation on Sri Lanka regulations for small power development, please see item 2 of

[http://www.energy.gov.lk/pdf/explanatory\\_note\\_march\\_2008.pdf](http://www.energy.gov.lk/pdf/explanatory_note_march_2008.pdf) on which the Mampuri Wind Power Project PPA is based.

For more information on the limitation of capacity to 10 MW, please see,

[http://www.energy.gov.lk/news/news\\_project\\_approval.php](http://www.energy.gov.lk/news/news_project_approval.php)

Also see the 10 MW capacity limit stated in the Energy Permit attached.

File name: CL06x-3b Energy Permit

Also please see the listing of the Permit Issued to the project in <http://www.energy.gov.lk/pdf/wind.xls>

Information Verified by Lead Assessor:

CL06x-1: Site Clearance under the Environmental Statute Extension dated 22 Oct 2009	
CL06x-2 Update on the Status of Land Approvals	
CL06x-3a Power purchase agreement inclusive of signature page. <a href="http://www.energy.gov.lk/pdf/explanatory_note_march_2008.pdf">http://www.energy.gov.lk/pdf/explanatory_note_march_2008.pdf</a>	
CL06x-3b Energy Permit <a href="http://www.energy.gov.lk/sub_pgs/develop_permits_sample.html">http://www.energy.gov.lk/sub_pgs/develop_permits_sample.html</a>	
Reasoning for not Acceptance or Acceptance and Close Out:	
The above information and supporting documents have been verified. However, the "Maximum Power Capacity 10 kW" (kindly refer the point 3 above, which is not yet attended/responded) as mentioned in the Power Purchase Agreement provided earlier by PP is still not clear. Thus, CL 06 is still open.	
Project Participant Response:	<b>Date:</b> 15/02/2010
The statement in the PPA is in error, where "kW" has been written in place of "MW". Upon examination, it was found that this has been subsequently corrected and initialled by the parties. All the supporting information previous provided too, confirms that this is a genuine error in the softcopy provided by CEB and submitted for validation.	
Documentation Provided by Project Participant:	
Initialled page 3 of SPPA: file: CL06y Page 3 of Standardised Power Purchase Agreement (initialled)	
Information Verified by Lead Assessor:	
4 CL06y Standardised Power Purchase Agreement Page 2 (initialled)	
Reasoning for not Acceptance or Acceptance and Close Out:	<b>Date:</b> 20/02/2010
The page 2 of Standardised Power Purchase Agreement Page 2 (initialled) has been verified. PPs response is satisfactory and supported by the documentary evidence. Thus CL 06 is closed out.	
Acceptance and Close out by Lead Assessor:	<b>Date:</b> 20/02/2010

Date:	16/08/2009	Raised by:	Assessment Team		
Type:	CL	Number:	07	Reference:	A.4.5/AU4
Lead Assessor Comment:				<b>Date:</b> 16/08/2009	
Kindly provide the project implementation schedule.					
Please provide further information on the rated specification of wind mill in section A.4.2 of PDD.					
Project Participant Response:				<b>Date:</b> 31/08/2009	
Updated project implementation schedule is provided herewith.					
Rated specifications of the wind turbine generators have now been included in the A.4.2 of PDD version 2.					
Documentation Provided by Project Participant:					
Project implementation schedule: soft copy attached, file name: CL07- Project Implementation Schedule					
Revised PDD in tracking mode. File name: PDD for Mampuri Wind Power Project (Version 2, 31 Aug 09)					
Information Verified by Lead Assessor:					

<p>The information was verified in the revised PDD and the supporting documents provided. The following documents have been verified</p> <p>Revised PDD, Version 2, 31<sup>st</sup> August</p> <p>CL07 - Project Implementation Schedule</p>	
Reasoning for not Acceptance or Acceptance and Close Out:	
<p>The revised PDD now includes the Rated Specifications of WTG S64/1250. Please provide the source of incorporated specification to confirm the change.</p> <p>The Tentative Implementation Schedule shows that the commissioning of the project will be on December, 2009. Thus according to the condition of Site Clearance Certificate (Doc CL06 -5 Clearance under the Environmental Statute) from Provincial Environmental Authority needs re-application (Site Clearance, Conditions 1.1) for Site Clearance. Please provide the status of the same.</p> <p>Thus the CL07 is still open.</p>	
Project Participant Response:	<b>Date:</b> 23/11/2009
<p>The sources of information are attached. Kindly note that in transferring the information from the original source to the PDD, three errors have occurred owing to mistakenly reading the information for model S66 in place of S64. Revised specifications are attached in the tracking mode, showing the revisions to three data items.</p> <p>An extension for the Site Clearance, which expired on 12<sup>th</sup> Oct 2009 was requested by the PP, and has been granted.</p>	
Documentation Provided by Project Participant:	
<p>See attachment: CL07x-1a Technical Specifications of Megawatt Series Machines (brochure)</p> <p>See attachment: CL07x-1b Suzlon S64-1250 main specifications &amp; power curve document</p> <p>PDD for Mampuri Wind Power Project (Version 3, 23 Nov 09)</p> <p>CL06x-1: Site Clearance under the Environmental Statute Extension dated 22 Oct 2009</p>	
Information Verified by Lead Assessor:	
<p>The information was verified in the revised PDD and the supporting documents provided. The following documents have been verified</p> <p>CL07x-1a Technical Specifications of Megawatt Series Machines (brochure)</p> <p>CL07x-1b Suzlon S64-1250 main specifications &amp; power curve document</p> <p>PDD for Mampuri Wind Power Project (Version 3, 23 Nov 09)</p> <p>CL06x-1: Site Clearance under the Environmental Statute Extension dated 22 Oct 2009</p>	
Reasoning for not Acceptance or Acceptance and Close Out:	<b>Date:</b> 24/12/2009
<p>The above documents and information have been verified. The responses to issues are found to be satisfactory.</p> <p>Thus, CL07 is closed out.</p>	
Acceptance and Close out by Lead Assessor:	<b>Date:</b> 24/12/2009

Date:	16/08/2009	Raised by:	Assessment Team		
Type:	CAR	Number:	08	Reference:	A.5/AU4
Lead Assessor Comment:			<b>Date:</b> 16/08/2009		
The criteria for debundling are not appropriately defined. Please update the basis of debundling in the PDD and confirm if the project is meeting these criteria or not?					
Project Participant Response:			<b>Date:</b> 31/08/2009		
The criteria was re-defined based on the guidance provided by EB47 Annex 32.					
Documentation Provided by Project Participant:					
PDD for Mampuri Wind Power Project (Version 2, 31 Aug 09)					
Information Verified by Lead Assessor:					
Revised PDD version 2, dated 31 <sup>st</sup> August.					
Reasoning for not Acceptance or Acceptance and Close Out:					
The revised PDD has been verified. Project Participant needs to clearly list all the criteria (as per the Guidelines on assessment of de-bundling for SSC project activities, Annex - 13, EB 54) and provide response and justification to assess if the project activity is a debundled component of a large scale project activity.					
Thus CAR 08 is still open.					
Project Participant Response:			<b>Date:</b> 23/11/2009		
Annex 32, EB47 criteria has been has been listed and tabulated, and the response has been provided. See PDD version 3, 23 Nov 2009.					
Documentation Provided by Project Participant:					
PDD for Mampuri Wind Power Project (Version 3, 23 Nov 09)					
Information Verified by Lead Assessor:					
Revised PDD version 3, dated 23 <sup>rd</sup> November 2009.					
Reasoning for not Acceptance or Acceptance and Close Out:			<b>Date:</b> 24/12/2009		
The explanation of the revised PDD is now complete and as per the Guidelines on assessment of de-bundling for SSC project activities, Annex 13, EB 54 .					
Thus, CAR#08 is closed out.					
Acceptance and Close out by Lead Assessor:			<b>Date:</b> 24/12/2009		

Date:	16/08/2009	Raised by:	Assessment Team		
Type:	CAR	Number:	09	Reference:	B.2/AU4
Lead Assessor Comment:			<b>Date:</b> 16/08/2009		
The project boundary is not clear in the description in section B.3 of PDD. A schematic layout is requested to provide the overall boundary indicating the windmills, energy conversion and dispatch to grid.					
The identification of electricity system and grid emission factor is inappropriately described in section B.6.3. in place of B.4/B.6.1.					
Project Participant Response:			<b>Date:</b> 31/08/2009		

A schematic block diagram has been added to section B.3 in PDD Version 2	
Grid emission factor calculation methodological choices have been moved to B.6.1. The detailed calculations have been moved to Annex 3.	
Documentation Provided by Project Participant:	
PDD for Mampuri Wind Power Project (Version 2, 31 Aug 09)	
Information Verified by Lead Assessor:	
1. Revised PDD, Version 2, 31/08/2009	
Reasoning for not Acceptance or Acceptance and Close Out:	
The revised PDD has been verified. The B.3 section of PDD now includes the Schematic Diagram of the project boundary.  Revised PDD also includes the necessary changes as per the PDD template and guidance requirement.  Thus, CAR 09 is closed out.	
Acceptance and Close out by Lead Assessor:	<b>Date:</b> 24/12/2009

Date:	16/08/2009	Raised by:	Assessment Team		
Type:	CL	Number:	10	Reference:	B.3/AU4
Lead Assessor Comment:				Date: 16/08/2009	
<p>Please substantiate with documentary evidences</p> <p>Table 1 and input values indicating the types of power plant in Sri Lankan grid</p> <p>Table 2 and input values indicating the share of electricity by source</p> <p>The these figures are the latest available at the time of webhosting of PDD</p> <p>The SPP Development Program</p> <p>Future electricity generation in Sri Lanka will be dominated by coal based power plants</p> <p>Table 3 and input values for Sri Lanka’s long term generation expansion plan 2005, and comment if this is the latest one available?</p> <p>The policy initiatives as mentioned in Table 4 and on page 12 of webhosted PDD.</p> <p>The development of Grid Emission Factor and sources of input values</p>					
Project Participant Response:				Date: 31/08/2009	

Documentary evidence attached. Minor error in table 1 corrected. For data energy to national grid, see extracts from Sales and Generation Data Book, CEB, 2007. Generation figure for Private Hydro Small (page 57) has been divided into hydro and biomass/solar, using data in page 64.

For CEB hydro and thermal power plant capacity, see extracts from Long-term Generation Expansion Plan, CEB, 2005. Installed capacity data in Sales and Generation Data Book (see above) were not used in Table 1, because there were certain discrepancies, while the Long-term Generation Expansion Plan gives more accurate information on the actual available capacity. Capacity data for small hydro was taken from the Sales and Generation Data Book page 57, but split between small hydro and biomass/solar, using data in page 56.

Table 2 follows direct from Table 1, by summarising the energy input from each source. The spreadsheet used to develop Table 1 and 2 is attached

CEB Sales and Generation Data Book is published in the 4<sup>th</sup> quarter of the subsequent year. Therefore, at the time of web hosting in May 2009, the latest available was the Data Book for 2007.

CEB Long-term Generation Plan is not regularly published. Until year 2005, it was usually published in December of each year, but no publication was released in 2006, 2007 and 2008. Therefore at the time of web hosting, the latest available was the December 2005 version.

The SPP development program as applicable since 2007 is described in the website of the Sri Lanka Sustainable Energy Authority. The program between 1996 and 2007, and its role in the post 2007 program is described in the Ceylon Electricity Board web site. Web-links listed below the documentation section.

Table 3 of the PDD provides line-up of coal-fired power plants to be built. See further evidence attached, about the future capacity and energy balance extracted from the Long-term Generation Plan 2005. For example, the energy balance (attached) shows that the energy share of coal-fired power generation will be 0% in 2010, 11,681 GWh (66.1%) in 2015 and 19,945 GWh (77.7%) in 2020..

Table 3 is directly reproduced from the CEB Long-term Generation Plan 2005, page A7-3.

Table 4 carries data directly from Energy Balance 2005. An error in year 2020 data was corrected in PDD version 2. Policy initiatives are stated in the national energy policy of Sri Lanka (attached, see sections 3.2, 4.3 and 4.4.)

Please see the attachment to these findings, where the relevant tables of Annex 3 of PDD Version 2 have been reproduced and the data sources for emissions factor calculations have been explained.

Documentation Provided by Project Participant:



Files attached

CL10-a1 CEB Data Book 2007 cover page  
CL10-a2 CEB Data Book 2007 page 56  
CL10-a3 CEB Data Book 2007 page 57  
CL10-a4 CEB Data Book 2007 page 64  
CL10-a5 CEB Long-term Generation Plan 2005 cover page  
CL10-a6 CEB Long-term Generation Plan 2005 page 2-3  
CL10-a7 CEB Long-term Generation Plan 2005 page 2-9

File attached

CL10-b Tables 1 and 2

File attached: None

SPP development program since October 2007:

see [http://www.energy.gov.lk/news/news\\_project\\_approval.php#5](http://www.energy.gov.lk/news/news_project_approval.php#5)

SPP development program between 1996 and September 2007, and CEB's role in the post 2007 program is described in [www.ceb.lk](http://www.ceb.lk) see under Energy Purchases

The status and list of power plants developed under the SPP program as of 31<sup>st</sup> December 2007 is available in the Data Book. See file: CL10-h2 Data on Generation and Fuel Use 2005-7, look under 2007 file set, small power producer generation

Files:

CL10-e1 CEB Long-term Generation Plan 2005 page A7-3 (base case plan)  
CL10-e2 CEB Long-term Generation Plan 2005 page A7-9 (capacity balance)  
CL10-e3 CEB Long-term Generation Plan 2005 page A7-10 (energy balance)  
See file CL10-e1 CEB Long-term Generation Plan page A7-3 (base case plan)  
See CL10-e3 CEB Long-term Generation Plan 2005 (energy balance).

Official publication of the Energy Policy is attached (see section 4.4) and text version is also available on the web. [www.energy.gov.lk](http://www.energy.gov.lk)

File: CL10-g National Energy Policy and Strategies

Please see the attachment to these findings

The relevant pages of CEB data book for year 2003 to year 2007 has been provided in CD due to large size.

Information Verified by Lead Assessor:

<p>The following documents and supporting sources are verified:</p> <p>CL10-a1 CEB Data Book 2007 cover page</p> <p>CL10-a2 CEB Data Book 2007 page 56</p> <p>CL10-a3 CEB Data Book 2007 page 57</p> <p>CL10-a4 CEB Data Book 2007 page 64</p> <p>CL10-a5 CEB Long-term Generation Plan 2005 cover page</p> <p>CL10-a6 CEB Long-term Generation Plan 2005 page 2-3</p> <p>CL10-a7 CEB Long-term Generation Plan 2005 page 2-9</p> <p>For SPP development program <a href="http://www.energy.gov.lk/news/news_project_approval.php#5">http://www.energy.gov.lk/news/news_project_approval.php#5</a></p> <p>For SPP development program <a href="http://www.ceb.lk/">http://www.ceb.lk/</a></p> <p>CL10-h2 Power Plant Commissioning Dates</p> <p>CL10-e1 CEB Long-term Generation Plan 2005 page A7-3 (base case plan)</p> <p>CL10-e2 CEB Long-term Generation Plan 2005 page A7-9 (capacity balance)</p> <p>CL10-e3 CEB Long-term Generation Plan 2005 page A7-10 (energy balance)</p> <p>CL10-e1 CEB Long-term Generation Plan page A7-3 (base case plan)</p> <p>For energy policy <a href="http://www.energy.gov.lk">www.energy.gov.lk</a></p> <p>CL10-g National Energy Policy and Strategies</p> <p>The CEB sales and generation book for year 2003 to year 2007 as used in emission factor calculation.</p> <p>Revised PDD, Version 2, 31<sup>st</sup> August 2009</p> <p>All the above supporting documents and sources have been verified.</p>	
Reasoning for not Acceptance or Acceptance and Close Out:	<p><b>Date:</b> 27/02/2012</p> <p>Reopen: 18/08/2012</p>

All the documents and sources have been verified along with the revised PDD and the PP's response to all the queries found to be satisfactory.

The emission factor calculation is in line latest version of tool to calculate emission factor version 2.2.1. there is slight change in emission factor in final PDD as compared with web hosted PDD (i.e from 0.6792 tCO<sub>2</sub>/MWh to 0.6791 tCO<sub>2</sub>/MWh) due to decimal places, which leads to minor change is estimated emission reductions.

The description of paragraph 10 of AMS I D version 17 as mentioned in the PDD is not inline to the applied methodology AMS I D version 17. Please clarify.

Please clarify the appropriateness of the notation used for net electricity supplied to grid by the project activity in line to methodology (i.e. *EGBL,y e*).

Please clarify the appropriateness of the steps mentioned as per the latest tool of tool to demonstration and assessment of additionality, version 6.

The formula for EF grid, OM,simple,y is not inline to the tool to calculate emission factor. Please clarify. Also, the steps are not followed properly in the PDD.

The PDD does not describe how the Simple OM has been arrived along with the OM value under section B.6.1. Please clarify.

PDD mentioned that "The above options were examined and the most appropriate option (b) was chosen as the five most recently added power plant could only produce 18% of total grid generation.", which is confusing, because option (a) is to be considered for five power units that have been built most recently and option (b) is to be considered for power plant that comprise 20%, however, the discussion on PDD is confusing. Please clarify.

The PDD does not describe how the Build Margin BM has been arrived along with the BM value. Please clarify.

PDD does not mentioned the calculation approaches and the combined margin emission factor, (CM) value. Please clarify

Thus, CL 10 is open.

Project Participant Response:

Date:

Description of para 10 has been changed to be in line with methodology.	
Notation for electricity supplied has been changed to be in line with methodology	
Updated to reflect the latest version of the tool to demonstrate additionality.	
The PDD has been updated, using the info provided in "2 Appendix 1 Calculation of Baseline Emission Factors (21 Feb 2012)" to show the methodology for calculation of the OM.	
The PDD was updated to reflect that the 5 most recent power plants have been selected, according to the guidelines.	
The PDD has been updated, using the info provided in "2 Appendix 1 Calculation of Baseline Emission Factors (21 Feb 2012)" to show the methodology for calculation of the BM.	
The PDD has been updated, using the info provided in "2 Appendix 1 Calculation of Baseline Emission Factors (21 Feb 2012)" to show the methodology for calculation of the CM.	
Documentation Provided by Project Participant:	
PDD version 7 dated 12/03/2012.	
Information Verified by Lead Assessor:	
Section B.4 of the revised PDD version 7 dated 12/03/2012 was checked for appropriateness of the response	
Reasoning for not Acceptance or Acceptance and Close Out:	
<p>Description of para 10 has been changed in line with the applicable methodology and it is accepted.</p> <p>Though the notation of <math>EG_{BLy}</math> is changed under section B.4 of the revised PDD, notation of monitored parameter under section B.7 is still not in line with the applicable methodology AMS I.D. version 17, please clarify.</p> <p>The revised PDD is found to be updated with latest version of the tool to demonstrate additionality, however reference to tool are still refereeing to previous version of the tool. Further step titles are still not in line with the latest version 6.0.0 of the additionality tool, please clarify</p> <p>The calculation of baseline emission factors 21 Feb 2012) has been checked and calculation approach was found acceptable. However emission reduction table is not in line with the start date of crediting period mentioned under section C.2.2.1 of the revised PDD, please clarify</p> <p>The 5 most recent power plants are now included in the PDD, however reference to the table is not provided in the revised PDD, please clarify.</p> <p>Calculation of Build margin is now included in the revised PDD and emission reduction calculation sheet and it is acceptable.</p> <p>Calculation approach of combined margin is now included in the revised PDD and emission reduction calculation sheet and it is acceptable</p>	
Project Participant Response:	<b>Date:</b> 21/09/2012

Notations have been changed accordingly	
PDD has been updated to reflect latest additionality too 6.0.0	
C.2.2.1. has been amended and is now in line with the emissions reduction table	
Source: CEB Sales and Generation data book, 2007, has been given as the reference in the PDD and has been mentioned on the Excel sheet as well.	
Documentation Provided by Project Participant:	
Revised PDD version 08 dated 21/09/2012	
Information Verified by Lead Assessor:	
Revised PDD version 08 dated 21/09/2012 was checked for appropriateness of the response.	
Reasoning for not Acceptance or Acceptance and Close Out:	<b>Date:</b> 28/09/2012
Notations for the parameters under section B.7. are changed in line with the applicable methodology AMS I.D. version 17. This is found satisfactory and hence accepted.	
PDD has been updated to reflect additionality too 6.0.0, however latest additionality tool version 06.1.0 is available in EB69 Annex 20. Please update PDD in line with the EB69 Annex 20. Open.	
Response to this query is addressed under section C.2.2.1 in the PDD this is found satisfactory and hence it is acceptable.	
Reference for the 5 most recent power plants is now mentioned as "Source: CEB Sales and Generation data book, 2007" this is found satisfactory and hence accepted.	
Project Participant Response:	<b>Date:</b> 03/09/2012
PDD has been updated to reflect additionality tool 6.1.0,,in line with the EB69 Annex 20.	
Documentation Provided by Project Participant:	
Revised PDD version 9 dated 30/09/2012	
Information Verified by Lead Assessor:	
Revised PDD version 9 dated 30/09/2012 is checked for the appropriateness of the response	
Reasoning for not Acceptance or Acceptance and Close Out:	<b>Date:</b> 15/10/2012
Latest additionality tool version 06.1.0 is now updated throughout the PDD and hence it is accepted.	
Thus, CL 10 is closed out.	
Acceptance and Close out by Lead Assessor:	15/10/2012

Date:	16/08/2009	Raised by:	Assessment Team		
Type:	CL	Number:	11	Reference:	AU4
Lead Assessor Comment:				Date: 16/08/2009	
<p>Please clarify/substantiate</p> <p>The alternatives identified to the project activity as mini hydro and biomass. In the absence of the project activity the PP would have invested in these alternatives? How these two alternatives are comparable to wind project activity?</p> <p>If these are credible alternative baseline alternatives how they are eliminated from further discussion</p> <p>How the benchmark analysis method is appropriate in that sense?</p> <p>As part of investment barrier, how the identified barriers are related with access to money? Please substantiate with documentary evidence, if relevant.</p> <p>The technological barriers illustrated are apparently indicating that the location where these mills are proposed to be installed is quite conducive, refer CUF considered 32%</p> <p>The identified limited technical knowledge and facilities available in Sri Lanka for wind mill operation, particularly when the entire operation is awarded to equipment supplier for seven years.</p> <p>The timing of crane purchase and crane and special transport requirements</p> <p>Considering the project activity as first of its kind, when there is already 3MW wind mills are already installed by CEB</p> <p>The organizational barriers with documentary evidence</p> <p>The justification and purpose of including table titled 'Analysis of the impacts of barriers'</p> <p>The common practice is not demonstrated as per the tool</p>					
Project Participant Response:				Date: 31/08/2009	
<p>Credible alternatives have been revised in PDD version 2.</p> <p>Not applicable, following from above</p> <p>The benchmark analysis is appropriate when the project participant has no control over the baseline and the option is whether to invest or not to invest.</p> <p>The identified investment barrier has resulted in the lenders limiting the project debt to LKR 1100 m. Please see the "Common Indicative Terms" issued by lenders to the project activity available at the time of the start date of the project. The benchmark debt:equity ratio assumed by SEA in calculating the standardised tariffs is 60:40, which the lenders to this project activity have declined to provide.</p> <p>There is only short-term ground-based information on the wind regime. While the calculated value of the plant factor is 31.55%, there is no prior experience at all about the wind potential at site. Hence, although the calculated value is apparently high, the technological risk of significant variations of capacity factor from the calculated value, remains.</p> <p>The identified limited technical knowledge caused the need to outsource the entire operation and maintenance work to India, and SWPL being the only wind power plant in Sri Lanka, caused such operation and maintenance work to be higher than</p> <p>if it was done by Sri Lankans, or</p> <p>if the outsourced operator had a number of clients in Sri Lanka other than SWPL.</p> <p>The crane will be purchased and deployed on site immediately before the erection contractor is mobilised. According to the revised project implementation schedule, the crane will arrive in the 4<sup>th</sup> week of September</p>					

2009. The transportation and of crane and WTG equipment will be done in the first two weeks of October 2009.

CEB wind power plant was built as a pilot project with a grant from the World Bank and the Global Environment Facility, and hence it is not a commercial wind power plant. No risks were borne by CEB. Please see the account of the Hambantota Wind Power Plant attached. The lack of commercial orientation of the 3 MW project is indicated by its annual energy output, limited to 2.4, 2.3 and 2.3 GWh in 2005, 6 and 7, respectively, recording only an annual capacity factor in the range 8.8% to 9.1%. The proposed project activity is the first commercial wind power plant in Sri Lanka, bearing several risks and barriers as explained in the PDD.

The organisational barriers have been deleted in version 2 of the PDD.

The table has been deleted in Version 2 of the PDD.

Common practice analysis has been included in PDD version 2.

Documentation Provided by Project Participant:

None

None

None

File names:

Lender commitments at the time of project start: CL11-d1 Common Indicative Terms

Benchmark debt: equity rates assumed by the Govt in tariff calculations: CL11-d2 Explanatory Notes to Tariffs 2008

None

None

For the revised Implementation Schedule, please refer CL07 Project Implementation Schedule

File: CL11h Hambantota 3 MW Pilot Wind Power Plant also see [www.ceb.lk/ept/ncre/index.htm](http://www.ceb.lk/ept/ncre/index.htm)

For annual energy output of the Hambantota Wind Power Plant, please see the attached file

CL10-a3 CEB Databook 2005 Page 57

None

None.

PDD for Mampuri Wind Power Project (Version 2, 31 Aug 09)

Information Verified by Lead Assessor:

The following documents and sources have been verified:

Revised PDD, Version 2, dated 31<sup>st</sup> August 2009

CL 11-d1 Common Indicative Terms

CL11-d2 Explanatory Notes to Tariffs 2008

CL07 Project Implementation Schedule

CL11h Hambantota 3 MW Pilot Wind Power Plant

[www.ceb.lk/ept/ncre/index.htm](http://www.ceb.lk/ept/ncre/index.htm)

CL10-a3 CEB Databook 2005 Page 57

Reasoning for not Acceptance or Acceptance and Close Out:



Revised PDD version 02 dated 31/08/2009 has been verified.

Please discuss the alternatives in sub step 1(a)

Please discuss the alternatives w.r.t mandatory laws and regulations sub step 1(b)

Please determine the appropriate analysis method properly

Please follow the "Tool for the demonstration and assessment of additionality, version 05.2, Annex 10, EB 39" as mentioned in the PDD. From the revised PDD it is observed that the same has not been adhered in section B.5.

Please justify with documentary evidence that "The lenders declined to provide debt at 60:40 ratio considered by SEA while calculating tariff". Please also provide the exact weblink of the document CL11-d2

PP needs to provide the documentary proof that the project is investing in a 13km long transmission line and the CEB has requested PP to do so. It also needs to substantiate the cost of investment in the transmission line with documentary evidence.

Please provide justification with the proper source how the 31.55 % CUF has been worked out.

How the PP can envisage a lower "operation and maintains work" as mentioned in the response had it not been outsourced? Also please clearly demonstrate how it contributes to Technological Barrier.

Clarify how the purchase of a Crane can be a technical barrier for the project?

Please provide documentary evidence to support PP's claim under Sub Step 3b of B.5 that Kerawalapitiya Combined Cycle Power Plant (fuel-oil) 300 MW is paid at negotiated tariff. Also discuss clearly how this is affecting the project less strongly than the proposed project activity?

Please provide the documentary evidences/reference for all the components included in the project costs, basis of benchmark determinations (formulae)

Please further indicate how the requirements of EB41 Annex45 paragraph 16 is demonstrated. Kindly incorporate the sensitivity on all required components as above or justify the exclusion.

Thus CL 11 is open

Project Participant Response:

**Date:** 23/11/2009

1.

(i) The alternatives in sub-step 1a have been discussed. Please see the PDD version 3.

(ii) Alternatives with respect to mandatory laws and regulations have been discussed. Please see the PDD version 3.

(iii) In determining the appropriate analysis method EB39 Annex 10 was strictly followed, and the interpretation was on the following basis:

EB49 Annex 10 Clause	Reference	Assessment	Conclusion
If the CDM project activity and the alternatives identified in Step 1 generate no financial or economic benefits other than CDM related income, then apply the simple cost analysis (Option I). Otherwise, use the investment comparison analysis (Option II) or the benchmark analysis (Option III).	Page 5, last para	The CDM activity and the alternatives would generate revenues other than CDM revenues	Option I is not applicable to this CDM activity. Therefore, Option II or III are relevant
Investment comparison analysis and benchmark analysis: Clause 15, which says "The benchmark approach is therefore suited to circumstances where the baseline does not require investment or is outside the direct control of the project developer, i.e. cases where the choice of the developer is to invest or not to invest."	Annex: Guidance on the Assessment of Investment Analysis: (Version 02)	In this CDM project activity, the baseline (the grid which is the alternative scenario) is outside the direct control of the project developer. The project proponent's choice is whether to invest or not to invest.	Benchmark analysis (Option III) is therefore the most suited for investment analysis for this CDM activity.

2. The "Tool for the demonstration and assessment of additionality, version 05.2, Annex 10, EB 39" was used step by step, including the Annex to Annex 10 (page 12 onwards) and the PDD has been revised accordingly.

3. Please see the "Common Indicative Terms" issued by the lenders. This is a note issued by the lenders during negotiations, which limited the loans to LKR 1,100. The project costs are estimated to be LKR 2,223.77 (see the Appendix 2 to the PDD: Investment Analysis). Therefore, the debt: equity ratio of the project would be 49:51, which is different from the 60:40 rate assumed by SEA in calculating the tariffs payable to wind power projects. Negotiations continued with the lenders, and the debt terms were finalised in August 2009. The offer letter from one of the lenders, the National Development Bank, is attached. This offer clearly states in section 2.2.2, that the project debts would be as follows:

National Development Bank: LKR 250 m  
Commercial Bank of Ceylon: LKR 302.5 m  
Hatton National Bank: LKR 275 m  
DFCC Bank: LKR 275 m  
TOTAL = 250 + 302.5+275+275 = LKR 1102.5 m

Please note that there is a minor deviation in the total project debt (LKR 1100 m stated in the "Common Indicative Terms" available at the "Start Date of the Project: 23 Aug 2008") and subsequent negotiations (LKR 1102.2 m stated in the National Development Bank's offer letter issued on 21 Aug 2009). The impact of this deviation on the investment analysis is extremely small.

Similarly, the total project cost as of the project start date was LKR 2223.77 m, whereas the lenders have assumed the project cost to be LKR 2392.0 m. As the investment analysis uses the lower figure out of the two, no revision was made to the investment analysis.

Similarly, the offer letter states higher interest rates than those available at the project start date. The lower rates have been used in the investment analysis.

The web reference of CL11-d2: Explanatory Notes to Tariffs 2008, please see

[http://www.energy.gov.lk/pdf/explanatory\\_note\\_march\\_2008.pdf](http://www.energy.gov.lk/pdf/explanatory_note_march_2008.pdf)

4. Please see page 10 of the Power Purchase Agreement (attached as CL06x-3 Power Purchase Agreement inclusive of Signature Page). In clause 4.7 it is stated that "CEB shall design and construct the Transmission Line as per CEB technical standards and IEC Standards at the cost and expense of the Seller so as to be available to transmit the electrical energy generated by the Facility as of the Commercial Operation Date". Also see page 31 of the PPA, which states that "Grid Point: Up to this point all developing costs shall be borne by the seller". CEB does not issues a specific request to build the transmission line, but the fact that (a) the PPA is standard (see <http://www.ceb.lk/EPT/NCRE/SPPA%20for%20Wind%20Power.pdf>) and thus gives no choice to the PP but to pay for the line (b) the line length is stated in the PPA, gives the PP no choice but to build the line. Please see page 32 of the PPA, where the single-line diagram is shown, with a 13 km transmission line from the Mampuri Wind Power Project (Plant) to the Grid Point. Subsequently, on 17<sup>th</sup> July 2009, CEB issued a letter (attached) commonly to all developers, that line construction materials can either be purchased from CEB or directly purchased according to CEB standards, which clearly establishes the rule that the transmission line has to be paid for and built by the PP. The PP sent the grid connection proposal to CEB dated 29<sup>th</sup> July 2009 (attached). The proposal contains the segments that will be built by the PP, and the segments that will be paid for by the PP, but built by CEB. Subsequently on 27<sup>th</sup> October 2009, CEB has agreed to the grid connection proposal and instructed the officers North Western Province (letter attached) to provide the cost estimates for segments to be built by CEB. The above documents demonstrate that the project has to build a 13 km transmission line at its own cost.

The annual plant factor of 31.55% was calculated as follows: Please see the technical feasibility report June 2008 (attached), conducted by an independent engineering company. Please see the complete analysis in chapter 8 of the report. The analysis was based on Narakkalliya wind data for year 2000, and expanded with long term wind climate modeling, from which, long term (1973-2005) average wind speeds for the project area were developed. Then, the certified power curve for the selected wind turbine (Suzlon S64, at the specified air density of 1.225 kg/cm<sup>2</sup>) was used to derive the gross energy output (please see section 9.7 of the attached report. The calculated gross energy output was 31.744 GWh/year. (see table 9.3). Thereafter, this amount of energy was corrected by applying four correction factors, as explained in the report. The resultant energy output was expected to be 27.514 GWh/year. After the technical feasibility was completed, there were minor reductions on lengths of the park transmission line. By the project start date, the calculated loss of the park transmission line was 1.5% Vs 2% assumed in the technical feasibility study. Therefore, the energy expectation was readjusted to be  $27.514 \times (1-.015)/(1-.02) = 27.654$  GWh/year. For in-house requirements, the power plant is expected to use about 800 kWh/month each, across two points of electricity imports from the grid, which causes the net electricity sales to be:  $27.654 - 2 \times 900 \times 12 / 1,000,000 = 27.636$  GWh/year, which works out to be a net annual capacity factor =  $27.636 \times 1000 / (10 \times 8760) = 0.3155$  or 31.55%.

If the operation and maintenance work is done by Sri Lankans, the PP expected the costs to be lower, because additional air travel costs and the costs of stationing Indian staff in Sri Lanka would not have to be incurred. However, owing to lack of know how in maintaining this class of wind turbines among Sri Lankan companies or within the PP, this work had to be outsourced. Guidance was taken from EB39 Annex 10 in establishing the technological barrier because "Skilled and/or properly trained labour to operate and maintain the technology is not available in Sri Lanka, which leads to an unacceptably high risk of equipment disrepair and malfunctioning or other underperformance", which clearly establishes that the project is subject to technological barriers.

The non-availability of a crane is a technological barrier and falls within the criteria "Lack of infrastructure for implementation and logistics for maintenance of the technology" to be classified as a technological barrier, as given in EB39 Annex 10. The PP plans to partially overcome this barrier at the implementation of the technology by purchasing a crane, but the issue will remain as a barrier for "logistics for maintenance of the

technology” because there will only be one crane of the required category for the whole of Sri Lanka.

Kerawalapitiya power plant is a government supported and guaranteed power plant, where equity was provided by the Govt or Govt agencies, and debt was guaranteed by the Govt. The holding company is a Govt subsidiary. Please see <http://www.lbo.lk/fullstory.php?nid=1719154716> . When there was a bidding round to build this power plant (see <http://www.ceb.lk/Tender/kerawalapitiya/Pre-Qul%20Short%20list2.pdf> ), the holding company of Kerawalapitiya LTL Limited was not in the shortlist. Therefore, the subsequent development of the Kerawalapitiya power plant was on a negotiated basis. Therefore, the investment barrier would affect the implementation of the Kerawalapitiya power plant project less strongly than it affects the proposed project activity.

Documentary evidence on costs are listed under the “documents provided” section below. Formulae for the calculation of benchmarks is given below. Supporting documents for the benchmarks is given in the “documents provided” section:

#### Benchmark equity IRR

In the absence of published benchmark equity IRR in Sri Lanka, the following formula was used to determine the same:

Benchmark equity IRR = average of published AWPLR for three quarters preceding the project start date + “spread” + 2.0%

AWPLR = Average weighted prime lending rate published by Central Bank of Sri Lanka

Spread = The premium added by commercial banks to the AWPLR, to reflect the profits and risk premium (this is stated in the lenders’ offer letter)

The addition of 2.0% is to reflect the risk premium added by Senok Trade Combine, the parent company of the PP.

#### Bank interest rates

AWDR, AWFDR, AWPLR were obtained from the information published by the Central Bank of Sri Lanka.

#### Exchange Rate:

Over 2000-2007, the annual average exchange rate changed from 75.78 to 110.62, which is equal to a compound growth rate of 5.5% per year. The project start date was at a time when the exchange rate was under extreme pressure, and with the world oil prices reaching their highest ever levels in July 2008, Sri Lanka’s currency was extremely volatile. Therefore, in forecasting the exchange rate from the project start date to the project implementation period over one year, the exchange rate that prevailed on the project start date was escalated by 6.5% (1% higher than the historic rate). Therefore,  $108.17 \times 1.065 = 115.5$ . This exchange rate was used for calculations.

Indication of how the requirements of EB41 Annex45 paragraph 16 is demonstrated:

Clause 1 and 2: General information

<p>Clause 3: The period of assessment has been fixed at 20 years, whereas the crediting period is seven years.</p> <p>Clause 4: Project asset value at the end of 20 years has been taken as zero. This is consistent with the certification by independent parties described in CAR15(2) in this response. The non-consideration of value at the end of 20 years is also consistent with the methodology used by Ceylon Electricity Board/.Sri Lanka Sustainable Energy Authority, in the determination of tariffs. Please see explanatory notes to tariffs 2008.</p> <p>Clause 5: Depreciation has not been included in the investment analysis.</p> <p>Clause 6: Investment values used were as accurate as possible, as of the project start date: 23<sup>rd</sup> Aug 2008</p> <p>Clause 7: Not applicable</p> <p>Clause 8: All information has been provided in a transparent manner, in a spreadsheet. No areas have been blanked-out. All information is fully available for review.</p> <p>Clause 9: Project IRR was not used in this analysis. Hence not applicable.</p> <p>Clause 10: The cash outflow was considered to be the equity component only, for the calculation of equity IRR. This requirement has therefore been fully complied with.</p> <p>Clause 11: Selection of Benchmark IRR has been explained in the PDD, and further in this response, under item 9 above.</p> <p>Clause 12: The project activity is under the small power purchase scheme of Sri Lanka. The resource allocation is done by Sri Lanka Sustainable Energy Authority (please see <a href="http://www.energy.gov.lk">www.energy.gov.lk</a>) and the off-taker is Ceylon Electricity Board. The project participant has applied and has been granted the Energy Permit to the Mampuri Wind Power Project for 20 years. The benchmark developed for the investment analysis (in the absence of a nationally published benchmark) is the most reasonable, and based on published parameters to the best possible extent.</p> <p>Clause 13: Internal company benchmarks were not used.</p> <p>Clause 14: The risk premium applied to derive the benchmark is minimal at 2%.</p> <p>Clause 15: This aspect was explained earlier in this response. Please see item 1(iii) above.</p> <p>Clauses 16 and 17: The sensitivity analyses presented include all perceived variations that can be reasonably expected.</p> <p>Project costs: The full project cost (100%) was subject to a variation of <math>\pm 10\%</math> in full compliance with this clause</p> <p>The exchange rate, interest rates and O&amp;M escalation: These have significant impacts on the project costs/revenues and were changed <math>\pm 10\%</math> in the sensitivity analysis.</p> <p>Parameters excluded:</p> <p>Lending terms (debt: equity ratio): These have been fixed by the lenders, confirmed in the offer letter and will not be subject to any variation. However, the interest rates can vary, causing project interest expenses to change, and the sensitivity to changes in interest rates has been included in the sensitivity analyses.</p> <p>Tariffs: The PPA has been executed, and the tariff is fully defined in LKR terms, and therefore, there cannot be any change in the project income. However, the tariffs have an escalable O&amp;M component, which has been included in the sensitivity analysis.</p> <p>Term of Agreement: The term is fixed at 20 years. Hence no variation is possible.</p> <p>Construction period: This has been fixed at 12 months, which is appropriate. No major changes are expected to the construction period as the site is clear and access to the site requires improvements to roads which are in flat terrain.</p>
Documentation Provided by Project Participant:
<p>1. &amp; 2. PDD for Mampuri Wind Power Project (Version 3, 23 Nov 09)</p> <p>3. CL11x-3: Offer letter from NDB Bank</p>

for CL11-d2: Explanatory Notes to Tariffs 2008, please see

[http://www.energy.gov.lk/pdf/explanatory\\_note\\_march\\_2008.pdf](http://www.energy.gov.lk/pdf/explanatory_note_march_2008.pdf)

Power Purchase Agreement: CL06x-3a Power Purchase Agreement inclusive of Signature Page

4. Letter issued by CEB to all PPs that material can either be purchased from CEB or directly from suppliers:  
CL11x-4a Letter from CEB re Material for Lines 17 July 2009

Grid connection proposal submitted by PP:

CL11x-4b Mampuri Wind Power Project Transmission Line Construction Proposal (29 July 09)

Acceptance of the proposal by CEB:

CL11x-4c Letter of Acceptance of Transmission Proposal CEB 27 Oct 2009

Basis for the capacity factor is explained in: CL11x-5 Technical feasibility Study Final June 2008 (S64)

None

None

None

9.

Interest rates:

Please see the group of files: CL11x-9a Interest Rates published by the Central Bank

This information is also available on [www.cbsl.gov.lk](http://www.cbsl.gov.lk)

Exchange rates:

File name: CL11x-9b Published Exchange Rate on Project Start Date

Note: The project start date 23 Aug 2008 was a Saturday, and the exchange rates shown are for the previous day. This information is also available on [http://www.cbsl.gov.lk/info/cei/er/e\\_1.asp](http://www.cbsl.gov.lk/info/cei/er/e_1.asp)

The exchange rate was 108.17 LKR/USD

File name: CL11x-9c Exchange Rate History

This information is also available on

[http://www.cbsl.gov.lk/pics\\_n\\_docs/10\\_publication/\\_docs/efr/annual\\_report/Ar2007/Ar\\_Data2007\\_E/3\\_Key\\_Econ\\_Ind\\_e.pdf](http://www.cbsl.gov.lk/pics_n_docs/10_publication/_docs/efr/annual_report/Ar2007/Ar_Data2007_E/3_Key_Econ_Ind_e.pdf)

Project Costs

For project cost estimate, please see the File: CL11x-9d Cost Estimate as of March 2008

The equipment price in the above cost estimate was updated to be equal to the price stated in the Agreement. Please see CAR15-01 Turbine Supply Agreement previously provided, re-attached to this response as

CL11x-9e Turbine Supply Agreement

The transmission and interconnection costs were updated with an engineer's estimate. Please see the file:



CL11x-9f Transmission and Interconnection Cost Estimate

Tariffs

For the tariff announcement for small power purchase agreements signed in 2008, please see the file:  
CL11x-9g Published Standardised Tariffs 2008.

10. File name: CL11x-10a Explanatory Note to Tariffs 2008

Information Verified by Lead Assessor:

Revised PDD version 3 dated 23<sup>rd</sup> November, 2009

CL11x-3: Offer letter from NDB Bank

CL11-d2: Explanatory Notes to Tariffs 2008

[http://www.energy.gov.lk/pdf/explanatory\\_note\\_march\\_2008.pdf](http://www.energy.gov.lk/pdf/explanatory_note_march_2008.pdf)

CL06x-3a Power Purchase Agreement inclusive of Signature Page

CL11x-4a Letter from CEB re Material for Lines 17 July 2009

CL11x-4b Mampuri Wind Power Project Transmission Line Construction Proposal (29 July 09)

CL11x-4c Letter of Acceptance of Transmission Proposal CEB 27 Oct 2009

CL11x-5 Technical feasibility Study Final June 2008 (S64)

CL11x-9a Interest Rates published by the Central Bank

[www.cbsl.gov.lk](http://www.cbsl.gov.lk)

CL11x-9b Published Exchange Rate on Project Start Date

[http://www.cbsl.gov.lk/info/cei/er/e\\_1.asp](http://www.cbsl.gov.lk/info/cei/er/e_1.asp)

CL11x-9c Exchange Rate History

[http://www.cbsl.gov.lk/pics\\_n\\_docs/10\\_publication/\\_docs/efr/annual\\_report/Ar2007/Ar\\_Data2007\\_E/3\\_Key\\_Econ\\_Ind\\_e.pdf](http://www.cbsl.gov.lk/pics_n_docs/10_publication/_docs/efr/annual_report/Ar2007/Ar_Data2007_E/3_Key_Econ_Ind_e.pdf)

File: CL11x-9d Cost Estimate as of March 2008

CAR15-01 Turbine Supply Agreement

CL11x-9e Turbine Supply Agreement

CL11x-9f Transmission and Interconnection Cost Estimate

CL11x-9g Published Standardised Tariffs 2008.

CL11x-10a Explanatory Note to Tariffs 2008

Reasoning for not Acceptance or Acceptance and Close Out:



The revised PDD has been reviewed. The revised PDD now describes the alternatives. The debt equity ratio 60:40 considered by CEB while proposing tariff in the SPPA has been proven by the PP with documentary evidence and found to be satisfactory. The justification provided for PLF work out is satisfactory. However,

Please elaborate the applicable legal and regulatory requirements related to the project in sub step 1.b.

PP needs to check and clarify whether the alternatives mentioned are enforced by the govt. or regulations have objectives other than GHG reductions, e.g. to mitigate local air pollution.

PP was aware of the expenditure to be made towards the 13km transmission line during the time of investment decision as the SPPA was already publicly available. Also the cost incurred towards the same has been included in the total project cost considered in the investment analysis. Thus, PP needs to justify how this can be considered under investment barrier as well!

The O&M of the project activity is already outsourced and has been appropriately considered in the investment analysis, then how the same point be considered as a technological barrier?

PP needs to justify that the “Crane” in issue is the only one crane in the whole of Sri Lanka and it should also clarify whether it has not envisaged about the same during the investment decision.

As per EB39, Annex 10, PP doesn’t need to give an analysis under “Step4: Common Practice Analysis” if the project has demonstrated to be “first of its kind” in sub step 3a. As mentioned in the PDD (Pg No 30) that the project is a “first of its kind”, PP needs to justify the same in Sub-step 3a as per the guidance provided on “Note on the barrier *first-of-its-kind*” by thirty fourth meeting report Annex 10.

CL 11 is open.

Project Participant Response:

**Date:** 15/02/2010

The applicable legal and regulatory requirements related to the project have now been elaborated in sub step 1b.

A statement to this effect is included in the revised PDD.

The “Higher transmission investment” has been removed from the list of investment barriers, as the cost of transmission line has been included in the investment analysis.

The “limited technical knowledge available in Sri Lanka” has been removed from the list technological barriers, as the cost of outsourcing O&M has been included in the investment analysis.

As there is no particular authority that would “certify” that the 400 T crane to be purchased for the project is the only such crane, this information is based on SWPL’s own inquiries and knowledge of the lifting equipment industry in Sri Lanka. The crane cost was considered at the time of the investment decision, and therefore, “crane and special transport requirements” item is removed from the list of technological barriers.

The statement that the project is the “first-of-its-kind” has been removed. This gives way to perform the “Step4: Common Practice Analysis”, to deal with the only other wind power plant operational in Sri Lanka, which is (i) not a commercial power plant, and (ii) not a CDM project activity.

Documentation Provided by Project Participant:

File: 1b PDD for Mampuri Wind Power Project (Version 4, 15 Feb 2010)

File: 1b PDD for Mampuri Wind Power Project (Version 4, 15 Feb 2010)

File: 1b PDD for Mampuri Wind Power Project (Version 4, 15 Feb 2010)

File: 1b PDD for Mampuri Wind Power Project (Version 4, 15 Feb 2010)

File: 1b PDD for Mampuri Wind Power Project (Version 4, 15 Feb 2010)

File: 1b PDD for Mampuri Wind Power Project (Version 4, 15 Feb 2010)

Information Verified by Lead Assessor:

Revised PDD, version 04, dated 15/02/2010

Reasoning for not Acceptance or Acceptance and Close Out:	
<p>The revised PDD has been verified. In Sub step 1b, PP has now explained about various laws and regulations with which the alternatives are in consistent with.</p> <p>The technological barrier has been revised and as per the tools used for demonstration and assessment of additionality.</p> <p>Project has undertaken common practice analysis and has provided supporting documents to justify the same.</p> <p>However PP is requested to justify the appropriateness of benchmark selected in line with the “<i>Guidelines on the Assessment of Investment Analysis</i>” EB 51, Annex 58 (Para No 12 to 15)” with appropriate documentary evidence. Please refer also to VVM Version 1.1 Para 111 (a) EB 51, Annex 3.</p> <p>PP is also requested to follow the latest available guideline while providing response.</p> <p>Thus CL 11 is open.</p>	
Project Participant Response:	Date: 12/05/2010
<p>Guidance was taken from the “Guidelines on the Assessment of Investment Analysis” EB 51, Annex 58 (Para No 12 to 15)” and the following changes have been made:</p> <p>The benchmark has been defined as the pre-tax project IRR.</p> <p>Publicly available official data has been used to establish the benchmark.</p> <p>The benchmark project IRR selected is the average of the median of published long-term lending rates of DFCC Bank, over three months ending with August 2008.</p> <p>An additional sensitivity analysis on the variation of annual capacity factor by <math>\pm 10\%</math> has been added.</p> <p>The investment analysis is not sensitive to changes in the annual capacity factor in the range of 28.4% to 34.71%. This is because, the power plant will get a cushion on the capacity factor in the range <math>32\% \pm 15\%</math>. This means, if the annual capacity factor (owing to wind flow variations) turns out to be between 27.2% and 36.8%, this CDM project activity will get the same revenue. This special cushion was offered to the first commercial wind power plants in Sri Lanka, provided the power purchase agreement was signed before 31 December 2008. Please see the announcement of this condition by the Sri Lanka Sustainable Energy Authority: <a href="http://www.energy.gov.lk/pdf/explanatory_note_march_2008.pdf">http://www.energy.gov.lk/pdf/explanatory_note_march_2008.pdf</a></p> <p>This information is also stated in the power purchase agreement, along with the methodology for the adjustment of tariff in case the annual capacity factor varies against the benchmark of 32.0%. Please see pages 27-28 of the power purchase agreement. However, the risks below 27.2% annual capacity factor have to be borne by the project participant. As this is the first commercial wind power plant in Sri Lanka, and that too designed with limited historic wind resource information, there still remains a risk of major variations in the annual capacity factor. The possibility is that the capacity factor will drop below 27.2% causing project IRR to be lower than 20.41%.</p> <p>VVM Version 1.1 Para 111 (a) EB 51, Annex 3 concerns the time lag between the FSR, which was the basis for the decision to proceed, and the investment decision. The FSR was completed in June 2008 and the investment decision was made in August 2008.</p>	
Documentation Provided by Project Participant:	
<p>Long-term lending rates of DFCC Bank over three months ending with August 2008, published by the Central Bank of Sri Lanka are attached. See file CL11h: Published Long-term Lending Rates of DFCC Bank.</p> <p>Published explanatory note on Tariffs: March 2008: see attached file CL11-d2 Explanatory Note to Tariffs 2008</p> <p>Power purchase agreement: See attached file CL06x-3a Power Purchase Agreement inclusive of Signature Page</p>	
Information Verified by Lead Assessor:	

Information verified:	
Central Bank Monthly Econ Indicators June 2008	
Central Bank Monthly Econ Indicators July 2008	
Central Bank Monthly Econ Indicators Aug 2008	
CL11-d2 Explanatory Note to Tariffs 2008	
CL06x-3a Power Purchase Agreement inclusive of Signature Page	
Revised PDD Version 5, dated 29/04/2010	
Reasoning for not Acceptance or Acceptance and Close Out:	
<p>The benchmark analysis is now as per the “<i>Guidelines on the Assessment of Investment Analysis</i>” EB 51, Annex 58 (Para No 12 to 15)” with and VVM Version 1.1 Para 111 (a) EB 51, Annex 3. The documentary evidences provided by PP are found to be satisfactory.</p> <p>The sensitivity analysis is found to be satisfactory and PP’s argument on annual capacity factory is supported by documentary evidences and found to be reasonable.</p> <p>PP has demonstrated first of it’s kind under barrier analysis and changed crediting period as fixed as per first of it’s kind guidance EB63 Annex 11 and is accepted.</p> <p>Thus CL 11 is closed out herewith.</p> <p>The CL 11 reopened due to below issues</p> <p>The PDD and excel spreadsheet does not mention sources for each input parameter used for investment analysis. It is requested to mention the date of each source used for input parameters as per para 6 of Guidance on Investment analysis.</p> <p>PP is requested to follow latest guidance of Investment analysis EB62 Annex 5.</p> <p>Please clarify how only three months value for long-term lending rates of DFCC Bank is appropriate for benchmark. What is average value for one year prior to decision made? Please provide one year data for the same. It is requested to provide web link of source or detail reference of document in PDD for this benchmark value.</p>	
Acceptance and Close out by Lead Assessor: Open	<b>Date:</b> 30/12/2011
Project Participant Response:	<b>Date:</b> 21/02/2012
Sources and date of each input parameter have now been included in the PDD and the spreadsheet EB62 Annex 5 considered.	
One year’s DFCC bank interest rate data has now been included. Reference has been included.	
Documentation Provided by Project Participant:	
Revised PDD, version 06 dated 21/02/2012, Investment analysis spreadsheet dated 21/02/2012.	
Information Verified by Lead Assessor:	
Revised PDD version 6 dated 21/02/2012 and Investment analysis spreadsheet.	
Reasoning for not Acceptance or Acceptance and Close Out:	

The source for input parameters has been mentioned in excel spreadsheet and found to be appropriate.

There is minor change is break up of project cost and total project cost as compare with web hosted PDD (project cost is reduced), however the input values mentioned in excel spreadsheet are consistent with revised engineers estimate prior to decision made and found to be appropriate.

Please clarify the below open issues for Investment Analysis Excel Spreadsheet

The Web hosted PDD has mentioned equity IRR as a benchmark however final PDD has mentioned pre tax project IRR as benchmark, please clarify it. It is not clear if PP has considered both financial indicators (Project IRR and Equity IRR) and why benchmark is changed from equity IRR to project IRR.

Please clarify why there is change in debt equity ratio as compared with web hosted PDD. The web hosted PDD has mentioned debt equity as 46:54, however final PDD has mentioned debt equity ratio as 49.5:51.5.

The submitted excel spreadsheet has mentioned selected crediting period as 7 years in section of qualification of project with CDM credits which is inconsistent with final PDD which mentioned fixed crediting period as 10 years, please clarify it.

Escalation in tariff has been mentioned as 6.52% in PDD as per Explanatory notes to the Press Release dated 18th March 2008 however excel sheet of financial calculation has mentioned escalation rate as 6.50%, please clarify the inconsistency observed. Please correct the inconsistency and do changes in all relevant documents if there is change in results.

The financial excel spreadsheet has mentioned 7 years ER estimation in worksheet "ER Worksheet" which is inconsistent with emission factor and estimation of emission reduction calculation excel spreadsheet, Please clarify it.

Please check worksheet "sensitivity study" for each and every variable parameter. Excel spreadsheet does not show result of IRR in two decimal places. It is not mentioned transparently in this worksheet about which cell need to vary so that results are reproduced

It is not mentioned in excel spreadsheet why year 2009 exchange rate is used for investment analysis considering the project start date is in August 2008.

PP has used one year data for long term lending rate, however few values are found to be inconsistent for long term lending rates in worksheet "Calculation of benchmark IRR" for values as per web link of central Bank of Sri Lanka as, please clarify it.

Thus CL 11 is open

Project Participant Response:

**Date:** 12/3/2012

<p>Equity IRR was considered to be more appropriate as the benchmark in the web-hosted PDD. However, the task of defining a benchmark equity IRR was difficult because, in the host country, there were no publicly announced benchmarks for equity IRR. The project participant required to define a company norm for the increased % over long-term bond rates, to establish a benchmark for equity IRR. However, in accordance EB62 Annex 5 clause 12, local commercial lending rates were available in the public domain, with no adjustments required. Therefore, the benchmark IRR was changed from equity IRR to pre-tax project IRR. Only the pre-tax project IRR was used as the financial indicator.</p> <p>The debt equity ratio in the web hosted PDD had to be re-calculated, because at the time of web-hosting, the equity component was confirmed but the total project costs were not confirmed. Subsequently, the total project costs decreased from LKR million 2392 to 2223. Therefore, the equity share increased from 46% to 49.5%. However financial excel sheet has considered debt equity ratio as 46:54 which was available at the time of decision made. Also another excel sheet with 50:50 debt equity ratio is submitted.</p> <p>The crediting period stated in the investment analysis spreadsheet has been changed from 7 to 10.</p> <p>Worksheet has been checked for each and every sensitivity parameter. The benchmark IRR is based on published percent interest rate information available only up to the first decimal place. Using such information and representing their averages to two decimal places may not display the relevant accuracy. Hence, the decimal accuracy of the calculated IRR in percent is shown to one decimal place only, throughout the analyses. The cell has to be changed to obtain results for each sensitivity parameter is already shown in column P of the worksheet "financial template".</p> <p>Please see cell M11 of worksheet "financial template" for the statement on extrapolation of exchange rate. A comment has now been further added to cell M11 to explain why change rate has to be extrapolated.</p> <p>The web link provides the report for each month, but the interest rate information is stated for the previous month. However, there were a few mismatches and these have been corrected. The revisions cause the benchmark project IRR to be 23.5%.</p>	
Documentation Provided by Project Participant:	
Revised investment analysis spreadsheet	
Revised PDD version 7 dated 12 March 2012	
Information Verified by Lead Assessor:	
Revised investment analysis spreadsheet	
Revised PDD version 7 dated 12 March 2012	
Reasoning for not Acceptance or Acceptance and Close Out:	<b>Date:</b> 13/03/2012 Reopen: 18/08/2012

As there is no publically announced equity benchmark, PP was unable to demonstrate the equity benchmark which is mentioned in webhosted PDD, PP has changed the Equity IRR benchmark to pre tax project IRR. In accordance EB62 Annex 5 clause 12, local commercial lending rates were available in the public domain, thus PP has taken local commercial lending rates as a benchmark and found to be appropriate.

The justification for change in debt equity ratio is acceptable. PP has submitted debt equity ratio as 46:54 which was available at the time of decision made. PP has also submitted financial excel sheet with debt equity ratio as 50:50 as per para 17 of EB62 Annex 5. Thus it is accepted.

It is not clear why the PP used the version 05.2.1 of Tool for the demonstration and assessment of additionality", where the latest version i.e. version 06.0.0 of tool is available. Please clarify.

It is not clear why PP has considered the lending rates of DFCC bank, whereas the lending rates of SMIB, NSB and NHDA was also available in the Central bank of Sri Lanka website at the time of decision making. How the conservativeness has been demonstrate to choose the most conservative benchmark for the project activity. Moreover, it is not clear whether the other banks does not provide loan to renewable project activity, since same is not objectively demonstrated in the PDD with verifiable evidences.

In order to demonstrate conservativeness, it is not clear why the PP hasn't considered the minimum Lending rate which was available at the time of decision making. Also, why PP has not use the WACC to arrive the benchmark estimation, considering that WACC is more conservative as against Lending rate.

PDD mentioned about benchmark project IRR, which is not clear, since the terminology is Benchmark value and project IRR, and these two are two different things. Please clarify.

The SPPA document refer in the web link ([http://www.ceb.lk/download/db\\_sppa/windpower.pdf](http://www.ceb.lk/download/db_sppa/windpower.pdf)) for tariff rate that was available at the project start date, it does not indicate the tariff rate. Please clarify.

Please clarify why the Project cost, tariff rate are not considered under sensitivity analysis as per Para 20 of EB62, annex 5.

From the web link provided by PP in the PDD, it is not clear how the proposed project activity is first of its kind, considering information provided in the web link, which shows that many other wind projects has too received the Energy Permit at the same time and some of them are having the same capacity as the project activity. Also, taking note of EB 63, annex 11, which state that *"The project is the first in the applicable geographical area that applies a technology that is different from any other technologies able to deliver the same output and that have started commercial operation in the applicable geographical area before the start date of the project"*, so how the PP has demonstrated that their no other wind projects which has got the Energy permits has not started commercial operation prior to the proposed CDM project activity.

Thus CL 11 is Open.

Project Participant Response:

**Date:** 29/08/12

The PDD was updated to reflect the latest version 6.0.0 of Tool for the demonstration and assessment of additionality".

As referred in the web links above, the SMIB. NHDA and the NSB primarily give loans either for housing/ infrastructure projects and personal loans. Thereby it was mandatory to use the DFCC lending rates, as DFCC bank rates can be used as a benchmark for other banks in this sector too.

- State Mortgage and Investment Bank (SMIB, primarily a bank providing housing loans)
  - <http://www.smib.lk/products/loan-schemes>
- Development Finance Credit Corporation Bank (DFCC, a bank providing long term loans to development project, including renewable energy projects)
  - <http://www.dfcc.lk/sme-project-finance/project-financing>
- National Savings Bank (NSB, a savings bank, lending to mainly housing projects)
  - [http://www.nsb.lk/Loan\\_centers.php](http://www.nsb.lk/Loan_centers.php)



- National Housing Development Agency (NHDA, a housing bank)
  - <http://www.nhda.lk/>

Checking these websites it is clear SIMB/ NHDA/ NSB were not giving loans for projects such as this hence PP was compelled to use the DFCC rates as described in PDD.

As this was the first wind power project in Sri Lanka and it was a high risk project, we would never have obtained min. Lending rates.

The WACC published, takes into consideration the previous years data, at the time of calculating. We noted that it was an increasing trend at that point, and the lending rate seemed more apt

The PDD has been amended to reflect that "Benchmark IRR" is described in this section.

The document published on the website is a standard document. At the time of signing the SPPA, the PP would select the tariff and also submit relevant info for the other appendices.

Therefore the appendices in the SPPA are customised for each PP. A signed version of our SPPA has been submitted.

Tariff Rate: The tariff was fixed for the 20 year period and it is also a LKR tariff, hence there is no change in the tariff for the project duration

Project cost: We have considered the change in project cost based on the exchange rate and annual O%M escalation. Hence there was no requirement for additional project cost escalation

Some of the companies which have been issued Energy Permits are yet to be commissioned .as per the CEB website there is only 30 MW of commissioned projects in Sri Lanka.

We have confirmed the 20 MW was commissioned after the commissioning of our project.

As stated in the PDD, the Mampuri Wind Power Project is the first commercial wind power plant to be built in Sri Lanka. This is further confirmed by the fact that the first Energy Permit issued in Sri Lanka for a wind power plant is for the Mampuri Wind Power Project (please see the list of Energy Permits [http://www.energy.gov.lk/sub\\_pgs/develop\\_permits\\_wind.html](http://www.energy.gov.lk/sub_pgs/develop_permits_wind.html))

Of the Energy Permits issued, there are only 3 commissioned wind power project of 10 MW capacities of each in Sri Lanka. ([http://www.ceb.lk/sub/db/op\\_presentstatus.html](http://www.ceb.lk/sub/db/op_presentstatus.html)). Apart from the Project Participant, the other two projects commissioned are mentioned on this website: [http://www.akbar.lk/power/wind\\_power.php](http://www.akbar.lk/power/wind_power.php) and were only commissioned in July 2010 after the commissioning of the PP project in June 2010 (<http://www.lankabusinessonline.com/fullstory.php?nid=1223352553>).

Documentation Provided by Project Participant:

Signed version of the SPPA signed between PP and Ceylon Electricity Board

Information Verified by Lead Assessor:



Signed version of the SPPA signed between PP and Ceylon Electricity Board dated 16/12/2008 Revised PDD version 7 dated 12/03/2012 Tariff was checked for appropriateness at the time of decision making from SPPA press release dated 18/03/2008 ( <a href="http://www.energy.gov.lk/pdf/explanatory_note_march_2008.pdf">http://www.energy.gov.lk/pdf/explanatory_note_march_2008.pdf</a> ) List of projects received permit were checked for appropriateness at this link ( <a href="http://www.energy.gov.lk/sub_pgs/develop_permits_wind.html">http://www.energy.gov.lk/sub_pgs/develop_permits_wind.html</a> ) on 07/09/2012. Following links were also checked to confirm commissioning details of other project activities <a href="http://www.akbar.lk/power/wind_power.php">http://www.akbar.lk/power/wind_power.php</a> <a href="http://www.lankabusinessonline.com/fullstory.php?nid=1223352553">http://www.lankabusinessonline.com/fullstory.php?nid=1223352553</a>	
Reasoning for not Acceptance or Acceptance and Close Out:	
<p>The revised PDD is found to be updated with latest version of the tool to demonstrate additionality, however reference to tool are still refereeing to previous version of the tool. Further step titles are still not in line with the latest version 6.0.0 of the additionality tool, please clarify</p> <p>The reference provided for other banks refers to eligibility for the type of loan and it is observed that only DFCC bank is providing loan for this type of project activities and hence it is found satisfactory.</p> <p>PP has considered average lending rate for one year prior to decision making. Minimum lending rate would have been more conservative against average lending rate however considering first investment in wind power project activity where more risk is involved PP is considering average lending rate which is found to be satisfactory and hence accepted.</p> <p>Though the PDD has been updated to reflect change as "Benchmark IRR", still term "Benchmark Project IRR" is referred in the revised PDD. <b>Further, Benchmark and IRR are itself two different things. The value 23.5% must be benchmark to the project activity.</b> please clarify.</p> <p>The published document (<a href="http://www.energy.gov.lk/pdf/explanatory_note_march_2008.pdf">http://www.energy.gov.lk/pdf/explanatory_note_march_2008.pdf</a>) for tariff dated 18/03/2008 which was available at the time of decision making was checked and tariff mentioned in the document is in line with the power purchase agreement it is found satisfactory and hence it is accepted.</p> <p>The project cost is still not considered under sensitivity. As per paragraph 20 of EB62 Annex 5 PP should consider it under sensitivity. Further, this should be in line with the paragraph 6 of EB62 Annex 5. Please clarify.</p> <p>It was checked from the weblinks provided by PP in the revised PDD and it is confirmed that rest of the project activities are commissioned after commissioning of current project activity. This is found satisfactory and hence is acceptable.</p>	
Project Participant Response:	<b>Date:</b> 21/09/2012
<p>The PDD has been amended to reflect the latest version 6.0.0 additionality tool</p> <p>23.5% is the Benchmark to the project activity and the PDD has been amended accordingly</p> <p>Sensitivity analysis was done for the project cost as well, PDD and IRR calculation sheets have been updated accordingly.</p>	
Documentation Provided by Project Participant:	
Revised PDD version 08 dated 21/09/2012	
Information Verified by Lead Assessor:	
Revised PDD version 08 dated 21/09/2012 was checked for appropriateness of the response.	

Reasoning for not Acceptance or Acceptance and Close Out:	<b>Date:</b> 28/09/2012
<p>PDD has been updated to reflect additionality too 6.0.0, however latest additionality tool version 06.1.0 is available in EB69 Annex 20. Please update PDD in line with the EB69 Annex 20. Open.</p> <p>Now term Benchmark is used appropriately throughout the PDD. This is found satisfactory and hence accepted.</p> <p>The project cost is now included in the sensitivity analysis and this is in line with the paragraph 20 of EB62 Annex 5. This is in line with the paragraph 6 of EB62 Annex 5. Hence, this is found satisfactory and it is accepted.</p>	
Project Participant Response:	<b>Date:</b> 30/09/2012
The PDD has been updated to reflect additionality tool 6.1.0, in line with EB69 Annex 20.	
Documentation Provided by Project Participant:	
Revised PDD version 9 dated 30/09/2012	
Information Verified by Lead Assessor:	
Revised PDD version 9 dated 30/09/2012 is checked for the appropriateness of the response	
Reasoning for not Acceptance or Acceptance and Close Out:	<b>Date:</b> 15/10/2012 Reopen: 21/11/2012
<p>Latest additionality tool version 06.1.0 is now updated throughout the PDD and hence it is accepted.</p> <p>The discussions on the alternatives are not correctly demonstrated in the PDD under sub step – 1.a. Three alternatives are described in the PDD whereas only 2 alternatives are justified. please clarify</p> <p>Thus, CL 11 is Open.</p>	
Project Participant Response:	<b>Date:</b> 28/11/12
<p>The outcome was amended to mention as follows:</p> <p>Alternative 1 is not feasible owing to the investment barrier and first of its kind nature as mentioned below.</p> <p>Alternative 2 is not feasible as this is of a first of its kind nature and there are no other credible alternatives to deliver the same service. Accordingly, identified, credible alternative to the proposed CDM project is Alternative 3, where the continuation of the current situation occurs. I</p>	
Documentation Provided by Project Participant:	
Revised PDD version 10	
Information Verified by Lead Assessor:	
Revised PDD version 10 dated 28/11/2012 is checked for justification provided on alternatives	
Reasoning for not Acceptance or Acceptance and Close Out:	<b>Date:</b> 28/11/2012 Reopen: 18/12/2012

<p>PP has provided justification for all three alternatives appropriately in the revised PDD. This is found satisfactory and hence it is accepted.</p> <p>PDD Section B.5: With reference to assumptions related to investment analysis no input related to O&amp;M cost for the project activity and corresponding escalation cost has been reported. Please clarify.</p> <p>PDD Section B.5: Step 0 of EB70 Annex 08 has not been demonstrated whereas the PP has demonstrated the proposed project activity as first of its kind. Please clarify.</p> <p>PDD Section B.5: As EB70 Annex 08 has been adopted for demonstration of project additionality, hence please clarify why all steps under EB70 Annex 08 (Step 0 to Step 4) are not demonstrated specifically in the context of step 4 of EB70 Annex 08.</p> <p>PDD Section B.5: The nomenclature of identified barrier “Barriers due to Prevailing Practice” is not found in line with EB70 Annex 08 Step 3a. Please clarify the relevance of this step when step 2 for investment analysis is demonstrated.</p> <p>Page 25 all of the links on this page produce an error, please clarify.</p> <p>Page 73 is found blank, please clarify if there is any missing information.</p> <p>Thus, CL 11 is open.</p>	
Project Participant Response:	<b>Date:</b> 18/12/2012
<p>PDD Section B.5: With reference to assumptions related to investment analysis no input related to O&amp;M cost for the project activity and corresponding escalation cost has been reported. Please clarify. – UPDATED THE INVESTMENT INPUTS TABLES TO REFLECT O&amp;M COST AND ESCALATION</p> <p>PDD Section B.5: Step 0 of EB70 Annex 08 has not been demonstrated whereas the PP has demonstrated the proposed project activity as first of its kind. Please clarify. – STEP 0 HAS BEEN INCLUDED INTO PDD</p> <p>PDD Section B.5: As EB70 Annex 08 has been adopted for demonstration of project additionality, hence please clarify why all steps under EB70 Annex 08 (Step 0 to Step 4) are not demonstrated specifically in the context of step 4 of EB70 Annex 08. – THE GUIDELINES FOR COMMON PRACTICE WAS FOLLOWED AND STEP BY STEP AND SHOWN ON PDD</p> <p>PDD Section B.5: The nomenclature of identified barrier “Barriers due to Prevailing Practice” is not found in line with EB70 Annex 08 Step 3a. Please clarify the relevance of this step when step 2 for investment analysis is demonstrated. – SECTION MARKED AS N/A AS INVESTMENT ANALYSIS WAS DONE</p> <p>Page 25 all of the links on this page produce an error, please clarify. - UPDATED</p> <p>Page 73 is found blank, please clarify if there is any missing information. - DELETED</p>	
Documentation Provided by Project Participant:	
Revised PDD version 11 dated 18/12/2012	
Information Verified by Lead Assessor:	
Revised PDD version 11 dated 18/12/2012 is checked for appropriateness of above queries raised.	
Reasoning for not Acceptance or Acceptance and Close Out:	<b>Date:</b> 18/12/2012

Section B.5 of the revised PDD version 11 is now includes O&M cost and its escalation in table for input parameters. This is found to be appropriate and it is accepted.

Section B.5 of revised PDD version 11 now discuss about step 0 of EB70 Annex 08 as the project activity as first of its kind. This is found to be appropriate and it is accepted.

Section B.5 of revised PDD version 11 now includes detailed stepwise demonstration as per latest version of Guidelines on common practice and sub-step 4a) of the tool; hence this is accepted.

Section B.5 of revised PDD version 11 now mentions that the step 3 of the tool is not applicable as PP opted for investment analysis; hence step is not required to be demonstrated. This is found to be appropriate and it is accepted.

Web-link on page 25 is found to be corrected and blank page on page 73 is now removed. This is checked and it is accepted.

Thus CL 11 is closed out.

Acceptance and Close out by Lead Assessor: **Date:** 18/12/2012

Date:	16/08/2009		Raised by:	Assessment Team	
Type:	CAR	Number:	12	Reference:	AU4
Lead Assessor Comment:				Date: 16/08/2009	
<p>The section B.5 does not include the CDM chronology of the project activity</p> <p>Please include and substantiate</p> <p>The PP were aware of CDM benefits at the time of decision making</p> <p>The CDM benefits were decisive to go ahead with the project activity</p> <p>The parallel efforts have been undertaken to secure the CDM status of the project activity along with its implementation</p>					
Project Participant Response:				Date: 31/08/2009	
<p>A table showing the chronology of key CDM activities of the project participant is included in PDD version 2. Some additional activities are described below.</p> <p>The project participant had discussions with companies and consultants from as early as December 2006. Senok directors attended seminars and meetings. A selection of events is covered in the attached document.</p> <p>The project start date was 23<sup>rd</sup> August 2008, the date on which the Agreement for the Supply of Wind Turbine Equipment was executed, prior to which the project participant held a board meeting and resolved to proceed with the signing of the contract subject to many conditions, one of which was CDM benefits. Please see the documents provided.</p> <p>The project participant made the following parallel efforts to secure CDM benefits, while proceeding to the first phase of project implementation (to secure land rights, firming up lender commitments and securing of energy permit and the execution of the power purchase agreement).</p> <p>Appointed the CDM consultants on 15<sup>th</sup> August 2008, shortly after the CDM conditional board decision to execute the equipment supply agreement.</p> <p>Applying for DNA approval to the PIN on 14<sup>th</sup> November 2008 (DNA approval was issued on 8<sup>th</sup> December 2008). As the project start date is after 2<sup>nd</sup> August 2008, and the DNA has been informed of the intention to seek CDM status on 14<sup>th</sup> November 2008, by submitting the PIN. This fulfils the requirements of EB41 Annex 46 Clause 2.</p> <p>Applying for DNA approval for the project activity, by submitting the PDD and securing the approval on 4<sup>th</sup> May 2009.</p> <p>For independent verification of both (ii) and (iii) above, the following persons at the Sri Lanka DNA may be</p>					

contacted:

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Documentation Provided by Project Participant:

Prior CDM knowledge, offers, meetings and seminars: Files: CAR12-a1 CDM Offers since 2006, CAR12-a2 CDM Meetings and Seminars Attended since 2007

Board resolution by Senok Wind Power (Private) Ltd, dated 12<sup>th</sup> August 2008

File name: CAR12b Board Resolution to proceed to equipment contract

Files attached:

CAR12-c1 Letter of appointment of CDM consultants

CAR12-c2 Application to DNA for PIN approval, CAR12-c3 PIN submitted for DNA approval, CAR12-c4 Host country approval for PIN

CL01 Host country approval

Information Verified by Lead Assessor:

The following informations and documents were verified:

Revised PDD, Version 2, 31<sup>st</sup> August 2009

CAR12-a1 CDM Offers since 2006

CAR12-a2 CDM Meetings and Seminars Attended since 2007

CAR12b Board Resolution to proceed to equipment contract

CAR12-c1 Letter of appointment of CDM consultants

CAR12-c2 Application to DNA for PIN approval

CAR12-c3 PIN submitted for DNA approval

CAR12-c4 Host country approval for PIN

CL01 Host country approval		
Reasoning for not Acceptance or Acceptance and Close Out:		
<p>All the supporting documents provided have been verified along with the revised PDD.</p> <p>Please provide and sort in order each and every chronological event of parallel CDM consideration with exact date and supporting documents</p> <p>Please report the start date consistently in response to findings, PDD etc.</p> <p>As per EB41 Annex 46 the communication sent to DNA needs to be confirmed and we are in process of doing that.</p> <p>CAR 12 is still open.</p>		
Project Participant Response:		<b>Date:</b> 23/11/2009
<p>The parallel CDM consideration activities were chronologically sorted and the table in the PDD has been replaced.</p> <p>The project start date erroneously stated as 23 Aug 2008 as 23 Aug 2009, in the CDM chronology has been corrected.</p> <p>Not applicable.</p>		
Documentation Provided by Project Participant:		
PDD for Mampuri Wind Power Project (Version 3, 23 Nov 09)		
For supporting documents for parallel CDM each activity, please see the following table.		
01/10/2006	Negotiated with Royal Haskoning of the Netherlands for providing consulting services for CDM process	Notes about negotiations are attached: Please see CAR12x-1a Notes on CDM Consulting Service Negotiations with Royal Haskoning Oct 2006
08/12/2006	Received an inquiry from Daiwa securities for CER sale. This was in response to Senok's participation at the Carbon Expo Asia in Beijing, China, 26-27 October 2006	For information on Carbon Expo Asia 2006, Please see <a href="http://www.koelnmesse.com.sg/carbonexpoasia/">http://www.koelnmesse.com.sg/carbonexpoasia/</a>
		For an inquiry received as a result of Senok's participation at Carbon Expo Asia, please see file CAR12x-1b CER Inquiry from Daiwa Securities 8 Dec 2006
03/09/2007	Project Participant attended a Workshop on Carbon Trade and CDM Development, organised by kfw	See: CAR12x-1c Invitation by kfw to attend Workshop on Carbon Trade and CDM Development Sep 2007
24/03/2008	Received an inquiry from Lanka Carbon Assets Pvt Ltd and subsequently negotiated on possible services to the project activity	See: CAR12x-1d Inquiry from Carbin Assets Lanka March 2008
12/08/2008	Board resolution to proceed to equipment contract conditional on CDM	See: CAR12x-1e Board Resolution to Proceed to Equipment Contract conditional on CDM
15/08/2008	Appointed CDM consultants	See: CAR12x-1f Letter of appointment of CDM consultants
23/08/2008	Signing of equipment supply contract: CDM project activity Start Date	See: CAR12x-1g Wind Turbine Supply Agreement 23 Aug 2008
14/11/2008	Applied to DNA for approval to PIN	See: CAR12x-1h Application to DNA for PIN Approval
8/12/2008	Received DNA approval for PIN	See: CAR12x-1i Host country approval for PIN
07/04/2009	Applied for Host Country DNA approval for PDD	See: CL01x Senok Request for DNA Approval dated 7 April 2009
04/05/2009	Received DNA approval for PDD	See: CAR12x-1j Host Country Approval
15/05/2009	Submitted PDD to DOA for validation	
PDD for Mampuri Wind Power Project (Version 3, 23 Nov 09)		

None	
Information Verified by Lead Assessor:	
Revised PDD version 3 dated 23 <sup>rd</sup> November, 2009 CAR12-a1 CDM Offers since 2006 CAR12-a2 CDM Meetings and Seminars Attended since 2007 CAR12b Board Resolution to proceed to equipment contract CAR12-c1 Letter of appointment of CDM consultants CAR12-c2 Application to DNA for PIN approval CAR12-c3 PIN submitted for DNA approval CAR12-c4 Host country approval for PIN CL01 Host country approval	
Reasoning for not Acceptance or Acceptance and Close Out:	<b>Date:</b> 24/12/2009
The revised PDD along with the supporting documents have been verified and found to be satisfactory. Thus, CAR 12 is closed out.	
Acceptance and Close out by Lead Assessor:	<b>Date:</b> 24/12/2009

Date:	16/08/2009	Raised by:	Assessment Team		
Type:	CAR	Number:	13	Reference:	B.5/AU4
Lead Assessor Comment:				<b>Date:</b> 16/08/2009	
It is not clear how the emission reductions calculations have been performed in line to the methodology Please define clearly how the baseline emissions, project emissions and leakages are calculated along with basis of assumptions, if any In data to be monitored the applied values are not included					
Project Participant Response:				<b>Date:</b> 31/08/2009	
Emission reduction calculations have been conducted in accordance with the methodological tool EB35 Annex 12. Section B.6.1 clearly shows how the tool has been used to establish baseline emissions, project emissions and leakage. The actual detailed calculations with all the input information are shown in Annex 3. the results are summarised B.6.3. Values have been included					
Documentation Provided by Project Participant:					
PDD for Mampuri Wind Power Project (Version 2, 31 Aug 09)					
PDD for Mampuri Wind Power Project (Version 2, 31 Aug 09)					
Information Verified by Lead Assessor:					
The following documents and information have been verified: Revised PDD, version 2, dated 31 <sup>st</sup> August 2009					
Reasoning for not Acceptance or Acceptance and Close Out:					



Revised PDD has been verified.	
It is requested how the (Gross, Import and Net electricity) without being monitored separately will be used to calculate the net electricity supplied to the grid in accordance with the methodology.	
Also PP needs to justify how the CSR activity can become a monitoring parameter which has been included in Table 13 in context to the requirement of monitoring methodology applied.	
Thus the CAR 13 is still open.	
Project Participant Response:	<b>Date:</b> 23/11/2009
Each monitoring parameter (Gross, Import and Net) have now been tabulated separately in the PDD.	
The CSR activity has been removed from the Table 13, and will not be a monitoring parameter.	
Documentation Provided by Project Participant:	
PDD for Mampuri Wind Power Project (Version 3, 23 Nov 09)	
Information Verified by Lead Assessor:	
The following documents and information have been verified:	
PDD for Mampuri Wind Power Project (Version 3, 23 Nov 09)	
Reasoning for not Acceptance or Acceptance and Close Out:	
Revised PDD has been verified and the monitoring parameter is found to be satisfactory. However it is not cleared to the DOE how the CSR activity can be a part of the monitoring plan for the proposed CDM activity, which is purely a sustainable development parameter.	
Thus the CAR 13 is still open.	
Project Participant Response:	<b>Date:</b> 15/02/2010
CSR activity monitoring has now been removed from the Monitoring Plan in B7.2. Also, in the diagram showing the organisation of the monitoring team, the CSR monitoring activity has been removed. Also a spelling error in the diagram heading has been corrected.	
Documentation Provided by Project Participant:	
File: 1b PDD for Mampuri Wind Power Project (Version 4, 15 Feb 2010)	
Information Verified by Lead Assessor:	
The following documents and information have been verified:	
Revised PDD for Mampuri Wind Power Project (Version 4, 15 <sup>th</sup> February 2010)	
Reasoning for not Acceptance or Acceptance and Close Out:	
The CSR activity of the project participant has been removed from monitoring plan. Thus the CAR 13 is closed out.	
The CAR 13 is re-opened due to below issues	
Please clarify how the requirement of methodology "Continuous monitoring, hourly measurement and at least monthly recording" has been followed for gross energy and purchased energy parameters. The cross checking mechanism like invoices or sales receipt for these parameters is not mentioned.	
The calibration frequency for M3 meter is not mentioned in PDD and also provide evidence for accuracy class of meters as The below document mentioned as 0.5 or ,0.2 accuracy class <a href="http://www.ceb.lk/Specifications/67STATIC.pdf">http://www.ceb.lk/Specifications/67STATIC.pdf</a> ,	
Acceptance and Close out by Lead Assessor: Open	<b>Date:</b> 30/12/2011
Project Participant Response:	<b>Date:</b> 21/02/2012

Clarification added, accuracy class corrected as 0.2	
Documentation Provided by Project Participant:	
Revised PDD dated 21/02/2012	
Information Verified by Lead Assessor:	
Revised PDD version 06 dated 21/02/2012 has been checked for monitoring information	
Reasoning for not Acceptance or Acceptance and Close Out:	
<p>The revised PDD has clearly mentioned about requirement of methodology "Continuous monitoring, hourly measurement and at least monthly recording". The parameters are measured continuously and recorded monthly. Also cross checking mechanism has been mentioned in revised PDD version 06 dated 21/02/2012. This is found appropriate and is accepted.</p> <p>PP has mentioned calibration frequency for M3 meter and corrected accuracy class of electricity board meters as 0.2 s , however evidence submitted is photo of CEB meters which reads M1,M2 and M3 which indicates class of meter as 1.0 , please clarify it.</p> <p>The submitted commissioning certificate of project activity is not legible. It seems that the submitted certificate is of Project Manager of Suzlon Energy Ltd with commissioning date as 01/06/2010, please clarify if there is any other evidence from Ceylon Electricity Board for the commissioning of project activity. As per source of Renewable Energy for Rural Economic Development (RERED) Project , the project is commissioned in May 2010, <a href="http://www.energyservices.lk/statistics/disbursement.htm">http://www.energyservices.lk/statistics/disbursement.htm</a></p> <p>Thus CAR 13 is open.</p>	
Acceptance and Close out by Lead Assessor: Open	<b>Date:</b> 27/02/2012
Project Participant Response:	<b>Date:</b> 12/03/2012
<p>The declared practice of the Ceylon Electricity Board is to use meters of accuracy 0.2% for energy metering. However, as meters are procured and fixed by CEB, the PP has no control over the accuracy class of meters fixed. The PPA only has relief if the inaccuracy exceeds 2%. The PDD has been revised to reflect the accuracy class of the meters currently in operation.</p> <p>The commissioning date in the certificate provided by Suzlon Energy is 1<sup>st</sup> June 2010. The certificate provided is an exhibit in the contract between PP and Suzlon Energy. An additional supporting document from CEB is provided herewith, which states that the power plant is allowed to be grid connected from 5<sup>th</sup> June 2010. The sequence of events were as follows:</p> <ul style="list-style-type: none"> <li>A few WTGs were ready for grid connection by 1<sup>st</sup> May 2010. PP was allowed to grid connect only 3 MW of capacity from 6<sup>th</sup> May 2010, because the transmission line was not ready and hence the 3 MW was served to the grid through an existing line which had limited capacity (see CEB letter provided)</li> <li>All WTGs were commissioned and commissioning certificate was signed by Suzlon Energy and accepted by the PP on 1<sup>st</sup> June 2010. (see exhibit K provided previously)</li> <li>The transmission line was completed and the full capacity was grid connected on 5<sup>th</sup> June 2010. (see the additional CEB letter provided)</li> </ul> <p>RERED website may be quoting the first interconnection in May 2010, which is also correct, but does not provide the complete picture of the situation on the ground.</p>	
Documentation Provided by Project Participant:	
Two letters from CEB as stated above.	
Information Verified by Lead Assessor:	
<p>Explanation provided by PP.</p> <p>CEB letters for commissioning of WTGs</p> <p>Revised PDD version 07 dated 12/03/2012</p>	

Reasoning for not Acceptance or Acceptance and Close Out:	<b>Date:</b> 13/03/2012
<p>PDD has been revised with mentioning of accuracy class available at site visit and PP do not have any control on it. Hence it is accepted.</p> <p>The letter from Ceylon Electricity Board (CEB) dated 17/05/2010 indicates that two WTGs has been connected to CEB grid on 06/05/2010 and as per letter of CEB dated 19/07/2010, the complete project activity is commissioned on 05/06/2010. Thus the complete project activity is commissioned on 05/06/2010 and is accepted.</p> <p>Thus CAR 13 was closed out.</p>	
Acceptance and Close out by Lead Assessor:	<b>Date:</b> 13/03/2012

Date:	16/08/2009	Raised by:	Assessment Team		
Type:	FAR	Number:	14	Reference:	AU4
Lead Assessor Comment:				<b>Date:</b> 16/08/2009	
At the time of SV, the positioning of meter can not be ascertained due to early stages of projects. The same will be checked during first verification.. Therefore this has been considered as FAR for future evaluation. These elements do not affect the validation process.					
Project Participant Response:				<b>Date:</b> 31/08/2009	
Agreed					
Documentation Provided by Project Participant:					
None					
Information Verified by Lead Assessor:					
It has been assessed that the information is not a requirement of validation					
Reasoning for not Acceptance or Acceptance and Close Out:				<b>Date:</b> 02/10/2009	
The issue has been raised as a FAR and doesn't have any implication on validation process and the same will be verified during verification of the project.					
Acceptance and Close out by Lead Assessor:				<b>Date:</b> 02/10/2009	

Date:	16/08/2009	Raised by:	Assessment Team		
Type:	CAR	Number:	15	Reference:	AU4
Lead Assessor Comment:				<b>Date:</b> 16/08/2009	
<p>Kindly provide evidence for considering</p> <p>the start date of the project activity in line to EB41 para 67</p> <p>the operational lifetime of the project activity as 20 years</p> <p>consider the realistic timeline of the project activity crediting period start date</p>					
Project Participant Response:				<b>Date:</b> 31/08/2009	

<p>The start date has been revised in PDD version 2 to 23<sup>rd</sup> August 2008, the date on which the equipment purchase agreement was executed between Suzlon Energy Limited and Senok Wind Power (Private) Limited</p> <p>The wind turbine equipment carry the certification from Germanischer Lloyd WindEnergie GmbH (GL-Wind), a subsidiary of the international classification and industrial certification society Germanischer Lloyd. "To be certified, manufacturers must produce wind turbine that would reliably produce low cost energy for 20 years", says the brochure.</p> <p>Crediting period start date has been revised to 1<sup>st</sup> January 2010.</p>	
Documentation Provided by Project Participant:	
<p>Agreement between Suzlon Energy Ltd and Senok Wind Power (Private) Limited</p> <p>File: CAR15-01 Wind Turbine Supply Agreement</p> <p>Brochure from GL-WIND : File CAR 15-02 GL-Wind Certification Brochure</p> <p>PDD for Mampuri Wind Power Project (Version 2, 31 Aug 09)</p>	
Information Verified by Lead Assessor:	
<p>Documents and information verified:</p> <p>CAR15-01 Wind Turbine Supply Agreement</p> <p>CAR 15-02 GL-Wind Certification Brochure</p> <p>Revised PDD, version 2, 31<sup>st</sup> August 2009</p>	
Reasoning for not Acceptance or Acceptance and Close Out:	
<p>The start date of the project activity has been considered as the 23<sup>rd</sup> August, 2008. However in some section of PDD mention the same as 23<sup>rd</sup> August 2009. Please correct the same.</p> <p>The document "CAR 15-02 GL-Wind Certification Brochure" mentions "To be certified, manufacturers must produce wind turbine that would reliably produce low cost energy for 20 years". Please justify how this can prove that technical life time of the proposed project is 20 years.</p> <p>CAR 15 is still open.</p>	
Project Participant Response:	<b>Date:</b> 23/11/2009
<p>The error in the start date has been corrected.</p> <p>The wind turbines selected carry a GL certificate. Please see:</p> <p><a href="http://www.gl-group.com/pdf/List_of_Certifications_-_Wind_Turbines.pdf">http://www.gl-group.com/pdf/List_of_Certifications_-_Wind_Turbines.pdf</a> which confirms that the wind turbine model selected (Suzlon S64/1250) are certified by GL (file attached). GL, the certification body, in their brochure states that "To be certified, manufacturers must produce wind turbine that would reliably produce low cost energy for 20 years". The brochure (also available in <a href="http://www.lmsintl.com/download.asp?id=4E6BEA98-00DF-4864">www.lmsintl.com/download.asp?id=4E6BEA98-00DF-4864</a>) provides the methodology in which GL has approached the issue of certifying the life time of 20 years. Therefore, the technical life time of the proposed project is confirmed to be 20 years by an independent third party.</p>	
Documentation Provided by Project Participant:	
<p>PDD for Mampuri Wind Power Project (Version 3, 23 Nov 09)</p> <p>File: CAR15x-2 List_of_Certifications_-_Wind_Turbines by GL</p>	
Information Verified by Lead Assessor:	
<p>PDD for Mampuri Wind Power Project (Version 3, 23 Nov 09)</p> <p>CAR15x-2 List_of_Certifications_-_Wind_Turbines by GL</p>	
Reasoning for not Acceptance or Acceptance and Close Out:	

The revised PDD has been verified along with the supporting documents and found PP's response to be satisfactory. Thus CAR 15 is closed.	
The CAR 15 is reopened due to below issues	
The start date of crediting period is not appropriate.	
Acceptance and Close out by Lead Assessor: Open	<b>Date:</b> 30/12/2011
Project Participant Response:	<b>Date:</b> 21/02/2012
Start date has been revised to 1 <sup>st</sup> July 2012	
Documentation Provided by Project Participant:	
Revised PDD dated 21/02/2012	
Information Verified by Lead Assessor:	
Revised PDD version 06 dated 21/02/2012	
Reasoning for not Acceptance or Acceptance and Close Out:	<b>Date:</b> 27/02/2012
Revised PDD has been checked for appropriateness date of start date of crediting period and 01/01/2013 date is found to be appropriate. PP has changed renewable crediting period to fixed crediting period in final PDD and same is accepted	
Thus, CAR 15 is closed out.	
Acceptance and Close out by Lead Assessor:	<b>Date:</b> 27/02/2012

Date:	16/08/2009		Raised by:	Assessment Team		
Type:	CAR	Number:	16		Reference:	Section D/AU4
Lead Assessor Comment:				Date: 16/08/2009		
Kindly provide the IEE conducted for the project activity and indicate in the PDD the overall impact on environment because of the project activity?						
Project Participant Response:				Date: 31/08/2009		
IEE conducted for the project is attached						
Overall impact on the environment as a result of the project activity is stated in PDD version 2.						
Documentation Provided by Project Participant:						
IEE: file name CAR16 IEE Report						
PDD for Mampuri Wind Power Project (Version 2, 31 Aug 09)						
Information Verified by Lead Assessor:						
Documents and information verified:						
CAR16 IEE Report						
Revised PDD, version 2, dated 31 <sup>st</sup> August 2009						
Reasoning for not Acceptance or Acceptance and Close Out:						

<p>The Initial Environmental Impact Examination report has been verified along with the revised PDD. The revised PDD now includes the project's overall impact on environment. The IEE report confirms the PP's claim in PDD that there will be no significant environmental impact of the project on local environment.</p> <p>However, PP needs to clarify why PP has chosen its CSR activity under monitoring, which is not required by monitoring methodology, and how does it affect the emission reduction by the project activity? Please note any parameter in the registered PDD needs to be complied with and will be verified by DOE.</p> <p>Thus the CAR 16 is open.</p>	
Project Participant Response:	<b>Date:</b> 23/11/2009
<p>CSR activity has been removed from the listing under monitoring as the activity does not contribute to emission reduction by the project activity.</p>	
Documentation Provided by Project Participant:	
PDD for Mampuri Wind Power Project (Version 3, 23 Nov 09)	
Information Verified by Lead Assessor:	
The PDD for Mampuri Wind Power Project (Version 3, 23 Nov 09) has been revised.	
Reasoning for not Acceptance or Acceptance and Close Out:	<b>Date:</b> 24/12/2009
<p>The revised PDD has been verified along with the supporting documents and found PP's response to be satisfactory.</p> <p>Thus, CAR 16 is closed out.</p>	
Acceptance and Close out by Lead Assessor:	<b>Date:</b> 24/12/2009

Date:	16/08/2009	Raised by:	Assessment Team		
Type:	CL	Number:	17	Reference:	Section E/AU4
Lead Assessor Comment:				<b>Date:</b> 16/08/2009	
<p>Kindly clarify and substantiate</p> <p>How the stakeholders for project activity were identified</p> <p>What media was used to invite them for local stakeholder consultation process</p> <p>How the comments were received and resolved</p> <p>The status of community social responsibility as indicated on page 42 of PDD</p>					
Project Participant Response:				<b>Date:</b> 31/08/2009	

<p>Stakeholders to the project activity were identified with the assistance of the Catholic Church and the Grama Niladhari (GN) of the area. In keeping with the traditions of the area, the Catholic Church was requested to take the leadership, identify and invite the stakeholders. The focus was on persons living adjacent to locations identified for wind generators and the NGOs in the area.</p> <p>The Catholic Church used the traditional system of word of mouth, to invite the stakeholders to the meeting. At the meeting, printed information prepared in all the three languages spoken in the area about the project was circulated.</p> <p>Comments were orally received and resolved. Comments from individuals personally affected (such as landowners) were specifically and personally handled.</p> <p>Community Social Responsibility activities:</p> <p>Quotations have been called from contractors to build the Midwives' clinic</p> <p>Nursery School: Not commenced yet</p> <p>Upgrading the playground: SWPL has requested the St. Sebastians Sports Club to provide their requirements</p>	
Documentation Provided by Project Participant:	
<p>Letter from the Bishop of Chilaw (Bishop in charge of the area) dated 11<sup>th</sup> October 2007 requesting the stakeholder meeting be organised by SEDEC. See file CL17a Letter from the Bishop of Chilaw</p> <p>Information circulated at the stakeholder meeting:</p> <p>File: CL17-b1 Handout at Stakeholder Meeting (English)</p> <p>CL17-b2 Handout at Stakeholder Meeting (Sinhala)</p> <p>CL17-b3 Handout at Stakeholder Meeting (Tamil)</p> <p>CL17-b4 Photographs of the Stakeholder Meeting</p> <p>Voice recording of the presentation and the Q&amp;A session:</p> <p>CL17c Voice Recording of the Stakeholder Meeting</p> <p>None</p>	
<p>Documents and information verified:</p> <p>CL17a Letter from the Bishop of Chilaw</p> <p>CL17-b1 Handout at Stakeholder Meeting (English)</p> <p>CL17-b2 Handout at Stakeholder Meeting (Sinhala)</p> <p>CL17-b3 Handout at Stakeholder Meeting (Tamil)</p> <p>CL17-b4 Photographs of the Stakeholder Meeting</p> <p>CL17c Voice Recording of the Stakeholder Meeting</p> <p>Revised PDD, Version 2, dated 31<sup>st</sup> August 2009</p>	
Reasoning for not Acceptance or Acceptance and Close Out:	<b>Date:</b> 02/10/2009
<p>The documents and information provided are verified and found to be satisfactory.</p> <p>Thus, CL 17 is closed out.</p>	
Acceptance and Close out by Lead Assessor:	<b>Date:</b> 02/10/2009



Date:	16/08/2009		Raised by:	Assessment Team	
Type:	CL	Number:	18	Reference:	AU4
Lead Assessor Comment:				<b>Date:</b> 16/08/2009	
Kindly provide documentary evidence that the project activity has not received public funding in any form.					
Project Participant Response:				<b>Date:</b> 31/08/2009	
Statement included in PDD Version 2 section A.4.4 and Annex 2.					
Documentation Provided by Project Participant:					
Signed statement attached. File name: CL18- Statement on Public Funding					
Information Verified by Lead Assessor:					
Documents and information verified:					
Revised PDD, version 2, dated 31 <sup>st</sup> August 2009-10-09					
CL18 – Statement on Public Funding					
Reasoning for not Acceptance or Acceptance and Close Out:				<b>Date:</b> 02/10/2009	
The revised PDD now includes the statement in Annex 2 that there is no public funding for the project. This is supported by the self declaration by the PP. Furthermore, the SV and review of source of funding for the project activity confirmed that there are no issues related to this.					
Thus, CL 18 is closed out.					
Acceptance and Close out by Lead Assessor:				<b>Date:</b> 02/10/2009	

## A.4 Annex 4: Team Members Statements of Competency

### Statement of Competence

Name: **Vikas Bankar**

#### Status

- Lead Assessor	<b>x</b>	- Expert	<b>x</b>
- Assessor	<b>x</b>	- Financial Expert	
- Local Assessor	<b>India</b>	- Technical Reviewer	<b>x</b>

#### Scopes of Expertise

##### 1. Energy Industries (renewable / non-renewable)

**x**

Technical Area(s): *TA 1.2 Energy generation from renewable energy sources*

##### 2. Energy Distribution

**x**

Technical Area(s): *TA 2.1 Electricity distribution  
TA 2.2 Heat distribution*

##### 3. Energy Demand

**x**

Technical Area(s): *TA 3.1 Energy Demand*

##### 4. Manufacturing

Technical Area(s):

##### 5. Chemical Industry

Technical Area(s):

##### 6. Construction

Technical Area(s):

##### 7. Transport

Technical Area(s):

##### 8. Mining/Mineral Production

Technical Area(s):

##### 9. Metal Production

Technical Area(s):

##### 10. Fugitive Emissions from Fuels (solid, oil and gas)

Technical Area(s):

##### 11. Fugitive Emissions from Production and Consumption of Halocarbons and Sulphur Hexafluoride

Technical Area(s):

##### 12. Solvent Use

Technical Area(s):

##### 13. Waste Handling and Disposal

Technical Area(s):

##### 14. Afforestation and Reforestation

Technical Area(s):

##### 15. Agriculture

Technical Area(s):

Approved Member of Staff by: **Siddharth Yadav** Date: **17/07/2012**

## Statement of Competence

Name: Ramkrishna Patil

### Status

- Lead Assessor	x	- Expert	x
- Assessor	x	- Financial Expert	
- Local Assessor	India	- Technical Reviewer	x

### Scopes of Expertise

<b>1. Energy Industries (renewable / non-renewable)</b>	<b>X</b>
Technical Area(s): TA 1.2 Energy generation from renewable energy sources	
<b>2. Energy Distribution</b>	<b>x</b>
Technical Area(s): TA 2.1 Electricity distribution TA 2.2 Heat distribution	
<b>3. Energy Demand</b>	<b>x</b>
Technical Area(s): TA 3.1 Energy Demand	
<b>4. Manufacturing</b>	
Technical Area(s):	
<b>5. Chemical Industry</b>	
Technical Area(s):	
<b>6. Construction</b>	
Technical Area(s):	
<b>7. Transport</b>	
Technical Area(s):	
<b>8. Mining/Mineral Production</b>	
Technical Area(s):	
<b>9. Metal Production</b>	
Technical Area(s):	
<b>10. Fugitive Emissions from Fuels (solid, oil and gas)</b>	
Technical Area(s):	
<b>11. Fugitive Emissions from Production and Consumption of Halocarbons and Sulphur Hexafluoride</b>	
Technical Area(s):	
<b>12. Solvent Use</b>	
Technical Area(s):	
<b>13. Waste Handling and Disposal</b>	
Technical Area(s):	
<b>14. Afforestation and Reforestation</b>	
Technical Area(s):	
<b>15. Agriculture</b>	
Technical Area(s):	

Approved Member of Staff by: Siddharth Yadav Date: 02/07/2012

## Statement of Competence

Name: **Batuvita Sumanasiri**

### Status

- Lead Assessor		- Expert	
- Assessor		- Financial Expert	
- Local Assessor	Sri-Lanka	- Technical Reviewer	

### Scopes of Expertise

#### 1. Energy Industries (renewable / non-renewable)

Technical Area(s): *TA 1.2 Energy generation from renewable energy sources*

#### 2. Energy Distribution

Technical Area(s): *TA 2.1 Electricity distribution*  
*TA 2.2 Heat distribution*

#### 3. Energy Demand

Technical Area(s): *TA 3.1 Energy Demand*

#### 4. Manufacturing

Technical Area(s):

#### 5. Chemical Industry

Technical Area(s):

#### 6. Construction

Technical Area(s):

#### 7. Transport

Technical Area(s):

#### 8. Mining/Mineral Production

Technical Area(s):

#### 9. Metal Production

Technical Area(s):

#### 10. Fugitive Emissions from Fuels (solid, oil and gas)

Technical Area(s):

#### 11. Fugitive Emissions from Production and Consumption of Halocarbons and Sulphur Hexafluoride

Technical Area(s):

#### 12. Solvent Use

Technical Area(s):

#### 13. Waste Handling and Disposal

Technical Area(s):

#### 14. Afforestation and Reforestation

Technical Area(s):

#### 15. Agriculture

Technical Area(s):

Approved Member of Staff by: **Siddharth Yadav** Date: **11/05/2012**

## Statement of Competence

Name: Anshul Sharma

### Status

- Lead Assessor	x	- Expert	
- Assessor	x	- Financial Expert	x
- Local Assessor	India	- Technical Reviewer	

### Scopes of Expertise

1. <b>Energy Industries (renewable / non-renewable)</b>	
Technical Area(s):	
2. <b>Energy Distribution</b>	
Technical Area(s):	
3. <b>Energy Demand</b>	
Technical Area(s):	
4. <b>Manufacturing</b>	
Technical Area(s):	
5. <b>Chemical Industry</b>	
Technical Area(s):	
6. <b>Construction</b>	
Technical Area(s):	
7. <b>Transport</b>	
Technical Area(s):	
8. <b>Mining/Mineral Production</b>	
Technical Area(s):	
9. <b>Metal Production</b>	
Technical Area(s):	
10. <b>Fugitive Emissions from Fuels (solid, oil and gas)</b>	
Technical Area(s):	
11. <b>Fugitive Emissions from Production and Consumption of Halocarbons and Sulphur Hexafluoride</b>	
Technical Area(s):	
12. <b>Solvent Use</b>	
Technical Area(s):	
13. <b>Waste Handling and Disposal</b>	
Technical Area(s):	
14. <b>Afforestation and Reforestation</b>	
Technical Area(s):	
15. <b>Agriculture</b>	
Technical Area(s):	

Approved Member of Staff by:

Siddharth  
Yadav

Date:

07/03/2012

## Statement of Competence

Name: **NAYAN JYOTI DEKA**

### Status

- Lead Assessor	<input checked="" type="checkbox"/>	- Expert	<input checked="" type="checkbox"/>
- Assessor	<input checked="" type="checkbox"/>	- Financial Expert	<input type="checkbox"/>
- Local Assessor	<input checked="" type="checkbox"/>	- Technical Reviewer	<input checked="" type="checkbox"/>

### Scopes of Expertise

<b>1. Energy Industries (renewable / non-renewable)</b>	<input checked="" type="checkbox"/>
Technical Area(s):	
TA 1.1 Thermal energy generation from fossil fuels and biomass	
TA 1.2 Energy generation from renewable energy sources	
<b>2. Energy Distribution</b>	<input type="checkbox"/>
Technical Area(s):	
<b>3. Energy Demand</b>	<input type="checkbox"/>
Technical Area(s):	
<b>4. Manufacturing</b>	<input type="checkbox"/>
Technical Area(s):	
<b>5. Chemical Industry</b>	<input type="checkbox"/>
Technical Area(s):	
<b>6. Construction</b>	<input type="checkbox"/>
Technical Area(s):	
<b>7. Transport</b>	<input type="checkbox"/>
Technical Area(s):	
<b>8. Mining/Mineral Production</b>	<input type="checkbox"/>
Technical Area(s):	
<b>9. Metal Production</b>	<input type="checkbox"/>
Technical Area(s):	
<b>10. Fugitive Emissions from Fuels (solid, oil and gas)</b>	<input type="checkbox"/>
Technical Area(s):	
<b>11. Fugitive Emissions from Production and Consumption of Halocarbons and Sulphur Hexafluoride</b>	<input type="checkbox"/>
Technical Area(s):	
<b>12. Solvent Use</b>	<input type="checkbox"/>
Technical Area(s):	
<b>13. Waste Handling and Disposal</b>	<input type="checkbox"/>
Technical Area(s):	
<b>14. Afforestation and Reforestation</b>	<input type="checkbox"/>
Technical Area(s):	
<b>15. Agriculture</b>	<input type="checkbox"/>
Technical Area(s):	

Approved Member of Staff by: **Siddharth Yadav** Date: **20/07/2012**