

VALIDATION REPORT

Shandong Wendeng Zhangjiachan Wind Farm Project EDF Trading Ltd

SGS Climate Change Programme

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SGS United Kingdom Limited		EDF Trading Ltd		
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Summary:				
EDF Trading Ltd has commissioned SGS to perform the validation of the project: Shandong Wendeng Zhangjiachan Wind Farm Project. Methodology Used: ACM0002 Consolidated methodology for grid-connected electricity generation from renewable sources Version and Date: version 12.2.0 dated 25/11/2011 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 and UNFCCC rules. 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 approved methodology and underlying formulae and calculations. The report and the annexed validation describes a total of 8 findings which include: • 5 Corrective Action Requests (CARs); • 3 Clarification Requests (CLs); • 0 Forward Action Requests (FARs); and All findings have been closed satisfactorily and the project will be recommended to the CDM Executive Board with a request for registration.				
Subject:		Document Distribution		
CDM Validation				
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Name: Siddharth Yadav Date: 10 January 2012				
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Abbreviations

BM	Build Margin
CAR	Corrective Action Request
CCPG	Central China Power Grid
CDM	Clean Development Mechanism
CER	Certified Emission Reduction
CL	Clarification Request
CM	Combined Margin
DNA	Designated National Authority
DOE	Designated Operational Entity
EB	CDM Executive Board
EF	Emission Factor
EIA	Environment Impact Assessment
ERs	Emission Reductions
ERPA	Emission Reductions Purchase Agreement
FAR	Forward Action Request
FSR	Feasibility Study Report
GHG	Greenhouse gas(es)
IPCC	Intergovernmental Panel on Climate Change
IRR	Internal Return Rate
KP	Kyoto Protocol
LoA	Letter of Approval
MoC	Modality of Communications
MP	Monitoring Plan
NCPG	North China Power Grid
NDRC	National Development and Reform Commission
NECPG	Northeast China Power Grid
NGO	Non-Government Organization
ODA	Official Development Assistance
OM	Operating Margin
PLF	Plant Load Factor
PDD	Project Design Document
PP	Project Participant
SGS	SGS United Kingdom Limited
VAT	Value Added Tax
VVM	Validation and Verification Manual
UNFCCC	United Nations Framework Convention on Climate Change

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1. Validation Opinion

SGS United Kingdom Ltd has been contracted by EDF Trading Ltd to perform a validation of the project: Shandong Wendeng Zhangjiachan Wind Farm Project in China.

The Validation was performed in accordance with the UNFCCC criteria for the Clean Development Mechanism Validation and Verification Manual (Version 01.2) and host country criteria, as well as criteria given to provide for consistent project operations, monitoring and reporting.

The total installed capacity of the project is 49.3 MW, consisting of 58 wind turbines with a unit capacity of 0.85 MW. By supplying electricity to the North China Power Grid (NCPG) and replacing the electricity that would otherwise be generated by fossil fuel fired power plants connected to NCPG, 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 ACM0002 version 12.2.0. 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 592,963 tones of CO₂e over a 7 year crediting period during 01/03/2012 to 28/02/2019, averaging 84,709 tons of CO₂e annually. The emission reduction forecast has been checked and it is deemed likely that the stated amount is achievable 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: 10 January 2012

2. Introduction

2.1 Objective

EDF Trading Ltd has commissioned SGS to perform the validation of the project: Shandong Wendeng Zhangjiachan Wind Farm 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

Shandong Wendeng Zhangjiachan Wind Farm Project involves the installation of 58 wind turbines with a unit capacity of 850 kW. The total installed capacity of the project is 49.3 MW and the expected annual output will be 90,997 MWh. The electricity generated will be fed into NCPG.

NCPG is dominated by fossil fuel fired power plants. The combined emission factor of the NCPG is 0.9309 tCO₂/MWh. Emission reductions will be achieved by the implementation of the project activity, displacing an equivalent amount of electricity that would have been supplied by the NCPG in the absence of the project activity. The annual emission reductions from the project activity are estimated to be 84,709 tCO₂e during the first crediting period.

The implementation of the project will contribute to the sustainable development of the local community, the host country and the world.

2.4 The Names and Roles of the Validation Team Members

Assessment Team	
Name	Role
Yuan Xue	Lead Assessor
Simon Zhao	Local Assessor/Sectoral Scope Expert (TA 1.2)
Richard Huang	Financial Expert

Technical Review Team	
Name	Role
Joe Sun	Technical Reviewer
Lenore Yin	Sectoral Scope Expert (TA 1.2)

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 document version 1 dated 02/04/2011 and version 2 dated 02/12/2011. The assessment is performed by trained assessors using a validation protocol attached as Annex 2, table 2.

The site visit was performed from 10/05/2011 to 11/05/2011 by the Lead Assessor, Local Assessor and Sectoral Scope Expert (TA 1.2). Results are summarized in Annex 1.

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 01.2 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	Draft and/or Final Conclusion
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 A.1 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:

- The project participants have made mistakes that will influence the ability of the project activity to achieve real, measurable additional emission reductions;
- The CDM requirements have not been met;
- 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 a 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

Parties involved in the project are China and France, as indicated in Section A.3 of the PDD version 2.

CAR #1 was raised requesting the PP to provide the LoA from China.

The host Party P. R. China ratified the *Kyoto Protocol* on 30/08/2002 and has appointed a DNA.
<http://maindb.unfccc.int/public/country.pl?country=CN> (/37/)

The LoA from China has been obtained from the PP (/2/). Information relevant with the LoA issuance is available on DNA's official webpage
http://cdm.ccchina.gov.cn/website/CDM/pdf/Item_new/Item_new6386.pdf (/39/).

The LoA has been issued by the DNA which is listed on the UNFCCC CDM website. Content of the LoA is checked and items (a) – (d) are confirmed.

- (a) The country is a Party to the Kyoto Protocol.
- (b) Participation is Voluntary.
- (c) P.R. China confirming that the proposed CDM project activity contributes to sustainable development of the country Non-Annex 1 Party United Kingdom and submit a letter of approval
- (d) It refers to the precise proposed CDM project activity title in the PDD (/1/), Shandong Wendeng Zhangjiachan Wind Farm Project, being submitted for registration.

Besides, LoA is unconditional with above (a)-(d). Hence, assessment team considers the LoA is in accordance with paragraphs 45-48 of *Validation and Verification Manual* version 01.2 (VVM, /26/). CAR #1 was closed.

The LoA from the DNA of the Annex 1 country was originally not provided. **CAR #2** was raised requesting the PP to provide the LoA from the DNA of the Annex 1 country. In response to the finding, the PP provided the LoA from the DNA of France (/3/).

France ratified the KP on 31/05/2002 has appointed a DNA
<http://maindb.unfccc.int/public/country.pl?country=FR> (/38/)

The French LoA is obtained from the PP. Via email confirmation from the official (Dimitar Nikov) of the DNA (/40/), and comparison the format and signature of the French LoA with other French LoAs on the UNFCCC website, the assessment team has confirmed the authenticity of the LoA from France for the project activity.

LoA has been issued by the DNA which is listed on the UNFCCC CDM website. Content of LoA is checked and items (a) – (c) are confirmed.

- (a) The country is a Party to the Kyoto Protocol.
- (b) Participation is Voluntary.
- (c) It refers to the precise proposed CDM project activity title in the PDD, Shandong Wendeng Zhangjiachan Wind Farm Project, being submitted for registration.

LoA is unconditional with above (a)-(c). Assessment team considers the LoA is in accordance with paragraphs 45-48 of VVM version 01.2. Hence, CAR #2 was closed.

4.2 Participation Requirements

The PPs indicated in the PDD are Wendeng Zhangjiachan Wind Power Co., Ltd. (/7/) and EDF Trading Ltd. EDF Trading Ltd is the PP who has contractual relationship with SGS. It is listed in PDD version 1 and 2. Two PPs in the PDD have been approved by their DNAs respectively by the means of LoA issuance. No entity other than the two approved as project participants are included in the PDD.

CAR #3 was raised requesting the Modalities of Communication (the MoC) completed in accordance with

the *Procedures for Modalities of Communication between Project Participants and the Executive Board* (/30/). The MoC (/4/) signed by the PPs have been provided and checked by the validation team. The MoC is completed in accordance with the template from the UNFCCC. Name of the project participants is consistent between the PDD, LoAs and MoC. The MoC has been checked with respect to below aspects:

- (a) Title of the CDM project activity is consistent with the PDD;
- (b) Date of submission is clearly indicated as 09/08/2011;
- (c) Two project participants are included;
- (d) Focal point for each scope of authority is designated;
- (e) Contact details and specimen signature of each focal point are listed;
- (f) Signatures of project participants confirming their agreement to the terms of the statement of modalities of communication are signed.

Details of each authorized signatory for all project participants are checked corresponding to the representatives designated to the project in Annex I of the Project Design Document. Hence, CAR #3 is closed.

4.3 Project Design Document including Project Description

The project title used in PDD, "Shandong Wendeng Zhangjiachan Wind Farm Project" enables the reader to identify the unique CDM activity. Initial version number 1 of the PDD dated 02/04/2011 and last version number 2 of the PDD dated 02/12/2011 are indicated in the Section A.1 of the PDD.

The purpose of the project activity, type of technology used and the contribution of the project to sustainable development are described in Section A.2 of the PDD. The information provides the reader with a clear understanding of the proposed CDM project activity. The proposed project is planned to utilize local renewable wind resources for power generation, which involves the installation of 58 sets of wind turbines with the nominal capacity of 850 kW each, providing the total installed capacity of 49.3MW. It is estimated that the annual power output is 90,997MWh when the proposed project is put into operation. The electricity generated by the proposed project will be exported to the North China Power Grid (hereinafter NCPG). This project does not involve the alternation of an existing installation or process.

Information provided in section A.2 includes the purpose of the project, type of technology used and the contribution of the project to sustainable development. Information provided in section A.4 includes location of the project, technology to be employed and estimated amount of ERs over the crediting period. Information provided in section B.3 includes determination of the project boundary and description of the sources and gases. All information provided is consistent with details provided in further sections of the PDD. Furthermore, by undertaking a site visit and reviewing of documents including the grid connection agreement signed between the project owner and the grid company (/17/), Technology Agreement signed between the project owner and Gamesa Wind (Tianjin) Co., Ltd. (/14/) and Feasibility Study Report (FSR, /8/), it is confirmed that information reported in sections A.2, A.4 and B.3 is consistent and in compliance with actual situation.

The information provided on the location of the project activity allows for a clear identification of the site. The project is located in Wendeng city, Shandong province, People's Republic of China. The geographical co-ordinates of the site from 122.051944 E to 122.155278 E, from 37.093611 N to 37.181667 N. Central geographical co-ordinates of the site is 122.103611 E, 37.137639 N.

The category and sectoral scope of the project activity is correctly identified i.e.

Category: Renewable electricity in grid connected applications

Sectoral Scope: 1 Energy industries

The projected emission reductions are in consistency with the ex-ante estimation in Section B.6.4.

The project does not receive public funding from Annex 1 Parties.

Therefore, information with respect to project description is deemed accurate and complete.

Main changes and reason for revision between the final PDD against the first version published for the international stakeholder consultation	
PDD Section no.	Description and reason for changing the information in that section

Main changes and reason for revision between the final PDD against the first version published for the international stakeholder consultation	
Section B.5	Response to CL #4, comments received during GSP period are taken into account. Response to CL #5, more information supporting appropriateness of input values is included in PDD version 2. As tax deduction has been included in the calculation of maintenance expense, values of annual O&M cost and IRR in PDD version 2 are changed accordingly. Response to CL #6, complete information of common practice following <i>Tool for the Demonstration and Assessment of Additionality</i> (version 05.2.1) is updated in PDD version 2.
Section B.7	Response to CAR #7, monitoring of backup line, QA/QC procedures and training information are included in PDD version 2.
Section C	Response to CAR #8, starting date is revised in PDD version 2.

4.4 Applicability of selected methodology to the project activity

The baseline methodology ACM0002 version 12.2.0 (/27/) used by the project is previously approved by the CDM Methodology Panel. As indicated on the UN website, ACM0002 version 12.2.0 is the latest version.

The choice of ACM0002 version 12.2.0 is correctly justified in Section B.2 of the PDD and the project is in conformance with all applicability criteria of the applied methodology.

1. The proposed project is the installation of wind power plant; and it does not involve capacity addition, retrofit or replacement
2. The proposed project does not involve switching from fossil fuels to renewable energy at the site; the proposed project does not involve biomass fired power generation.

This project is a grid-connected renewable power generation project activity and a green filed plant. It is the installation of wind power plant.

Check of applicability criteria of ACM0002 version 12.2.0 is as follow:

Table 1 Check of applicability criteria of ACM0002 version 12.2.0

Applicability Criteria of ACM0002 version 12.2.0	Project activity	Applicability Criteria is met?
The project activity is the installation, capacity addition, retrofit or replacement of a power plant/unit of one of the following types: hydro power plant/unit	The project is the installation of a green field wind power plant.	Yes
In the case of capacity additions	The project is a green filed plant.	Not applicable
In case of hydro power plants	The project is a wind power plant.	Not applicable
The methodology is not applicable to project activities that involve switching from fossil fuels to renewable energy sources at the site of the project activity, since in this case the baseline may be the continued use of fossil fuels at the site.	The project does not involve switching from fossil fuels to renewable energy at the site.	Yes
The methodology is not applicable to biomass fired power plants.	The project does not involve biomass fired power generation.	Yes
The methodology is not applicable to hydro power plants that result in new reservoirs or in the increase in existing reservoirs where the power density of the power plant is less than 4 W/m ² .	The project is a wind power plant. No reservoir is applied.	Not applicable

The project may import electricity from the grid within the project boundary. Monitoring of electricity imported from the grid which is expected to contribute more than 1% of the overall expected average emission reductions not addressed in the methodology is included in the monitoring plan of the PDD. Net electricity supplied to the grid will be used for ERs calculation.

The applicability of the ACM0002 version 12.2.0 is satisfied.

4.5 Project Boundary

The project boundary includes the physical delineation of the project. The spatial extent of the project boundary includes the proposed project power plant and all power plants connected physically to NCPG that the proposed project power plant is connected to.

All emission sources and gases related to the baseline scenario, project scenario and leakage are clearly identified and described in a complete manner in Section B.3 of the PDD. CO₂ is the main emission source and included in the baseline. In the PDD, CO₂ is included in the baseline emissions; CH₄ and N₂O are not included in the baseline emission. CO₂, CH₄ and N₂O are all not included in the project emission. As a wind farm project, there is no leakage. All above information has been validated to be in compliance with ACM0002 version 12.2.0.

The project's spatial boundaries are clearly defined in Section B.3 of the PDD. The spatial extent of the proposed project boundary includes the proposed project power plant and all power plants connected physically to NCPG that the proposed project power plant is connected to. Therefore, the boundary of proposed project is within NCPG in accordance ACM0002 version 12.2.0 and *Tool to calculate the emission factor for an electricity system* (version 02.2.1, hereinafter Emission Factor Tool, /29/). According to information from the Chinese DNA official website (/41/), NCPG is composed of Beijing, Tianjin, Hebei, Shanxi, Shandong and Inner Mongolia Autonomous Region power grid. The project is located in Shandong Province and covered by the NCPG. Therefore, NCPG is chosen as the relevant electric power system.

4.6 Baseline Selection and Additionality

The baseline scenario is identified in Section B.4 of the PDD transparently as per ACM0002 version 12.2.0. As per ACM0002 version 12.2.0, for installation of a new grid-connected renewable power plant, the baseline scenario is *Electricity delivered to the grid by the project activity would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources, as reflected in the combined margin (CM) calculations described in the "Tool to calculate the emission factor for an electricity system"*. ACM0002 version 12.2.0 is correctly applied in the identification of the baseline scenario.

Conservativeness is addressed in the way of identifying the baseline. Net electricity generation supplied by the project to the grid as baseline is in compliance with the methodology and it is widely applied in the host country.

The choice of the baseline is compatible with publicly available data and also the registered CDM wind power projects in China. Electricity supply from the operation of grid-connected power plant and by the addition of new generation sources (the baseline scenario) is widely applied in the host country.

4.6.1 Additionality

Taking into account that the project has been published for validation before publication of version 6.0.0 of the *Tool for the demonstration and assessment of additionality* (25 November 2011), and a complete request for registration will be submitted before 25 July 2012, 24:00 GMT, *Tool for the demonstration and assessment of additionality* (version 05.2.1, hereinafter Additionality Tool, /28/) is used for the demonstration of the additionality of the project in Section B.5 of the PDD. All steps needed by the tool for the demonstration of additionality are followed in a transparent manner. The applied version of the Additionality Tool is version 05.2.1.

As per the Additionality Tool, the following steps are taken for the demonstration of the additionality of the project in section B.5 of the PDD.

- Step 1. Identification of alternatives to the proposed project activity consistent with current laws and regulations;
- Step 2. Investment Analysis;
- Step 3. Barrier Analysis; (Not used)
- Step 4. Common Practice Analysis.

4.6.2 Prior Consideration of the Clean Development Mechanism

The starting date of the project activity is 03/02/2010, which was the date when the wind turbine contract was signed and was the earliest date at which either the implementation or construction or real action of a project activity began. The starting date is earlier than the validation. In PDD version 1, it states the starting date of the project activity of 01/02/2010 is the date when wind turbine contract was signed. While it is found that wind turbine contract was signed on 03/02/2010 during the assessment team's desk review. Moreover, date of signing CDM consultancy agreement (/19/) is found inconsistent as well. Therefore, **CAR #8** is raised requesting the PP to take relevant action and clarify how the starting date is determined as per the definition in the Glossary of CDM terms (/31/).

In response to CAR#8, the wind turbine contract signing date and CDM consultancy agreement signing date are revised in PDD version 2 and validated to be correct. The prior consideration of CDM was demonstrated in Section B.5 of the PDD. The notification of prior consideration of CDM was submitted to the UNFCCC on 04/02/2010 and accepted on 04/02/2010 (/22/), prior to the GSP of the PDD. Prior consideration of the CDM was sent to the Chinese DNA on 06/02/2010 and accepted on 15/03/2010 (/21/). The bank loan contract was not signed at the time of site visit. Construction started on 26/02/2010 as construction start order (/16/) indicates. Therefore, the starting date of the project activity is 03/02/2010, which was the date when the wind turbine contract was signed and was the earliest date at which either the implementation or construction or real action of a project activity began. Hence, CAR #8 is closed out.

Requirements relevant with prior consideration of CDM in EB 49 Annex 22 *Guidelines on the demonstration and assessment or prior consideration of the CDM* version 03 (/32/) are as follow:

1. Paragraph 2 *"The Board decided that for project activities with a starting date on or after 02 August 2008, the project participant must inform a Host Party DNA and the UNFCCC secretariat in writing of the commencement of the project activity and of their intention to seek CDM status. Such notification must be made within six months of the project activity start date and shall contain the precise geographical location and a brief description of the proposed project activity, using the standardized form F-CDM-Prior Consideration. Such notification is not necessary if a PDD has been published for global stakeholder consultation or a new methodology proposed to the Executive Board for the specific project before the project activity start date."*

The starting date of the project is 03/02/2010 which is after 02/08/2008. The PP has informed the Host Party DNA on 06/02/2010 and approved on 15/03/2010. The PP notified UNFCCC secretariat in writing on 04/02/2010. This notification was made within six months of the project activity start date and it contains geographical location and a brief description of the proposed project activity, using the standardized form F-CDM-Prior Consideration. Hence, this requirement is met.

2. Paragraph 4 *"When validating a project activity with a start date on or after 2 August 2008, DOEs shall ensure by means of confirmation from the UNFCCC secretariat that such a notification had been provided."*

The starting date of the project is 03/02/2010 which is after 02/08/2008. The PP notified the UNFCCC secretariat in writing on 04/02/2010 and notification is available on UNFCCC website. Hence, this requirement is met.

3. Paragraph 8 *"In validating proposed CDM project activities where:*

- (a) there is less than 2 years of a gap between the documented evidence the DOE shall conclude that continuing and real actions were taken to secure CDM status for the project activity;*
- (b) the gap between documented evidence is greater than 2 years and less than 3 years, the DOE may validate that continuing and real actions were taken to secure CDM status for the project activity and shall justify any positive or negative validation opinion based on the context of the evidence and information assessed;*
- (c) the gap between documented evidence is greater than 3 years, the DOE shall conclude that continuing and real actions were not taken to secure CDM status for the project activity. "*

There is no gap between the documented evidence more than 2 years as table below indicates. Hence, it is concluded that continuing and real actions were taken to secure CDM status for the project activity.

Table 2 continuing and real actions of CDM development

Time	Milestone
April 2008	Environment Impact Assessment (EIA) carried out by Shandong Academy of Environmental Science (/11/)
24/06/2008	EIA report was approved by Shandong Environmental Protection Bureau (/13/)
July 2008	Feasibility Study Report (FSR) was completed by Shandong Industrial Design Institute Co., Ltd.
09/12/2008	FSR was approved by Shandong Development and Reform Commission.
12/05/2009	Directorate decision to apply CDM support (/23/)
17/10/2009	CDM Consultancy Agreement signed between the project owner and Easy Carbon Consultancy Co., Ltd.
18/12/2009	ERPA signed between the project owner and EDF Trading Ltd (/20/)
03/02/2010	The wind turbine contract signed between the project owner and Gamesa Wind (Tianjin) Co., Ltd. (Project starting date)
04/02/2010	The prior consideration of the CDM form was accepted by EB.
26/02/2010	Construction started
15/03/2010	The prior consideration of the CDM form was approved by the Chinese DNA.
13/06/2011	The Chinese LoA was obtained.
05/10/2011	The French LoA was obtained.

It is concluded by the assessment team that CDM was prior considered for this project.

4.6.3 Identification of alternatives

Following the Additionality Tool, alternatives to the project activity were identified in section B.5 of the PDD.

In Sub-step 1a of the PDD, four plausible and credible alternatives available to the project that provide outputs or services comparable to the CDM project activity were identified:

- 1) The proposed project not undertaken as CDM project;
- 2) Construction of a fossil fuel power plant with equivalent amount of annual electricity output;
- 3) Construction of a power plant using other source of renewable energy with equivalent amount of annual electricity output; and
- 4) Supply of equivalent annual power output by the Grid to which the proposed project is connected.

The assessment team confirms that the listed alternatives are credible and complete. All alternatives include technologies and practices that include outputs or services comparable with the proposed CDM project activity.

Through document review of the evidence provided and interview with the local officials during the site visit, it is validated that because of the financial unattractiveness of solar PV, biomass and geothermal and the lack of hydro in the region where the proposed project activity is located, alternative 3) is not a realistic and credible alternative. Besides, the project developer is a company devoted to the development of wind power project. It is not realistic to construct a power plant with other renewable sources.

In Sub-step 1b, alternative 2) was eliminated from further consideration because it does not comply with the national regulation for controlling small scale thermal power plant. As per the *Notice of the General Office of the State Council concerning the Strict Prohibition for Construction of Thermal Power Plants with the Capacity of Less Than 135 MW* (/42/), thermal power plants with the installed capacity less than 135 MW are prohibited for construction within the grid connected area. A fossil fuel power plant with the same output as the proposed project is not allowed to build as its capacity is below the 135 MW threshold. Through document review of the *Notice of the General Office of the State Council concerning the Strict Prohibition for Construction of Thermal Power Plants with the Capacity of Less Than 135 MW*, it has been validated that

alternative 2) is not in compliance with *Notice of the General Office of the State Council concerning the Strict Prohibition for Construction of Thermal Power Plants with the Capacity of Less Than 135 MW* and it is not a realistic and credible alternative.

Alternative 1), the project not undertaken as a CDM project and Alternative 4) Supply of equivalent annual power output by the Grid to which the project is connected are validated to be in compliance with all applicable and enforced legislations.

4.6.4 Investment analysis

An investment analysis as Step 2 has been used with the benchmark analysis selected. Steps wise guidance in the Additionality Tool of the investment analysis was followed by the project as following. EB 62 Annex 5 *Guidelines on the assessment of investment analysis* version 05 (/34/) is the guideline validation is performed against.

Sub-step 2a. Determine appropriate analysis method

Simple cost analysis (Option I) is applicable when the project only has CDM related income. Considering the project would generate economic benefits other than CDM related income, Option I is not applicable to the project. Comparison analysis (Option II) is applicable to projects where alternatives should be similar investment projects. The alternative baseline scenario of the project is the NCPG rather than a new investment project, thus, Option II is not applicable. Therefore, Benchmark analysis (Option III) is chosen.

Sub-step 2b. Option III. Apply benchmark Analysis

Following paragraph 13 of *Guidance on the assessment of investment analysis* version 05 “*In the cases of projects which could be developed by an entity other than the project participant the benchmark should be based on parameters that are standard in the market.*”, project IRR of total investment after tax was identified as financial indicator. In the PDD version 2, benchmark of 8% was applied in the benchmark analysis. The suitability of the benchmark was justified in the PDD that the benchmark of 8% is sourced from the *Interim Rules on Economic Assessment of Electric Engineering Retrofit Projects* (Guodianfa [2002] No.623, /56/), issued by the State Power Corporation of China on 10/09/2002. It is designed to guide the economic assessment of retrofit and new projects in electric power industry in China. The proposed project activity is an electricity generation project and the project IRR of total investment is calculated to be compared with the benchmark. The benchmark of 8% is widely applied in financial assessments of wind farms in China and has also been accepted as the benchmark for registered CDM projects in power sector of China. The benchmark IRR of 8% is validated to be standard in the market and therefore suitable for the project activity by SGS Assessors in compliance with the requirement of paragraph 13.

Sub-step 2c. Calculation and comparison of financial indicators

Following Paragraph 6 of the *Guidance on the Assessment of Investment Analysis* version 05 “*Input values used in all investment analysis should be valid and applicable at the time of the investment decision taken by the project participant.*”, the parameters and inputs used for IRR calculation without CDM revenue are from FSR of the project which is valid and applicable at the time the decision to go ahead with the project was made. In China, assumptions and data sources for the economic evaluation of a project in the approved FSR are required to be based on relevant national standards and criteria. The FSR for the proposed CDM project was prepared by Shandong Industrial Design Institute Co., Ltd which is an independent third party entity accredited by National Development and Reform Commission of People's Republic of China dated 10/12/2007 (Certificate No. GongZiYi 11820070043, /9/) to carry out feasibility studies for new projects, including wind farm projects. The input values used for the investment analysis of the project were valid and applicable at the time of the investment decision i.e. 12/05/2009. The application of fixed values is in line with this guidance, because at the time of investment decision, any information on the variation of the input values over the following 21 years was not available to the project owner.

Paragraph 54(b) of EB38th meeting report (/33/) states “*The values used in the PDD and associated annexes are fully consistent with the FSR, and where inconsistencies occur the DOE should validate the appropriateness of the values.*” The input values of parameters used for IRR calculation without CDM income in version 2 of the PDD and IRR spreadsheet (/5/) are checked against the approved FSR and its approval issued by related authority in which key parameters in the FSR were verified and confirmed. It has been validated that except for Value added tax (8.5% in the FSR, IRR is 3.25% without CDM income in the

FSR applying the VAT of 8.5%), all the other listed input values are from the FSR for the project dated in July 2008 and consistently applied in calculation. Therefore, requirement of paragraph 54 (b) is complied. All the other

Paragraph 54(a) of EB38th meeting report states “The FSR has been the basis of the decision to proceed with the investment in the project, i.e. that the period of time between the finalization of the FSR and the investment decision is sufficiently short for the DOE to confirm that it is unlikely in the context of the underlying project activity that the input values would have materially changed.”. The FSR has been the basis of the decision to proceed with the investment in the project. FSR was finalized in July 2008, and the investment decision is made on 12/05/2009. The period of time between the finalization of the FSR and the investment decision is ten months, which is sufficiently short to confirm that it is unlikely in the context of the project that the input values would have materially changed. Therefore, requirement of paragraph 54 (a) is complied.

The following has been performed to confirm that the input values from the FSR are valid and applicable at the time of the investment decision:

1. Total Static Investment:

The total static investment of the project is 518.04 million Yuan which are validated to be consistent with the data in the approved FSR.

Also, comparison of investment cost per kW is done between the proposed CDM project activity and the recently registered CDM wind power projects in Shandong Province and the comparison results confirm that the investment per kW of the project is within the range of the investment per kW for the registered CDM projects. Table 3 below illustrates the comparison of investment per kW between the proposed CDM project activity and the registered CDM projects with similar capacity in Shandong Province (/43/). The result shows that the investment cost per kW of the proposed project is within the range of these projects.

Table 3 Comparison of investment per kW of the proposed project with other wind farm projects

CDM-EB Ref.	Project Title	Total Installed Capacity (MW)	Total Investment (million Yuan)	Investment per kW (Yuan/kW)
1010	Laizhou Diaolongzui Wind Farm	48.75	450.1359	9,233.56
1019	Qixia Tangshanpeng Windfarm Project	21.75	162	7,448.28
1090	Shandong Changdao 27.2 MW Wind Power Project	27.2	268.68	9,877.94
1128	Shandong Weihai 69 MW Wind Power Project	69	705.1141	10,219.04
1755	Roncheng Wind Power Project, 48.75MW	48.75	502	10,297.44
2019	Shandong Luneng Dongying 48MW Wind Power Project	48	520.58	10,845.42
2094	The 48MW wind power project in Lubei, Shandong Province	48	548.05	11,417.71
2397	Shandong Penglai Pingdingshan Wind Farm Project	48	582.7	12,139.58
2436	Guohua Dongying Hekou 49.5 MW Wind Farm Project (Phase 1)	49.5	507.58	10,254.14
2438	Guohua Binzhou Zhanhua 49.5MW Wind Farm Project (Phase 1)	49.5	479.77	9,692.32

2442	Guohua Dongying Lijin 49.5 MW Wind Farm Project (Phase 1)	49.5	510.318	10,309.45
2530	Shandong Laizhou phase I Wind Power Project	49.5	516.3	10,430.30
2584	Shandong Dongying 1st phase Wind Power Project	49.5	639.24	12,913.94
2730	Shandong Laizhou phase II Wind Power Project	49.5	474.24	9,580.61
2764	Yantai Dongyuan Laizhou 48.5 MW Wind Farm Project Phase I	48.5	449.24	9,262.68
2814	Shandong Rushan Luneng Wind Farm	42	389.3882	9,271.15
2831	Huadian Laizhou Wind Farm Project	40.5	425.56	10,507.65
3353	Huaneng Changyi Phase I Wind Farm Project	49.5	624.48	12,615.76
3391	Shandong Huaneng Shouguang 49.5MW Wind Farm Project	49.5	559.07	11,294.34
4402	Shandong Penglai Wind Farm Phase II Project	48	528.04	11,000.83
	the proposed project	49.3	518.04	10,507.91

The sensitivity analysis was also performed within a variation of $\pm 10\%$ of the total static investment. Further, the critical point for IRR crossing benchmark is analyzed as well. The result showed that if the total static investment decreases by 24.2%, the IRR will reach the benchmark 8%.

94.04% of total static investment has been spent considering wind turbine purchase contract and construction contracts (/15/). It is assessment team's opinion that total static investment is unlikely to decrease by 24.2%.

2. Annual output

The electricity output of the project applied in the PDD is 90,997 MWh, which is consistent with the FSR. The installed capacity of the project is 49.3 MW and plant load factor (PLF) is 21%.

In accordance with the *Guidelines for the reporting and validation of plant load factors* (EB 48, annex 11, /35/) version 01, the plant load factor in the PDD is determined by a third party contracted by one of the project participants i.e. the project owner. PLF is sourced from FSR which is compiled by an accredited third party i.e. Shandong Industrial Design Institute Co., Ltd. In FSR, PLF is calculated based on the data from the FSR ($21\% = 1,846 \text{ hours} / 8760 \text{ hours} \times 100\%$).

The estimation of the annual electricity output is in accordance with the related standards, *Wind Resources Measurement Method of Wind Farms* (GB/T 18709-2002) and *Wind Resources Evaluation Method of Wind Farms* (GB/T 18710-2002). The data from the wind resource measurement were corrected based on the historical meteorological data of 37 years (from 1971 to 2007), provided by local metrological station. The annual power generation and power supply are estimated based on the corrected data, taking into account some other factors like air density, trailing stream and wind turbine efficiency. From our local and sectoral expertise, assessment team confirms that the above procedure for annual power supply estimation is common practice in wind farm design in China.

The assessment team compared the annual power supply, operation hours and PLF of the project activity with other wind farm projects in the same region (Shandong Province) that has already been registered as CDM projects. The comparison result is as follows:

Table 4 Comparison of Annual electricity output/operation hours/Plant Load Factor/Annual O&M Cost (million Yuan) of the proposed project activity with other wind farm projects

CDM-EB Ref.	Project Title	Total Installed Capacity (MW)	Annual Electricity Generation (GWh)	Annual O&M Cost (million Yuan)	Annual Operation Hours	Load Factor
1010	Laizhou Diaolongzui Wind Farm	48.75	96.7049	14.6114	1,984	0.226
1019	Qixia Tangshanpeng Windfarm Project	21.75	36.58	7.8	1,682	0.192
1090	Shandong Changdao 27.2 MW Wind Power Project	27.2	56.42	10.94	2,074	0.237
1128	Shandong Weihai 69 MW Wind Power Project	69	140.033	12.85	2,029	0.232
1755	Roncheng Wind Power Project, 48.75MW	48.75	88.335	Not reported	1,812	0.207
2019	Shandong Luneng Dongying 48MW Wind Power Project	48	95.136	15.0771	1,982	0.226
2094	The 48MW wind power project in Lubei, Shandong Province	48	98.52	4.05	2,053	0.234
2397	Shandong Penglai Pingdingshan Wind Farm Project	48	99.12	11.58	2,065	0.236
2436	Guohua Dongying Hekou 49.5 MW Wind Farm Project (Phase 1)	49.5	102.396	14.286	2,069	0.236
2438	Guohua Binzhou Zhanhua 49.5MW Wind Farm Project (Phase 1)	49.5	99.324	14.6141	2,007	0.229
2442	Guohua Dongying Lijin 49.5 MW Wind Farm Project (Phase 1)	49.5	103.143	14.349	2,084	0.238
2530	Shandong Laizhou phase I Wind Power Project	49.5	96.08	10.1877	1,941	0.222
2584	Shandong Dongying 1st phase Wind Power Project	49.5	95.9784	7.69	1,939	0.221
2764	Yantai Dongyuan Laizhou 48.5 MW Wind Farm Project Phase I	48.5	88.187	14.03573	1,818	0.208
2814	Shandong Rushan Luneng Wind Farm	42	69.125	9.074	1,646	0.188
2831	Huadian Laizhou Wind Farm Project	40.5	77.32	4.59	1,909	0.218
3353	Huaneng Changyi Phase I Wind Farm Project	49.5	111.8746	9.25	2,260	0.258
3391	Shandong Huaneng Shouguang 49.5MW Wind Farm Project	49.5	96.4788	12.33	1,949	0.222
4402	Shandong Penglai Wind Farm Phase II Project	48	103.7408	10.53	2,160	0.223
	the proposed project	49.3	90,997	11.19	1,846	0.21

The operation hours of the proposed project activity is comparable to similar projects in the same region. Base on our local and sectoral expertise, the assessment team confirms that the operation hours/annual electricity output of the project activity applied in the PDD is valid and applicable at the time of the investment decision.

3. Annual O&M cost:

The average annual O&M costs of the project was calculated to be 11.19 million Yuan/year. The annual O & M costs mainly include material cost, insurance, employee payroll and welfare fund, maintenance expense and miscellanea fees. The calculation formula of O&M was validated to be consistent with what was determined in the *Economical Assessment Method and Parameters for Construction Project* (the 3rd edition, /55/) issued by NDRC and Ministry of Construction of China in August 2006 and the determination in the FSR. The applied rate, such as the Rate of Maintenance, the Rate of Insurance, the Salary and the Welfare Fee are validated to comply with corresponding policy in China. The assessment team compared the average annual O & M costs of the project activity with other wind farm projects already registered as CDM projects and found that the average annual O & M costs of the project activity is in the range of the other wind farm projects in the same region. The comparison result is shown in the Table 4 above. According to *statistics from national bureau of statistic of china* (/46/), goods price keeps increasing in past years, it is unlikely to reduce O& M costs as well.

Based on our local and sectoral expertise, the assessment team can confirm that the average annual O & M costs of the project activity applied in the PDD are valid and applicable at the time of the investment decision.

4. Electricity Tariff:

According to the *Interim Measures for Renewable Energy Power Tariff and Cost-sharing* issued by NDRC which was effective from 01/01/2006, (Document Code: Fa Gai Jia Ge [2006] No. 7, /44/), the electricity tariff of wind power projects should be guided by the government and renewable energy generation projects which are approved by government authorities after 01/01/2006 should implement this regulation; projects which had been approved by government authorities before 31/12/2005 can still implement their previous approvals.

The applied tariff (incl. VAT) of 0.61RMB/kWh in the PDD is consistent with the tariff used in the FSR. And the FSR has been approved by Shandong Provincial Development and Reform Commission.

On 20/07/2009, the National Development and Reform Commission issued a *Notice for Wind Power Grid Tariff Policy*. It defined four types of wind resource regions with different availabilities of wind and tariffs. The proposed project locates in the Type IV wind resource region and the unified tariff is 0.61RMB/kWh (including VAT) according to the notice. The notice became valid on 01/08/2009 which means the tariff approved before that time will remain same and from then on, all the wind projects will get approved tariff according to the notice. Following the notice, the electricity tariff approved for the proposed project is 0.61RMB/kWh (including VAT) as project's tariff approval (/18/) confirms, which is as same as the electricity tariff estimated for investment decision.

In addition, the tariff 0.61RMB/kWh (including VAT, 0.61RMB/kWh for the first 30,000 hrs, after that tariff for thermal power plants is applicable.) is the highest tariff from the latest version of *Information note on the highest tariffs applied by the EB in its decisions on registration of projects in the People's Republic of China* published by EB (/45/).

As analysis in the Sensitive Analysis in the PDD shows, if the tariff increases by 27.78%, the IRR of proposed project will reach the benchmark. However, the tariff in China is regulated by the government and all the approved similar wind farm tariffs since 2009 in Shandong Province is fixed to be 0.61RMB/kWh. It is not easy for the PP to predict the increase of electricity tariff for 20 years' lifetime. It's the assessment team's opinion that the tariff is not expected to be raised by 27.78%.

The investment decision of the project is made based on the electricity tariff they can expect at the time of investment decision. In summary, it is the opinion of the assessment team that the tariff of 0.61RMB/kWh (incl. VAT) is valid and applicable at the time of investment decision for the project activity.

5. Other input values:

Tax rate

The taxes related to the proposed project were value added tax, income tax, education surtax and city maintenance and construction tax.

Value added tax

The FSR was completed in July 2008 at the time when *Notice of Value Added Tax Policy Regarding Products Using Certain Synthesized Resources and Other Products* (/50/) was valid. According to the notice, VAT rate 17% should be half levied for the wind power projects since 2001. Hence, the VAT rate of 8.5% was adopted in FSR. The value added tax used in the IRR calculation sheet is 17% which is consistent with the national policy *Provisional Regulations of the People's Republic of China on Value-added Tax* (/47/). There are two new national policies issued, which are also applicable to the proposed project activity. One is the *Notice of the Ministry of Finance and the State Administration of Taxation on Several Issues concerning the National Implementation of Value-added Tax Reform* (/48/) in which it is stipulated that the tax payer is entitled to have a full recovery of the input tax paid on the fixed asset from the output tax on electricity tariff. The other one is the *Notice of the Ministry of Finance and the State Administration of Taxation about Policies regarding the Value Added Tax on Comprehensive Utilization of Resources and Other Products* (/49/) in which it is stipulated that the wind power plant is entitled to a refund of the half of the output VAT on electricity since the year that all the input tax have been recovered. Both policies have been correctly applied in the calculation of the IRR. The calculation method applied in the IRR is conservative.

Income tax

The income tax used in the IRR calculation sheet is 25% which complies with the national policy *Enterprise Income Tax Law of the People's Republic of China* (/51/). The income tax calculation used in the IRR calculation spreadsheet was in accordance with the latest national policy *Notice of the Ministry of Finance and State Administration of Taxation on Issues Relevant to Implementation of the List of Public Infrastructure Projects Enjoying Enterprise Income Tax Preferences* (/52/) in which it is stipulated that the wind power company is entitled to pay zero income tax for the first three years and half the income tax for the second three years since power generation. The related national policy has been applied in the IRR calculation spreadsheet.

Educational surtax

The educational surtax used in the IRR calculation sheet is 4% which is in accordance with the national policy *Decision of the State Council on Amending the Interim Provisions on the Collection of Educational Surtax* and *Interim rules on the collection of additional Educational Surtax in Shandong Province* (/53/).

City maintenance and construction tax

The city maintenance and construction tax used in the IRR calculation sheet is 5% which is determined as per the national policy *Interim regulations on the city maintenance construction tax of the People's Republic of China* (/54/).

Fair value

Following Paragraph 4 of the Guidance on the Assessment of Investment Analysis, the fair value of the proposed project activity assets at the end of the assessment has been included as a cash inflow in the final year (Year 21), and the fair value of the project (192.778 million) is verified to be 3.7% of the fixed asset (4% without consideration of Tax deduction and VAT reimbursement), which is consistent with the value in the approved FSR and also confirmed to be determined as per the national policy "*Notice Regarding The Executive Time of The Adjustment of The Fair Value of The Fixed Asset*" issued by State Administration of Taxation on 14/09/2005 (/57/).

Depreciation rate

Following Paragraph 5 of the Guidance on the Assessment of Investment Analysis, depreciation rate is set as 6.4% annually with a depreciation period of 15 year, which is consistent with the data in the FSR and also the determination of fair value as validated above. The 15 year depreciation period is validated to be common practice in wind power industry in China (/67/). Depreciation and other non-cash items related to the project activity were not deducted in estimation of gross profits and thus did not need to be added back to the net profits. Taxation was included in the calculation because the benchmark is intended for post-tax comparison.

Interests repayment

As the benchmark used (8%) is post-tax benchmark, following Paragraph 11 of the Guidance on the Assessment of Investment Analysis, the actual interest payable is taken into account in the calculation of income tax. The interest was validated to be calculated according to the prevailing commercial interest rates in the region. The interest used in the FSR is 7.83% which is validated to be the same as the prevailing commercial interests rate in China published by the People's Bank of China at the time of investment decision (/65/). The calculation of interests' repayment in the IRR calculation spreadsheet is consistent with the data in the FSR.

Debt/equity finance structure

Paragraph 18 of Guidance on the Assessment of Investment Analysis version 05 states "*If the benchmark is based on parameters that are standard in the market, then the typical debt/equity finance structure observed in the sector of the country should be used.*", the actual Debt/equity finance structure of the project is 65% debt and 35% equity financing, which is in compliance with the FSR approval.

In PDD version 1, it is found that suitability of the input values used for investment analysis are not substantially demonstrated, especially the PLF, annual electricity supply, the total static investment, the electricity tariff, the annual O&M cost, the residual value rate, the interest rate, and the tax rate. **CL#5** is raised in this regard. Revision in PDD version 2 is accepted and validated to be correct as presented above, hence CL #5 is closed out.

Sub-step 2d. Sensitive Analysis

Sensitive Analysis has been applied in accordance with the Additionality Tool in version 1 of the PDD.

Paragraph 20 of Guidance on the Assessment of Investment Analysis version 05 states "*Only variables, including the initial investment cost, that constitute more than 20% of either total project costs or total project revenues should be subjected to reasonable variation (all parameters varied need not necessarily be subjected to both negative and positive variations of the same magnitude), and the results of this variation should be presented in the PDD and be reproducible in the associated spreadsheets.*" Hence, total static investment, Power supply and Tariff are determined as the parameters constitute more than 20% of either total project costs or total project revenues and were considered to be the sensitive factors of the project. Annual O&M cost was considered to be sensitive in the FSR and was also included the sensitivity analysis of PDD.

All the variables that constitute more than 20% of either total project costs or total project revenues, i.e. Total static investment, Tariff, Annual electricity output have been subjected to a range of +10% and -10% variation. Considering Annual O&M Cost is essential for project costs, it is included in sensitivity analysis as well. The selection of +/-10% variation is in accordance with *Code on Compiling Project Application Report of Wind Farms* issued by National Development Reform Committee and the "Guidance on the Assessment of Investment Analysis" version 05. It is the opinion of the assessment team that the variation of the variables is reasonable. The conclusion of the sensitivity analysis is that the proposed project activity is unlikely to be financially/economically attractive, unless the electricity tariff is increased by 27.78%, the Annual electricity output is increased by 27.78%, or the Total Static investment is decreased by 24.2%, or the O&M cost is decreased by 117.2%. Assessment of scenarios which will result in the project activity passing the benchmark was carried by the assessment team to validate the probability of the occurrence of these scenarios as follows:

1. Total Static Investment

If the total static investment is decreased by 24.2%, the project IRR would cross the benchmark.

As mentioned above the assessment team has checked the main contracts of the proposed project and found that the actually happened cost till the day when the assessment team finishes this report contributes 94.04% of the total static investment. It is unlikely to decrease by 24.2%.

2. Annual O&M cost

If the O & M cost is decreased by 117.2%, the project IRR would cross the benchmark. The O & M cost of the project has correlation with the raw materials price, staff welfare, etc. Along with the growth of the China

economy, we can not predict the raw materials price and staff welfare in China will decrease significantly in the next 20 years. We consider the total O & M cost of the project is unlikely to decrease by 117.2%.

3. Electricity Tariff

If the tariff of electricity is increased by 27.78%, the project IRR would cross the benchmark. The suitability of the applied tariff was discussed above. It is the opinion of the assessment team that it is unlikely that the electricity tariff will be increased by 27.78% in the next 20 years.

4. Annual output

If the annual output of electricity is increased by 27.78%, the project IRR would cross the benchmark. As discussed above, the estimation in the FSR is deemed to be reliable. It is the opinion of the assessment team that it is unlikely that the output of electricity will be increased by 27.78% for the project.

The input values of the parameters for IRR calculation, the calculation formulae used in the IRR calculation and the calculation results have been verified by the SGS financial expert. It is validated that the investment analysis is performed in accordance with the Guidance on the Assessment of Investment Analysis. The investment analysis in Sub-step 2c under Section B.5 of the PDD shows that the project IRR of the project is 4.40% without CDM income and 6.71% with CDM income. Therefore, in accordance with VVM paragraph 108-109, it was confirmed that the proposed project would not be economically or financially feasible, without the revenue from the sale of certified emission reductions (CERs).

4.6.5 Barrier analysis

Not applied.

4.6.6 Common practice analysis

Step 4 Common Practice Analysis was carried out on the proposed project.

As per the requirement of *Tool for the demonstration and assessment of additionality*, assessment team found more projects meeting common practice analysis criteria but are not analyzed in the PDD version 1. **CL #6** is raised requesting the PP to clarify how similar projects are identified. The geographical scope for the common practice analysis was set as Shandong Province in which the comparable environment with respect to regulatory framework, investment climate, access to technology, access to financing are comparable to the proposed project, which was also widely used by other registered projects in Shandong Province. Wind power projects with the capacity over 15 MW in this region are included in the comparison, which was deemed reasonable as the project lower than 15 MW was defined as small scale project. It is the opinion of the assessment team that the selection of geographical scope, scale of project, and time of starting operation are appropriate for the assessment of common practice related to the project activity's technology or industry type.

According to the definitions of other activities similar to the proposed project activity in *Tool for the Demonstration and Assessment of Additionality* (version 05.2.1), projects are considered similar if they are in the same country/region and/or rely on a broadly similar technology, are of a similar scale, and take place in a comparable environment with respect to regulatory framework, investment climate, access to technology, access to financing, etc.

In April 2002, China implemented the policy of *Separate power plants from network and compete in price to enter network* (/58/). The objective of this power sector reform is to establish a more commercialized power market in China. The regulatory and market conditions for wind power projects have been changed since 2002. So the selection of wind power projects starting operation after 2002 for common practice is appropriate.

After checking *Statistic of installed capacity of China's Wind Farms* from 2007 to 2009 (/61/), the website of Verified Carbon Standard, the website of Gold Standard, two potential similar projects meeting above criteria are identified. Shandong Changdao Wind Farm Project (project ID: 517) applied for Voluntary Emission Reduction under Verified Carbon Standard (VCS, /60//61/) to obtain the support from VCS VER funding to solve the financial barriers. Shandong Jimo Qingdao Huawei Wind Power Project received ODA support from DEG (part of KfW Bankengruppe) and was commissioned in 2003 with the tariff 0.76RMB/kWh approved in 2001. Considering the tariff of 0.76RMB/kWh in 2001 is not comparable to the later tariff of 0.61RMB/kWh in 2009, so it has essential distinctions from the proposed project.

The PP has revised the PDD with sufficient information and it is validated to be the same as the assessment team's conclusion. Hence, CL #6 is closed out.

It is the opinion of the assessment team that similar project activities are not widely observed and the project is not common practice.

Upon validation above, the propose project activity is validated to be additional.

4.7 Application of Baseline Methodology and Calculation of Emission Factors

It is validated that ACM0002 version 12.2.0 has been correctly applied for determining the baseline emission, project emissions, leakage and the direct calculation of emission reductions in the PDD. All the methodological choices have been explained and correctly justified in Section B.6 of the PDD. Uncertainties in the GHG emissions estimates are properly addressed in the PDD.

Baseline emissions (BE_y)

Baseline emissions are calculated using the below formula:

$$BE_y = EG_{PJ,y} * EF_{grid,CM,y}$$

Where,

BE_y = Baseline emissions in year y (tCO₂/yr).

$EG_{PJ,y}$ = Quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the CDM project activity in year y (MWh/yr)

$EF_{grid,CM,y}$ = Combined margin CO₂ emission factor for grid connected power generation in year y calculated using the latest version of the *Tool to calculate the emission factor for an electricity system* (version 02.2.1).

As the project activity is the installation of a new grid-connected renewable power plant at a site where no renewable power plant was operated prior to the implementation of the project activity. Therefore,

$$EG_{PJ,y} = EG_{facility,y}$$

$EG_{facility,y}$ = Quantity of net electricity generation supplied by the project plant/unit to the grid in year y (MWh/yr)

The following steps are taken as per the *Tool to calculate the emission factor for an electricity system* version 02.2.1.

STEP1. Identify the relevant electric power system

North China Power Grid (NCPG) is correctly defined as the project electricity system, which consists of independent electricity systems including Beijing City, Tianjin City, Hebei Province, Shanxi Province, Shandong Province and Inner Mongolia Province Power Grids. The connected electricity system is Northeast China Power Grid (NECPG) including Liaoning, Jilin and Heilongjiang Power Grids and Central China Power Grid (CCPG) including Henan Province, Hubei Province, Hunan Province, Jiangxi Province, Sichuan Province and Chongqing Province Power Grids. This has been verified to be in compliance with the information from the DNA of China.

STEP 2. Choose whether to include off-grid power plants in the project electricity system

Option I (Only grid power plants are included in the calculation.) was chosen to calculate the emission factor.

STEP 3. Select an operating margin (OM) method

It is validated that the option of simple OM and the ex-ante option with a 3-year generation-weighted average, based on the most recent data available at the time of submission of the CDM-PDD to the DOE for validation, without requirement to monitor and recalculate the emissions factor during the crediting period were selected for the project in the PDD.

STEP 4. Select a method to determine the operating margin (OM)

As the low-cost/must-run resources constitute less than 50% of total grid generation in average of the five most recent years, the simple OM method (option a) is used to calculate the operating margin emission factor.

Ex ante option is used to calculate the emission factor based on the most recent data available at the time of submission of the CDM-PDD to the DOE for validation. The PP has used the most recent information available at the time of CDM-PDD submission for validation in the calculation of emission factor in the PDD version 1 and the calculation is found correct.

As the information of the net electricity generation and a CO₂ emission factor of each power unit (Option A) is not available, Simple OM is calculated using option B, based on data on the total net electricity generation of all power plants serving the system and the fuel types and total fuel consumption of the project electricity system. $EF_{grid,OM,y}$ is calculated as 0.9914 tCO₂/MWh in version 1 of the PDD. This has been verified to be in compliance with the methodology, Emission Factor Tool to calculate the emission factor for an electricity system and relevant EB guidance. Data from the Chinese DNA was also checked to confirm that the calculated value of $EF_{grid,OM,y}$ is correct.

STEP 5. Calculate the build margin (BM) emission factor

It is validated that Option (b), the set of power capacity additions in the electricity system that comprise 20% of the system generation (in MWh) and that have been built most recently, is chosen for BM calculation. The build margin emission factor is *ex-ante* determined based on the most recent information available at validation in version 1 of the PDD (Option 1).

$EF_{grid,BM,y}$ is calculated as 0.7495 tCO₂/MWh in the PDD version 2. This has been verified to be in compliance with the *Tool to calculate the emission factor for an electricity system* and relevant EB guidance. Data from the China DNA were also checked to confirm that the calculated value of $EF_{grid,BM,y}$ is correct.

STEP 6: Calculate the combined margin emissions factor ($EF_{grid,CM,y}$)

It is validated that the baseline emission factor, i.e., the combined margin emissions factor is calculated as 0.9309 tCO₂/MWh in version 1 of the PDD with the weighting of OM of 0.75 and weighting of BM of 0.25 as per the *Tool to calculate the emission factor for an electricity system*. The combined emission factor is fixed for the first crediting period and may be revised at the renewal of the crediting period.

Project emissions (PE_y)

The proposed project is a wind power plant. Project emissions do not have to be taken into account according to ACM0002 (version 12.2.0). $PE_y = 0$ tCO₂e.

Leakage (L_y)

According to ACM0002 (version 12.2.0), the leakage for the proposed project is zero. $L_y = 0$ tCO₂e.

Emission Reductions (ER_y)

Emission reductions are calculated using the below formula:

$$ER_y = BE_y - PE_y$$

It is validated that data provided for the ex-ante estimation of ERs in Sections B.6.2 and B.6.3 of the PDD version 2 are in compliance with ACM0002 version 12.2.0. The original data used for the calculation of the grid emission factor used for the ex-ante estimation of ERs are from official or credible sources like IPCC (/62/), China Energy Statistical Yearbook (/63/) and China Electric Power Yearbook (/64/). The calculation of grid emission factor is in compliance with the *Tool to calculate the emission factor for an electricity system* and relevant EB guidance and the estimated annual power generation is from the FSR of the project.

It is validated that ACM0002 version 12.2.0 has been applied exactly as defined for determining emission reductions. The PDD clearly states which equations will be used in calculating emission reductions. All the required steps and calculations have been followed as per ACM0002 version 12.2.0. The PDD documents

how each equation is applied in a manner that enables readers to reproduce the calculation. Conservative assumptions have been used to calculate emission reductions.

The projection of emission reductions is based on estimated annual electricity generation in the FSR and official data source for baseline emission factor. The projection is based on same procedures as to be used for later monitoring. The calculation of ERs is not expected to change for the first crediting period. It is validated that the formulae used to calculate emission reductions are correct and in compliance with ACM0002 version 12.2.0.

As a wind farm project, the project emission is zero. The table required for the indication of projected emission reductions is correctly applied in Section B.6.4 of the PDD. It is validated that the projection of emission reductions is in line with the envisioned time schedule for the project's implementation and the indicated crediting period.

4.8 Application of Monitoring Methodology and Monitoring Plan

The monitoring methodology provides a consistent approach in the context of all parameters to be monitored. No additional information is provided in Annex 4 of the PDD.

$EG_{\text{facility},y}$ is required to be monitored according to monitoring methodology. It is included as a monitored parameter in B.7.1. $EG_{\text{facility},y}$ is calculated by total electricity supplied to the grid ($EG_{\text{output},y}$) minus electricity purchased from the grid ($EG_{\text{import},y}$) and electricity purchased from the grid through a 10 kV spare line ($EG_{\text{im-spare},y}$). $EF_{\text{grid,CM},y}$ is ex-ante determined and will not be monitored throughout the crediting period.

Two measurement meters are involved in monitoring $EG_{\text{output},y}$ and $EG_{\text{import},y}$ including one main meter installed at 110kV substation and one back-up meter installed at wind farm. Both meters will have accuracy level not lower than 0.5s and be subject to annual calibration against national standard. Before the project is in operation, both the project owner and the grid company will check the equipments to ensure their work properly. Project owner and the grid company will read main meter and back-up meter and record accordingly. Sales receipts which are issued based on meter reading of main meter will be obtained for double check. Meter reading of back-up meter will be used once main meter is in failure.

One measurement meter installed at the backup line is used to measure $EG_{\text{im-spare},y}$. This meter belongs to the local power distributor, and the project owner does not have access to the meter. Values on sales receipts issued by the local power distributor will be obtained as source of data. As the local power distributor will not underestimate the amount of electricity, it is accepted by the assessment team. The meter will have accuracy level not lower than 2.0 and be subject to annual calibration against national standard.

The information given for the monitoring variable $EG_{\text{facility},y}$ is sufficient to ensure the verification of a proper implementation of the monitoring plan. The data source, monitoring frequency, QA/QC procedures, accuracy level, calibration frequency and etc are clearly specified in the PDD. Data will be archived for 2 years following the end of the crediting period by means of electronic and paper backup.

The choices of project GHG indicators are reasonable and in conformance with the methodology applied. It is possible to determine the specified project GHG indicators.

The monitoring plan is in compliance with the requirement of the methodology. It is feasible for implementation by means of site visit and interview. A two-step process is applied to assessing compliance with this requirement, as follows:

1. Compliance of the monitoring plan with the approved methodology.
 - 1.1 $EG_{\text{facility},y}$ is identified as the parameter required by monitoring methodology;
 - 1.2 Monitoring plan contains all necessary parameters, i.e. $EG_{\text{facility},y}$. It is clearly described and the means of monitoring described in the plan complies with the requirements of the methodology;
2. Implementation of the monitoring plan
 - 2.1. The monitoring arrangements described in the monitoring plan are feasible within the project design;

2.2 The means of implementation of the monitoring plan, including the data management and QA/QC procedures, are sufficient to ensure that the emission reductions achieved by/resulting from the proposed CDM project activity can be reported ex post and verified.

By means of the site visit, it is found that there exists a backup line for emergency. Part 1 of **CAR #7** is raised requesting the PP taking this into account in MP. In PDD version 2, parameter $EG_{im-spare,y}$ together with relevant monitoring information is added as required. Part 1 of **CAR #7** is closed.

The authority and responsibility of project management for registration, monitoring, measurement and reporting is clearly described in the PDD. Procedures for training of monitoring personnel are not identified in the B.7.2 of the PDD. Part 2 of **CAR #7** is raised requesting the PP to clarify the procedures for training of monitoring personnel. PP includes requested information in the MP and therefore part 2 of **CAR #7** is closed out.

As applied methodology states, project emission is zero and leakage is not considered for wind farm projects.

4.9 Environmental Impacts

The project complies with environmental legislation in the host country. The analysis of the environmental impacts of the project activity has been sufficiently described in Section D.1 of the PDD.

Environmental impact assessment (hereinafter EIA) is required for this kind of project activity. EIA Report (/11/) of the project was completed by Shandong Academy of Environmental Science (/12/) in April, 2008.

The project creates minor adverse environmental effects, but can be relieved if properly measures are taken, which has been included in the PDD, section D.1.

No trans-boundary environmental impacts are considered in the analysis. The impacts to the environment are very small and are properly addressed in the project design.

4.10 Local Stakeholder Comments

Local stakeholders were consulted by means of consultation meeting on 21/11/2009 (/24/) and public survey (/25/). Date of consultation meeting 21/11/2009 is earlier than the time of GSP of PDD. An open public survey was also held before stakeholder's conference. 50 copies were distributed with 48 copies returned.

The stakeholder process was described in a complete and transparent manner. The summary of the stakeholder comments received is provided in Section E.2 of the PDD. According to comments from the stakeholders, it is not necessary to adjust the design, construction or operation of the proposed project.

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 <http://cdm.unfccc.int/Projects/Validation/DB/M8S5JBVF8B5ZY54K40MJCZ53Y43ZH8/view.html> and was open for comments from 05/04/2011 until 04/05/2011. Comments were invited through the UNFCCC CDM homepage

5.2 Compilation of all comments received

Comment Number	Date Received	Submitter	Comment
1~55	03/05/2011	Thomas	55 comments were received during this process (http://cdm.unfccc.int/Projects/Validation/DB/M8S5JBVF8B5ZY54K40MJCZ53Y43ZH8/view.html).

5.3 Explanation of how comments have been taken into account

CL #4 was raised requesting PP taken relevant action.

Global stakeholder process started on 05/04/2011 and closed on 04/05/2011.
(<http://cdm.unfccc.int/Projects/Validation/DB/M8S5JBVF8B5ZY54K40MJCZ53Y43ZH8/view.html>)

55 comments were received during this process. As some of the comments are found either ambiguous or irrelevant, an email was sent to [the contact address provide by the submitter](#), requesting clarification from the author, however, no response has been received to date. Hence, ambiguous comments including number 8, 16, 17, 20, 28, 30, 39, 40, 42, 43 and comments that are not applicable to this project activity (reference to comment number 2 and 3) are not discussed in detail in the final validation report.

Following items were found ambiguous:

8) Basis of choosing PLR as benchmark is not adequately demonstrated in the PDD

PLR was not mentioned in PDD version 1 as benchmark.

16) IT rate assumed is not as per standard practice.

IT rate was not discussed in PDD version 1.

17) The application of MAT which is based on tax holiday while calculating WACC is not appropriate.

MAT was not discussed in PDD version 1.

20) Not demonstrated that the proposed project activity is additional as per options provided under attachment A to Appendix B of the simplified modalities and procedures for small-scale CDM project activities.

The project is not a small-scale CDM project activity.

28) Benchmark calculation is not as per WACC tool (EB53 Annex 8)

Benchmark calculation is not referred WACC tool.

30) The basis of calculation of benchmark is not documented in the section B.5. PLR is not acceptable benchmark for the project. WACC based on Government bonds, risk premiums should be taken.

Neither PLR nor WACC is discussed in PDD version 1.

39) The selection of option (out of two) for calculating OM is not adequately documented with justification. CEA calculation is based on net electricity generation, the average efficiency of each power unit and the fuel types used in each power unit. Step 4 of B.6.1

Definition of CEA is ambiguous, clarification was requested.

40) The argument that CEA data for build margin is calculated as per Emission factor tool is not documented. B.6.1

Definition of CEA is ambiguous, clarification was requested.

42) The justification of negligible project emissions for wind project is not as per AMS. I. D ver 16.0 EB 54). The project does not apply methodology AMS. I. D ver 16.0.

43) The emission factor value (Southern grid) for calculating baseline emission is wrong. Refer B.6.3 Southern grid is not the connected grid of the project. Clarification was requested.

Following items were found irrelevant with the proposed project:

2) How environmentally safe and sound technology is used for the project and details of technology transfer is not demonstrated adequately. Refer A.4.2

A.4.2 is about Category(ies) of project activity, not the technology employed by the project.

3) Non-debundling nature of the project activity is not adequately justified as per EB54 Annex 13 (Debundling tool). Refer A.4.5.

A.4.5 is about public finding, not project nature.

Other comments are confirmed by the assessment team that having been taken into account, details as follow:

1) Purpose of the project and how the proposed project activity reduces greenhouse gas emissions are not briefed in the PDD. Refer section A.2.

It has been originally included in the section A.2 of the PDD version 1 and version 2.

4) Please check the project boundary of the project activity is not based on the guidance of the applicable project category.

The project's spatial boundaries are clearly defined in Section B.3 of the PDD version 2. The spatial extent of the proposed project boundary includes the proposed project power plant and all power plants connected physically to NCPG that the proposed project power plant is connected to. Therefore, the boundary of proposed project is within NCPG in accordance ACM0002 version 12.2.0 and referred Emission Factor Tool.

5) Why has option A (Combined margin) been chosen for calculating emission factor is not justified. Refer B.6

The baseline scenario is identified in Section B.4 of the PDD transparently as per ACM0002 version 12.2.0. As per ACM0002 version 12.2.0, for installation of a new grid-connected renewable power plant, the baseline scenario is *Electricity delivered to the grid by the project activity would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources, as reflected in the combined margin (CM) calculations described in the "Tool to calculate the emission factor for an electricity system"*. Therefore, combined margin is chosen.

6) The justification of choosing IRR as financial indicator is not adequately justified. Whether it is equity or project IRR, pre-tax or post tax is not mentioned in the PDD.

29) Whether pre-tax or post tax IRR is selected is not demonstrated in the PDD.

Response to comment 6) and 29), project IRR of total investment after tax was identified as financial indicator. In the PDD version 2 section B.5, the suitability of the benchmark was justified that the benchmark of 8% is sourced from the *Interim Rules on Economic Assessment of Electric Engineering Retrofit Projects* (Guodianfa [2002] No.623, /56/), issued by the State Power Corporation of China on 10/09/2002. It is designed to guide the economic assessment of retrofit and new projects in electric power industry in China. The proposed project activity is an electricity generation project and the project IRR of total investment is calculated to be compared with the benchmark. The benchmark of 8% is widely applied in financial assessments of wind farms in China and has also been accepted as the benchmark for registered CDM projects in power sector of China. The benchmark IRR of 8% is validated to be standard in the market and therefore suitable for the project activity by SGS Assessors in compliance with paragraph 13 of *Guidance on the assessment of investment analysis* version 05 "In the cases of projects which could be developed by an entity other than the project participant the benchmark should be based on parameters that are standard in the market."

7) The emission factor for the project electricity system can be calculated either for grid power plants only or, as an option, can include off-grid power plants.

PDD version 1 section B.6.1 states that Option I (Only grid power plants are included in the calculation.) was chosen to calculate the emission factor.

9) All the issues of investment analysis guidelines are not discussed in the PDD. Refer B.5.

10) Justification of parameters including O&M, insurance, loan, derating, escalation, and tariff are not demonstrated with justification. Refer B.5.

Response to comment 9) and 10), in the section B.5 of the PDD version 1 has included discussion of investment analysis. While it has been further elaborated in the section B.5 of the PDD version 2 and justification of the appropriateness of input values has been included in PDD version 2 in response to finding CL #5. Please refer CL #5 for details.

11) Please provide a proof for proposed debt to equity taken at the investment decision. Refer B.5

By means of desk review and interview, it was found that at the time of validation, bank loan contract was not signed. Hence, it is not listed in section B.5.

12) Proof for PLF is not justified.

In accordance with the *Guidelines for the reporting and validation of plant load factors* (EB 48, annex 11, /35/) version 01, the plant load factor in the PDD is determined by a third party contracted by one of the project participants i.e. the project owner. PLF is sourced from FSR which is compiled by an accredited third party i.e. Shandong Industrial Design Institute Co., Ltd. In FSR, PLF is calculated based on the data from the FSR (0.21 = 1,846 hours/ 8760hours). Justification is present in the section A.4.3 of the PDD version 2.

13) Date of offer is not provided

31) Prior consideration of CDM which is important for the determination of additionality is not documented in the section B.5 of the PDD.

Key issues of prior consideration of CDM occurred during project development has been included in the section B.5 and validated to be corrected by means of desk review.

14) Project cost is not as per state norms. Refer B.5.

15) O&M charges and its escalation is not as per norms

25) Project cost is not as per norms, DOE has to check and clarify.

26) The project cost of the project should be based on offer and not on purchase order or tariff order.

27) O&M charges considered are on higher side. Pls. clarify.

Response to comment 14), 15), 25), 26) and 27), the average annual O&M costs of the project was calculated to be 11.19 million Yuan/year. The annual O & M costs mainly include material cost, insurance, employee payroll and welfare fund, maintenance expense and miscellaneous fees. The calculation formula of

O&M was validated to be consistent with which was determined in the *Economical Assessment Method and Parameters for Construction Project* (the 3rd edition) issued by NDRC and Ministry of Construction of China on August 2006 and the determination in the FSR. The applied rate, such as the Rate of Maintenance, Rate of Insurance, the Salary and Welfare Fee are validated to comply with corresponding policy in China. Justifications are included in the section B.5 of the PDD version 2.

- 18) The PP has not explained and justified the key assumptions and rationale.
- 19) The PP and consultant has not illustrate in a transparent manner all data used to determine the baseline emissions.
- 21) National policies and circumstances relevant to the baseline of the proposed project activity are not being summarized clarify.
- 23) Data that is calculated with equations provided in the approved category or default values specified in the category should not be included in the compilation.
- 33) The selection of simple OM based on low cost/must run resources is not adequately justified. Refer B.6.1
- 34) PP has not provided for each parameter the chosen value or, where relevant, the qualitative information.
- 35) Please Provide the actual value applied. Where time series of data is used, where several measurements are undertaken or where surveys have been conducted, provide detailed information.
- 36) Explain and justify the choice for the source of data.
- 37) Ex-ante option of calculating OM is not adequately demonstrated. Step 3 of Refer B.6.1
- 38) Power plants registered as CDM project activities should be included in the sample group that is used to calculate the operating margin if the criteria for including the power source in the sample group apply. This argument is not demonstrated. B.6.1
- 41) Spread sheet is not provided. The data should be presented in a manner that enables reproducing of the calculation of OM, BM, and CM.

Response to comment 18), 19) 21), 23), 33) ~38) and 41) It is validated that data provided for the ex-ante estimation of ERs in Sections B.6.2 and B.6.3 of the PDD version 2 are in compliance with ACM0002 version 12.2.0. The original data used for the calculation of the grid emission factor used for the ex-ante estimation of ERs are from official or credible sources like IPCC, China Energy Statistical Yearbook and China Electric Power Yearbook. The calculation of grid emission factor is in compliance with the *Tool to calculate the emission factor for an electricity system* and relevant EB guidance and the estimated annual power generation is from the FSR of the project.

It is validated that ACM0002 version 12.2.0 has been applied exactly as defined for determining emission reductions. The section B.6 of the PDD version 2 clearly states which equations will be used in calculating emission reductions. All the required steps and calculations have been followed as per ACM0002 version 12.2.0. The PDD documents how each equation is applied in a manner that enables readers to reproduce the calculation. Conservative assumptions have been used to calculate emission reductions.

- 22) Explain and justify all relevant methodological choices for the proposed project activity
The choice of ACM0002 version 12.2.0 is correctly justified in Section B.2 of the PDD and the project is in conformance with all applicability criteria of the applied methodology
- 24) CER revenue assumed is not consistently applied
CER revenue is estimated based on price settled on ERPA and it is validated to have been consistently applied in the PDD version 2 and IRR calculation spreadsheet.
- 32) Date of PPA is not mentioned in the prior consideration of CDM

By means of interview project owner, it is found by the assessment team that at the time of validation, PPA was not signed.

44) Net electricity should be continuously monitored, hourly measured and at least monthly recorded. Refer B.7.1

Quantity of net electricity generation supplied by the project to the Grid in year y ($EG_{\text{facility},y}$) is required to be monitored according to monitoring methodology. It is included as a monitored parameter in B.7.1. $EG_{\text{facility},y}$ is calculated by total electricity supplied to the grid ($EG_{\text{output},y}$) minus total electricity purchased from the grid ($EG_{\text{import},y}$) and electricity purchased from the grid through a 10 kV spare line ($EG_{\text{im-spare},y}$). Both $EG_{\text{output},y}$ and $EG_{\text{import},y}$ will be continuously measured and monthly recorded which is in compliance with the applied methodology. Value of $EG_{\text{im-spare},y}$ is obtained from values on sales receipts issued by the local power distributor because the meter belongs to the local power distributor, and the project owner does not have access to the meter.

Where the values have been measured, include a description of the measurement methods and procedures that comply with the guidance provided under general guidance.

47) Provide a detailed description of the monitoring plan, including an identification of the data to be monitored and the procedures that will be applied during monitoring.

48) The PP should include sources of data that will be actually used for the proposed project activity (e.g. which exact national statistics, actual measurement etc.).

49) Where the parameters are to be measured in accordance with the guidance of the approved project category or the general guidance to the indicative methodologies, specify the measurement methods and procedures including accepted industry standards or national or international standards which will be applied, which measurement equipment is used, how the measurement is undertaken.

Response to comment 47) ~ 49), source of data, measurement methods and procedures of $EG_{\text{output},y}$ and $EG_{\text{import},y}$ are stated in section B.7.1 in PDD version 1

50) Which calibration procedures are applied, what is the accuracy of the measurement method, who is the responsible person / entity that should undertake the measurements and what is the measurement interval?

The accuracy of electricity meter for $EG_{\text{output},y}$ and $EG_{\text{import},y}$ is not lower than 0.5s. The accuracy of the meter for $EG_{\text{im-spare},y}$ is not lower than 2.0. A designated third party will carry the calibration on measurement equipments once a year against relevant national standard. Information is included in the section B.7.2 of the PDD version 2.

45) Metering regulations as per CEA norms is not adequately followed in monitoring plan. Refer B.7.2.

National standard is set as a requirement in section B.

51) Please provide a detailed description of the monitoring plan. Describe the operational and management structure that the project operator will implement in order to monitor emission reductions.

52) Clearly indicate the responsibilities for and institutional arrangements for data collection and archiving.

53) The monitoring plan should reflect good monitoring practice appropriate to the type of project activity. Provide any relevant further background information.

Response to comment 51) ~ 53), required information is further elaborated in PDD version 2.

The authority and responsibility of project management for registration, monitoring, measurement and reporting is clearly described in the PDD. Procedures for training of monitoring personnel are not identified in the B.7.2 of the PDD. Part two of **CAR #7** is raised. Please refer to CAR #7 for details. The means of implementation of the monitoring plan, including the data management and quality assurance and quality control procedures, are sufficient to ensure that the emission reductions achieved by the proposed CDM project activity can be reported ex post and verified.

54) Please describe the process by which comments by local stakeholders have been invited and compiled. An invitation for comments by local stakeholders shall be made in an open and transparent manner, in a way that facilitates comments to be received from local stakeholders and allows for a reasonable time for comments to be submitted.

55) Project participants shall describe a project activity in a manner which allows the local stakeholders to understand the project activity.

Response to 54) and 55), the section E of the PDD version 2 has included means of consulting local stakeholders. Besides, after reviewing consultation meeting minutes, it is validated that project activity was described in an understandable way to local stakeholders.

Comments stated above have been taken into account in PDD version 2 and accepted by the assessment team. Hence, CL #4 is closed out.

6. List of Persons Interviewed

Date	Name	Position	Short Description of Subject Discussed
10/05/2011	Mr. CAO Yao Dong	China Guangdong Nuclear Wind Power Co., Ltd.	Project technology, operation, maintenance and monitoring capability and monitoring plan.
10/05/2011	Mr. WANG Zi Song	China Guangdong Nuclear Wind Power Co., Ltd.	Legality of the project, project approval status, additionality, stakeholder consultation process
10/05/2011	Mr. HUANG Zhi Yu	China Guangdong Nuclear Wind Power Co., Ltd.	Project technology, operation, maintenance and monitoring capability and monitoring plan.
10/05/2011	Mr. HUANG Zi Yu	China Guangdong Nuclear Wind Power Co., Ltd.	Project technology, operation, maintenance and monitoring capability and monitoring plan.
10/05/2011	Mr. LIU Yang	CDM project manager of Easy Carbon	Applicability of selected methodology; Baseline determination; Emission reductions calculation; Monitoring plan
10/05/2011	Ms. WANG Yuan	CDM project manager of Easy Carbon	Applicability of selected methodology; Baseline determination; Emission reductions calculation; Monitoring plan
10/05/2011	Mr. ZHANG Hai Jun	Official of local electricity bureau	Stakeholder consultation, the local residents' attitude toward the project, etc
10/05/2011	Mr. BI Hong Yang	Official of local Environmental protection bureau	Stakeholder consultation, the local residents' attitude toward the project, etc.
10/05/2011	Mr. GU Zhao Jun	Official of local Development and Reform Commission	Stakeholder consultation, the local residents' attitude toward the project, etc.
10/05/2011	Mr. CONG Shu Zhong	Local villager	Stakeholder consultation, the local residents' attitude toward the project, etc.
10/05/2011	Ms. WANG Li Xiu	Local villager	Stakeholder consultation, the local residents' attitude toward the project, etc.
10/05/2011	Ms. BI Ke Ping	Local villager	Stakeholder consultation, the local residents' attitude toward the project, etc.

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):

Name of document
/1/ PDD, version 1, dated 02/04/2011, published for International Stakeholder Consultation; version 2, dated 02/12/2011, for registration request
/2/ Letter of Approval issued by DNA of China dated 13/06/2011
/3/ Letter of Approval issued by DNA of France dated 05/10/2011
/4/ Modality of Communication signed by both parties dated 09/08/2011
/5/ IRR calculation spreadsheet
/6/ Baseline Emission Factor for NCPG and Ex ante ER calculation spreadsheet
/7/ Business license of Wending Zhangjiachan Wind Power Co., Ltd (the project owner)
/8/ Feasibility Study Report (FSR) completed by Shandong Industrial Design Institute Co., Ltd in July 2008
/9/ Accreditation certificate of Shandong Industrial Design Institute Co., Ltd dated 10/12/2007 [Certificate No. GongZiYi 11820070043]
/10/ Approval of the project issued by Shandong Development and Reform Commission on 09/12/2008
/11/ Environmental Impact Assessment (EIA) completed by Shandong Academy of Environmental Science in April 2008
/12/ Accreditation certificate of Shandong Academy of Environmental Science
/13/ Approval of EIA by Shandong Environmental Protection Bureau on 24/06/2008
/14/ Wind turbine contract including Technology Agreement signed between the project owner and Gamesa Wind (Tianjin) Co., Ltd. on 03/02/2010
/15/ Contracts signed for equipments and construction of the project
/16/ Construction start order on 26/02/2010
/17/ Grid connection agreement signed between the project owner and the grid company
/18/ Project's tariff approval issued by Shandong Provincial Price Bureau on 26/10/2010 (Lujiagefa[2010] No.209)
/19/ CDM Consultancy Agreement signed between the project owner and Easy Carbon Consultancy Co., Ltd. on 17/10/2009
/20/ Emission Reduction Purchase Agreement (ERPA) signed between the project owner and EDF Trading Ltd on 18/12/2009
/21/ Notification to the DNA of China about the commencement of the project and its confirmation from the DNA dated 06/02/2010 approved on 15/03/2010
/22/ Notification to the UNFCCC secretariat dated 04/02/2010 http://cdm.unfccc.int/Projects/PriorCDM/notifications/index.html
/23/ Directorate decision to apply CDM support 12/05/2009
/24/ Minute of the local stakeholder conference dated 21/11/2009
/25/ Returned questionnaires

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):

Name of document
/26/Clean Development Mechanism Validation and Verification Manual Version 01.2 dated 30/07/2010
/27/ACM0002 Consolidated baseline methodology for grid-connected electricity generation from renewable sources version 12.2.0 dated 25/11/2011
/28/Tool for the demonstration and assessment of additionality version 05.2.1
/29/Tool to calculate the emission factor for an electricity system, Version 02.2.1
/30/Procedures For Modalities Of Communication Between PPs And The Executive Board version 01 dated 13/02/2009
/31/Glossary of CDM terms version 05
/32/EB49 Annex 22 Guidelines on the demonstration and assessment or prior consideration of the CDM
/33/EB38 report dated 14/03/2008
/34/EB 62 Annex 5 Guidelines on the assessment of investment analysis version 05
/35/EB48 Annex 11 Guideline for the reporting and validation of plant load factors
/36/EB63 Annex 12 Guidelines on common practice version 01.0
/37/Information of DNA of China http://maindb.unfccc.int/public/country.pl?country=CN
/38/Information of DNA of France http://maindb.unfccc.int/public/country.pl?country=FR
/39/Confirming Authenticity of LoA from China http://cdm.ccchina.gov.cn/website/CDM/pdf/Item_new/Item_new6386.pdf
/40/Email from the official of the DNA confirming Authenticity of LoA from France
/41/Bulletin on 2010 Baseline Emission Factors for Regional Power Grids in China issued by China DNA http://cdm.ccchina.gov.cn/WebSite/CDM/UpFile/File2552.pdf
/42/Notice of the General Office of the State Council concerning the Strict Prohibition for Construction of Thermal Power Plants with the Capacity of less than 135 MW within the Grid Connected Area, GUOBANFAMINGDIAN [2002] Document No.6 http://nyj.ndrc.gov.cn/nyfjb/nyfjb4/nyfjb43/nyfjb432/t20070112_110563.htm
/43/Information of registered CDM wind projects in Shandong province http://cdm.unfccc.int/Projects/projsearch.html
/44/Regulation on the tariff of wind power projects Interim Measures for Renewable Energy Power Tariff and Cost-sharing issued by NDRC which was effective from 01/01/2006, (Document Code: Fa Gai Jia Ge [2006] No. 7) http://www.ndrc.gov.cn/zcfb/zcfbtz/2009tz/t20090727_292827.htm Notice on adjustment of the tariff in NCPG issued by NDRC in 2008 http://www.ndrc.gov.cn/zcfb/zcfbtz/2008tongzhi/t20080702_222220.htm The approval of the wind power project tariff in Shandong Province' issued by the Shan Dong Price Bureau (Lujiagefa [2010] 168)
/45/Information note on the highest tariffs applied by the executive board in its decisions on registration of projects in the People's Republic of China version 02 http://cdm.unfccc.int/Reference/Notes/reg_note07.pdf
/46/Statistics from National Bureau of Statistic of China

http://www.stats.gov.cn/tjsj/ndsj/2009/indexch.htm
/47/Provisional Regulations of the People's Republic of China on Value-added Tax http://www.gov.cn/flfg/2008-11/14/content_1149549.htm
/48/Notice of the Ministry of Finance and the State Administration of Taxation on Several Issues concerning the National Implementation of Value-added Tax Reform (FinTax[2008]No.17 http://www.chinatax.gov.cn/n8136506/n8136593/n8137537/n8138502/8745403.html
/49/Notice of the Ministry of Finance and the State Administration of Taxation about Policies regarding the Value Added Tax on Comprehensive Utilization of Resources and Other Products (FinTax[2008]No. 156) http://www.chinatax.gov.cn/n8136506/n8136593/n8137537/n8138502/8714515.html
/50/Notice of Value Added Tax Policy Regarding Products Using Certain Synthesized Resources and Other Products (Cai Shui [2001]198) http://www.js-n-tax.gov.cn/Page1/StatuteDetail.aspx?StatuteID=4991
/51/Enterprise Income Tax Law of the People's Republic of China is Officially Promulgated http://www.legalinfo.gov.cn/zhuanti/content/2010-09/28/content_2298906.htm?node=25857
/52/Notice of the Ministry of Finance and State Administration of Taxation on Issues Relevant to Implementation of the List of Public Infrastructure Projects Enjoying Enterprise Income Tax Preferences http://www.gov.cn/zwgk/2007-12/11/content_830645.htm
/53/Decision of the State Council on Amending the Interim Provisions on the Collection of Educational Surtax http://www.gov.cn/zwgk/2005-09/27/content_70440.htm Interim rules on the collection of additional Educational Surtax in Shandong Province Lucaizong [2005] No.15 http://www.ctax.org.cn/qyhy/zcwj/sswj/dfwj/t20060510_525636.shtml
/54/Interim regulations on the city maintenance construction tax of the People's Republic of China http://www.gov.cn/banshi/2005-08/19/content_24817.htm
/55/Economical Assessment Method and Parameters for Construction Project (the 3 rd edition)
/56/Interim Rules on Economic Assessment of Electric Engineering Retrofit Projects (Ref no.: GuoDian Fa [2002](263))
/57/Notice Regarding The Executive Time of The Adjustment of The Fair Value of The Fixed Asset" issued by State Administration of Taxation on 14/09/2005
/58/Separate power plants from network and compete in price to enter network
/59/Statistic of installed capacity of China's Wind Farms from 2007 to 2009
/60/ http://www.v-c-s.org/
/61/ https://vcsprojectdatabase1.apx.com/mymodule/mypage.asp https://gs1.apx.com/mymodule/mypage.asp
/62/2006 IPCC Guidelines for National Greenhouse Gas Inventories
/63/China Energy Statistical Yearbook
/64/China Electric Power Yearbook
/65/Interests rate http://www.pbc.gov.cn/publish/zhengcehuobisi/631/2011/20110210093635541134488/20110210093635541134488_.html
/66/Procedures of Wind Power Development and Construction Management (Fa Gai Neng Yuan [2005])

1204)

http://www.ndrc.gov.cn/nyjt/nyzywx/t20050810_41378.htm

/67/ Depreciation period for fixed assest

<http://www.miit.gov.cn/n11293472/n11295006/n11297142/13194995.html>

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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 Shandong Wendeng Zhangjiachan Wind Farm Project.

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

Issue	Findings	Source/Mean of Verification	Further Clarification / Action Required? / Information
1. Evidence of the legality of the project.	Relevant evidences have been provided to show the legality of the project.	Plant design, Feasibility Study Report, business license, Approval of the project	No
2. Interview with local stakeholders and realize actual status of the project activity	Meeting minutes of initial stakeholder consultation meeting has been provided to SGS assessors. Three representatives of the local stakeholders have been interviewed on site.	Official representatives from concerned local governments, like the EPA and representatives of local residences need to attend the site visit.	No
3. In regard to the Stakeholder's comments mentioned in PDD, please provide the contact details of those who attended the meeting.	Minutes of the stakeholder consultation have been provided. Questionnaires that were sent to the stakeholders have been provided.	Minutes and questionnaires as documentation. Interview representatives of the local stakeholders onsite.	No
4. Verify the Environmental Impact Assessment and its approval.	The EIA for the project and the approval for the EIA have been provided to and verified by SGS assessors.	EIA and its approval as documentation. Interview with officials from EPA onsite.	No

Issue	Findings	Source/Mean of Verification	Further Clarification / Action Required? / Information
5. Additionality of the project	The FSR have been provided to and verified by SGS assessors. IRR calculation spreadsheet has been provided. Evidence that the incentive from the carbon credits income was seriously considered in the decision to proceed was provided such as board minutes, financial analysis chapter of FSR. The common practice analysis for the project has been performed.	Supporting document used in the investment analysis as well as all data sources of parameters or assumptions used in PDD. A spreadsheet for IRR calculation for the project. Evidence that the incentive from the CDM was seriously considered in the decision to proceed the project activity. Clarify how other activities similar to the proposed project activity are identified	No
6. Application of methodology	Required parameters that will be monitored as per the applied methodology have been added in the PDD version 2 Training plan, maintenance plan, operational manual and etc have been provided.	Evidence that required parameters will be monitored as per the applied methodology, QA/QC procedures will be in place, Training plan, maintenance plan.	No

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	Reference Criteria	SGS Assessment	Conclusion/CARs/CLs
1. All Parties involved have approved the project activity 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 a) The country is a Party to the Kyoto Protocol b) Participation is Voluntary c) 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 d) It refers to the precise proposed CDM project activity title in the PDD being submitted for registration 1.2. Whether the LoA is unconditional with respect to (a)-(d) above? 1.3. Is the LoA from the project participant or directly from the DNA, indicate the means of validation employed to assess the authenticity with DNA if the team doubt the authentic of LoAs.	Clean Development Mechanism, Validation and Verification Manual, Version 01.2 (from this point forwarded referenced as VVM) - -- Para 44-50 and 126-127 Paragraph 37 CDM Modalities and procedures	Yes The host Party P.R.China has ratified the Kyoto Protocol on 30/08/2002 and has appointed a DNA. http://maindb.unfccc.int/public/country.pl?country=CN CAR #1 was raised requesting the PP to provide the LoA from China. LoA from China has been obtained from the PP. Information relevant with LoA issuance is available on DNA's official webpage http://cdm.ccchina.gov.cn/website/CDM/pdf/Item_new/Item_new6386.pdf Content of LoA is checked and items (a) – (d) are confirmed. a) The country is a Party to the Kyoto Protocol b) Participation is Voluntary c) P.R. China confirming that the proposed CDM project activity contributes to sustainable development of the country Non-Annex 1 Party United Kingdom and submit a letter of approval d) It refers to the precise proposed CDM project activity title in the PDD, Shandong Wendeng Zhangjiachan Wind Farm Project, being submitted for registration.	CAR #1 CAR #2 OK

		LoA is unconditional with above (a)-(d). LoA has been issued by the DNA which is listed on the UNFCCC CDM website. Assessment team considers the LoA is in accordance with paragraphs 45-48 of VVM version 01.2. CAR #1 was closed. CAR #2 is raised for requesting the PP to provide the LoA from the DNA of the Annex 1 country. In response to the finding, the PP provided the LoA from the DNA of France France ratified the KP on 31/05/2002 has appointed a DNA http://maindb.unfccc.int/public/country.pl?country=FR France LoA is obtained from the PP. The French LoA is obtained from the PP. Via email confirmation from the official (Dimitar Nikov) of the DNA, and comparison the format and signature of the French LoA with other French LoAs on the UNFCCC website, the assessment team has confirmed the authenticity of the LoA from France for the project activity. Content of LoA is checked and items (a) – (d) are confirmed. a) The country is a Party to the Kyoto Protocol b) Participation is Voluntary c) Not applicable of annex 1 country d) It refers to the precise proposed CDM project activity title in the PDD, Shandong Wendeng Zhangjiachan Wind Farm Project, being submitted for registration. LoA is unconditional with above (a)-(d). LoA has been issued by the DNA which is listed on the	
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		UNFCCC CDM website. Assessment team considers the LoA is in accordance with paragraphs 45-48 of VVM version 01.2. CAR #2 was closed.	
2. Please state the project participants listed in the PDD and check with which of these project participants does SGS have a contract for the projects validation	Para 37 CDM M & P Para 7 EB 50 Annex 48	Wendeng Zhangjiachan Wind Power Co.,Ltd. EDF Trading Ltd are PPs listed in PDD. EDF Trading Ltd is the PP have contractual relationship with SGS.	OK
2.1. If the project participant(s) listed in the PDD published at international stakeholder ¹ 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.	EB 30 Para. 41. EB50 Annex 48 Para. 8	NA	OK
2.2. Confirm while submitting a request for registration – all of the project participants with a contractual relationship are still listed in the PDD.	EB50 Annex 48 Para.7-9	EDF Trading Ltd is the PP have contractual relationship with SGS. It is still listed in the PDD.	OK
2.3. Project participants who are listed in the PDD (submitted for global stakeholder consultation) but who do not have a contractual relationship with SGS for the purposes of the validation activity may be removed from the PDD which is submitted for registration	EB50 Annex 48 Para.7-9	NA	OK
2.4. SGS may restart the validation activity through the new or revised contract with a different set of project participants by; a. Indicating that the first validation contract has been terminated and;	EB50 Annex 48 Para.7-9 (If applicable)	NA	OK

¹ 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

b. Republishing the PDD or revised PDD for global stakeholder consultation.			
2.5. The letter/s of approval are unconditional with respect to 1.1.a) to 1.1.d) above	VVM Para. 49/54	Yes	CAR #1 CAR #2 OK
3. The project shall assist non-Annex I Parties in achieving sustainable development and shall have obtained confirmation by the host country thereof, and be entered into voluntarily	VVM Para. 54 Marrakech Accords, CDM Modalities §29 and §30 Kyoto Protocol Art. 12.2, Marrakech Accords, CDM Modalities §40a	LoA from China DNA is issued in June 2011 and provided by the PP. LoA has been validated consistent with the requirements of the EB as 1.1) to 1.3) above indicates, which including assist United Kingdom in achieving sustainable development and voluntary participation.	OK
4. 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. 40-42 Marrakech Accords, CDM Modalities, §40	Global stakeholder process started on 05/04/2011 and closed on 04/05/2011. (http://cdm.unfccc.int/Projects/Validation/DB/M8S5JBVF8B5ZY54K40MJCZ53Y43ZH8/view.html) 55 comments were received during this process. As some of the comments are found either ambiguous or irrelevant, a mail was sent to thmswtsn8@gmail.com requesting clarification from the author. However, no response was received till issuance of the report. Hence, ambiguous comments including number 8, 16, 17, 20, 28, 30, 39, 40, 42, 43 and irrelevant comments including comments including number 2 and 3 are not responded. Global stakeholder process started on 05/04/2011 and closed on 04/05/2011. (http://cdm.unfccc.int/Projects/Validation/DB/M8S5JBVF8B5ZY54K40MJCZ53Y43ZH8/view.html) 55 comments were received during this process. As some of the comments are found either ambiguous or	CL #4 CAR #7 OK

		irrelevant, a mail was sent to thmswtsn8@gmail.com requesting clarification from the author. However, no response was received till issuance of the report. Ten ambiguous comments including number 8, 16, 17, 20, 28, 30, 39, 40, 42, 43 and two irrelevant comments including comments including number 2 and 3 were found. Following items were found ambiguous: 8) Basis of choosing PLR as benchmark is not adequately demonstrated in the PDD PLR was not mentioned in PDD version 1 as benchmark. 16) IT rate assumed is not as per standard practice. IT rate was not discussed in PDD version 1. 17) The application of MAT which is based on tax holiday while calculating WACC is not appropriate. MAT was not discussed in PDD version 1. 20) Not demonstrated that the proposed project activity is additional as per options provided under attachment A to Appendix B of the simplified modalities and procedures for small-scale CDM project activities. The project is not a small-scale CDM project activity. 28) Benchmark calculation is not as per WACC tool (EB53 Annex 8) Benchmark calculation is not referred WACC tool. 30) The basis of calculation of benchmark is not documented in the section B.5. PLR is not acceptable benchmark for the project. WACC based on	
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		Government bonds, risk premiums should be taken. Neither PLR nor WACC is discussed in PDD version 1. 39) The selection of option (out of two) for calculating OM is not adequately documented with justification. CEA calculation is based on net electricity generation, the average efficiency of each power unit and the fuel types used in each power unit. Step 4 of B.6.1 Definition of CEA is ambiguous, clarification is requested. 40) The argument that CEA data for build margin is calculated as per Emission factor tool is not documented. B.6.1 Definition of CEA is ambiguous, clarification is requested. 42) The justification of negligible project emissions for wind project is not as per AMS. I. D ver 16.0 EB 54). The project does not apply methodology AMS. I. D ver 16.0. 43) The emission factor value (Southern grid) for calculating baseline emission is wrong. Refer B.6.3 Southern grid is not the connected grid of the project. Clarification is requested. Following items were found irrelevant with the proposed project: 2) How environmentally safe and sound technology is used for the project and details of technology transfer is not demonstrated adequately. Refer A.4.2 A.4.2 is about Category(ies) of project activity, not	
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		technology employed by the project. 3) Non-debundling nature of the project activity is not adequately justified as per EB54 Annex 13 (Debundling tool). Refer A.4.5. A.4.5 is about public finding, not project nature. Other comments are confirmed by the assessment team that having been taken into account, details as follow: 1) Purpose of the project and how the proposed project activity reduces greenhouse gas emissions are not briefed in the PDD. Refer section A.2. It has been originally included in the PDD version 1 and version 2. 4) Please check the project boundary of the project activity is not based on the guidance of the applicable project category. The project's spatial boundaries are clearly defined in Section B.3 of the PDD version 2. The spatial extent of the proposed project boundary includes the proposed project power plant and all power plants connected physically to NCPG that the proposed project power plant is connected to. Therefore, the boundary of proposed project is within NCPG in accordance ACM0002 version 12.2.0 and referred Emission Factor Tool. 5) Why has option A (Combined margin) been chosen for calculating emission factor is not justified. Refer B.6 The baseline scenario is identified in Section B.4 of the PDD transparently as per ACM0002 version 12.2.0. As per ACM0002 version 12.2.0, for	
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		installation of a new grid-connected renewable power plant, the baseline scenario is <i>Electricity delivered to the grid by the project activity would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources, as reflected in the combined margin (CM) calculations described in the "Tool to calculate the emission factor for an electricity system"</i>. Therefore, combined margin is chosen. 6) The justification of choosing IRR as financial indicator is not adequately justified. Whether it is equity or project IRR, pre-tax or post tax is not mentioned in the PDD. 29) Whether pre-tax or post tax IRR is selected is not demonstrated in the PDD. Response to comment 6) and 29), project IRR of total investment after tax was identified as financial indicator. In the PDD version 2, the suitability of the benchmark was justified that the benchmark of 8% is sourced from the <i>Interim Rules on Economic Assessment of Electric Engineering Retrofit Projects</i> (Guodianfa [2002] No.623, /56/), issued by the State Power Corporation of China on 10/09/2002. It is designed to guide the economic assessment of retrofit and new projects in electric power industry in China. The proposed project activity is an electricity generation project and the project IRR of total investment is calculated to be compared with the benchmark. The benchmark of 8% is widely applied in financial assessments of wind farms in China and has also been accepted as the benchmark for registered CDM projects in power sector of China. The benchmark IRR of 8% is validated to be standard in the market and therefore suitable for the project	
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		activity by SGS Assessors in compliance with paragraph 13 of <i>Guidance on the assessment of investment analysis</i> version 05 “<i>In the cases of projects which could be developed by an entity other than the project participant the benchmark should be based on parameters that are standard in the market.</i>”. 7) The emission factor for the project electricity system can be calculated either for grid power plants only or, as an option, can include off-grid power plants. PDD version 1 section B.6.1 states that Option I (Only grid power plants are included in the calculation.) was chosen to calculate the emission factor. 9) All the issues of investment analysis guidelines are not discussed in the PDD. Refer B.5. 10) Justification of parameters including O&M, insurance, loan, derating, escalation, and tariff are not demonstrated with justification. Refer B.5. Response to comment 9) and 10), PDD version 1 has included discussion of investment analysis. While it has been further elaborated in PDD version 2 and justification of the appropriateness of input values has been included in PDD version 2 in response to finding CL #5. Please refer CL #5 for details. 11) Please provide a proof for proposed debt to equity taken at the investment decision. Refer B.5 By means of desk review and interview, it was found that at the time of validation, bank loan contract was not signed. Hence, it is not listed in section B.5. 12) Proof for PLF is not justified. In accordance with the <i>Guidelines for the reporting and</i>	
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		<i>validation of plant load factors</i> (EB 48, annex 11, /35/) version 01, the plant load factor in the PDD is determined by a third party contracted by one of the project participants i.e. the project owner. PLF is sourced from FSR which is compiled by an accredited third party i.e. Shandong Industrial Design Institute Co., Ltd. In FSR, PLF is calculated based on the data from the FSR (21% = 1,846 hours/ 8760hours *100%). 13) Date of offer is not provided 31) Prior consideration of CDM which is important for the determination of additionality is not documented in the section B.5 of the PDD. Key issues of prior consideration of CDM occurred during project development has been included in the section B.5 and validated to be corrected by means of desk review. 14) Project cost is not as per state norms. Refer B.5. 15) O&M charges and its escalation is not as per norms 25) Project cost is not as per norms, DOE has to check and clarify. 26) The project cost of the project should be based on offer and not on purchase order or tariff order. 27) O&M charges considered are on higher side. Pls. clarify. Response to comment 14), 15), 25), 26) and 27), the average annual O&M costs of the project was calculated to be 11.19 million Yuan/year. The annual O & M costs mainly include material cost, insurance,	
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		employee payroll and welfare fund, maintenance expense and miscellanea fees. The Calculation formula of O&M was validated to be consistent with which was determined in the <i>Economical Assessment Method and Parameters for Construction Project</i> (the 3rd edition) issued by NDRC and Ministry of Construction of China on August 2006 and the determination in the FSR. The applied rate, such as the Rate of Maintenance, Rate of Insurance, the Salary and Welfare Fee are validated to comply with corresponding policy in China. 18) The PP has not explained and justified the key assumptions and rationale. 19) The PP and consultant has not Illustrate in a transparent manner all data used to determine the baseline emissions. 21) National policies and circumstances relevant to the baseline of the proposed project activity are not being summarized clarify. 23) Data that is calculated with equations provided in the approved category or default values specified in the category should not be included in the compilation. 33) The selection of simple OM based on low cost/must run resources is not adequately justified. Refer B.6.1 34) PP has not provided for each parameter the chosen value or, where relevant, the qualitative information. 35) Please Provide the actual value applied. Where time series of data is used, where several measurements are undertaken or where surveys have	
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		been conducted, provide detailed information. 36) Explain and justify the choice for the source of data. 37) Ex-ante option of calculating OM is not adequately demonstrated. Step 3 of Refer B.6.1 38) Power plants registered as CDM project activities should be included in the sample group that is used to calculate the operating margin if the criteria for including the power source in the sample group apply. This argument is not demonstrated. B.6.1 41) Spread sheet is not provided. The data should be presented in a manner that enables reproducing of the calculation of OM, BM, and CM. Response to comment 18), 19) 21), 23), 33) ~38) and 41) It is validated that data provided for the ex-ante estimation of ERs in Sections B.6.2 and B.6.3 of the PDD version 2 are in compliance with ACM0002 version 12.2.0. The original data used for the calculation of the grid emission factor used for the ex-ante estimation of ERs are from official or credible sources like IPCC, China Energy Statistical Yearbook and China Electric Power Yearbook. The calculation of grid emission factor is in compliance with the <i>Tool to calculate the emission factor for an electricity system</i> and relevant EB guidance and the estimated annual power generation is from the FSR of the project. It is validated that ACM0002 version 12.2.0 has been applied exactly as defined for determining emission reductions. The PDD clearly states which equations will be used in calculating emission reductions. All the required steps and calculations have been followed as	
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		per ACM0002 version 12.2.0. The PDD documents how each equation is applied in a manner that enables readers to reproduce the calculation. Conservative assumptions have been used to calculate emission reductions. 22) Explain and justify all relevant methodological choices for the proposed project activity The choice of ACM0002 version 12.2.0 is correctly justified in Section B.2 of the PDD and the project is in conformance with all applicability criteria of the applied methodology 24) CER revenue assumed is not consistently applied CER revenue is estimated based on price settled on ERPA and it is validated to have been consistently applied in the PDD version 2 and IRR calculation spreadsheet. 32) Date of PPA is not mentioned in the prior consideration of CDM By means of interview project owner, it is found by assessment team that at the time of validation, PPA was not signed. 44) Net electricity should be continuously monitored, hourly measured and at least monthly recorded. Refer B.7.1 Quantity of net electricity generation supplied by the project to the Grid in year y ($EG_{\text{facility},y}$) is required to be monitored according to monitoring methodology. It is included as a monitored parameter in B.7.1. $EG_{\text{facility},y}$ is calculated by total electricity supplied to the grid ($EG_{\text{output},y}$) minus total electricity purchased	
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		from the grid ($EG_{import,y}$) and electricity purchased from the grid through a 10 kV spare line ($EG_{im-spare,y}$). Both $EG_{output,y}$ and $EG_{import,y}$ will be continuously measured and monthly recorded which is in compliance with the applied methodology. Value of $EG_{im-spare,y}$ is obtained from values on sales receipts issued by the local power distributor because the meter belongs to the local power distributor, and the project owner does not have access to the meter. Where the values have been measured, include a description of the measurement methods and procedures that comply with the guidance provided under general guidance. 47) Provide a detailed description of the monitoring plan, including an identification of the data to be monitored and the procedures that will be applied during monitoring. 48) The PP should include sources of data that will be actually used for the proposed project activity (e.g. which exact national statistics, actual measurement etc.). 49) Where the parameters are to be measured in accordance with the guidance of the approved project category or the general guidance to the indicative methodologies, specify the measurement methods and procedures including accepted industry standards or national or international standards which will be applied, which measurement equipment is used, how the measurement is undertaken. Response to comment 47) ~ 49), source of data, measurement methods and procedures of $EG_{output,y}$, and $EG_{import,y}$ are stated in section B.7.1 in PDD	
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		version 1 50) Which calibration procedures are applied, what is the accuracy of the measurement method, who is the responsible person / entity that should undertake the measurements and what is the measurement interval? The accuracy of electricity meter for $EG_{output,y}$ and $EG_{import,y}$ is not lower than 0.5s. The accuracy of the meter for $EG_{im-spare,y}$ is not lower than 2.0. A designated third party will carry the calibration on measurement equipments once a year against relevant national standard. 45) Metering regulations as per CEA norms is not adequately followed in monitoring plan. Refer B.7.2. National standard is set as a requirement in section B. 51) Please provide a detailed description of the monitoring plan. Describe the operational and management structure that the project operator will implement in order to monitor emission reductions. 52) Clearly indicate the responsibilities for and institutional arrangements for data collection and archiving. 53) The monitoring plan should reflect good monitoring practice appropriate to the type of project activity. Provide any relevant further background information. Response to comment 51) ~ 53), required information is further elaborated in PDD version 2. The authority and responsibility of project management for registration, monitoring, measurement and reporting is clearly described in the	
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		PDD. Procedures for training of monitoring personnel are not identified in the B.7.2 of the PDD. Part two of CAR #7 is raised. Please refer CAR #7 for details. The means of implementation of the monitoring plan, including the data management and quality assurance and quality control procedures, are sufficient to ensure that the emission reductions achieved by the proposed CDM project activity can be reported ex post and verified. 54) Please describe the process by which comments by local stakeholders have been invited and compiled. An invitation for comments by local stakeholders shall be made in an open and transparent manner, in a way that facilitates comments to be received from local stakeholders and allows for a reasonable time for comments to be submitted. 55) Project participants shall describe a project activity in a manner which allows the local stakeholders to understand the project activity. Response to 54) and 55), PDD version 2 has included means of consulting local stakeholders. Besides, after reviewing consultation meeting minutes, it is validated that project activity was described in an understandable way to local stakeholders. Comments stated above have been taken into account in PDD version 2 and accepted by the assessment team. Hence, CL #4 is closed out.	
5. The project design document is in accordance with the applicable CDM requirements for completing PDDs.	VVM Para. 55 - 57 Marrakech Accords, CDM Modalities, Appendix B, EB Decisions	The project applied the latest PDD template version 3.0. Latest guidance for completing PDD version 7.0 is applied.	OK



	EB 25 Annex 15 EB 41 Annex 12		
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Table 2 - PDD

Checklist Question	Reference Criteria	MoV*	SGS Assessment	Conclusion/ CARs/CLs
A. General Description of Project Activity				
A.1. Project Title				
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 project title used in PDD, "Shandong Wendeng Zhangjiachan Wind Farm Project" enables the reader to identify the unique CDM activity.	OK
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	Yes, the initial version number 1 of the PDD dated 02/04/2011 and last version number 2 of the PDD dated 02/12/2011 are indicated in the Section A.1. of the PDD.	OK
A.2. Description of the Project Activity				
A.2.1. Does the proposed CDM project activities in existing facilities or utilizing existing equipments? Does a site inspection carried out by the assessment team?	VVM Para 60 Guidelines for completing a CDM-PDD (PDD) section A.2	DR	Not applicable.	OK
A.2.2. Does the description of the proposed CDM project activity as contained in the PDD sufficiently cover all relevant elements accurately and provide the reader with a clear understanding of the nature of the proposed CDM project activity?	VVM Para.58-59 VVM Para. 64(a) PDD section A.2 see also A.4, A.4.3 and B.3	DR, SV	Yes, the purpose of the project activity, type of technology used and the contribution of the project to sustainable development are described in Section A.2 of the PDD. The information provides the reader with a clear understanding of the proposed CDM project activity. The proposed project is planned to utilize local renewable wind resources for power generation, which involves the installation of 58 sets of wind turbines with the nominal capacity of 850 kW each, providing the total installed capacity of 49.3MW. It's estimated that the annual power output is 90,997MWh once the proposed project is put into operation. The electricity	OK

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

			generated by the proposed project will be exported to the North China Power Grid (hereinafter NCPG).	
A.2.3. If the project activity involves the alternation of an existing installation or process, does the project description clearly state the differences resulting from the project activity compared to the pre-project situation?	VVM Para.63 PDD section A.2 see also A.4, A.4.3 and B.3	DR, SV	Not applicable. This project does not involve the alternation of an existing installation or process.	OK
A.2.4. 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.4.3 and B.3	DR, SV	Yes, all information provided is consistent with details provided in further chapters of the PDD. Information provided in section A.2 includes the purpose of the project, type of technology used and the contribution of the project to sustainable development. Information provided in section A.4 includes location of the project, technology to be employed and estimated amount of ERs over the crediting period. Information provided in section B.3 includes determination of the project boundary and description of the sources and gases. By undertaking site visit and reviewing documents including grid connection diagram, grid connection agreement signed between the project owner and the grid company and Feasibility Study Report (FSR), it is confirmed that information reported in section A.2, A.4 and B.3 is consistent and in compliance with actual situation.	OK
A.2.5. Is all information with respect to project description deemed accurate and complete?	VVM Para.64(b) PDD section A.2	DR	Further on closure of A.2.2, A.2.3 and A.2.4, it is deemed accurate and complete.	OK

A.3. Project Participants

A.3.1. Is the table required for the indication of project participants correctly applied?	VVM Para. 51-54 PDD section A.3	DR	The table in A.3 of the PDD is correctly applied. The participants are listed as following: Wendeng Zhangjiachan Wind Power Co., Ltd. EDF Trading Ltd CAR #3 was raised requesting the MoC completed in accordance with the Procedures for Modalities of Communication between Project Participants and the Executive Board. The MoC signed by the PPs have been provided and checked by the validation team, The MoC is completed in accordance with the template from the UNFCCC. Name of the project participants is consistent between the PDD, LoAs and MoC. CAR #3 is closed.	CAR #3 OK
A.3.2. Whether the participation of each project participant has been approved by at least one Party involved, either in a letter of approval or in a separate letter specifically to approve?	VVM Para. 52	DR	Yes. Two PPs in the PDD have been approved by its DNA respectively by the means of LoA issuance. No entity other than the two approved as project participants are included in these sections of the PDD.	OK
A.3.3. 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/Annex 1	DR	All information provided is in consistency with details provided by further chapters of the PDD.	OK
A.3.4. Has the MoC been completed as per the latest Procedures for MoC between the project participants and the Executive Board?	EB 48 Annex 60 EB 45 Annex 59	DR	MoC has been checked with respect to below aspects: (a) Title of the CDM project activity is consistent with the PDD; (b) Date of submission is clearly indicated as 09/08/2011; (c) Two project participants are included; (d) Focal point for each scope of authority is designated; (e) Contact details and specimen signature of each focal point are listed;	CAR #3 OK

			(f) Signatures of project participants confirming their agreement to the terms of the statement of modalities of communication are signed. Details of each authorized signatory for all project participants is checked correspond to the representatives designated to the project in Annex I of the Project Design Document.	
A.4. Technical Description of the Project Activity				
A.4.1. Does the information provided on the location of the project activity allow for a clear identification of the site(s)? A.4.2. Are the latitude and longitude of the site indicated (decimal points)	VVM Para.64 PDD section A.4	DR, SV	Yes, the information provided on the location of the project activities allow for a clear identification of the site. The project is located in Wendeng city, Shandong province, People's Republic of China. The geographical co-ordinates of the site from 122.051944 E to 122.155278 E, from 37.093611 N to 37.181667 N. Central geographical co-ordinates of the site is 122.103611 E, 37.137639 N.	OK
A.4.3. Does the proposed CDM project activity involve the alteration of existing installations or process?	VVM Para.64 PDD section A.4	DR,S V	No, the project activity is a new project and does not involve the alteration of existing installations or processes.	OK
A.4.4. Is the category(ies) of the project activity correctly identified?	VVM Para.64 PDD section A.4	DR, SV, I	Yes. The category of the project activity is correctly identified. Category: Renewable electricity in grid connected applications Sectoral Scope: 1 Energy industries	OK
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 Guidelines for completing a CDM-PDD (PDD)	DR, SV, I	Installed capacity is confirmed by checking control system in wind farm and wind turbine purchase agreement. Technical specifications reported in section A.4.3 are confirmed by reviewing Technology Agreement provided by wind turbine supplier i.e. Gamesa. By reviewing grid connection diagram and grid connection agreement signed between the project owner and the grid company, grid connection reported in section A.4.3 is confirmed. By checking Feasibility Study Report (FSR), it is confirmed that load factor reported in section A.4.3 is correct.	OK
A.4.6. Is the projected	VVM Para.64	DR	The projected emission reductions is in consistency with the ex-ante estimation in	OK

emission reductions in consistency with the ex-ante estimation in Section B.6.4?	PDD section A.4.4		Section B.6.4	
A.5. Public Funding				
A.5.1. Does the information on public funding provided conform to the actual situation or planning as presented by the project participants?	PDD section A.4.5	SV,I	There is no public funding provided to the project, and it has been confirmed during the onsite visit and interviewing with the local officials.	OK
A.5.2. Is all information provided consistent with details provided by further chapters of the PDD (in particular annex 2)?	PDD section A.4.5	DR,S V,I	Yes, all information provided is consistent with details provided by further chapters of the PDD	OK
A.5.3. In case of public funding from Annex 1 Parties is it confirmed that such funding does not result in a diversion of official development assistance	PDD section A.4.5	DR,S V,I	Not applicable as the project does not receive public funding from Annex 1 Parties.	OK
B. Baseline and Monitoring Methodology				
B.1. Title and reference of the approved baseline and monitoring methodology applied of the project activity				
B.1.1. Is the baseline methodology previously approved by the CDM Methodology Panel?	VVM Para.65 VVM Para 68 PDD section B.1	DR	Yes, the baseline methodology ACM0002 version 12.2.0 used by the project is previously approved by the CDM Methodology Panel. As indicated on the UN website, ACM0002 version 12.2.0 is the latest version.	OK
B.1.2. Is there any specific guidance (including the	VVM Para.68-69	DR	ACM0002 version 12.2.0 refers to the Tool for the demonstration and assessment of additionality, version 05.2.1 (hereinafter referred to as the Additionality Tool) and	OK

Tools) provided by EB and has these guidance been applied?	PDD section B (B.1-B.2)		the Tool to calculate the emission factor for an electricity system, version 02.2.1 (hereinafter referred to as the Emission Factor Tool). PDD version 1 refers Emission Factor Tool version 02. During validation, Emission Factor Tool version 02.2.1 is released. PDD version 2 is updated accordingly.																
B.2. Choice and Applicability of methodology																			
B.2.1. Is the selected approved methodology applicable to the project activity in the PDD?	VVM Para.75/66a/68/73 PDD section B (B.1-B.2)	DR, SV, I	Yes, the choice of ACM0002 version 12.2.0 is correctly justified in Section B.2. of the PDD and the project is in conformance with all applicability criteria of the applied methodology. 1. The proposed project is the installation of wind power plant; and it does not involve capacity addition, retrofit or replacement 2. The proposed project does not involve switching from fossil fuels to renewable energy at the site	OK															
B.2.2. Is the discussion in the PDD in conformance with all applicability criteria of the applied methodology?	VVM Para.70-76 PDD section B (B.1-B.2)	DR, SV	Check of applicability criteria of ACM0002 version 12.2.0 is as follow: <table><tr><th>Applicability Criteria of ACM0002 version 12.2.0</th><th>Project activity</th><th>Applicability Criteria is met?</th></tr><tr><td>The project activity is the installation, capacity addition, retrofit or replacement of a power plant/unit of one of the following types: hydro power plant/unit (either with a run-of-river reservoir ...</td><td>The project is the installation of a green field wind power plant.</td><td>Yes</td></tr><tr><td>In the case of capacity additions ...</td><td>The project is a green filed plant.</td><td>Not applicable</td></tr><tr><td>In case of hydro power plants ...</td><td>The project is a wind power plant.</td><td>Not applicable</td></tr><tr><td>The methodology is not applicable to project activities that involve switching from fossil fuels to renewable energy sources at the site of the project activity, since in this case the baseline may be the continued use of fossil fuels at the</td><td>The project does not involve switching from fossil fuels to renewable energy at the site.</td><td>Yes</td></tr></table>	Applicability Criteria of ACM0002 version 12.2.0	Project activity	Applicability Criteria is met?	The project activity is the installation, capacity addition, retrofit or replacement of a power plant/unit of one of the following types: hydro power plant/unit (either with a run-of-river reservoir ...	The project is the installation of a green field wind power plant.	Yes	In the case of capacity additions ...	The project is a green filed plant.	Not applicable	In case of hydro power plants ...	The project is a wind power plant.	Not applicable	The methodology is not applicable to project activities that involve switching from fossil fuels to renewable energy sources at the site of the project activity, since in this case the baseline may be the continued use of fossil fuels at the	The project does not involve switching from fossil fuels to renewable energy at the site.	Yes	OK
Applicability Criteria of ACM0002 version 12.2.0	Project activity	Applicability Criteria is met?																	
The project activity is the installation, capacity addition, retrofit or replacement of a power plant/unit of one of the following types: hydro power plant/unit (either with a run-of-river reservoir ...	The project is the installation of a green field wind power plant.	Yes																	
In the case of capacity additions ...	The project is a green filed plant.	Not applicable																	
In case of hydro power plants ...	The project is a wind power plant.	Not applicable																	
The methodology is not applicable to project activities that involve switching from fossil fuels to renewable energy sources at the site of the project activity, since in this case the baseline may be the continued use of fossil fuels at the	The project does not involve switching from fossil fuels to renewable energy at the site.	Yes																	

			site.		
			The methodology is not applicable to biomass fired power plants.	The project does not involve biomass fired power generation.	Yes
			The methodology is not applicable to hydro power plants that result in new reservoirs or in the increase in existing reservoirs where the power density of the power plant is less than 4 W/m ² .	The project is a wind power plant. No reservoir is applied.	Not applicable
B.2.3. Is there any GHG emissions occurring within the project boundary as a result of the implementation of the proposed project which are expected to contribute more than 1% of the overall expected average annual ERs, which are not addressed by the applied methodology.	VVM Para 77	DR, SV, I	The project may import electricity from the grid within the project boundary. Monitoring of electricity imported from the grid which is expected to contribute more than 1% of the overall expected average emission reductions not addressed in the methodology is included in the monitoring plan of the PDD. Net electricity supplied to the grid will be used for ERs calculation.		OK
B.2.4. Is the applicability of the selected methodology satisfied?	VVM Para.76		Upon closure of B.2.2 and B.2.3, the applicability of the ACM0002 version 12.2.0 is satisfied.		OK
B.3. Project Boundary					
B.3.1. Does the project boundary include the physical delineation of the proposed CDM project activity?	VVM Para. 78-80 PDD section B.3 also see section A.4.3	DR, SV, I	Yes. The project boundary includes the physical delineation of the proposed CDM project activity. The spatial extent of the proposed project boundary includes the proposed project power plant and all power plants connected physically to NCPG that the proposed project power plant is connected to. CO ₂ is included in the baseline emission, CH ₄ and N ₂ O are not included in the baseline emission. CO ₂ , CH ₄ and N ₂ O are all not included in the project emission. For wind farm project, there is no leakage. All above information has been validated to be in compliance with ACM0002		OK

			Version 12.2.0. By reviewing grid connection diagram and grid connection agreement signed between the project owner and the grid company, connection to NCPG is confirmed.	
B.3.2. Are all emission sources and gases related to the baseline scenario, project scenario and leakage clearly identified and described in a complete and transparent manner?	VVM Para.79-80 PDD section B.3	DR	All emission sources and gases related to the baseline scenario, project scenario and leakage are clearly identified and described in a complete manner in Section B.3 of the PDD. CO ₂ is the main emission source and included in the baseline. In the PDD, CO ₂ is included in the baseline emissions; CH ₄ and N ₂ O are not included in the baseline emission. CO ₂ , CH ₄ and N ₂ O are all not included in the project emission. As a wind farm project, there is no leakage. All above information has been validated to be in compliance with ACM0002 version 12.2.0	OK
B.3.3. In case of grid connected electricity projects: Is the relevant grid correctly identified in accordance with the latest version of tool to calculate emission factor of electricity system (wherever applicable) and the underlying methodology?	VVM Para.79 PDD section B.3 EB 50 Annex 14	DR	Yes, NCPG is correctly identified in accordance with Emission Factor Tool version 02.2.1 which underlying methodology ACM0002 version 12.2.0 refers. Delineation of the project electricity system and connected electricity systems published by the Chinese DNA is used in the PDD of the project activity. The project electricity system is the NCPG, which consists of Beijing, Tianjin, Hebei, Shanxi, Shandong and Inner Mongolia Power Grids. The project is located in Shandong Province and covered by the NCPG. Therefore, NCPG is chosen as the relevant electric power system.	OK
B.3.4. 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.4.3	DR, SV, I	Yes. The project's spatial boundaries are clearly defined in Section B.3 of the PDD. The spatial extent of the proposed project boundary includes the proposed project power plant and all power plants connected physically to NCPG that the proposed project power plant is connected to. Therefore, the boundary of proposed project is within of NCPG. According to information from the Chinese DNA official website, NCPG is composed of Beijing, Tianjin, Hebei, Shanxi, Shandong and Inner Mongolia Autonomous Region power grid.	OK
B.4. Identification of the Baseline Scenario				
B.4.1. Does the PDD discuss the identification of the	VVM Para. 82/86	DR	Yes. The baseline scenario is identified in the PDD transparently as per ACM0002 version 12.2.0. As per ACM0002 version 12.2.0, for installation of a new grid-	OK

most likely baseline scenario? Does the PDD follow the steps to determine the baseline scenario required by the methodology/tool and has the application of the tools as per methodology been consulted, if the Tool(s) are required by the methodology?	PDD Section B.4/B.5		connected renewable power plant, the baseline scenario is <i>Electricity delivered to the grid by the project activity would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources, as reflected in the combined margin (CM) calculations described in the "Tool to calculate the emission factor for an electricity system"</i> .	
B.4.2. Have all applicable CDM requirements been taken into account in the identification of the baseline scenario, including "relevant national and/or sectoral policies and circumstances?	VVM Para.85/87(d) EB 22 Annex 3 EB 53 Annex 32	DR	Baseline scenario is clearly specified in methodology. Moreover, relevant CDM requirements have been taken into account.	OK
B.4.3. Are all potential realistic and credible alternative scenarios listed in the methodology are considered in identification of the most reasonable baseline scenario? Are all scenarios are reasonable in the con-text of the proposed CDM project and no reasonable alternative scenario has been excluded?	VVM Para. 81-84 PDD Section B.4/B.5	DR	Baseline scenario is clearly specified in methodology. No other potential realistic and credible alternative scenarios listed in the methodology.	OK
B.4.4. Is conservativeness addressed in the way of	VVM Para.90 PDD Section	DR	Yes. Conservativeness is addressed in the way of identifying the baseline. Net electricity generation supplied by the project to the grid is in compliance with the	OK

identifying the baseline?	B.4/B.5		methodology and it is widely applied in the host country.	
B.4.5. 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.86 PDD Section B.4/B.5	DR	Yes. The baseline scenario is identified in the PDD transparently as per ACM0002 version 12.2.0 and it is verifiable. As per ACM0002 version 12.2.0, the baseline scenario is <i>Electricity delivered to the grid by the project activity would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources, as reflected in the combined margin (CM) calculations described in the "Tool to calculate the emission factor for an electricity system"</i> . Electricity supply from grid has been identified as the baseline scenario as per ACM0002 version 12.2.0.	OK
B.4.6. Does the selected baseline represent the most likely scenario among other possible and/or discussed scenarios?	VVM Para.87 PDD Section B.4/B.5	DR	Yes. Baseline scenario is clearly specified in methodology. Electricity supply from Grid (the baseline) is widely applied for wind farm projects in the host country.	OK
B.5. Additionality				
B.5.1. Does the PDD clearly demonstrate the additionality using the approach as specified in the methodology and by following all the required steps?	VVM Para. 94-97 PDD Section B.1/B.4/B.5	DR	Yes. Version 05.2.1 of the Additionality Tool during validation is used. All steps are followed in a transparent manner As per the Additionality Tool, the following steps are taken for the demonstration of the additionality of the project in section B.5 of the PDD. Step 1. Identification of alternatives to the project activity consistent with current laws and regulations; Step 2. Investment Analysis; Step 3. Barrier Analysis;(Not used) Step 4. Common Practice Analysis.	OK
B.5.2. 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?	PDD Section B.1/B.4/B.5	DR	Taking into account that the project has been published for validation before publication of version 6.0.0 of the <i>Tool for the demonstration and assessment of additionality</i> (25/11/2011), and a complete request for registration will be submitted before 25/07/2012, 24:00 GMT, the applied version of the Additionality Tool is version 05.2.1.	OK

Are all steps followed in a transparent manner?				
B.5.3. 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	Yes. the sources and references (2006 IPCC guidelines for National Greenhouse Gas Inventories, China Energy Statistical Yearbook, China Electric Power Yearbook, China DNA website and etc) used in the project emission, baseline emission, leakage are listed in Section B.6.1 and B.6.2 of the PDD. All documentation used is relevant for establishing the baseline scenario and correctly quoted and interpreted in the PDD; Assumptions and data used in the identification of the baseline scenario are justified appropriately, supported by evidence and can be deemed reasonable; The identified baseline scenario is in compliance with ACM0002 version 12.2.0; Relevant national and/or sectoral policies and circumstances (the website of China DNA) are considered and listed in the PDD; The approved baseline methodology (ACM0002 version 12.2.0) has been correctly applied to identify the most reasonable baseline scenario and the identified baseline scenario (Supply of equivalent annual electricity output by NCPG) reasonably represents what would occur in the absence of the proposed CDM project activity.	OK
B.5.4. 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.98-99 VVM Para.103-104 PDD Section B.5	DR	Yes. The discussion on additionality and the evidence provided is consistent with the starting date of the project. The starting date of the project activity of 03/02/2010 is the date when wind turbine contract was signed, which is earlier than the validation. In PDD version 1, it states the starting date of the project activity of 01/02/2010 is the date when wind turbine contract was signed. While it is found that wind turbine contract was signed on 03/02/2010. Moreover, date of signing CDM consultancy agreement is found inconsistent as well. Therefore, CAR #8 is raised requesting PP taking relevant action and clarifying how the starting date is determined as per the definition in the Glossary of CDM terms. In response to CAR#8, wind turbine contract signing date and CDM consultancy agreement signing date are revised in PDD version 2 and validated to be correct. The prior consideration of CDM was demonstrated in Section B.5 of the PDD. The	~~CAR#8~~ OK

			notification of prior consideration of CDM was submitted to the UNFCCC on 04/02/2010 and accepted on 04/02/2010, prior to the GSP of the PDD. Prior consideration of the CDM was sent to Chinese DNA on 06/02/2010 and accepted on 15/03/2010. Bank loan contract was not signed at the time of site visit. Construction started on 26/02/2010 as construction start order indicates. Hence, CAR #8 is closed out.	
B.5.5. Is the project activity a new project activity or existing project activity? How is the early consideration demonstrated?	VVM Para.100-102 PDD Section B.5	DR	The project activity is a new project activity with starting date after 02/08/2009. The prior consideration of CDM was demonstrated in Section B.5 of the PDD. The notification of prior consideration of CDM was submitted to the UNFCCC on 04/02/2010 and accepted on 04/02/2010, prior to the GSP of the PDD. Prior consideration of the CDM was sent to Chinese DNA on 06/02/2010 and accepted on 15/03/2010.	OK
B.5.6. For an existing project activity with a start date before 2 August 2008, for which the start date is prior to the date of publication of the PDD for global stakeholder consultation, is the real documented evidence for an assessment of real and continuing actions available for validation and is this evidence authentic?	EB 49, annex.22	DR, SV, I	N/A, this is a new project with a start date after 02/08/2008.	NA
B.5.7. Are all credible and plausible alternatives correctly identified? Do the identified baseline scenarios include technologies and practices that include outputs or services comparable with the proposed CDM project activity? Do they also	VVM Para.105-107	DR	Four alternatives have been defined i.e.: 1. The proposed project activity undertaken without being registered as a CDM project activity; 2. Construction of a fossil fuel power plant with equivalent amount of annual electricity output; 3. Construction of a power plant using other source of renewable energy with equivalent amount of annual electricity output; and 4. Supply of equivalent annual power output by the grid to which the proposed project is connected.	OK

abide by the same applicable laws and legislations?			Assessment team confirms that the listed alternatives are credible and complete. All alternatives include technologies and practices that include outputs or services comparable with the proposed CDM project activity. In Sub-step1b, alternative 2) was eliminated from further consideration because it does not comply with the national regulation for controlling small scale thermal power plant. As per the <i>Notice of the General Office of the State Council concerning the Strict Prohibition for Construction of Thermal Power Plants with the Capacity of Less Than 135 MW</i>, thermal power plants with the installed capacity less than 135 MW are prohibited for construction within the grid connected area. A fossil fuel power plant with the same output as the proposed project is not possible as its capacity is below the 135 MW requirements. Through document review of the Notice and interview with local officials during the site visit, it has been validated that alternative 2) is not in compliance with <i>Notice on Strictly Prohibiting the Installation of Fuel-fired Generators with the Capacity of 135MW or below</i> issued by the General Office of the State Council and it is not a realistic and credible alternative. Alternative 1), the project not undertaken as a CDM project and Alternative 4) Supply of equivalent annual power output by the Grid to which the project is connected are validated to be in compliance with all applicable and enforced legislations.	
B.5.8. If an investment analysis has been used, has it been demonstrated that the proposed project activity is not the most economically or financially attractive alternative, or is not economically or financially feasible, without the revenue from the sale of CERs.	VVM Para. 108-109 PDD Section B.5	DR	Investment analysis was correctly applied in the PDD to demonstrate that Alternative a) is not a realistic and credible alternative as Step 2. As the assessments in Section B.5.10-B.5.13 are satisfied, this cell is OKed. The project activity would not be economically or financially feasible, without the revenue from the sale of certified emission reductions (CERs).	CL#5 OK
B.5.9. Is the investment analysis carried out in accordance with specific	VVM Para. 110 EB 51 Annex 58		An investment analysis has been used with the benchmark analysis selected. Steps wised guidance in the Additionality Tool of the investment analysis was followed by the project as following. EB 62 Annex 5 Guidelines on the assessment of	CL#5 OK

guidance from EB?	EB 48 Annex 11	investment analysis version 05 is the guideline validation against. Sub-step 2a. Determine appropriate analysis method Simple cost analysis (Option I) is applicable when the project only has CDM related income. Considering the project would generate economic benefits other than CDM related income, Option I is not applicable to the project. Comparison analysis (Option II) is applicable to projects where alternatives should be similar investment projects. The alternative baseline scenario of the project is the NCPG rather than a new investment project, thus, Option II is not applicable. Therefore, Benchmark analysis (Option III) is chosen. Sub-step 2b. Option III. Apply benchmark Analysis Project IRR of total investment after tax was identified as financial indicator. In the PDD version 2, benchmark of 8% was applied in the benchmark analysis. The suitability of the benchmark was justified in the PDD that the benchmark of 8% is sourced from the <i>Interim Rules on Economic Assessment of Electric Engineering Retrofit Projects</i> (Guodianfa [2002] No.623), issued by the State Power Corporation of China on 10/09/2002. It is designed to guide the economic assessment of retrofit and new projects in electric power industry in China. The proposed project activity is an electricity generation project and the project IRR of total investment is calculated to be compared with the benchmark. The benchmark of 8% is widely applied in financial assessments of wind farms in China and has also been accepted as the benchmark for registered CDM projects in power sector of China. The benchmark IRR of 8% is validated to be standard in the market and therefore suitable for the project activity by SGS Assessors in compliance with paragraph 13 of Guidance on the assessment of investment analysis version 05 <i>"In the cases of projects which could be developed by an entity other than the project participant the benchmark should be based on parameters that are standard in the market."</i> Sub-step 2c. Calculation and comparison of financial indicators Following Paragraph 6 of the Guidance on the Assessment of Investment Analysis <i>"Input values used in all investment analysis should be valid and applicable at the time of the investment decision taken by the project participant."</i>, the parameters and inputs used for IRR calculation without CDM revenue are from FSR of the project which is valid and applicable at the time the decision to go ahead with the project was made. In China, assumptions and data sources for the economic	
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		evaluation of a project in the approved FSR are required to be based on relevant national standards and criteria. The FSR for the proposed CDM project was prepared by Shandong Industrial Design Institute Co., Ltd which is an independent third party entity accredited by National Development and Reform Commission of People's Republic of China dated 10/12/2007 [Certificate No. GongZiYi 11820070043] to carry out feasibility studies for new projects, including wind farm projects. The input values used for the investment analysis of the project were valid and applicable at the time of the investment decision i.e. 12/05/2009. The application of fixed values is in line with this guidance, because at the time of investment decision, any information on the variation of the input values over the following 21 years was not available to the project owner. Paragraph 54(b) of EB38 states "<i>The values used in the PDD and associated annexes are fully consistent with the FSR, and where inconsistencies occur the DOE should validate the appropriateness of the values.</i>" The input values of parameters used for IRR calculation without CDM income in version 2 of the PDD and IRR spreadsheet are checked against the approved FSR and its approval issued by related authority in which key parameters in the FSR were verified and confirmed. It has been validated that except for Value added tax (8.5% applied in the FSR, 17% applied in the PDD), all the other listed input values are from the FSR for the project dated in July 2008 and consistently applied in calculation. Therefore, requirement of paragraph 54 (b) is complied. Paragraph 54(a) of EB38 states "The FSR has been the basis of the decision to proceed with the investment in the project, i.e. that the period of time between the finalization of the FSR and the investment decision is sufficiently short for the DOE to confirm that it is unlikely in the context of the underlying project activity that the input values would have materially changed.". The FSR has been the basis of the decision to proceed with the investment in the project. FSR was finalized in July 2008, and the investment decision is made on 12/05/2009. The period of time between the finalization of the FSR and the investment decision is ten months, which is sufficient short to confirm that it is unlikely in the context of the project that the input values would have materially changed. Therefore, requirement of paragraph 54 (a) is complied. The following has been performed to confirm that the input values from the FSR are valid and applicable at the time of the investment decision:	
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			1. Total Static Investment: The total static investment of the project is 518.04 million Yuan which are validated to be consistent with the data in the approved FSR. Also, comparison of investment cost per kW is done between the proposed CDM project activity and the recently registered CDM wind power projects in Shandong Province and the comparison results confirm that the investment per kW of the project is within the range of the investment per kW for the registered CDM projects. Table 1 below illustrates the comparison of investment per kW between the proposed CDM project activity and the registered CDM projects with similar capacity in Shandong Province. The result shows that the investment cost per kW of the proposed project is within the reasonable range of these projects. Table 1 Comparison of investment per kW of the proposed project with other wind farm projects <table> <tr> <th>CDM-EB Ref.</th><th>Project Title</th><th>Total Installed Capacity (MW)</th><th>Total Investment (million Yuan)</th><th>Investment per kW (Yuan/kW)</th></tr> <tr> <td>1010</td><td>Laizhou Diaolongzui Wind Farm</td><td>48.75</td><td>450.1359</td><td>9,233.56</td></tr> <tr> <td>1019</td><td>Qixia Tangshanpeng Windfarm Project</td><td>21.75</td><td>162</td><td>7,448.28</td></tr> <tr> <td>1090</td><td>Shandong Changdao 27.2 MW Wind Power Project</td><td>27.2</td><td>268.68</td><td>9,877.94</td></tr> <tr> <td>1128</td><td>Shandong Weihai 69 MW Wind Power Project</td><td>69</td><td>705.1141</td><td>10,219.04</td></tr> <tr> <td>1755</td><td>Roncheng Wind Power Project, 48.75MW</td><td>48.75</td><td>502</td><td>10,297.44</td></tr> <tr> <td>2019</td><td>Shandong Luneng Dongying 48MW Wind Power Project</td><td>48</td><td>520.58</td><td>10,845.42</td></tr> <tr> <td>2094</td><td>The 48MW wind power project in Lubei, Shandong Province</td><td>48</td><td>548.05</td><td>11,417.71</td></tr> </table>	CDM-EB Ref.	Project Title	Total Installed Capacity (MW)	Total Investment (million Yuan)	Investment per kW (Yuan/kW)	1010	Laizhou Diaolongzui Wind Farm	48.75	450.1359	9,233.56	1019	Qixia Tangshanpeng Windfarm Project	21.75	162	7,448.28	1090	Shandong Changdao 27.2 MW Wind Power Project	27.2	268.68	9,877.94	1128	Shandong Weihai 69 MW Wind Power Project	69	705.1141	10,219.04	1755	Roncheng Wind Power Project, 48.75MW	48.75	502	10,297.44	2019	Shandong Luneng Dongying 48MW Wind Power Project	48	520.58	10,845.42	2094	The 48MW wind power project in Lubei, Shandong Province	48	548.05	11,417.71	
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			2397	Shandong Penglai Pingdingshan Wind Farm Project	48	582.7	12,139.58
			2436	Guohua Dongying Hekou 49.5 MW Wind Farm Project (Phase 1)	49.5	507.58	10,254.14
			2438	Guohua Binzhou Zhanhua 49.5MW Wind Farm Project (Phase 1)	49.5	479.77	9,692.32
			2442	Guohua Dongying Lijin 49.5 MW Wind Farm Project (Phase 1)	49.5	510.318	10,309.45
			2530	Shandong Laizhou phase I Wind Power Project	49.5	516.3	10,430.30
			2584	Shandong Dongying 1st phase Wind Power Project	49.5	639.24	12,913.94
			2730	Shandong Laizhou phase II Wind Power Project	49.5	474.24	9,580.61
			2764	Yantai Dongyuan Laizhou 48.5 MW Wind Farm Project Phase I	48.5	449.24	9,262.68
			2814	Shandong Rushan Luneng Wind Farm	42	389.3882	9,271.15
			2831	Huadian Laizhou Wind Farm Project	40.5	425.56	10,507.65
			3353	Huaneng Changyi Phase I Wind Farm Project	49.5	624.48	12,615.76
			3391	Shandong Huaneng Shouguang 49.5MW Wind Farm Project	49.5	559.07	11,294.34
			4402	Shandong Penglai Wind Farm Phase II Project	48	528.04	11,000.83
			the proposed project		49.3	518.04	10,507.91
			The sensitivity analysis was also performed within a variation of ±10% of the total static investment. Further, the critical point for IRR crossing benchmark is analyzed as well. The result showed that if the total static investment decreases 24.2%, the				

			IRR will reach the benchmark 8%. 94.04% of total static investment has been spent considering wind turbine purchase contract and construction contracts. It is assessment team's opinion that total static investment is unlikely to decrease 24.2%. 2. Annual output: The electricity output of the project applied in the PDD is 90,997 MWh, which is consistent with the FSR. The installed capacity of the project is 49.3 MW and plant load factor (PLF) is 21%. In accordance with the Guidelines for the reporting and validation of plant load factors (EB 48, annex 11) version 01, the plant load factor in the PDD is determined by a third party contracted by one of the project participants i.e. the project owner. PLF is sourced from FSR which is complied by an accredited third party i.e. Shandong Industrial Design Institute Co., Ltd. In FSR, PLF is calculated based on the data from the FSR (21% = 1,846 hours/ 8760hours*100%). The estimation of the annual electricity output is in accordance to the related standards, "Wind Resources Measurement Method of Wind Farms" (GB/T 18709-2002) and "Wind Resources Evaluation Method of Wind Farms" (GB/T 18710-2002). The data from the wind resource measurement were corrected based on the historical meteorological data of 37 years (from 1971 to 2007), provided by local metrological station. The annual power generation and power supply are estimated based on the corrected data, taking into account the some other factors like air density, trailing stream, and wind turbine efficiency. From our local and sectoral expertise, assessment team confirms that the above procedure for annual power supply estimation is common practice in wind farm design in China. The assessment team compared the annual power supply, operation hours and plant load factor of the project activity with other wind farm projects in the same region (Shandong Province) that have already been registered as CDM projects. The comparison result is as follows: Table 2 Comparison of Annual electricity output/operation hours/Plant Load Factor/ Annual O&M Cost (million Yuan) of the proposed project activity with other wind farm projects	
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CDM-EB Ref.	Project Title	Total Installed Capacity (MW)	Annual Electricity Generation (GWh)	Annual O&M Cost (million Yuan)	Annual Operation Hours	Load Factor
1010	Laizhou Diaolongzui Wind Farm	48.75	96.7049	14.6114	1984	0.226
1019	Qixia Tangshanpeng Windfarm Project	21.75	36.58	7.8	1682	0.192
1090	Shandong Changdao 27.2 MW Wind Power Project	27.2	56.42	10.94	2074	0.237
1128	Shandong Weihai 69 MW Wind Power Project	69	140.033	12.85	2029	0.232
1755	Roncheng Wind Power Project, 48.75MW	48.75	88.335	Not reported	1812	0.207
2019	Shandong Luneng Dongying 48MW Wind Power Project	48	95.136	15.0771	1982	0.226
2094	The 48MW wind power project in Lubei, Shandong Province	48	98.52	4.05	2053	0.234
2397	Shandong Penglai Pingdingshan Wind Farm Project	48	99.12	11.58	2065	0.236
2436	Guohua Dongying Hekou 49.5 MW Wind Farm Project (Phase 1)	49.5	102.396	14.286	2069	0.236
2438	Guohua Binzhou Zhanhua 49.5MW Wind Farm Project (Phase 1)	49.5	99.324	14.6141	2007	0.229
2442	Guohua Dongying Lijin 49.5 MW Wind Farm Project (Phase 1)	49.5	103.143	14.349	2084	0.238

			2530	Shandong Laizhou phase I Wind Power Project	49.5	96.08	10.187 7	1941	0.2 22
			2584	Shandong Dongying 1st phase Wind Power Project	49.5	95.978 4	7.69	1939	0.2 21
			2764	Yantai Dongyuan Laizhou 48.5 MW Wind Farm Project Phase I	48.5	88.187	14.035 73	1818	0.2 08
			2814	Shandong Rushan Luneng Wind Farm	42	69.125	9.074	1646	0.1 88
			2831	Huadian Laizhou Wind Farm Project	40.5	77.32	4.59	1909	0.2 18
			3353	Huaneng Changyi Phase I Wind Farm Project	49.5	111.87 46	9.25	2260	0.2 58
			3391	Shandong Huaneng Shouguang 49.5MW Wind Farm Project	49.5	96.478 8	12.33	1949	0.2 22
			4402	Shandong Penglai Wind Farm Phase II Project	48	103.74 08	10.53	2160	0.2 23
				the proposed project	49.3	90,997	11.19	1846	0.2 1
The operation hours of the proposed project activity is comparable to similar projects in the same region. Base on our local and sectoral expertise, the assessment team confirms that the operation hours/annual electricity output of the project activity applied in the PDD is valid and applicable at the time of the investment decision. 3. Annual O&M cost: The average annual O&M costs of the project was calculated to be 11.19 million Yuan/year. The annual O&M cost mainly include material cost, insurance, employee payroll and welfare fund, maintenance expense and miscellanea fees. The Calculation formula of O&M was validated to be consistent with which was determined in the <i>Economical Assessment Method and Parameters for Construction Project</i> (the 3rd edition) issued by NDRC and Ministry of Construction of China on August 2006 and the determination in the FSR. The applied rate, such as the Rate of Maintenance, the Rate of Insurance, the Salary and the Welfare Fee									

		are validated to comply with corresponding policy in China. The assessment team compared the average annual O & M costs of the project activity with other wind farm projects already registered as CDM projects and found that the average annual O & M costs of the project activity is in the range of the other wind farm projects in the same region The comparison result is shown in the Table 2 above. Base on our local and sectoral expertise, the assessment team can confirm that the average annual O & M costs of the project activity applied in the PDD are valid and applicable at the time of the investment decision. 4. Electricity Tariff: According to the “<i>Interim Measures for Renewable Energy Power Tariff and Cost-sharing</i>” issued by NDRC which was effective from 01/01/2006, (Document Code: Fa Gai Jia Ge [2006] No. 7), the electricity tariff of wind power projects should be guided by the government and renewable energy generation projects which are approved by government authorities after 01/01/2006 should implement this regulation; projects which had been approved by government authorities before 31/12/2005 can still implement their previous approvals. The applied tariffs (incl. VAT) of 0.61 RMB/kWh in the PDD is consistent with the tariff used in the FSR. And the FSR has been approved by Shandong Provincial Development and Reform Commission. On 20/07/2009, the National Development & Reform Commission issued a Notice for Wind Power Grid Tariff Policy. It defined four types of wind resource regions with different availabilities of wind and tariffs. The proposed project locates in the Type IV wind resource region and the unified tariff is 0.61 RMB/kWh (including VAT) according to the notice. The notice became valid on 01/08/2009 which means the tariff approved before that time will remain same and from then on, all the wind projects will get approved tariff according to the notice. Following the notice, the electricity tariff approved for the proposed project is 0.61 RMB/kWh (including VAT) as as project’s tariff approval confirms, which is as same as the electricity tariff estimated for investment decision. In addition, the tariff 0.61 RMB/kWh (including VAT, 0.61RMB/kWh for the first 30,000 hrs, after that tariff for thermal power plants is applicable.) is the highest tariff from the latest version of “<i>Information note on the highest tariffs applied by the EB in its decisions on registration of projects in the People’s Republic of China</i>”	
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		published by EB. As analysis in the Sensitive Analysis in the PDD if the tariff increases by 27.78%, the IRR of proposed project will reach the benchmark. However, the tariff in china is regulated by the government and all the approved similar wind farm tariffs since 2009 in Shandong Province is fixed to be 0.61 RMB/kWh. It is not easy for the PP to predict the increase of electricity tariff for 20 years' lifetime. It's the assessment team's opinion that the tariff is not expected to be raised by 27.78%. The investment decision of the project is made based on the electricity tariff they can expect at the time of investment decision. In summary, it is the opinion of the assessment team that the tariff of 0.61 RMB/kWh (incl. VAT) is valid and applicable at the time of investment decision for the project activity. 5. Other input values: (a) Tax rate The taxes related to the proposed project were value added tax, income tax, education surtax and city maintenance and construction tax. Value added tax The value added tax used in the IRR calculation sheet is 17% which is consistent with the national policy "<i>Provisional Regulations of the People's Republic of China on Value-added Tax</i>". There are two new national policies issued, which are also applicable to the proposed project activity. One is the "<i>Notice of the Ministry of Finance and the State Administration of Taxation on Several Issues concerning the National Implementation of Value-added Tax Reform</i>" in which it is stipulated that the tax payer is entitled to have a full recovery of the input tax paid on the fixed asset from the output tax on electricity tariff. The other one is the "<i>Notice of the Ministry of Finance and the State Administration of Taxation about Policies regarding the Value Added Tax on Comprehensive Utilization of Resources and Other Products</i>" in which it is stipulated that the wind power plant is entitled to a refund of the half of the output VAT on electricity since the year that all the input tax have been recovered. Both policies have been correctly applied in the calculation of the IRR. Income tax	
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			The income tax used in the IRR calculation sheet is 25% which complies with the national policy “<i>Enterprise Income Tax Law of the People's Republic of China</i>”. The income tax calculation used in the IRR calculation spreadsheet was in accordance with the latest national policy “<i>Notice of the Ministry of Finance and State Administration of Taxation on Issues Relevant to Implementation of the List of Public Infrastructure Projects Enjoying Enterprise Income Tax Preferences</i>” in which it is stipulated that the wind power company is entitled to pay zero income tax for the first three years and half the income tax for the second three years since power generation. The related national policy has been applied in the IRR calculation spreadsheet. Educational surtax The educational surtax used in the IRR calculation sheet is 4% which is in accordance with the national policy “<i>Decision of the State Council on Amending the Interim Provisions on the Collection of Educational Surtax</i>” and “<i>Interim rules on the collection of additional Educational Surtax in Shandong Province</i>”. City maintenance and construction tax The city maintenance and construction tax used in the IRR calculation sheet is 5% which is determined as per the national policy “<i>Interim regulations on the city maintenance construction tax of the People's Republic of China</i>”. (b) Fair value Following Paragraph 4 of the Guidance on the Assessment of Investment Analysis, the fair value of the proposed project activity assets at the end of the assessment has been included as a cash inflow in the final year (Year 21), and the fair value of the project (192.778 million) is verified to be 3.7% of the fixed asset (4% without consideration of Tax deduction and VAT reimbursement), which is consistent with the value in the approved FSR and also confirmed to be determined as per the national policy “<i>Notice Regarding The Executive Time of The Adjustment of The Fair Value of The Fixed Asset</i>” issued by State Administration of Taxation on 14/09/2005. (c) Depreciation rate Following Paragraph 5 of the Guidance on the Assessment of Investment Analysis, depreciation rate is set as 6.4% annually with a depreciation period of 15 year,	
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		which is consistent with the data in the PAR and also the determination of fair value as validated above. The 15 year depreciation period is validated to be common practice in wind power industry in China. Depreciation and other non-cash items related to the project activity were not deducted in estimation of gross profits and thus did not need to be added back to the net profits. Taxation was included in the calculation because the benchmark is intended for post-tax comparison. (d) Interests repayment As the benchmark used (8%) is post-tax benchmark, following Paragraph 11 of the Guidance on the Assessment of Investment Analysis, the actual interest payable is taken into account in the calculation of income tax. The interest was validated to be calculated according to the prevailing commercial interest rates in the region. The interest used in the FSR is 7.83% which is validated to be the same as the prevailing commercial interests rate in China published by the People's Bank of China at the time of investment decision. The calculation of interests' repayment in the IRR calculation spreadsheet is consistent with the data in the FSR. (e) Debt/equity finance structure Paragraph 18 of Guidance on the Assessment of Investment Analysis version 05 states "<i>If the benchmark is based on parameters that are standard in the market, then the typical debt/equity finance structure observed in the sector of the country should be used.</i>", the actual Debt/equity finance structure of the project is 65% debt and 35% equity financing, which is in compliance with the FSR approval. In PDD version 1, it is found that suitability of the input values used for investment analysis are not substantially demonstrated, especially the plant load factor, annual electricity supply, the total static investment, the electricity tariff, the annual O&M cost, the residual value rate, the interest rate, and the tax rate. CL#5 is raised in this regard. Justification in PDD version 2 is accepted and validated to be correct as presented above, hence CL #5 is closed out. Sub-step 2d. Sensitive Analysis Sensitive Analysis has been applied in accordance with the Additionality Tool in version 1 of the PDD. Paragraph 20 of Guidance on the Assessment of Investment Analysis version 05	
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		states “Only variables, including the initial investment cost, that constitute more than 20% of either total project costs or total project revenues should be subjected to reasonable variation (all parameters varied need not necessarily be subjected to both negative and positive variations of the same magnitude), and the results of this variation should be presented in the PDD and be reproducible in the associated spreadsheets.” Hence, total static investment, Power supply and Tariff are determined as the parameters constitute more than 20% of either total project costs or total project revenues and were considered to be the sensitive factors of the project. Annual O&M cost was considered to be sensitive in the FSR and was also included the sensitivity analysis of PDD. All the variables that constitute more than 20% of either total project costs or total project revenues, i.e. Total static investment, tariff, Annual electricity output have been subjected to a range of +10% and -10% variation. Considering Annual O&M Cost is essential for project costs, it is included in sensitivity analysis as well. The selection of +/-10% variation is in accordance with “Code on Compiling Project Application Report of Wind Farms” issued by National Development Reform Committee and the “Guidance on the Assessment of Investment Analysis” (version 05). It is the opinion of the assessment team that the variation of the variables is reasonable. The conclusion of the sensitivity analysis is that the proposed project activity is unlikely to be financially/economically attractive, unless the electricity tariff is increased by 27.78%, the Annual electricity output is increased by 27.78%, or the Total Static investment is decreased by 24.2%, or the O&M cost is decreased by 117.2%. Assessment of scenarios which will result in the project activity passing the benchmark was carried by the assessment team to validate the probability of the occurrence of these scenarios as follows: 1. Total Static Investment If the total static investment is decreased by 24.2%, the project IRR would cross the benchmark. As mentioned above the assessment team has checked the main contracts of the proposed project and found that the actually happened cost contributes 94.04% of the total static investment. It is unlikely to decrease by 24.2%. 2. Annual O&M cost	
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			If the O & M cost is decreased by 117.2%, the project IRR would cross the benchmark. The O & M cost of the project has correlation with the raw materials price, staff welfare, etc. Along with the growth of the China economy, we can not predict the raw materials price and staff welfare in China will decrease significantly in the next 20 years. We consider the total O & M cost of the project is unlikely to decrease by 117.2%. 3. Electricity Tariff If the tariff of electricity is increased by 27.78%, the project IRR would cross the benchmark. The suitability of the applied tariff was discussed above. It is the opinion of the assessment team that it is unlikely that the electricity tariff will be increased by 27.78% in the next 20 years. 4. Annual Output If the annual output of electricity is increased by 27.78%, the project IRR would cross the benchmark. As discussed above, the estimation in the PAR is deemed to be reliable. It is the opinion of the assessment team that it is unlikely that the output of electricity will be increased by 27.78% for the project. Conclusion The input values of the parameters for IRR calculation, the calculation formulae used in the IRR calculation and the calculation results have been verified by the SGS financial expert. It is validated that the investment analysis is preformed in accordance with the Guidance on the Assessment of Investment Analysis. The investment analysis in Sub-step 2c under Section B.5 of the PDD shows that the project IRR of the project is 4.40% without CDM income and 6.71% with CDM income. Therefore, in accordance with VVM paragraph 108-109, it was confirmed that the proposed project was not financially attractive without CDM support.	
B.5.10. Is the investment analysis complete and accurate? (Important)	VVM Para. 111 PDD Section B.5 EB 51 Annex 58 EB 54 Para 53		Upon closure of section B.5.9, the investment analysis is validated to be complete and accurate.	OK

	EB 53 Annex 32			
B.5.11. Does the investment analysis rely on the values from Feasibility Study Reports (FSR) that approved by national authorities for proposed CDM project activity?	VVM Para. 113 PDD Section B.5		Yes. Investment analysis relies on the values from Feasibility Study Report (FSR) that is approved by Shandong Development and Reform Commission. Following information has been checked by the assessment team: (a) The FSR has been the basis of the decision to proceed with the investment in the project. FSR was finalized in July 2008, and the investment decision is made on 12/05/2009. The period of time between the finalization of the FSR and the investment decision is ten months, which is sufficient short to confirm that it is unlikely in the context of the project that the input values would have materially changed. (b) Except for Value added tax (8.5% applied in the FSR, 17% applied in the PDD), all the other listed values used in the PDD are consistent with the FSR. (c) By cross-checking with other similar projects located in the same province, it is found that total static investment is higher. Besides, suitability of the input values used for investment analysis are not substantially demonstrated, especially the plant load factor, annual electricity supply, the total static investment, the electricity tariff, the annual O&M cost, the residual value rate, the interest rate, and the tax rate. CL#5 is raised in this regard. Please refer section B.5.9 for closure of CL #5.	CL#5 OK
B.5.12. 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. 112 PDD Section B.5 EB 51 Annex 58 EB 51 Annex 59	DR	The benchmark of 8% was adopted according to <i>Interim Rules on Economic Assessment of Electric Engineering Retrofit Projects</i> released by the State Power Corporation of China. In this document, the financial benchmark rate of return of Chinese power industry is 8% of the total investment, which has been used widely for Feasibility Studies of power project investments in China, including wind power projects <i>Interim Rules on Economic Assessment of Electric Engineering Retrofit Projects</i> released by the State Power Corporation of China, the former state authority to manage relevant power issues including new constructions of power plants, states that the benchmark is based on <i>The Methodology and Parameters for Financial Evaluation of Construction projects</i> (Chapter 1 General, Section 1.1) which is the national criteria in evaluating new construction projects including fossil-fuel-fired plants. The 8% benchmark is applicable to new built as well as retrofit projects. This benchmark IRR has been widely accepted in newly constructed power plants in China, and has also been accepted as the benchmark for registered CDM projects in power sector. The benchmark IRR of 8% is validated to be suitable for the project activity by SGS Assessors in compliance with paragraph 12	OK

			of the Annex 58 to the EB 51 report. FSR states the benchmark of 8%.	
B.5.13. 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 not have prevented the implementation of at least one of the alternatives?	VVM Para. 115/118 PDD Section B.5	DR	Not applicable. Barrier analysis was not applied in the PDD.	OK
B.5.14. Is the discussion on additionality consistent with the identification of all plausible and credible baseline scenarios?	VVM Para. 105 PDD Section B.5	DR	Yes. The choice of the alternatives is consistent with the scenarios selected in the discussion on the most likely baseline.	OK
B.5.15. Has the barriers correctly identified and they prevent the implementation of the project activity but not the implementation of at least one of the possible alternatives.	VVM Para. 116- 118	DR	Not applicable. Barrier analysis was not applied in the PDD.	OK
B.5.16. 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	VVM Para 116- 117 EB 50 Annex 13	DR	Not applicable. Barrier analysis was not applied in the PDD.	OK

objective evidence?				
B.5.17. Do the identified baseline scenarios include technologies and practices that include outputs or services comparable with the proposed CDM project activity? Do they also abide by the same applicable laws and legislations?	VVM Para. 105 PDD Section A.4.3/B.5	DR	Yes, the identified baseline scenario (Supply of equivalent annual electricity output by NCPG) includes technologies and practices that include outputs or services comparable with the proposed CDM project activity and the identified baseline scenario abide by the same applicable laws and legislations.	OK
B.5.18. Is the proposed project type be justified as first-of-its kind?	VVM Para. 119 PDD Section B.5		No. Common practice analysis is carried out as a credibility check of the other available evidences used by the PP to demonstrate additionality.	OK
B.5.19. Is the project activity not common practice?	VVM Para. 120-121 PDD Section B.5		Step 4 Common Practice Analysis was carried on the proposed project. But it was found that the requirement of the Additionallity Tool was sufficiently followed by the proposed project. Justification for the selection of geographical scope, scale of project, and time of starting operation were presented in PDD version 2. The geographical scope for the common practice analysis was set as Shandong Province in which the comparable environment with respect to regulatory framework, investment climate, access to technology, access to financing are comparable to the propose project, which was also widely used by other registered projects in Shandong Province. Wind power projects with the capacity over 15 MW in this region are included in the comparison, which was deemed reasonable as the project lower than 15 MW was defined as small scale project. It is the opinion of the assessment team that the selection of geographical scope, scale of project, and time of starting operation are appropriate for the assessment of common practice related to the project activity's technology or industry type. According to the definitions of other activities similar to the proposed project activity in <i>Tool for the Demonstration and Assessment of Additionality</i> (version 05.2.1), projects are considered similar if they are in the same country/region and/or rely on a broadly similar technology, are of a similar scale, and take place in	CL #6 OK

			a comparable environment with respect to regulatory framework, investment climate, access to technology, access to financing, etc. In April 2002, China implemented the policy of "Separate power plants from network and compete in price to enter network". The objective of this power sector reform is to establish a more commercialized power market in China. The regulatory and market conditions for wind power projects have been changed since 2002. So the selection of wind power projects starting operation after 2002 for common practice is appropriate. After checking <i>Statistic of installed capacity of China's Wind Farms</i> from 2007 to 2009, the website of Verified Carbon Standard, the website of Gold Standard, two potential similar projects meeting above criteria are identified. Shandong Changdao Wind Farm Project (project ID: 517) applied for Voluntary Emission Reduction under Verified Carbon Standard (VCS) to obtain the support from VCS VER funding to solve the financial barriers. Shandong Jimo Qingdao Huawei Wind Power Project received ODA support from DEG (part of KfW Bankengruppe) and was commission in 2003 with the tariff 0.76RMB/kWh approved in 2001. Considering the tariff of 0.76RMB/kWh in 2001 is not comparable to the later tariff of 0.61RMB/kWh in 2009, so it has essential distinctions from the proposed project. Therefore, the proposed project activity is not common practice. Assessment team found more projects meeting common practice analysis criteria but are not analyzed in the PDD version 1. CL #6 is raised requesting PP to clarify how similar projects are identified as per the requirement of <i>Tool for the demonstration and assessment of additionality</i>. PP has revised PDD with sufficient information and it is validated to be the same as assessment team's conclusion. Hence, CL #6 is closed out.	
B.5.20. What are the key distinctions between the project activity and any similar projects that are widely used as common practice?	VVM Para. 118, 119c/d PDD Section B.5		It is the opinion of the assessment team that similar project activities are not widely observed and the project is not common practice.	OK
B.5.21. Is the proposed project activity additional?	PDD Section B.5		Upon closure of all items in section B.5, the propose project activity is validated to be additional.	OK

B.6. Algorithms and/or formulae used to determine emission reductions

B.6.1. Are the steps and equations applied to calculate baseline emissions in compliance with the requirements of selected baseline and monitoring methodology?	VVM Para. 67c VVM Para. 89-90 VVM Para. 93 PDD Section B.6.1	DR	Yes. The latest version 02.2.1 Emission Factor Tool is applied. Following steps are followed in accordance with Emission Factor Tool: Step 1. Identify the relevant electricity system Step 2. Choose whether to include off-grid power plants in the project electricity system (optional) Step 3. Select an operating margin (OM) method Step 4. Select a method to determine the operating margin (OM) Step 5. Calculate the build margin (BM) emission factor Step 6. Calculate the combined margin emission factor Equation and parameter have been correctly applied during calculation process. After $EG_{grid, CM, y}$ is obtained, baseline emission is calculated following formula $EG_{PJ, y} = EG_{facility, y}$ $BE_y = EG_{PJ, y} \times EF_{grid, CM, y}$ Equation and parameter are correctly applied in ER spreadsheet.	OK
B.6.2. Are the steps and equations applied to calculate project emissions in compliance with the requirements of selected baseline and monitoring methodology?	VVM Para. 67c VVM Para. 89-90 VVM Para. 93 PDD Section B.6.1	DR	Not applicable. As per applied methodology ACM0002 version 12.2.0, project emission is zero for this kind of project activity.	OK
B.6.3. Are the steps and equations applied to calculate leakages in compliance with the requirements of selected baseline and monitoring methodology?	VVM Para. 67c VVM Para. 89-90 VVM Para.	DR	Not applicable. As per applied methodology ACM0002 version 12.2.0, leakage is zero for this kind of project activity.	OK

	93 PDD Section B.6.1			
B.6.4. Are the steps and equations applied to calculate emission reductions in compliance with the requirements of selected baseline and monitoring methodology?	VVM Para. 67c VVM Para. 89-90 VVM Para. 93 PDD Section B.6.1	DR	According to ACM0002 (version 12.2.0), no leakage is considered for the proposed wind farm project, and project emission of the proposed wind farm project is zero. $ER_y = BE_y - PE_y = BE_y$ Baseline emissions calculation in PDD section B.6.1 is correct against the methodology.	OK
B.6.5. 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.89/90/91 PDD Section B (B.6.2 -B.7.1)	DR	Not applicable. The equations in the PDD have been applied in compliance with ACM0002 version 12.2.0.	OK
B.6.6. Are uncertainties in the GHG emissions estimates properly addressed in the documentation?	PDD Sections B.5-C	DR	Yes. Uncertainties in the GHG emissions estimates are low, which is addressed in the PDD. Data provided for the ex-ante estimation of ERs in Section B.6.2 and B.6.3 of the PDD is in compliance with ACM0002 version 12.2.0. Data used are from Official sources like China Energy Statistical Yearbook, China Electric Power Yearbook, IPCC and the official website of the Chinese DNA. The data values have been verified. Most recent official data during validation have been used and vintage can be considered to be appropriate. The estimated annual power generation is from the FSR of the project.	OK
B.6.7. Are the ex-ante fixed data provided in compliance with the methodology and/or	VVM Para. 67c		Ex ante option is used to calculate the emission factor based on the most recent data available at the time of submission of the CDM-PDD to the DOE for validation. As per requirements of Emission factor Tool (version 02.2.1), PDD has used the most recent information available at the time of CDM-PDD submission for	OK

relevant tools (if applicable)?	VVM Para. 91 VVM Para. 93 PDD Section B.6.3B.6.4		validation in the calculation of emission factor and the calculation is found correct. As the information of the net electricity generation and a CO ₂ emission factor of each power unit (Option A) is not available, Simple OM is calculated using option B, based on data on the total net electricity generation of all power plants serving the system and the fuel types and total fuel consumption of the project electricity system. $EF_{grid,OM,y}$ is calculated as 0.9914 tCO ₂ /MWh in version 2 of the PDD. This has been verified to be in compliance with the methodology, the <i>Tool to calculate the emission factor for an electricity system</i> and relevant EB guidance. Data from the Chinese DNA were also checked to confirm that the calculated value of $EF_{grid,OM,y}$ is correct. $EF_{grid,OM,y}$ 0.9914 tCO ₂ /MWh, $EF_{grid,BM,y}$ 0.7495 tCO ₂ /MWh and $EF_{grid,CM,y}$ 0.9309 tCO ₂ /MWh are determined and remain fixed throughout the crediting period and will not be monitored throughout the crediting period. Data from the Chinese DNA were also checked to confirm that the calculated value of $EF_{grid,OM,y}$ and $EF_{grid,BM,y}$ are correct. As $EF_{grid,CM,y}$ is a calculated value based on $EF_{grid,OM,y}$ and $EF_{grid,BM,y}$ ($EF_{grid,CM,y} = EF_{grid,OM,y} * 0.75 + EF_{grid,BM,y} * 0.25$), it is confirmed by the assessment team as well.	
B.6.8. Is all the data derived from official data sources or replicable records and have these been correctly quoted?	VVM Para. 91a/b PDD Section B.6.3/B.6.4		Yes. All data is derived from official data sources. $FC_{i,m,y}$ and $NCV_{i,y}$ are derived from China Energy Statistical Yearbook; $EF_{CO2,i,y}$ and Carbon Oxidation Factor are derived from IPCC; Installed Capacity, Electricity Generation, and Electricity self-consumption ratio are derived from China Electric Power Yearbook.	OK
B.6.9. Is the vintage of the baseline data correct?	PDD Section B.6.3/B.6.4	DR	Yes. Vintage of the baseline data is the most recent data i.e. the latest released data from NDRC, which is conservative and correct.	OK
B.6.10. Is all the data appropriate and correctly applied to the CDM project activity?	VVM Para. 91c PDD Section B.6.3/B.6.4	DR	Yes, it has been validated that the output is an appropriate estimate of the emission reductions.	OK
B.6.11. Are data and parameters that are not being monitored and remained fixed throughout	VVM Para. 90 PDD Section B.6.3/B.6.4	DR	Parameter that is used in the ERs calculation and not monitored is the grid emission factor. It has been validated that the value of grid emission factor is appropriately assessed and correct.	OK

the crediting period appropriately assessed, correct, and will they result in conservative estimates?				
B.6.12. Are the ex-post monitored data estimated appropriated for calculation of ex-ante emission reductions?	VVM Para. 67c VVM Para. 91 VVM Para. 93 PDD Section B.6.3B.6.4	DR	Yes. Data and parameters that are not being monitored and remained fixed throughout the crediting period appropriately are assessed and will result in conservative estimations. $EF_{grid, CM, y}$ is fixed for the first crediting period of the project.	OK
B.6.13. Is sampling approach used for any parameters?	EB 50 Annex 30 Para. 30	DR	Sampling approach is used for monitoring parameters as the requirements for reliability defined in applicable CDM methodology.	OK
B.6.14. Are all the steps taken and equations applied to calculate project emissions, baseline emissions and leakage and emission reductions correct and appropriate?	VVM Para. 67c VVM Para. 92	DR	It is validated that data provided for the ex-ante estimation of ERs in Sections B.6.2 and B.6.3 of the PDD version 2 are in compliance with ACM0002 version 12.2.0. The original data used for the calculation of the grid emission factor used for the ex-ante estimation of ERs are from official or credible sources like IPCC, China Energy Statistical Yearbook and China Electric Power Yearbook. The calculation of grid emission factor is in compliance with the Emission factor tool, relevant EB guidance and the estimated annual power generation is from the FSR of the project. ERs calculation spreadsheet has been gone through and found unprotected. Data and parameters given in the PDD have been replicated by the assessment team and found correct. In accordance with VVM paragraph 89, based on the assessment above, it is concluded that:: (a) All assumptions and data used by the project participants are listed in the PDD, including their references and sources; (b) All documentation used by project participants as the basis for assumptions	OK

			and source of data is correctly quoted and interpreted in the PDD; (c) All values used in the PDD are considered reasonable in the context of the proposed CDM project activity; (d) The baseline methodology 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.	
B.6.15. Where applicable, the plant load factor shall be defined ex-ante in the CDM-PDD according to one of the following three options: (a) The plant load factor provided to banks and/or equity financiers while applying the project activity for project financing, or to the government while applying the project activity for implementation approval; (b) The plant load factor determined by a third party contracted by the project participants (e.g. an engineering company)	EB 48 Annex 11		As shown on footnote of page 6, plant load factor is determined by Shandong Industrial Design Corporation, which is a third party contracted by the project participant.	OK
B.7. Monitoring methodology and Monitoring Plan				
B.7.1. Does the monitoring methodology provide a consistent approach in the context of all parameters to be	VVM Para. 67e PDD Section B.7-B.8 see also	DR	Yes. The monitoring methodology provides a consistent approach in the context of all parameters to be monitored. No additional information is provided in Annex 4 of the PDD. EG_{facility,y} is required to be monitored according to monitoring methodology. It is	OK

monitored and further information provided by the PDD? Are all parameters and data that are available at validation consistent with the approved methodology. Has this data been interpreted and applied correctly?	Annex 4		included as a monitored parameter in B.7.1. $EF_{grid,CM,y}$ is ex-ante and will not be monitored throughout the crediting period.	
B.7.2. Is the monitoring plan compliant with the approved monitoring methodology and/or relevant tools (if applicable)?	VVM Para. 123(a) PDD Section B.7	DR	$EG_{facility,y}$ is required to be monitored according to monitoring methodology. It is included as a monitored parameter in B.7.1. $EG_{facility,y}$ is calculated by total electricity supplied to the grid ($EG_{output,y}$) minus total electricity purchased from the grid ($EG_{import,y}$) and electricity purchased from the grid through a 10 kV spare line ($EG_{im-spare,y}$).	OK
B.7.3. Is the implementation of monitoring plan feasible and verifiable.	VVM Para. 123(b) PDD Section B.7	DR, SV, I	By means of desk review, interviews with relevant personnel, project plans and site visit, it is confirmed that : 1) The monitoring arrangements described in the monitoring plan are feasible within the project design; 2) The means of implementation of the monitoring plan, including the data management and quality assurance and quality control procedures, are sufficient to ensure that the emission reductions achieved by the proposed CDM project activity can be reported ex post and verified. Monitoring parameters are provided with the source of data, measurement methods and procedures, calibration frequency and standard, accuracy, measurement interval, and QA/QC procedures.	OK
B.7.4. Is it ensured that data provisions will be free of potential conflicts of interests resulting in a tendency of overestimating emission	VVM Para. 19	DR	Yes. Sales receipts will be used for double check. Sales receipts are considered to be a reliable source	OK

reductions?				
B.7.5. Is the proposed monitoring plan compliance with the methodology/tools and feasible for implementation?	VVM Para. 124	DR	Yes. Monitoring plan is in compliance with the requirement of the methodology. It is feasible for implementation by means of site visit and interview.	OK
B.7.6. Does the information contained in Annex 4 in consistency with the information in Section B.7 of PDD?	PDD Annex 4	DR	Not applicable. There is no information contained in Annex 4.	OK
B.7.7. Does the monitoring plan in the PDD comply with the approved methodology provided 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. 91a/91d/121/79 PDD Section B.7-B.7.2	DR, SV, I	A two-step process is applied to assessing compliance with this requirement, as follows: a) Compliance of the monitoring plan with the approved methodology. (i) $EG_{facility,y}$ is identified as the parameter required by monitoring methodology by means of document review; (ii) Monitoring plan contains all necessary parameters, i.e. $EG_{facility,y}$. It is clearly described and the means of monitoring described in the plan complies with the requirements of the methodology; (b) Implementation of the plan. By means of review of the documented procedures, interviews with relevant personnel, project plans and any physical inspection of the proposed CDM project activity site in accordance with paragraphs 59-62, assess whether: (i) The monitoring arrangements described in the monitoring plan are feasible within the project design; (ii) The means of implementation of the monitoring plan, including the data management and quality assurance and quality control procedures, are sufficient to ensure that the emission reductions achieved by/resulting from the proposed CDM project activity can be reported ex post and verified. Project emission and leakage are zero as applied methodology states.	CAR #7 OK

			Two measurement meters are involved in monitoring including one main meter installed at 110kv substation and one back-up meter installed at wind farm. Both meters will have accuracy level not lower than 0.5s and subject to annual calibration against national standard Project owner and the grid company will read main meter and back-up meter and record accordingly. Sales receipts which are issued based on meter reading of main meter will be obtained for double check. Meter reading of back-up meter will be used once main meter is in failure. Relevant data management system is described. All the data will be kept for two years following the end of the first crediting period. By means of site visit, it is found that there exists a backup line for emergency. CAR #7 is raised requesting PP taking them into account in MP. In PDD version 2, monitoring of electricity imported from the backup is included as a monitored parameter $EG_{im-spare,y}$ (Electricity purchased from the grid through a 10 kV spare line in the year y). It is clearly described and the means of monitoring described in the plan complies with the requirements of the methodology. One measurement meter installed at the backup line is involved. This meter belongs to the local power distributor. Values on sales receipts issued by the local power distributor will be obtained as source of data. As the local power distributor will not underestimate the amount of electricity, it is accepted by the assessment team. The meter will have accuracy level not lower than 2.0 and be subject to annual calibration against national standard. Taken into account of other parts of CAR #7 has been considered, CAR #7 is closed.	
B.7.8. Are the choices of project GHG indicators reasonable and in conformance with the requirements set by the approved methodology applied?	PDD Section B.7-B.7.2/B.6.2	DR	Yes, the choices of project GHG indicators are reasonable and in conformance with the methodology applied.	OK
B.7.9. Will it be possible to determine the specified project GHG indicators?	PDD Section B.6.2-B.8	DR	Yes, it is possible to determine the specified project GHG indicators.	OK
B.7.10. Is the information given	PDD Section	DR	Yes. The information given for the monitoring variable $EG_{facility,y}$ is sufficient to	OK

for each monitoring variable by the presented table sufficient to ensure the verification of a proper implementation of the monitoring plan?	B.6.2-B.7.1		ensure the verification of a proper implementation of the monitoring plan. The data source, monitoring frequency, QA/QC procedures and uncertainty level, etc are clearly specified in the PDD. Data will be archived for 2 years following the end of the crediting period by means of electronic and paper backup. The accuracy of electricity meter is not lower than 0.5s. The meters will be calibrated by qualified third party according to the relevant regulations. Sales receipts are used for double check purpose.	
B.7.11. Is the monitoring approach in line with current good practice, i.e. will it deliver data in a reliable and reasonably acceptable accuracy?	PDD Section B.5-B.7.2	DR	Yes. The monitoring plan ensures the verifiability of data quality and correctness. Accuracy level of the meters used to measure electricity supplied to the grid and electricity purchased from the grid are not lower than 0.5s. Before the project is in operation, both the project owner and the grid company will check the equipments to ensure their work properly. Sales receipts are used for double check purpose. The operational and management structure for monitoring and data monitoring procedures are stated in Section B.7.2 of the PDD. QA/QC procedures and the procedures for training of monitoring personal are not stated in the monitoring plan. CAR #7 is raised requesting PP taking them into account in MP. In PDD version 2, QA/QC procedures and training the procedures for training of monitoring personal are included in the monitoring plan. With item B.7.7 and B.8.3 taken into account, CAR #7 is closed out.	CAR #7 OK
B.7.12. 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	Not applicable. As per the applied monitoring methodology, project emission is zero.	OK
B.8. Operational and Management Structure				
B.8.1. Is the authority and responsibility of project management clearly described?	PDD Section B.7	DR	Yes. The authority and responsibility of project management is clearly described in Section B.7.2 of the PDD.	OK

B.8.2.	Is the authority and responsibility for registration, monitoring, measurement and reporting clearly described?	PDD Section B.8	DR	Yes. The authority and responsibility for registration, monitoring, measurement and reporting is clearly described in the PDD.	OK
B.8.3.	Are procedures identified for training of monitoring personnel?	PDD Section B.7	DR	No. Procedures for training of monitoring personnel are not identified in the B.7.2 of the PDD. CAR #7 is raised requesting PP taking them into account in MP. As per discussion in item B.7.11, CAR #7 is closed out.	~~CAR #7~~ OK
B.9. Baseline Information					
B.9.1.	Is the information contained in Annex 3 consistent with the Section B.4, B.5 and B.6?	PDD Annex 3	DR	Information contained in Annex 3 is consistent with the section B.4, B.5 and B.6.	OK
B.9.2.	Is there any indication of a date when determining the baseline?	PDD Section B.8/Annex 3	DR	Yes. The baseline study of the proposed project was completed on 24/01/2011 Name of person/entity determining the baseline: Ms. LIN, Wei Easy Carbon Consultancy Co., Ltd. 13-801, Jianwai SOHO, 39 Dongsanhuan Zhonglu, Chaoyang District, Beijing 100022, P. R. China Phone/fax: +86 10 58697044/59000064 Email: tonilin@easy-carbon.com Mr. GUAN, Yisong Easy Carbon Consultancy Co., Ltd. 13-801, Jianwai SOHO, 39 Dongsanhuan Zhonglu, Chaoyang District, Beijing 100022, P. R. China Phone/fax: +86 1058697044/59000064 Email: gyisong@easy-carbon.com	OK
B.9.3.	Is this consistent with the time line of the PDD history?	PDD Section B.8	DR, SV, I	Yes. PDD version 1 is dated 02/04/2011. Baseline study is on 24/01/2011, which is consistent with the time line of the PDD history.	OK
B.9.4.	Is all data required provided in a complete	PDD Annex 3	DR	Yes. All data required is provided in a complete manner by annex 3 of the PDD.	OK

manner by annex 3 of the PDD?				
B.9.5. What is the documented crediting period of the project? Is this inline with available data?		DR	The documented crediting period of the project starts on 01/03/2012. The project applies renewable crediting period with the first crediting period of 7 year's length.	OK
B.9.6. In cases where the methodology specifies, has the ' <i>Tool to determine the remaining lifetime of equipment</i> ' been correctly applied?	EB 50 Annex 15	DR	NA. The proposed project is a newly built project.	OK
B.9.7. In cases where the ' <i>Tool to determine the remaining lifetime of equipment</i> ' has been used the project participants may use one of the following options to determine the remaining lifetime of the equipment: i. Use manufacturer's information on the technical lifetime of equipment and compare to the date of first commissioning; ii. Obtain an expert evaluation; iii. Use default values.	EB 50 Annex 15	DR	NA. The proposed project is a newly built project.	OK

C. Duration of the Project / Crediting Period				
C.1.1. Are the project's starting date and operational lifetime clearly defined and reasonable?	VVM Para. 99 PDD Section C.1.1/C.1.2	DR, SV	Justification on starting date is OKed upon closure of section B.5.4 and B.5.5. The starting date of the project activity is 03/02/2010, which was the date when the wind turbine contract was signed and was the earliest date at which either the implementation or construction or real action of a project activity began. The starting date is earlier than the validation. In PDD version 1, it states the starting date of the project activity of 01/02/2010 is the date when wind turbine contract was signed. While it is found that wind turbine contract was signed on 03/02/2010. Moreover, date of signing CDM consultancy agreement is found inconsistent as well. Therefore, CAR #8 is raised requesting PP taking relevant action and clarifying how the starting date is determined as per the definition in the Glossary of CDM terms. In response to CAR#8, PP revised in the information of the dates for signing the wind turbine contract and CDM consultancy agreement in the PDD version 2. The information in the PDD version 2 is consistent with the verified wind turbine contract and consultancy agreement. FSR estimates the project life time as 20 years. Similar projects from SGS's database have been checked and found life time as 20 years for wind power generation projects is a common practice. The project activity complies of EB 49 Annex 22 <i>Guidelines on the demonstration and assessment or prior consideration of the CDM</i> version 03. Relevant requirements are as follow: 1. Paragraph 2 "<i>The Board decided that for project activities with a starting date on or after 02 August 2008, the project participant must inform a Host Party DNA and the UNFCCC secretariat in writing¹ of the commencement of the project activity and of their intention to seek CDM status. Such notification must be made within six months of the project activity start date and shall contain the precise geographical location and a brief description of the proposed project activity, using the standardized form F-CDM-Prior Consideration. Such notification is not necessary if a PDD has been published for global stakeholder consultation or a new methodology proposed to the Executive Board for the specific project before the project activity start date.</i>"	CAR #8 OK

			Starting date of the project is 03/02/2010 which is after 02/08/2008. PP has informed Host Party DNA on 06/02/2010 and approved on 15/03/2010. PP notified UNFCCC secretariat in writing on 04/02/2010. This notification was made within six months of the project activity start date and it contains geographical location and a brief description of the proposed project activity, using the standardized form F-CDM-Prior Consideration. Hence, this requirement is met. 2. Paragraph 4 <i>“When validating a project activity with a start date on or after 2 August 2008, DOEs shall ensure by means of confirmation from the UNFCCC secretariat that such a notification had been provided.”</i> Starting date of the project is 03/02/2010 which is after 02/08/2008. PP notified UNFCCC secretariat in writing on 04/02/2010 and notification is available on UNFCCC website. Hence, this requirement is met. 3. Paragraph 8 <i>“In validating proposed CDM project activities where:</i> <i>(a) there is less than 2 years of a gap between the documented evidence the DOE shall conclude that continuing and real actions were taken to secure CDM status for the project activity;</i> <i>(b) the gap between documented evidence is greater than 2 years and less than 3 years, the DOE may validate that continuing and real actions were taken to secure CDM status for the project activity and shall justify any positive or negative validation opinion based on the context of the evidence and information assessed;</i> <i>(c) the gap between documented evidence is greater than 3 years, the DOE shall conclude that continuing and real actions were not taken to secure CDM status for the project activity. ”</i> There is no gap between the documented evidence more than 2 years. Hence, it is concluded that continuing and real actions were taken to secure CDM status for the project activity.	
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	VVM Para. 102a PDD Section C.2/C.2.1/C.2.2	DR	Yes. A renewable crediting period of 7 year is chosen. The starting date of the crediting period starts on 01/03/2012.	OK

	crediting period of max. 10 years)?				
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, I	Yes. The project's operation lifetime is expected to be 20 years, which exceeds the first crediting period.	OK
C.1.4.	Does the start date indicate whether this is a new project activity or a pre-existing project activity?	VVM Para. 102a/ 98 PDD Section C.1.1/C.2.1.1	DR, I	The starting date of the project is 03/02/2010, which is after 02/08/2008. The project is a new project activity.	OK
D. Environmental Impacts					
D.1.1.	Does the project comply with environmental legislation in the host country?	VVM Para. 131-133 PDD section D	DR	Yes. EIA completed by Shandong Academy of Environmental Science in April, 2008 and approval shows its compliance with environmental legislation in China.	OK
D.1.2.	Has an analysis of the environmental impacts of the project activity been sufficiently described?	VVM Para. 131-133 PDD section D	DR	Yes. The analysis of the environmental impacts of the project activity has been sufficiently described in Section D.1 of the PDD.	OK
D.1.3.	Are there any Host Party requirements for an Environmental Impact Assessment (EIA), and if yes, is an EIA approved?	VVM Para. 131-133 PDD section D	DR	Yes. EIA is required for this kind of project activity. EIA Report of the project was completed by Shandong Academy of Environmental Science in April, 2008.	OK
D.1.4.	Will the project create any adverse environmental effects?	VVM Para. 131-133 PDD section D	DR	Yes, but very small and can be relieved if properly measures are taken.	OK

D.1.5.	Are trans-boundary environmental impacts considered in the analysis?	VVM Para. 131-133 PDD section D	DR	No trans-boundary environmental impacts are considered in the analysis. It is confirmed by means of reviewing EIA and undertaking site visit.	OK
D.1.6.	Have identified environmental impacts been addressed in the project design?	VVM Para. 131-133 PDD section D	DR, I	Yes. The impacts to the environment are very small and are properly address in the project design. It is confirmed by site visit, reviewing EIA and interviewing relevant officials.	OK
E. Stakeholder Comments					
E.1.1.	Have local stakeholders been invited by the PPs to comment on the proposed CDM project activity prior to the publication of the PDD on the UNFCCC web	VVM Para. 128-129 PDD Section E.1	DR	Yes. Local stakeholders were consulted on 21/11/2009 by means of consultation meeting and distributing questionnaires. 21/11/2009 is earlier than the time of GSP of PDD.	OK
E.1.2.	Have appropriate media been used to invite comments by local stakeholders?	VVM Para. 128-129 PDD Section E.1	DR	Yes, a stakeholders' conference was held on 21/11/2009. Furthermore, an open public survey was also held before above stakeholder's conferences. 50 copies were distributed with 48 copies returned. Relevant documents have been reviewed by the assessment team. Relevant information has been confirmed by interview. It is found appropriate by the assessment team.	OK
E.1.3.	Is the undertaken stakeholder process described in a complete and transparent manner?	VVM Para. 128-129 PDD Section E.1	DR	Yes. The stakeholder process was described in a complete and transparent manner, as E.1.2 above illustrates.	OK
E.1.4.	Is a summary of the stakeholder comments received provided?	VVM Para. 128-129 PDD Section E.2	DR	Yes, the summary of the stakeholder comments received is provided in Section E.2 of the PDD.	OK
E.1.5.	Has due account been	VVM Para.	DR	According to comments from the stakeholders, it is not necessary to adjust the	OK

taken of any stakeholder comments received?	128-129 PDD Section E.3		design, construction or operation of the proposed project	
E.1.6. How the team validate the adequacy of stakeholder consultation?	VVM Para. 130	DR	The meeting minutes have been reviewed by the assessment team. The questionnaires of the project have all been provided to the validation team. Also, the assessment team has interviewed the local officials and the villages, and it has been confirmed that the stakeholder consultation's information is accurate and complete	OK

A.3 Annex 3: Overview of Findings

Findings Overview Summary

	CARs	CLs	FARs
Total Number raised	5	3	0

Date:	22/05/2011	Raised by:	Yuan Xue & Simon Zhao		
Type:	CAR	Number:	CAR #1	Reference:	1.2 under table 1
Lead Assessor Comment:			Date: 22/05/2011		
Please provide the LoA of the project issued by the DNA of China					
Project Participant Response:			Date: 13/06/2011		
The Chinese LoA has been submitted to DOE. Please check it.					
Documentation Provided as Evidence by Project Participant:					
Chinese LoA of Zhangjiachan					
Information Verified by Lead Assessor:					
LoA issued by DNA of China dated 13/06/2011					
Reasoning for not Acceptance or Acceptance and Close Out:					
The host Party P.R.China has ratified the Kyoto Protocol on 30/08/2002 and has appointed a DNA. http://maindb.unfccc.int/public/country.pl?country=CN					
Information relevant with LoA issuance is available on DNA's official webpage http://cdm.ccchina.gov.cn/website/CDM/pdf/Item_new/Item_new6386.pdf					
Content of LoA is checked and items (a) – (d) are confirmed.					
a) The country is a Party to the Kyoto Protocol					
b) Participation is Voluntary					
c) P.R. China confirming that the proposed CDM project activity contributes to sustainable development of the country Non-Annex 1 Party United Kingdom and submit a letter of approval					
d) It refers to the precise proposed CDM project activity title in the PDD, Shandong Wendeng Zhangjiachan Wind Farm Project, being submitted for registration.					
LoA is unconditional with above (a)-(d).					
LoA has been issued by the DNA which is listed on the UNFCCC CDM website.					
Assessment team considers the LoA is in accordance with paragraphs 45-48 of VVM version 01.2.					
CAR #1 was closed.					
Acceptance and Close out by Lead Assessor:			Date: 30/10/2011		
Yuan Xue					

Date:	22/05/2011		Raised by:	Yuan Xue & Simon Zhao		
Type:	CAR	Number:	CAR #2		Reference:	1.2 under table 1
Lead Assessor Comment:				Date: 22/05/2011		
Please provide the LoA of the project issued by the Annex 1 country.						
Project Participant Response:				Date: 05/10/2011		
Since EDF Trading Ltd is experienced in the application for the French LoA, the proposed project applied for the Fench LoA. It has been provided to DOE.						
Documentation Provided as Evidence by Project Participant:						
French LoA of Zhangjiachan						
Information Verified by Lead Assessor:						
LoA issued by DNA of France dated 05/10/2011						
Reasoning for not Acceptance or Acceptance and Close Out:						

PP provided the LoA from the DNA of France France ratified the KP on 31/05/2002 has appointed a DNA http://maindb.unfccc.int/public/country.pl?country=FR France LoA is obtained from the PP. The French LoA is obtained from the PP. Via email confirmation from the official (Dimitar Nikov) of the DNA, and comparison the format and signature of the French LoA with other French LoAs on the UNFCCC website, the assessment team has confirmed the authenticity of the LoA from France for the project activity. Content of LoA is checked and items (a) – (d) are confirmed. e) The country is a Party to the Kyoto Protocol f) Participation is Voluntary g) Not applicable of annex 1 country h) It refers to the precise proposed CDM project activity title in the PDD, Shandong Wendeng Zhangjiachan Wind Farm Project, being submitted for registration. LoA is unconditional with above (a)-(d). LoA has been issued by the DNA which is listed on the UNFCCC CDM website. Assessment team considers the LoA is in accordance with paragraphs 45-48 of VVM version 01.2. CAR #2 was closed.	
Acceptance and Close out by Lead Assessor: Yuan Xue	Date: 30/10/2011

Date:	22/05/2011	Raised by:	Yuan Xue & Simon Zhao		
Type:	CAR	Number:	CAR #3	Reference:	section A.3
Lead Assessor Comment:				Date: 22/05/2011	
Please provide the MoC completed in accordance with the Procedures for Modalities of Communication between Project Participants and the Executive Board.					
Project Participant Response:				Date: 13/10/2011	
MoC has been provided to DOE. Please check it.					
Documentation Provided as Evidence by Project Participant:					
MoC of Zhangjiachan project					
Information Verified by Lead Assessor:					
MoC signed by both parties dated 09/08/2011					
Reasoning for not Acceptance or Acceptance and Close Out:					
MoC has been checked with respect to below aspects: (a) Title of the CDM project activity is consistent with the PDD; (b) Date of submission is clearly indicated as 09/08/2011; (c) Two project participants are included; (d) Focal point for each scope of authority is designated; (e) Contact details and specimen signature of each focal point are listed; (f) Signatures of project participants confirming their agreement to the terms of the statement of modalities of communication are signed. Details of each authorized signatory for all project participants is checked correspond to the representatives designated to the project in Annex I of the Project Design Document. The MoC signed by the PPs have been provided and checked by the validation team, The MoC is completed in accordance with the template from the UNFCCC. CAR #3 is closed.					
Acceptance and Close out by Lead Assessor: Yuan Xue				Date: 30/10/2011	

Date:	22/05/2011	Raised by:	Yuan Xue & Simon Zhao		
Type:	CL	Number:	CL#4	Reference:	Section B.1
Lead Assessor Comment:				Date: 22/05/2011	

A few comments were received during GSP. Please respond and take relevant action.	
Project Participant Response:	Date: 02/12/2011
Regarding the received comments during GSP, the relevant response has been sent to DOE. 2 comments (No.2,3) are irrelevant to the proposed project while 11 comments (No. 8,16,17,20 28,30,39,40,42,43) have been clearly demonstrated in the public PDD (version 1). For the rest 43 comments, the relevant revision has been done in the PDD (version 2).	
Documentation Provided as Evidence by Project Participant:	
Response to the received comments of Zhangjiachan20110602; PDD (version 2).	
Information Verified by Lead Assessor:	
GSP web site of the project PDD version 2	
Reasoning for not Acceptance or Acceptance and Close Out:	
Global stakeholder process started on 05/04/2011 and closed on 04/05/2011. (http://cdm.unfccc.int/Projects/Validation/DB/M8S5JBVF8B5ZY54K40MJCZ53Y43ZH8/view.html) 55 comments were received during this process. As some of the comments are found either ambiguous or irrelevant, a mail was sent to the submitter requesting clarification from the author. However, no response was received till issuance of the report. However, ten ambiguous comments including number 8, 16, 17, 20, 28, 30, 39, 40, 42, 43 and two irrelevant comments including comments including number 2 and 3 were found. Following items were found ambiguous: 8) Basis of choosing PLR as benchmark is not adequately demonstrated in the PDD PLR was not mentioned in PDD version 1 as benchmark. 16) IT rate assumed is not as per standard practice. IT rate was not discussed in PDD version 1. 17) The application of MAT which is based on tax holiday while calculating WACC is not appropriate. MAT was not discussed in PDD version 1. 20) Not demonstrated that the proposed project activity is additional as per options provided under attachment A to Appendix B of the simplified modalities and procedures for small-scale CDM project activities. The project is not a small-scale CDM project activity. 28) Benchmark calculation is not as per WACC tool (EB53 Annex 8) Benchmark calculation is not referred WACC tool. 30) The basis of calculation of benchmark is not documented in the section B.5. PLR is not acceptable benchmark for the project. WACC based on Government bonds, risk premiums should be taken. Neither PLR nor WACC is discussed in PDD version 1. 39) The selection of option (out of two) for calculating OM is not adequately documented with justification. CEA calculation is based on net electricity generation, the average efficiency of each power unit and the fuel types used in each power unit. Step 4 of B.6.1 Definition of CEA is ambiguous, clarification is requested. 40) The argument that CEA data for build margin is calculated as per Emission factor tool is not documented. B.6.1 Definition of CEA is ambiguous, clarification is requested. 42) The justification of negligible project emissions for wind project is not as per AMS. I. D ver 16.0 EB 54). The project does not apply methodology AMS. I. D ver 16.0. 43) The emission factor value (Southern grid) for calculating baseline emission is wrong. Refer B.6.3	

Southern grid is not the connected grid of the project. Clarification is requested.

Following items were found irrelevant with the proposed project:

2) How environmentally safe and sound technology is used for the project and details of technology transfer is not demonstrated adequately. Refer A.4.2

A.4.2 is about Category(ies) of project activity, not technology employed by the project.

3) Non-debundling nature of the project activity is not adequately justified as per EB54 Annex 13 (Debundling tool). Refer A.4.5.

A.4.5 is about public finding, not project nature.

Other comments are confirmed by the assessment team that having been taken into account, details as follow:

1) Purpose of the project and how the proposed project activity reduces greenhouse gas emissions are not briefed in the PDD. Refer section A.2.

It has been originally included in the PDD version 1 and version 2.

4) Please check the project boundary of the project activity is not based on the guidance of the applicable project category.

The project's spatial boundaries are clearly defined in Section B.3 of the PDD version 2. The spatial extent of the proposed project boundary includes the proposed project power plant and all power plants connected physically to NCPG that the proposed project power plant is connected to. Therefore, the boundary of proposed project is within of NCPG in accordance ACM0002 version 12.2.0 and referred Emission Factor Tool.

5) Why has option A (Combined margin) been chosen for calculating emission factor is not justified. Refer B.6

The baseline scenario is identified in Section B.4 of the PDD transparently as per ACM0002 version 12.2.0. As per ACM0002 version 12.2.0, for installation of a new grid-connected renewable power plant, the baseline scenario is *Electricity delivered to the grid by the project activity would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources, as reflected in the combined margin (CM) calculations described in the "Tool to calculate the emission factor for an electricity system"*. Therefore, combined margin is chosen.

6) The justification of choosing IRR as financial indicator is not adequately justified. Whether it is equity or project IRR, pre-tax or post tax is not mentioned in the PDD.

29) Whether pre-tax or post tax IRR is selected is not demonstrated in the PDD.

Response to comment 6) and 29), project IRR of total investment after tax was identified as financial indicator. In the PDD version 2, the suitability of the benchmark was justified that the benchmark of 8% is sourced from the *Interim Rules on Economic Assessment of Electric Engineering Retrofit Projects* (Guodianfa [2002] No.623, /56/), issued by the State Power Corporation of China on 10/09/2002. It is designed to guide the economic assessment of retrofit and new projects in electric power industry in China. The proposed project activity is an electricity generation project and the project IRR of total investment is calculated to be compared with the benchmark. The benchmark of 8% is widely applied in financial assessments of wind farms in China and has also been accepted as the benchmark for registered CDM projects in power sector of China. The benchmark IRR of 8% is validated to be standard in the market and therefore suitable for the project activity by SGS Assessors in compliance with paragraph 13 of *Guidance on the assessment of investment analysis* version 05 "In the cases of projects which could be developed by an entity other than the project participant the benchmark should be based on parameters that are standard in the market."

7) The emission factor for the project electricity system can be calculated either for grid power plants only or, as an option, can include off-grid power plants.

PDD version 1 section B.6.1 states that Option I (Only grid power plants are included in the calculation.) was chosen to calculate the emission factor.

9) All the issues of investment analysis guidelines are not discussed in the PDD. Refer B.5.

10) Justification of parameters including O&M, insurance, loan, derating, escalation, and tariff are not

demonstrated with justification. Refer B.5.

Response to comment 9) and 10), PDD version 1 has included discussion of investment analysis. While it has been further elaborated in PDD version 2 and justification of the appropriateness of input values has been included in PDD version 2 in response to finding CL #5. Please refer CL #5 for details.

11) Please provide a proof for proposed debt to equity taken at the investment decision. Refer B.5

By means of desk review and interview, it was found that at the time of validation, bank loan contract was not signed. Hence, it is not listed in section B.5.

12) Proof for PLF is not justified.

In accordance with the *Guidelines for the reporting and validation of plant load factors* (EB 48, annex 11, /35/) version 01, the plant load factor in the PDD is determined by a third party contracted by one of the project participants i.e. the project owner. PLF is sourced from FSR which is compiled by an accredited third party i.e. Shandong Industrial Design Institute Co., Ltd. In FSR, PLF is calculated based on the data from the FSR ($0.21 = 1,846 \text{ hours} / 8760 \text{ hours}$).

13) Date of offer is not provided

31) Prior consideration of CDM which is important for the determination of additionality is not documented in the section B.5 of the PDD.

Key issues of prior consideration of CDM occurred during project development has been included in the section B.5 and validated to be corrected by means of desk review.

14) Project cost is not as per state norms. Refer B.5.

15) O&M charges and its escalation is not as per norms

25) Project cost is not as per norms, DOE has to check and clarify.

26) The project cost of the project should be based on offer and not on purchase order or tariff order.

27) O&M charges considered are on higher side. Pls. clarify.

Response to comment 14), 15), 25), 26) and 27), the average annual O&M costs of the project was calculated to be 11.19 million Yuan/year. The annual O & M costs mainly include material cost, insurance, employee payroll and welfare fund, maintenance expense and miscellanea fees. The Calculation formula of O&M was validated to be consistent with which was determined in the *Economical Assessment Method and Parameters for Construction Project* (the 3rd edition) issued by NDRC and Ministry of Construction of China on August 2006 and the determination in the FSR. The applied rate, such as the Rate of Maintenance, Rate of Insurance, the Salary and Welfare Fee are validated to comply with corresponding policy in China.

18) The PP has not explained and justified the key assumptions and rationale.

19) The PP and consultant has not illustrate in a transparent manner all data used to determine the baseline emissions.

21) National policies and circumstances relevant to the baseline of the proposed project activity are not being summarized clarify.

23) Data that is calculated with equations provided in the approved category or default values specified in the category should not be included in the compilation.

33) The selection of simple OM based on low cost/must run resources is not adequately justified. Refer B.6.1

34) PP has not provided for each parameter the chosen value or, where relevant, the qualitative information.

35) Please Provide the actual value applied. Where time series of data is used, where several measurements are undertaken or where surveys have been conducted, provide detailed information.

36) Explain and justify the choice for the source of data.

37) Ex-ante option of calculating OM is not adequately demonstrated. Step 3 of Refer B.6.1

38) Power plants registered as CDM project activities should be included in the sample group that is used to calculate the operating margin if the criteria for including the power source in the sample group apply. This argument is not demonstrated. B.6.1

41) Spread sheet is not provided. The data should be presented in a manner that enables reproducing of the calculation of OM, BM, and CM.

Response to comment 18), 19) 21), 23), 33) ~38) and 41) It is validated that data provided for the ex-ante estimation of ERs in Sections B.6.2 and B.6.3 of the PDD version 2 are in compliance with ACM0002 version 12.2.0. The original data used for the calculation of the grid emission factor used for the ex-ante estimation of ERs are from official or credible sources like IPCC, China Energy Statistical Yearbook and China Electric

Power Yearbook. The calculation of grid emission factor is in compliance with the Tool to calculate the emission factor for an electricity system and relevant EB guidance and the estimated annual power generation is from the FSR of the project.

It is validated that ACM0002 version 12.2.0 has been applied exactly as defined for determining emission reductions. The PDD clearly states which equations will be used in calculating emission reductions. All the required steps and calculations have been followed as per ACM0002 version 12.2.0. The PDD documents how each equation is applied in a manner that enables readers to reproduce the calculation. Conservative assumptions have been used to calculate emission reductions.

22) Explain and justify all relevant methodological choices for the proposed project activity
The choice of ACM0002 version 12.2.0 is correctly justified in Section B.2 of the PDD and the project is in conformance with all applicability criteria of the applied methodology

24) CER revenue assumed is not consistently applied
CER revenue is estimated based on price settled on ERPA and it is validated to have been consistently applied in the PDD version 2 and IRR calculation spreadsheet.

32) Date of PPA is not mentioned in the prior consideration of CDM
By means of interview project owner, it is found by assessment team that at the time of validation, PPA was not signed.

44) Net electricity should be continuously monitored, hourly measured and at least monthly recorded.
Refer B.7.1

Quantity of net electricity generation supplied by the project to the Grid in year y ($EG_{\text{facility},y}$) is required to be monitored according to monitoring methodology. It is included as a monitored parameter in B.7.1. $EG_{\text{facility},y}$ is calculated by total electricity supplied to the grid ($EG_{\text{output},y}$) minus total electricity purchased from the grid ($EG_{\text{import},y}$) and electricity purchased from the grid through a 10 kV spare line ($EG_{\text{im-spare},y}$). Both $EG_{\text{output},y}$ and $EG_{\text{import},y}$ will be continuously measured and monthly recorded which is in compliance with the applied methodology. Value of $EG_{\text{im-spare},y}$ is obtained from values on sales receipts issued by the local power distributor because the meter belongs to the local power distributor, and the project owner does not have access to the meter.

45) Where the values have been measured, include a description of the measurement methods and procedures that comply with the guidance provided under general guidance.

47) Provide a detailed description of the monitoring plan, including an identification of the data to be monitored and the procedures that will be applied during monitoring.

48) The PP should include sources of data that will be actually used for the proposed project activity (e.g. which exact national statistics, actual measurement etc.).

49) Where the parameters are to be measured in accordance with the guidance of the approved project category or the general guidance to the indicative methodologies, specify the measurement methods and procedures including accepted industry standards or national or international standards which will be applied, which measurement equipment is used, how the measurement is undertaken.

Response to comment 47) ~ 49), source of data, measurement methods and procedures of $EG_{\text{output},y}$ and $EG_{\text{import},y}$ are stated in section B.7.1 in PDD version 1

50) Which calibration procedures are applied, what is the accuracy of the measurement method, who is the responsible person / entity that should undertake the measurements and what is the measurement interval?

The accuracy of electricity meter for $EG_{\text{output},y}$ and $EG_{\text{import},y}$ is not lower than 0.5s. The accuracy of the meter for $EG_{\text{im-spare},y}$ is not lower than 2.0. A designated third party will carry the calibration on measurement equipments once a year against relevant national standard.

45) Metering regulations as per CEA norms is not adequately followed in monitoring plan. Refer B.7.2. National standard is set as a requirement in section B.

51) Please provide a detailed description of the monitoring plan. Describe the operational and management structure that the project operator will implement in order to monitor emission reductions.

52) Clearly indicate the responsibilities for and institutional arrangements for data collection and archiving.

53) The monitoring plan should reflect good monitoring practice appropriate to the type of project activity.

Provide any relevant further background information. Response to comment 51) ~ 53), required information is further elaborated in PDD version 2. The authority and responsibility of project management for registration, monitoring, measurement and reporting is clearly described in the PDD. Procedures for training of monitoring personnel are not identified in the B.7.2 of the PDD. Part two of CAR #7 is raised. Please refer CAR #7 for details. The means of implementation of the monitoring plan, including the data management and quality assurance and quality control procedures, are sufficient to ensure that the emission reductions achieved by the proposed CDM project activity can be reported ex post and verified. 54) Please describe the process by which comments by local stakeholders have been invited and compiled. An invitation for comments by local stakeholders shall be made in an open and transparent manner, in a way that facilitates comments to be received from local stakeholders and allows for a reasonable time for comments to be submitted. 55) Project participants shall describe a project activity in a manner which allows the local stakeholders to understand the project activity. Response to 54) and 55), PDD version 2 has included means of consulting local stakeholders. Besides, after reviewing consultation meeting minutes, it is validated that project activity was described in an understandable way to local stakeholders. Comments stated above have been taken into account in PDD version 2 and accepted by the assessment team. Hence, CL #4 is closed out.	
Acceptance and Close out by Lead Assessor: Yuan Xue	Date: 02/12/2011

Date:	22/05/2011	Raised by:	Yuan Xue & Simon Zhao		
Type:	CL	Number:	CL #5	Reference:	Section B.5
Lead Assessor Comment:				Date: 22/05/2011	
Please justify appropriateness of input values applied in the investment analysis.					
Project Participant Response:				Date: 02/12/2011	
Tax rate The tax rate of city construction of 5% comes from the approved FSR, which is also in compliance with an official document The provisional regulation of city construction tax of PRC. The education surtax rate of 4% comes from the approved FSR, and which is also in compliance with the Decree No. 395 of the State Council of the People's Republic and Lucaizong [2005] No.15. The income tax of 25% complies with Enforcement Regulation of Business Income Tax Law of PRC, State Council Decree No.521. VAT rate of 8.5% was adopted in the FSR, which was completed on 2008, according to Notice of Value Added Tax Policy Regarding Products Using Certain Synthesized Resources and Other Products Cai Shui [2001]198, However, as per Notice of Value Added Tax Policy Regarding Products Using Certain Synthesized Resources and Other Products Cai Shui [2008]156, and the Notice about Implementation of VAT Reform in the Whole Country Cai Shui [2008]170, which valid from 01/01/2009, VAT rate of 17% and Tax deduction should be put into consideration. Thus, to be in line with the current law, VAT rate of 17% was used in the PDD. Residual value rate According to the Enterprise Income Tax Implementation Regulation of the People's Republic of China, the least depreciation years of the machines and other manufacturing facilities are 10 years. However, the regulation has also given enterprises the autonomy option for the depreciation years and the residual value rate according to the properties and usage of the fixed assets based on the regulated least depreciation years. Therefore, the selected depreciation lifetime of 15 years and the residual value rate 4% are complied					

with normal accounting practice in China.

Total static investment

The total static investment was estimated by an experienced design institute Shandong Industrial Design Institute Co., Ltd., which has been awarded the certificate. The estimated total static investment for the proposed project activity is 518.04 million Yuan, and the unit cost is 10,508 RMB/kW, which is in the range of the similar projects in Shandong, which is 7,448 RMB/kW (Ref No. 1019) – 12,914 RMB/kW (Ref No. 2584). Therefore, it can be concluded that the estimated investment costs in the FSR are reasonable.

Annual O&M cost

The O&M cost consists of five basic parameters including raw material cost, insurance, employee payroll and welfare fund, maintenance expense and miscellanea, and was estimated by an experienced design institute which has been awarded the certificate. In the GSP PDD (version 1) dated on 02/04/2011, the annual O&M cost was 12.36million Yuan, which is consistent with the FSR completed in July 2008. However, according to Cai Shui [2008]156 and the *Notice about Implementation of VAT Reform in the Whole Country* Cai Shui [2008]170, which are valid from 01/01/2009, VAT rate of 17% and Tax deduction should be put into consideration. To be conservative, the value of tax deduction has been deducted from the fixed asset investment to calculation the annual, depreciation fees, maintainence fees and insurance fees. Hence, the annual O&M cost has reduced to 11.19 million Yuan, the ratio of which relative to investment costs of the proposed project is 2.16%. That is comparable to the cost of previous wind projects in Shandong, which ranges from 0.77% (Ref No. 2094) to 4.81% (Ref No.1019). Therefore, it can be concluded that the estimated average annual O&M cost is reasonable.

Annual output and plant load factor

The expected annual power supply of the proposed project is calculated by an independent qualified design institute with high grade in the FSR, based on wind assessment records for 1971 to 2007 and detailed information on the equipment. Therefore, the power supply and plant load factor determination are in line with both options of the EB Guidelines for the reporting and validation of plant load factors (EB48 Annex 11): (a) provided to the government while applying the project activity for implementation approval, and (b) determined by a third party contracted by the project participants. The PLF of the proposed project is 0.21, which is in the range from 0.192 to 0.244 of the similar projects in Shandong Province. Therefore, it can be concluded that both the estimated annual output and plant load factor in the FSR are reasonable.

Tariff (incl VAT)

On 20th July 2009, NDRC promulgated latest tariff policy which regulates that the new wind power projects in Shandong Province will have to implement this fixed tariff of 0.61 RMB/kWh. Moreover, according to the approved tariff of the proposed project, which was issued by the Shandong Provincial Price Bureau (Lujiagefa[2010] No.209 on 26/10/2010), 0.61RMB/kWh (Including VAT) will be applied to the proposed project.

According to “Information note on the highest tariff applied by the EB in its decision on registration of projects in the People’s Republic of China”, the highest tariff in the Shandong Province is 0.61RMB/kWh (including VAT) for first 30,000 hours, and then the tariff 0.3969RMB/kWh (including VAT) for thermal plants should be applied. In line with the two-part tariff, the project IRR (post-tax) is 3.85% which can’t reach the benchmark 8%.

Therefore, the tariff of 0.61RMB/kWh (including VAT) used in the PDD is appropriate.

Documentation Provided as Evidence by Project Participant:

Contracts list of Zhangjiachan20110602; Tariff approval of Zhangjiachan; IRR calculation spreadsheet of Zhangjiachan20111012; FSR Page 23-44, Page 65-68;PDD (version 2)

Information Verified by Lead Assessor:

PDD version 2

FSR prepared by Shandong Industrial Design Institute Co., Ltd
Accreditation certificate of Shandong Industrial Design Institute Co., Ltd accredited by National Development and Reform Commission of People's Republic of China dated 10/12/2007 [Certificate No. GongZiYi 11820070043]
UNFCCC website for registered CDM projects in Shandong province
"Wind Resources Measurement Method of Wind Farms" (GB/T 18709-2002)
"Wind Resources Evaluation Method of Wind Farms" (GB/T 18710-2002)
Economical Assessment Method and Parameters for Construction Project (the 3rd edition) issued by NDRC and Ministry of Construction of China in August 2006
"Interim Measures for Renewable Energy Power Tariff and Cost-sharing" issued by NDRC which was effective from 01/01/2006, (Document Code: Fa Gai Jia Ge [2006] No. 7),
"Provisional Regulations of the People's Republic of China on Value-added Tax".
"Notice of the Ministry of Finance and the State Administration of Taxation about Policies regarding the Value Added Tax on Comprehensive Utilization of Resources and Other Products"
"Enterprise Income Tax Law of the People's Republic of China".
"Notice of the Ministry of Finance and State Administration of Taxation on Issues Relevant to Implementation of the List of Public Infrastructure Projects Enjoying Enterprise Income Tax Preferences"
"Decision of the State Council on Amending the Interim Provisions on the Collection of Educational Surcharges".
"Interim regulations on the city maintenance construction tax of the People's Republic of China"
"Notice Regarding The Executive Time of The Adjustment of The Fair Value of The Fixed Asset"
Commercial interests rate in China published by the People's Bank of China at the time of investment decision

Reasoning for not Acceptance or Acceptance and Close Out:

Following Paragraph 6 of the Guidance on the Assessment of Investment Analysis version 05 "*Input values used in all investment analysis should be valid and applicable at the time of the investment decision taken by the project participant.*", the parameters and inputs used for IRR calculation without CDM revenue are from FSR of the project which is valid and applicable at the time the decision to go ahead with the project was made. In China, assumptions and data sources for the economic evaluation of a project in the approved FSR are required to be based on relevant national standards and criteria. The FSR for the proposed CDM project was prepared by Shandong Industrial Design Institute Co., Ltd which is an independent third party entity accredited by National Development and Reform Commission of People's Republic of China dated 10/12/2007 [Certificate No. GongZiYi 11820070043] to carry out feasibility studies for new projects, including wind farm projects. The input values used for the investment analysis of the project were valid and applicable at the time of the investment decision i.e. 12/05/2009. The application of fixed values is in line with this guidance, because at the time of investment decision, any information on the variation of the input values over the following 21 years was not available to the project owner.

Paragraph 54(b) of EB38 states "*The values used in the PDD and associated annexes are fully consistent with the FSR, and where inconsistencies occur the DOE should validate the appropriateness of the values.*" The input values of parameters used for IRR calculation without CDM income in version 2 of the PDD and IRR spreadsheet are checked against the approved FSR and its approval issued by related authority in which key parameters in the FSR were verified and confirmed. It has been validated that all the listed input values are from the FSR for the project dated in July 2008 and consistently applied in calculation. Therefore, requirement of paragraph 54 (b) is complied.

Paragraph 54(a) of EB38 states "The FSR has been the basis of the decision to proceed with the investment in the project, i.e. that the period of time between the finalization of the FSR and the investment decision is sufficiently short for the DOE to confirm that it is unlikely in the context of the underlying project activity that the input values would have materially changed.". The FSR has been the basis of the decision to proceed with the investment in the project. FSR was finalized in July 2008, and the investment decision is made on 12/05/2009. The period of time between the finalization of the FSR and the investment decision is ten months, which is sufficient short to confirm that it is unlikely in the context of the project that the input values would have materially changed. Therefore, requirement of paragraph 54 (a) is complied.

The following has been performed to confirm that the input values from the FSR are valid and applicable at the time of the investment decision:

1. Total Static Investment:

The total static investment of the project is 518.04 million Yuan which are validated to be consistent with the data in the approved FSR.

Also, comparison of investment cost per kW is done between the proposed CDM project activity and the recently registered CDM wind power projects in Shandong Province and the comparison results confirm that the investment per kW of the project is within the range of the investment per kW for the registered CDM projects. Table 1 below illustrates the comparison of investment per kW between the proposed CDM project activity and the registered CDM projects with similar capacity in Shandong Province. The result shows that the investment cost per kW of the proposed project is within the reasonable range of these projects.

Table 1 Comparison of investment per kW of the proposed project with other wind farm projects

CDM-EB Ref.	Project Title	Total Installed Capacity (MW)	Total Investment (million Yuan)	Investment per kW (Yuan/kW)
1010	Laizhou Diaolongzui Wind Farm	48.75	450.1359	9,233.56
1019	Qixia Tangshanpeng Windfarm Project	21.75	162	7,448.28
1090	Shandong Changdao 27.2 MW Wind Power Project	27.2	268.68	9,877.94
1128	Shandong Weihai 69 MW Wind Power Project	69	705.1141	10,219.04
1755	Roncheng Wind Power Project, 48.75MW	48.75	502	10,297.44
2019	Shandong Luneng Dongying 48MW Wind Power Project	48	520.58	10,845.42
2094	The 48MW wind power project in Lubei, Shandong Province	48	548.05	11,417.71
2397	Shandong Penglai Pingdingshan Wind Farm Project	48	582.7	12,139.58
2436	Guohua Dongying Hekou 49.5 MW Wind Farm Project (Phase 1)	49.5	507.58	10,254.14
2438	Guohua Binzhou Zhanhua 49.5MW Wind Farm Project (Phase 1)	49.5	479.77	9,692.32
2442	Guohua Dongying Lijin 49.5 MW Wind Farm Project (Phase 1)	49.5	510.318	10,309.45
2530	Shandong Laizhou phase I Wind Power Project	49.5	516.3	10,430.30
2584	Shandong Dongying 1st phase Wind Power Project	49.5	639.24	12,913.94
2730	Shandong Laizhou phase II Wind Power Project	49.5	474.24	9,580.61
2764	Yantai Dongyuan Laizhou 48.5 MW Wind Farm Project Phase I	48.5	449.24	9,262.68
2814	Shandong Rushan Luneng Wind Farm	42	389.3882	9,271.15
2831	Huadian Laizhou Wind Farm Project	40.5	425.56	10,507.65

3353	Huaneng Changyi Phase I Wind Farm Project	49.5	624.48	12,615.76
3391	Shandong Huaneng Shouguang 49.5MW Wind Farm Project	49.5	559.07	11,294.34
4402	Shandong Penglai Wind Farm Phase II Project	48	528.04	11,000.83
the proposed project		49.3	518.04	10,507.91

The sensitivity analysis was also performed within a variation of $\pm 10\%$ of the total static investment. Further, the critical point for IRR crossing benchmark is analyzed as well. The result showed that if the total static investment decreases 24.2%, the IRR will reach the benchmark 8%.

94.04% of total static investment has been spent considering wind turbine purchase contract and construction contracts. It is assessment team's opinion that total static investment is unlikely to decrease 24.2%.

2. Annual output

The electricity output of the project applied in the PDD is 90,997 MWh, which is consistent with the FSR. The installed capacity of the project is 49.3 MW and plant load factor (PLF) is 21%.

In accordance with the Guidelines for the reporting and validation of plant load factors (EB 48, annex 11) version 01, the plant load factor in the PDD is determined by a third party contracted by one of the project participants i.e. the project owner. PLF is sourced from FSR which is complied by an accredited third party i.e. Shandong Industrial Design Institute Co., Ltd In FSR, PLF is calculated based on the data from the FSR ($0.21 = 1,846 \text{ hours} / 8760 \text{ hours}$).

The estimation of the annual electricity output is in accordance to the related standards, "Wind Resources Measurement Method of Wind Farms" (GB/T 18709-2002) and "Wind Resources Evaluation Method of Wind Farms" (GB/T 18710-2002). The data from the wind resource measurement were corrected based on the historical meteorological data of 37 years (from 1971 to 2007), provided by local metrological station. The annual power generation and power supply are estimated based on the corrected data, taking into account the some other factors like air density, trailing stream, and wind turbine efficiency. From our local and sectoral expertise, assessment team confirms that the above procedure for annual power supply estimation is common practice in wind farm design in China.

The assessment team compared the annual power supply, operation hours and plant load factor of the project activity with other wind farm projects in the same region (Shandong Province) that have already been registered as CDM projects. The comparison result is as follows:

Table 2 Comparison of Annual electricity output/operation hours/Plant Load Factor/ Annual O&M Cost (million Yuan) of the proposed project activity with other wind farm projects

CDM-EB Ref.	Project Title	Total Installed Capacity (MW)	Annual Electricity Generation (GWh)	Annual O&M Cost (million Yuan)	Annual Operation Hours	Load Factor
1010	Laizhou Diaolongzui Wind Farm	48.75	96.7049	14.6114	1984	0.226
1019	Qixia Tangshanpeng Windfarm Project	21.75	36.58	7.8	1682	0.192
1090	Shandong Changdao 27.2 MW Wind Power Project	27.2	56.42	10.94	2074	0.237
1128	Shandong Weihai 69 MW Wind Power Project	69	140.033	12.85	2029	0.232

1755	Roncheng Wind Power Project, 48.75MW	48.75	88.335	Not reported	1812	0.207
2019	Shandong Luneng Dongying 48MW Wind Power Project	48	95.136	15.0771	1982	0.226
2094	The 48MW wind power project in Lubei, Shandong Province	48	98.52	4.05	2053	0.234
2397	Shandong Penglai Pingdingshan Wind Farm Project	48	99.12	11.58	2065	0.236
2436	Guohua Dongying Hekou 49.5 MW Wind Farm Project (Phase 1)	49.5	102.396	14.286	2069	0.236
2438	Guohua Binzhou Zhanhua 49.5MW Wind Farm Project (Phase 1)	49.5	99.324	14.6141	2007	0.229
2442	Guohua Dongying Lijin 49.5 MW Wind Farm Project (Phase 1)	49.5	103.143	14.349	2084	0.238
2530	Shandong Laizhou phase I Wind Power Project	49.5	96.08	10.1877	1941	0.222
2584	Shandong Dongying 1st phase Wind Power Project	49.5	95.9784	7.69	1939	0.221
2764	Yantai Dongyuan Laizhou 48.5 MW Wind Farm Project Phase I	48.5	88.187	14.03573	1818	0.208
2814	Shandong Rushan Luneng Wind Farm	42	69.125	9.074	1646	0.188
2831	Huadian Laizhou Wind Farm Project	40.5	77.32	4.59	1909	0.218
3353	Huaneng Changyi Phase I Wind Farm Project	49.5	111.8746	9.25	2260	0.258
3391	Shandong Huaneng Shouguang 49.5MW Wind Farm Project	49.5	96.4788	12.33	1949	0.222
4402	Shandong Penglai Wind Farm Phase II Project	48	103.7408	10.53	2160	0.223
	the proposed project	49.3	90,997	11.19	1846	0.21

The operation hours of the proposed project activity is comparable to similar projects in the same region. Base on our local and sectoral expertise, the assessment team confirms that the operation hours/annual electricity output of the project activity applied in the PDD is valid and applicable at the time of the investment decision.

3. Annual O&M cost:

The average annual O&M cost of the project was calculated to be 11.19 million Yuan/year. The annual O & M costs mainly include material cost, insurance, employee payroll and welfare fund, maintenance expense and miscellanea fees. The Calculation formula of O&M was validated to be consistent with which was determined in the *Economical Assessment Method and Parameters for Construction Project* (the 3rd edition) issued by NDRC and Ministry of Construction of China in August 2006 and the determination in the FSR. The applied rate, such as the Rate of Maintenance, Rate of Insurance, the Salary and Welfare Fee are validated to comply with corresponding policy in China. The assessment team compared the average annual O & M costs of the project activity with other wind farm projects already registered as CDM projects and found that the average annual O & M costs of the project activity is in the range of the other wind farm projects in the same region The comparison result is shown in the Table 2 above.

Base on our local and sectoral expertise, the assessment team can confirm that the average annual O & M costs of the project activity applied in the PDD are valid and applicable at the time of the investment

decision.

4. Electricity Tariff:

According to the “*Interim Measures for Renewable Energy Power Tariff and Cost-sharing*” issued by NDRC which was effective from 01/01/2006, (Document Code: Fa Gai Jia Ge [2006] No. 7), the electricity tariff of wind power projects should be guided by the government and renewable energy generation projects which are approved by government authorities after 01/01/2006 should implement this regulation; projects which had been approved by government authorities before 31/12/2005 can still implement their previous approvals.

The applied tariffs (incl. VAT) of 0.61 RMB/kWh in the PDD is consistent with the tariff used in the FSR. And the FSR has been approved by Shandong Provincial Development and Reform Commission.

On 20/07/2009, the National Development & Reform Commission issued a Notice for Wind Power Grid Tariff Policy. It defined four types of wind resource regions with different availabilities of wind and tariffs. The proposed project locates in the Type IV wind resource region and the unified tariff is 0.61RMB/kWh (including VAT) according to the notice. The notice became valid on 01/08/2009 which means the tariff approved before that time will remain same and from then on, all the wind projects will get approved tariff according to the notice. Following the notice, the electricity tariff approved for the proposed project is 0.61RMB/kWh (including VAT) as project's tariff approval confirms, which is as same as the electricity tariff estimated for investment decision.

In addition, the tariff 0.61RMB/kWh (including VAT, 0.61RMB/kWh for the first 30,000 hrs, after that tariff for thermal power plants is applicable.) is the highest tariff from the latest version of “*Information note on the highest tariffs applied by the EB in its decisions on registration of projects in the People's Republic of China*” published by EB.

As analysis in the Sensitive Analysis in the PDD if the tariff increases by 27.78%, the IRR of proposed project will reach the benchmark. However, the tariff in china is regulated by the government and all the approved similar wind farm tariffs since 2009 in Shandong Province is fixed to be 0.61RMB/kWh. It is not easy for the PP to predict the increase of electricity tariff for 20 years' lifetime. It's the assessment team's opinion that the tariff is not expected to be raised by 27.78%.

The investment decision of the project is made based on the electricity tariff they can expect at the time of investment decision. In summary, it is the opinion of the assessment team that the tariff of 0.61 RMB/kWh (incl. VAT) is valid and applicable at the time of investment decision for the project activity.

5. Other input values:

(f) Tax rate

The taxes related to the proposed project were value added tax, income tax, education surtax and city maintenance and construction tax.

Value added tax

The value added tax used in the IRR calculation sheet is 17% which is consistent with the national policy “*Provisional Regulations of the People's Republic of China on Value-added Tax*”. There are two new national policies issued, which are also applicable to the proposed project activity. One is the “*Notice of the Ministry of Finance and the State Administration of Taxation on Several Issues concerning the National Implementation of Value-added Tax Reform*” in which it is stipulated that the tax payer is entitled to have a full recovery of the input tax paid on the fixed asset from the output tax on electricity tariff. The other one is the “*Notice of the Ministry of Finance and the State Administration of Taxation about Policies regarding the Value Added Tax on Comprehensive Utilization of Resources and Other Products*” in which it is stipulated that the wind power plant is entitled to a refund of the half of the output VAT on electricity since the year that all the input tax have been recovered. Both policies have been correctly applied in the calculation of the IRR.

Income tax

The income tax used in the IRR calculation sheet is 25% which complies with the national policy "*Enterprise Income Tax Law of the People's Republic of China*". The income tax calculation used in the IRR calculation spreadsheet was in accordance with the latest national policy "*Notice of the Ministry of Finance and State Administration of Taxation on Issues Relevant to Implementation of the List of Public Infrastructure Projects Enjoying Enterprise Income Tax Preferences*" in which it is stipulated that the wind power company is entitled to pay zero income tax for the first three years and half the income tax for the second three years since power generation. The related national policy has been applied in the IRR calculation spreadsheet.

Educational surtax

The educational surtax used in the IRR calculation sheet is 4% which is in accordance with the national policy "*Decision of the State Council on Amending the Interim Provisions on the Collection of Educational Surtax*" and "*Interim rules on the collection of additional Educational Surtax in Shandong Province*"

City maintenance and construction tax

The city maintenance and construction tax used in the IRR calculation sheet is 5% which is determined as per the national policy "*Interim regulations on the city maintenance construction tax of the People's Republic of China*".

(g) Fair value

Following Paragraph 4 of the Guidance on the Assessment of Investment Analysis, the fair value of the proposed project activity assets at the end of the assessment has been included as a cash inflow in the final year (Year 21), and the fair value of the project (192.778 million) is verified to be 3.7% of the fixed asset, (4% without consideration of Tax deduction and VAT reimbursement) which is consistent with the value in the approved FSR and also confirmed to be determined as per the national policy "*Notice Regarding The Executive Time of The Adjustment of The Fair Value of The Fixed Asset*" issued by State Administration of Taxation on 14/09/2005.

(h) Depreciation rate

Following Paragraph 5 of the Guidance on the Assessment of Investment Analysis, depreciation rate is set as 6.4% annually with a depreciation period of 15 year, which is consistent with the data in the PAR and also the determination of fair value as validated above. The 15 year depreciation period is validated to be common practice in wind power industry in China. Depreciation and other non-cash items related to the project activity were not deducted in estimation of gross profits and thus did not need to be added back to the net profits. Taxation was included in the calculation because the benchmark is intended for post-tax comparison.

(i) Interests repayment

As the benchmark used (8%) is post-tax benchmark, following Paragraph 11 of the Guidance on the Assessment of Investment Analysis, the actual interest payable is taken into account in the calculation of income tax. The interest was validated to be calculated according to the prevailing commercial interest rates in the region. The interest used in the FSR is 7.83% which is validated to be the same as the prevailing commercial interests rate in China published by the People's Bank of China at the time of investment decision. The calculation of interests' repayment in the IRR calculation spreadsheet is consistent with the data in the FSR.

(j) Debt/equity finance structure

Paragraph 18 of Guidance on the Assessment of Investment Analysis version 05 states "*If the benchmark is based on parameters that are standard in the market, then the typical debt/equity finance structure observed in the sector of the country should be used.*", the actual Debt/equity finance structure of the project is 65%

debt and 35% equity financing, which is in compliance with the FSR approval.					
In PDD version 1, it is found that suitability of the input values used for investment analysis are not substantially demonstrated, especially the plant load factor, annual electricity supply, the total static investment, the electricity tariff, the annual O&M cost, the residual value rate, the interest rate, and the tax rate. CL#5 is raised in this regard. Justification in PDD version 2 is accepted and validated to be correct as presented above, hence CL #5 is closed out.					
Acceptance and Close out by Lead Assessor: Yuan Xue				Date: 02/12/2011	

Date:	22/05/2011	Raised by:	Yuan Xue & Simon Zhao		
Type:	CL	Number:	CL #6	Reference:	Section B.5
Lead Assessor Comment:				Date: 22/05/2011	
Please clarify how similar projects are identified as per the requirement of "Tool for the demonstration and assessment of additionality".					
Project Participant Response:				Date: 02/12/2011	
According to the approved "Tool for the Demonstration and Assessment of Additionality (Version 05.2)", projects are considered similar if they are in the same country/region and/or rely on a broadly similar technology, are of a similar scale, and take place in a comparable environment with respect to regulatory framework, investment climate, access to technology, access to financing, etc. In China, the general environment of wind power projects such as the wind resources, tariff, and investment climate are only similar and comparable in the same province. Therefore, the common practice region and comparable framework is provincial and the proposed project is compared to other projects in Shandong Province. In April 2002, China implemented the policy "Separate power plants from network and compete in price to enter network". The objective of this power sector reform is to establish a more commercialized power market in China. Power project investment has to be under a more commercialized condition and considers project investment return more seriously. Since market condition for wind power project development changes much since April 2002, this common practice analysis starts from April 2002. Besides, wind farm within 15MW is defined as small scale CDM project in CDM guidance, which means wind farm project of 15MW or smaller is considered to be very small comparing with big project. Hence, the bottom range for comparison with the proposed project is defined as 15MW. With reference to Statistic of installed capacity of China's Wind Farms and the website of Verified Carbon Standard, there are 23 similar wind farms (capacity over 15 MW) put into commission in Shandong Province since 2002. However, Shandong Jimo Qingdao Huawei Wind Power Project commissioned in 2003 and enjoyed a higher tariff of 0.76RMB/kWh, which is much higher than the proposed project. The tariff of Shandong Jimo Qingdao Huawei Wind Power Project was approved in 2001. This project was an early demonstration project and received ODA support from DEG (part of KfW Bankengruppe). Shandong Changdao Wind Farm Project (project ID: 517) applied for Voluntary Emission Reduction under Verified Carbon Standard (VCS) to obtain the support from VCS VER funding to solve the financial barriers. Besides, the rest 21 projects (more than 15 MW) in Shandong province have been successfully registered as CDM project. Hence, the proposed project is not common practice within the region.					
Documentation Provided as Evidence by Project Participant:					
Statistic of installed capacity of China's Wind Farms by Professor Shi Pengfei, Shandong wind power project statistic					
Information Verified by Lead Assessor:					
PDD version 2; "Separate power plants from network and compete in price to enter network" policy; Statistic of installed capacity of China's Wind Farms from 2007 to 2009; Website of Verified Carbon Standard; Website of Gold Standard.					
Reasoning for not Acceptance or Acceptance and Close Out:					

Justification for the selection of geographical scope, scale of project, and time of starting operation were presented in PDD version 2. The geographical scope for the common practice analysis was set as Shandong Province in which the comparable environment with respect to regulatory framework, investment climate, access to technology, access to financing are comparable to the propose project, which was also widely used by other registered projects in Shandong Province. Wind power projects with the capacity over 15 MW in this region are included in the comparison, which was deemed reasonable as the project lower than 15 MW was defined as small scale project. It is the opinion of the assessment team that the selection of geographical scope, scale of project, and time of starting operation are appropriate for the assessment of common practice related to the project activity's technology or industry type. According to the definitions of other activities similar to the proposed project activity in "Tool for the Demonstration and Assessment of Additionality (version 05.2.1)", projects are considered similar if they are in the same country/region and/or rely on a broadly similar technology, are of a similar scale, and take place in a comparable environment with respect to regulatory framework, investment climate, access to technology, access to financing, etc. In April 2002, China implemented the policy of <i>Separate power plants from network and compete in price to enter network</i>. The objective of this power sector reform is to establish a more commercialized power market in China. The regulatory and market conditions for wind power projects have been changed since 2002. So the selection of wind power projects starting operation after 2002 for common practice is appropriate. After checking <i>Statistic of installed capacity of China's Wind Farms</i> from 2007 to 2009, the website of Verified Carbon Standard, the website of Gold Standard, two potential similar projects are identified and included in the common practise analysis. Shandong Changdao Wind Farm Project (project ID: 517) applied for Voluntary Emission Reduction under Verified Carbon Standard (VCS) to obtain the support from VCS VER funding to solve the financial barriers. Shandong Jimo Qingdao Huawei Wind Power Project received ODA support from DEG (part of KfW Bankengruppe) and was commission in 2003 with the tariff 0.76RMB/kWh approved in 2001. Considering the tariff of 0.76RMB/kWh in 2001 is not comparable to the later tariff of 0.61RMB/kWh in 2009, so it has essential distinctions from the proposed project. Therefore, the proposed project activity is not common practice. PP has revised PDD with sufficient information and it is validated to be the same as assessment team's conclusion. Hence, CL #6 is closed out.	
Acceptance and Close out by Lead Assessor: Yuan Xue	Date: 02/12/2011

Date:	22/05/2011	Raised by:	Yuan Xue & Simon Zhao
Type:	CAR	Number:	CAR #7
		Reference:	Section B.7
Lead Assessor Comment:		Date: 22/05/2011	
By means of site visit, it is found that there exists a backup line for emergency. Furthermore, emergency plan and training plan are not found in MP. CAR #7 is raised requesting PP taking backup line, emergency plan and the procedures for training of monitoring personal into account in MP.			
Project Participant Response:		Date: 02/12/2011	
A 10kV spare line will be used for supplied electricity in emergent case that the main power line fails to supply power. A meter (hereafter referred as meter M3) will be installed to measure the electricity imported via this line. The emergence plan and training plan has been also included in the quality assurance and quality control in the section B.7.			
Documentation Provided as Evidence by Project Participant:			
Power connection diagram of Zhangjiachan			
Information Verified by Lead Assessor:			
PDD version 2			
Reasoning for not Acceptance or Acceptance and Close Out:			

In PDD version 2, monitoring of electricity imported from the backup is included as a monitored parameter $EG_{im-spare,y}$ (Electricity purchased from the grid through a 10 kV spare line in the year y). It is clearly described and the means of monitoring described in the plan complies with the requirements of the methodology. One measurement meter installed at the backup line is involved. This meter belongs to the local power distributor. Sales receipts will be obtained for double check. Taken into account QA/QC procedures and training are included in the monitoring plan, CAR #7 is closed..	
Acceptance and Close out by Lead Assessor: Yuan Xue	Date: 02/12/2011

Date:	22/05/2011		Raised by:	Yuan Xue & Simon Zhao		
Type:	CAR	Number:	CAR#8		Reference:	Section C
Lead Assessor Comment:				Date: 22/05/2011		
Wind turbine contract signing date and CDM consultancy agreement signing date are inconsistent with verified. Please take relevant action and clarify how the starting date is determined as per the definition in the Glossary of CDM terms						
Project Participant Response:				Date: 02/12/2011		
The CDM consultancy agreement was signed on 17/10/2009. The wind turbine contract was signed on 03/02/2010 and the earliest construction contract was the wind foundation construction contract which was signed in 03/2010. The construction started on 26/02/2010. Loan contract has not been signed. Hence, the signature date of wind turbine contract should be the starting date of the project.						
Documentation Provided as Evidence by Project Participant:						
CDM consultancy agreement; Wind turbine contract; Wind foundation construction contract; Construction commission; Loan contract on Zhangjiachan project.						
Information Verified by Lead Assessor:						
PDD version 2						
Reasoning for not Acceptance or Acceptance and Close Out:						
PP revised in the information of the dates for signing the wind turbine contract and CDM consultancy agreement in the PDD version 2. The information in the PDD version 2 is consistent with the verified wind turbine contract and consultancy agreement.						
Acceptance and Close out by Lead Assessor: Yuan Xue				Date: 02/12/2011		

A.4 Annex 4: Team Members Statements of Competency

Statement of Competence

Name: **Xue Yuan**

Status

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

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	
Technical Area(s):	
3. Energy Demand	
Technical Area(s):	
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: **31/10/2011**

Statement of Competence

Name: Simon
Zhao

Status

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

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	
Technical Area(s):	
3. Energy Demand	
Technical Area(s):	
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: 30/06/2011

Statement of Competence

Name: Richard
Huang

Status

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

Scopes of Expertise

1. Energy Industries (renewable / non-renewable)	
Technical Area(s):	
2. Energy Distribution	
Technical Area(s):	
3. Energy Demand	
Technical Area(s):	
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:

27/11/2010

Statement of Competence

Name: **Joe Sun**

Status

-	Lead Assessor	☐	-	Expert	☐
-	Assessor	☐	-	Financial Expert	☐
-	Local Assessor	☐	-	Technical Reviewer	☒

Scopes of Expertise

1. Energy Industries (renewable / non-renewable)	☐
Technical Area(s):	
2. Energy Distribution	☐
Technical Area(s):	
3. Energy Demand	☐
Technical Area(s):	
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: **29/09/2011**

Statement of Competence

Name: Lenore Yin

Status

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

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	
Technical Area(s):	
3. Energy Demand	
Technical Area(s):	
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:

05/01/2011