



VALIDATION REPORT
HAILIN LONGYUAN WIND POWER
Co., LTD.

VALIDATION OF THE
HEILONGJIANG
MUDANJIANG XIAOGUOKUI
WIND POWER PROJECT

BUREAU VERITAS CERTIFICATION

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VALIDATION REPORT

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Hailin Longyuan Wind Power Co., Ltd.	Mr. Chen Qiang

Summary:

Bureau Veritas Certification has made the validation of Heilongjiang Mudanjiang Xiaoguokui Wind Power Project of Hailin Longyuan Wind Power Co., Ltd. located in Hailin City, Heilongjiang Province, P. R. China on the basis of UNFCCC criteria for the CDM, as well as criteria given to provide for consistent project operations, monitoring and reporting. UNFCCC criteria refer to Article 12 of the Kyoto Protocol, the CDM rules and modalities and the subsequent decisions by the CDM Executive Board, as well as the host country criteria.

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

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

In summary, it is Bureau Veritas Certification's opinion that the project correctly applies the baseline and monitoring methodology ACM0002 version 09 and meets the relevant UNFCCC requirements for the CDM and the relevant host country criteria.

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Abbreviations

BM	Build Margin
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CER	Certified Emission Reductions
CH ₄	Methane
CL	Clarification Request
CO ₂	Carbon Dioxide
DIS	Draft of International Standard
DNA	Designated National Authority
DOE	Designated Operational Entity
DR	Document Review
EIA	Environmental Impact Assessment
EPA	Environmental Protection Agency
ERPA	Emission Reduction Purchase Agreement
FSR	Feasibility Study Report
GHG	Green House Gas(es)
GSP	Global Stakeholders Process
GWP	Global Warming Potential
IETA	International Emissions Trading Association
IPCC	Intergovernmental Panel on Climate Change
IRR	Internal Rate of Return
ISCH	International Stakeholder Consultation
ISO	International Organization for Standardization
LOA	Letter of Approval
MoV	Means of Verification
MP	Monitoring Plan
NCPG	North China Power Grid
NDRC	National Development Reform Commission
NEPG	Northeast China Power Grid
NGO	Non Government Organization
ODA	Official Development Assistance
PDD	Project Design Document
PLF	Plant load factor
PP	Project Proponent (project owner)
PPA	Power Purchase Agreement
SWPC	Statistics of wind power installed capacity in China
UNFCCC	United Nations Framework Convention for Climate Change
VVM	Validation & Verification Manual
WTG	Wind Power Generator



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1 INTRODUCTION

Hailin Longyuan Wind Power Co., Ltd. (the project owner, hereafter called “**the PP**”) has commissioned Bureau Veritas Certification to validate its CDM project Heilongjiang Mudanjiang Xiaoguokui Wind Power Project (hereafter called “**the Project**”) at Hailin City, Heilongjiang Province, P. R. China.

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

1.1 Objective

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

UNFCCC criteria refer to Article 12 of the Kyoto Protocol, the CDM rules and modalities and the subsequent decisions by the CDM Executive Board.

1.2 Scope

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

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

1.3 Validation team

The validation team consists of the following personnel:

(Jasmine) Tang Xuemei Team Leader,
Bureau Veritas Certification, Climate Change Verifier

(Tony) Guo Hai Team Member,
Bureau Veritas Certification, Climate Change Verifier

2 METHODOLOGY

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

In order to ensure transparency, a validation protocol was customized for the project, according to the version 01 of the Clean Development Mechanism Validation and Verification Manual issued by the Executive Board at its 44 meeting on 28/11/2008./1/ The protocol



shows, in a transparent manner, criteria (requirements), means of verification and the results from validating the identified criteria. The validation protocol serves the following purposes:

- ↳ It organizes, details and clarifies the requirements a CDM project is expected to meet;
- ↳ It ensures a transparent validation process where the validator will document how a particular requirement has been validated and the result of the validation.

The validation protocol consists of two tables. The different columns in these tables are described in below **Figure 1**. The completed validation protocol is enclosed in **Appendix A** to this report.

Figure 1. Validation Protocol Tables

Validation Protocol Table 1: Requirements checklist			
Checklist Question	Reference	Comment	Draft and/or Final Conclusion
The various requirements in Table 1 are linked to checklist questions the project should meet. The checklist is organized in several sections. Each section is then further sub-divided. The lowest level constitutes a checklist question.	Gives reference to documents where the answer to the checklist question or item is found.	The section is used to elaborate and discuss the checklist question and/or the conformance to the question. It is further used to explain the conclusions reached.	This is either acceptable based on evidence provided (OK), or a Corrective Action Request (CAR) due to non-compliance with the checklist question. (See below). Clarification Request (CL) is used when the validation team has identified a need for further clarification.

Validation Protocol Table 2: Resolution of Corrective Action and Clarification Requests			
Report clarifications and corrective action requests	Ref. to checklist question in tables 1	Summary of project owner response	Validation conclusion
If the conclusions from the Validation are either a Corrective Action Request or a Clarification Request, these should be listed in this section.	Reference to the checklist question number in Table 1 where the Corrective Action Request or Clarification Request is explained.	The responses given by the Client or other project participants during the communications with the validation team should be summarized in this section.	This section should summarize the validation team's responses and final conclusions. The conclusions should also be included in Table 1, under "Final Conclusion".

2.1 Review of Documents

The Project Design Document (PDD) submitted by Longyuan (Beijing) Carbon Asset Management Technology Co. LTD (the CDM consultant), additional background documents related to the project design and baseline, i.e. country Law, Guidelines for Completing the Project Design Document (CDM-PDD), Approved methodology, Kyoto Protocol, Clarifications on Validation Requirements to be Checked by a Designated Operational Entity were reviewed.

To address corrective action and clarification requests required by Bureau Veritas Certification Longyuan (Beijing) Carbon Asset Management Technology Co. LTD revised the



PDD and resubmitted it on 02/06/2009 and the validation findings presented in this report relate to the Project as described in the PDD version 2. (Ref-2)

2.2 Follow-up Interviews

On 28/11/2008 Bureau Veritas Certification performed interviews with project stakeholders to confirm selected information and to resolve issues identified in the document review. Representatives of the PP, the consultant and local stakeholders were interviewed (see Section 6-References). The main topics of the interviews are summarized in Table 1.

Table 1 Interview Topics

Interviewed organization	Interview topics
Hailin Longyuan Wind Power Co., Ltd. (The PP)	<ul style="list-style-type: none"> ↗ Project background information and CDM consideration. ↗ Project technology, operation, maintenance and monitoring capability. ↗ Project monitoring and management plan. ↗ Stakeholder consultation process. ↗ Project approval status (incl. EIA approval, CDM project approval status) ↗ Wind power development in the area ↗ Government policies related to wind power projects
Local Stakeholder	<ul style="list-style-type: none"> ↗ Project background in details ↗ Stakeholder comments ↗ Social and environmental impact of the project
Longyuan (Beijing) Carbon Asset Management Technology Co. LTD (The Consultant)	<ul style="list-style-type: none"> ↗ Applicability of selected methodology. ↗ Baseline determination. ↗ Emission reductions calculation. ↗ Emission reduction monitoring plan.

2.3 Resolution of Clarification and Corrective Action Requests

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

Corrective Action Requests (CAR) is issued, where:

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

The validation team may also use the term Clarification Request (CL), if information is insufficient or not clear enough to determine whether the applicable CDM requirements have been met.



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

3 VALIDATION CONCLUSIONS

In the following sections, the findings of the validation are stated.


The findings from the desk review of the original project design documents and the findings from interviews during the follow up visit are described in the Validation Protocol Appendix A.

The Clarification and Corrective Action Requests are stated, where applicable, in the following sections and are further documented in the Validation Protocol in Appendix A. The validation of the Project resulted in 5 Corrective Action Requests and 11 Clarification Requests.

The number between brackets at the end of each section title corresponds to the VVM paragraph.

3.1 Approval (49, 50, 125)


The letters of approval have been received and the following support documentation:

 The China's DNA has issued the Letter of Approval (Doc.No.1713) in Dec.2008, authorizing Hailin Longyuan Wind Power Co., Ltd. as the Project Participant and confirmed that the Heilongjiang Mudanjiang Xiaoguokui Wind Power Project contributes to China's Sustainable development. (Ref-3)

 The DNA of Switzerland has issued a Letter of Approval dated 19/12/2008, authorizing Essent Trading International S.A. as the Project Participant for the Project. (Ref-4)


Bureau Veritas Certification received the above letters from the PP and does not doubt its authenticity by checking the relevant official information.


The letters of approval do not contain a specific version of both the PDD and the validation report.

 Complying with para.49, 50 and 125/VVM, Bureau Veritas Certification confirms that Heilongjiang Mudanjiang Xiaoguokui Wind Power Project of Hailin Longyuan Wind Power Co., Ltd. is helpful to fulfill its goals of promoting sustainable development. The Project is expected to be in line with host-country specific CDM requirements because of:

- (a) Reducing GHG emissions in China compared to the business-as-usual scenario;
- (b) Creating local employment opportunities during the construction and operation of the Project;
- (c) Contributing to economy improvement of local government.

There are also evidences in various approvals issued by the local government of host country China. They are as below,

 Feasibility Study Report (FSR) of the Project approved by Development and Reform Commission of Heilongjiang Province on 18/12/2007 (Code: Hei Fa Gai Wai Zi [2007] No.1208). (Ref-7)

 Environment Impact Assessment (EIA) approved by Environmental Protection Bureau



of Heilongjiang on 28/12/2007 (Code: Hei Huan Jian Shen [2007] No.202). (Ref-9)

✍ The project activity of Grid connected wind power and the development of such Grid connected wind power is listed in the Renewable Energy Law and in the 2005 Guiding Catalogue of Industrial Structure Regulation Issued by National Development and Reform Commission. (Ref-5).

In the absence of the Project, equivalent amount of annual power output of the Project will be generated and supplied by Northeast China Power Grid; this is same with the baseline scenario. The Project Scenario is considered additional in comparison to the baseline scenario, and therefore eligible to receive Certified Emissions Reductions (CERs) under the CDM, based on an analysis, presented by the PDD.

The overall layout of the Project is sound and the geographical (Hailin city, Heilongjiang Province, P.R. China) and temporal (7 years) boundaries of the Project are clearly defined.

✌ The validation did not reveal any information that indicates that the Project can be seen as a diversion of official development assistance (ODA) funding towards the host country.

3.2 Participation (54)

The participation for each project participant has been approved by a Party of the Kyoto Protocol.

✌ Complying with para.54/VVM, Bureau Veritas Certification hereby confirms that by referring to the information on UNFCCC website i.e.

<http://maindb.unfccc.int/public/country.pl?country=CN>; and

<http://maindb.unfccc.int/public/country.pl?country=CH>

3.3 Project design document (57)

✌ Complying with para.57/VVM, Bureau Veritas Certification hereby confirms that the PDD complies with the latest Project Design Document Form (CDM-PDD) version 03.2 and guidance documents for completion of PDD version 07.

3.4 Project description

The Project is sited in Hailin city, Heilongjiang Province, P. R. China, which has geographical coordinates at north latitude 45°16'54" and east longitude 129°50'30".

The total installed capacity of the Project is 20.4MW with 24 wind turbines of unit capacity 850kW supplied by Vestas Wind Technology (China) Co., Ltd. The estimated annual electricity supplied is about 46,360MWh, which will be sold to the Northeast China Power Grid (NEPG). The Plant Load Factor of the Project is 0.2597 based on the information of FSR (Ref-6) which was completed by the qualified entity of China Fulin Wind Power Development Corporation and approved by Heilongjiang Development and Reform Commission (Ref-7). BVC confirms "Guidelines for the Reporting and Validation of Plant Load Factors ver.1" (Annex 11, EB48) can be fully complied with. As the NEPG is dominated by thermal power generation, the establishment of the Project is expected to acquire annual emission reductions of 52,882tCO₂e during the first seven years of its renewable crediting period.



The process undertaken by BVC to validate the accuracy and completeness of the project description include the document review and cross-check with FSR and the relevant approvals issued by local governments.

✌ Complying with para.64/VVM, Bureau Veritas Certification hereby confirms that the project description in PDD (Ref-2) is accurate and complete in all respects.

3.5 Baseline and monitoring methodology

3.5.1 Baseline and monitoring methodology

The Project uses the approved consolidated baseline and monitoring methodology ACM0002 version 09– “*Consolidated baseline methodology for grid-connected electricity generation from renewable sources*” dated 13/02/2009./2/

The assessment of the relevant information contained in the PDD against each applicability condition is described below:

- ✌ The Project involves the electricity capacity additions from wind power plant.
- ✌ The Project does not involve switching from fossil fuels to renewable energy at the site of the Project.
- ✌ The geographic and system boundaries for the Northeast China Power Grid (NEPG) can be clearly identified and information on the characteristics of the NEPG is available.

Bureau Veritas Certification hereby confirms that the selected baseline and monitoring methodology is previously approved by the CDM Executive Board, and is applicable to the Project, which complies with all the applicability conditions therein.

Based on the on-site assessment, Bureau Veritas Certification hereby confirms that, as a result of the implementation of the proposed CDM project activity, there are no greenhouse gas emissions occurring within the proposed project boundary, which are expected to contribute more than 1% of the overall expected average annual emissions reductions, which are not addressed by the applied methodology.

3.5.2 Project boundary

The spatial extent of the Project boundary is clearly defined in line with ACM0002 version 09 as the physical, geographical site of Project and all other power plants connected physically to the NEPG that the Project is connected to.

✌ Complying with para.57/VVM, Bureau Veritas Certification hereby confirms that the identification of Project boundary is in line with the delineation of grid boundaries as provided in the latest version of “*Notification on Determining Baseline Emission Factor of China’s Grid*” published by China’s DNA on 18/07/2008 (hereafter called “*Notification of China-Grid EF*”). (Ref-10)

3.5.3 Baseline identification

As the Project is the installation of a newly built and grid-connected renewable power plant that delivers the generated electricity to the grid (NEPG), hence, according to methodology ACM0002, the baseline scenario is determined properly as:

The electricity delivered to the grid by the Project 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*” version 01.1 (hereafter called “*Tool-Grid EF*”). /3/

✌ Complying with para.80 and 81/VVM, Bureau Veritas Certification hereby confirms that:

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

3.6 Additionality of a project activity

The additionality of the Project has been demonstrated and assessed carefully according to the “*Tool for Demonstration and Assessment of Additionality*” version 05.2. (hereafter called “*Tool-Additionality*”) /4/.

3.6.1 Prior consideration of the CDM

It has been demonstrated by the timeline of events of the Project that the CDM revenues was seriously considered in the decision to proceed with the project activity prior to start of the Project and the continuing and real action were taken to secure CDM status for the project in parallel with its implementation:

Table 2 Timeline of the Project

Date	Actions	Reasons or Impacts	Evidences verified
Oct. 2007	Feasibility study report of the Project finished. The plan of the CDM application was delineated in the FSR.	Seeking the support of CDM to make the Project to be financially feasible is suggested in FSR.	(Ref-6✓)
15/11/2007	PP's formal decision on CDM development to secure the investment return of the Project (Ref-14)	According to conclusion of FSR, the project owner decided to apply CDM registration to increase the project IRR of the proposed project.	(Ref-14)✓
25/12/2007	Equipment Purchasing Contract was signed with the manufacturer. (Ref-16)	Take real actions based on CDM development initiated.	(Ref-16)✓
05/03/2008	CDM development consultant	Secure the progress of the	(Ref-34)✓



	contract was signed. (Ref-34)	CDM development	
24/05/2008	Construction service contract was signed. (Ref-11)	Take real actions based on CDM development initiated.	(Ref-11)✓
10/06/2008	Construction started.	Take real actions based on CDM development initiated.	(Ref-32)✓
13/10/2008	Emission Reduction Purchase Agreement was signed. (Ref-15)	Secure the progress of the CDM development in parallel with the construction of the Project.	(Ref-15)✓
15/10/2008	PDD was published for global stakeholder consultation at EB's website	Secure the progress of the CDM development in parallel with the implementation of the Project.	(Ref-1)✓ (Ref-1)✓
Dec. 2008	Letter of Approval issued by Chinese DNA (Ref-3)	Secure the progress of the CDM development in parallel with the implementation of the Project.	(Ref-3)✓

The start date of the Project identified in the PDD is 25/12/2007, on which the PP signed the equipment (wind turbine generators) purchasing contract with the manufacturer (Ref-16). BVC has checked all physical documents mentioned above and was able to verify that all documents are substantial at the situation in the host country. From the table above, BVC confirms that the start date of project activity is 25/12/2007 (when the wind turbines generators purchasing contract was signed), which is the earliest date at which the implementation or construction or real action of the project activity began.

According to Para 98/VVM, the Project is an existing project activity (project activity with a start date before 02/08/2008). And the identified start date is prior to the consultation process for global stakeholder at EB's website (15/10/2008).

The PDD addressed the serious consideration on the incentives from CDM prior to the project implementation as per the "Guidance on the demonstration and assessment of prior consideration of the CDM" version 02 (Annex 61, EB 48). (Hereafter called "Guidance-Prior Consideration") /5/

✌ According to the latest Glossary of CDM terms Ver.04 and the Paragraph 67 of EB 41 meeting, /7/ Bureau Veritas Certification was able to verify the start date of the Project identified in the PDD is appropriate and reasonable at that situation.

✌ By assessing the material actions taken by the PP, Bureau Veritas Certification confirmed that the PP considered seriously the incentives from CDM in the context of the Project before taking its real actions, which is in accordance with the requirements of "Guidance –Prior consideration". /5/

✌ Complying with para.102/VVM, Bureau Veritas Certification verified this issue which was considered much related to the additionality of the Project and can conclude that the serious consideration under the context of the Project has been addressed appropriately in accordance with the above guidance, consequently, the chronological events described with the relevant documented evidences can form the objective basis of the validation opinions of Bureau Veritas Certification.



3.6.2 Identification of alternatives

Subsequently, Bureau Veritas Certification validated the additionality as addressed in the PDD of the Project.

The plausible and credible alternatives to the Project were identified as per the latest Tool for demonstration and assessment of additionality /4/:

Alternative (a): The proposed project not undertaken as CDM project;

Alternative (b): Construction of a fossil fuel power plant with equivalent amount of annual electricity output;

Alternative (c): Construction of a power plant using other source of renewable energy with equivalent amount of annual electricity output;

Alternative (d): Supply of equivalent annual power output by NEPG.

Alternative (b) was correctly eliminated through examination of current practice in China in which the laws or regulations applies. According to the Notice on Strictly Prohibiting the Installation of Thermal Generators with the Capacity of 135MW or below issued by the General Office of the State Council, Decree No. [2002] 6 (Ref-27), construction of thermal power plants less than 135MW are prohibited in the areas covered by the large grid such as provincial grids in China.

Alternative (c) was eliminated by analyzing the feasibility of local renewable energy resources including Solar PV, biomass, geothermal and hydropower. Realizing the technology development status and the high cost, power generation from solar PV, geothermal and biomass with equivalent annual generation of the Project are unfeasible in China. Furthermore, due to lack of water resource in project area, there is no exploitable similar scale water resource. (Ref-6, Ref-28)

✌ Complying with para.105/VVM, Bureau Veritas Certification was able to verify that the alternatives identified to the Project are complete and found satisfactory to exclude Alternative (a) and (c). Hence **Step 1** of “*Tool-Additionality*” was applied appropriately.

3.6.3 Investment analysis

Option III (benchmark analysis) is applied in the investment analysis as per the *Sub-step 2b* of **Step 2** of “*Tool-Additionality*”. Project IRR of 8% was employed by the project as benchmark, which comes from the “Interim Rules on Economic Assessment of Electric Power Engineering Retrofit Projects” (Ref-19), this benchmark is widely applied in Chinese power generation industries.

✌ Therefore, BVC confirms that the benchmark is suitable for the project.

Based on the data from the Feasibility Study Report, the project IRR of the Project without CERs revenue is 6.52%, which shows that the project is not financially attractive in the absence of CDM benefits compared to the benchmark 8%.

Bureau Veritas Certification validated the basic parameters listed in the PDD according to the Guidance of EB 38 paragraph 54. /6/

a) The input values used in the investment analysis were all quoted from the Feasibility Study Report completed by a qualified third party ‘China Fulin Wind Power Development Corporation’ which has been authorized in the power industry by the government of the host country [Qualification Certification: Gong Zi Yi 20120060024] (Ref-6) and approved by Development & Reform Commission of Heilongjiang Province (Ref-7).



✎ Therefore, Bureau Veritas Certification was able to confirm that the input values used in the financial analysis are credible and reliable at the time of the investment decision.

b) According to the relevant evidence provided, the FSR was finalized in Oct. 2007, and the investment decision was made by the PP on 15/11/2007, (Ref-14) the period of time between the finalization of the FSR and the PP's investment decision is thus considered short.

✎ Consequently, Bureau Veritas Certification was able to confirm that it is unlikely in the context of the Project that the input values would have materially changed, which is in line with the paragraph 54 (a) of EB 38.

c) Bureau Veritas Certification has reviewed the input values used in the PDD and IRR calculation against the data of the approved FSR, and found that they are fully consistent with each other;

✎ Therefore, BVC confirmed that the investment analysis is in accordance with paragraph 54 (b) of EB 38.

Furthermore, BVC has reviewed the data in IRR calculation sheet and confirmed that:

✎ The **operation period** of the Project was selected reasonably following the requirements of “*Interim Rules on Economic Assessment of Electric Power Engineering Retrofit Projects*” and Para. 3 of “*Guidance on the Assessment of Investment Analysis*” ver. 2, i.e. a minimum period of 10 years and a maximum of 20 years will be appropriate”.

✎ The **Residual Value Rate** was selected reasonably following relevant regulation in China;

Besides, the input values from the FSR have been crosschecked by BVC as follows:

✎ The main part of **static total investment** in the FSR has been crosschecked with the already signed contracts of key equipment and engineering services (Ref-11, Ref-12, Ref-16, Ref-35), and found that the total value of the contracts is slightly higher than the sub-items estimated in the FSR, therefore, the assumed value for static total investment is reasonable and appropriate.

✎ The **tariff** of 0.5622RMB/kWh (Excl. VAT) the Project in the PDD is taken from the FSR which was completed by a qualified 3rd party of China Fulin Wind Power Development Corporation in Oct. 2007, after the implementation of *Law of the People's Republic of China on Renewable Energies* and *Trial Measures for the Administration of Renewable Energy Power Price and Cost-sharing* (Document No. Fa Gai Jia Ge [2006]7). BVC has studied the relevant policies and local investment environment in wind power sector and confirmed that in 2006, China's government issued the *Renewable Energy Law* (Ref-5) and *Tentative Management Measures for Price and Sharing of Expenses for Electricity Generation from Renewable Energy* (Document No. Fa Gai Jia Ge [2006]7) (Ref-36). In the documents, it is clearly stated that the tariff of wind power project should be guided by government. From then on, the tariff of wind power projects began to be unified.

The public available tariff notifications since 2006 till now are verified by BVC as follows:

a) Document Hei Jia Ge Zi [2007] 194 in Sep. 2007 published by Heilongjiang Provincial pricing administration for two wind power projects in Heilongjiang province (Ref-38);



- b) Document Fa Gai Jia Ge [2007]3303 in Dec. 2007 published by NDRC for one wind power project in Heilongjiang province (Ref-33);
- c) Document Fa Gai Jia Ge [2008]1876 in Jul. 2008 published by NDRC for 17 wind power projects in Heilongjiang province. (Ref-13).

The tariff in all above tariff notifications for wind power projects in Heilongjiang province are all 0.61RMB/kWh (incl. VAT), i.e. 0.5622RMB/kWh (excl. VAT). BVC confirms that available tariff notification during the completion of FSR is Document Hei Jia Ge Zi [2007]194 in Sep. 2007, and the tariff used in the FSR is same as the value in the tariff notification, thus BVC is of the opinion the tariff used in the FSR and PDD is appropriate.

Furthermore, the tariff employed in the PDD has been crosschecked with the latest tariff notifications issued by national government from 2007 (Fa Gai Jia Ge [2007]3303) till the second half of 2008 (Fa Gai Jia Ge [2008]1876) (Ref-13 and Ref-33), the guided tariff for all wind farms located in Heilongjiang Province are all 0.5622RMB/kWh (excl. VAT). The tariff of the Project was guided by NDRC in Document Fa Gai Jia Ge [2008]1876, in which, the tariff of the Project for the first 30,000 equivalent full load hours is 0.5622RMB/kWh (excl. VAT) (Ref-13), and then get down to the local thermal power plant average tariff for the rest operating hours, which is 0.3567RMB/kWh (Incl. VAT) (ref-40) at the time of investment decision. Therefore, BVC confirmed that the 0.5622RMB/kWh (excl. VAT) of tariff for the whole operating period employed in the PDD taken from the FSR is appropriate and conservative.

- ✍ The **annual generation output** of the Project was crosschecked with the design parameters of wind turbine manufactured by Vestas Wind Technology (China) Co., Ltd. And it was based on the wind resource history data during the latest 22 years (1984~2006) of the local area and WAsP software. Therefore the annual generation output is found reasonable.
- ✍ BVC has confirmed that the **annual O&M costs** are the sum of salary and welfare of employees, materials fee, maintenance fee and miscellaneous account according to the "Code on Compiling Feasibility Study Report of Wind Farms" issued by NDRC (Ref-18). The original figure for calculating annual O&M costs has been crosschecked with relevant criteria for wind farm design and the O&M costs in PDD of registered CDM projects in Heilongjiang Province and found reasonable. Therefore, the annual O&M costs are appropriate.
- ✍ Bureau Veritas Certification also verified values of various **taxes** through cross-check with the taxation rules conducted by local government and found to be fully consistent.

✍ In summary, based on the above reliable data sources, Bureau Veritas Certification was able to conclude that the input values from the approved FSR were valid and applicable at the time of the investment decision. Therefore, Bureau Veritas Certification confirmed that the input values used in the PDD meet the guidance paragraph 54 (c) of EB 38.

Bureau Veritas Certification has reviewed the IRR calculation and found that the calculation is correct and in accordance with "Guidance on the assessment of investment analysis" Version 02 (as the annex of "Tool- Additioanality" Ver.05.2) /4/. As it shows, without CDM income, the project IRR of the Project is 6.52%, which is lower than the benchmark (8%) (Ref-19)

A sensitivity analysis is performed, by taking into account $\pm 10\%$ variations in following four financial indicators:



- Static total investment
- Annual O&M costs
- Annual generation output
- Tariff

According to “Code on compiling feasibility study report of wind power projects” published by NDRC (Ref-18), static total investment, annual generation output and tariff should be taken as uncertainty factors to conduct sensitivity analysis, and $\pm 10\%$ variation of above factors shall be considered in the sensitivity analysis. Therefore BVC has confirmed that the variables and variations $\pm 10\%$ performed for sensitivity analysis is deemed to be reasonable in the wind farm sector in China.

The results of the sensitivity analysis show that the benchmark will not be reached with the variation $\pm 10\%$ of the four indicators.

- With a decrease in **static total investment** by 10.40%, the Project IRR may reach 8%. BVC is confident that the total investment won't decrease by 10.40% because the total value of already signed contracts of main equipment/services is slightly higher than that estimated in FSR. (Ref-11, Ref-12, Ref-16, Ref-30, Ref-31, Ref-35).
- The **annual O&M costs** comprise materials expense, maintenance cost, employee salary and welfare and miscellaneous cost. All of these expenses are determined by the qualified entity based on long term operation experience in the FSR approved by NDRC of Heilongjiang Province. Given the increasing pricing level of construction materials and employee wage are increasing in China (Ref-30), BVC confirms that the annual O&M is unreasonable to decrease by 49.3%.
- With an increase by 10.70% in **annual generation output**, the project IRR will reach the benchmark. By checking the FSR and design parameters of wind turbine manufactured by Vestas Wind Technology (China) Co., Ltd., the annual generation of the Project is estimated based on wind resource data of 22 years (from 1984 to 2006) and WAsP software as stated in the FSR. Therefore, BVC confirms that it is unlikely that the annual generation output could increase by 10.70%.
- With an increase in **tariff** by 10.70%, the Project IRR will reach 8%. However, considering the continuous tariff notifications issued by NDRC since 2006 as demonstrated above (Ref-13, Ref-33, Ref-36, Ref-37 and Ref-38), the guided tariff is stabilized at 0.5622RMB/kWh (excl. VAT). Moreover, taking into account the tariff notification of the Project guided by NDRC on 23/07/2008 (Code: Fa Gai Jia Ge [2008] No.1876) (Ref-13), the tariff of the Project will remain at 0.5622RMB/kWh (excl. VAT) for its first 30,000 hours of full load generation. After 30,000 operation hours of full load generation, the tariff of wind farms will get down to the average tariff of Heilongjiang Grid dominated by thermal power plants, which is 0.3657RMB/kWh (Incl. VAT), far lower than 0.5622RMB/kWh (Excl. VAT) used in the PDD and FSR. Therefore, BVC can confirm that the tariff is unlikely to increase beyond 10.70%.

Considering of the CERs sales revenues (12.6EUR/tCO₂e), the project IRR of the Project can be improved to 9.92% then exceeds the benchmark.

✌ Complying with para.112/VVM, Bureau Veritas Certification was able to conclude that both of the variation range and relevant assumptions stated in the PDD are robust and the investment of the Project is deemed to be financially unattractive, thus the Project is additional.



3.6.4 Barrier analysis

The **Step 3** Barrier analysis was not applied for the Project.

3.6.5 Common practice analysis

The Common practice analysis was addressed as per **Step 4** of “*Tool-Additionality*” and latest rules issued by EB.

The Project is a newly built 20.4MW wind farm in the area of Heilongjiang Province, therefore, the activities similar to the Project should be the wind farms located in Heilongjiang Province, with similar scale and take place in a comparable investment climate and constructed after the Chinese Government launched the power sector reform Program in 2002 (Ref-23).

Subsequently, Bureau Veritas Certification defined the similar projects in terms of the technical and investment environmental and concluded that the wind farms commissioned after 2002, without CDM development in Heilongjiang Province should be sorted out. Following this criteria Bureau Veritas Certification verified the wind farms as identified in the PDD by cross-checking the public statistics i.e. “*Statistics of wind power installed capacity in China*” Version 2007 dated 28/02/2008” written by Mr. Shi Pengfei, the authoritative Expert in the wind power sector (hereafter refer to as SWPC) (Ref-21). As the public information presents, the “Huafu Fujin” with capacity of 24.3MW and commissioned in 2004 and “Huafu Mulan” with capacity of 12MW and commissioned in 2003 are identified as per the above criteria. While, it also presents that, the 2 projects are demonstration wind power projects subsidized by international low interest loan and soft loan (Ref-22), thus this is essentially different to the Project in the investment environment. Bureau Veritas Certification verified the description in the PDD and found that it is consistent with the sectoral statistics and therefore can conclude that the Project is not common practice in the region.

✌ Complying with para.119/VVM, based on above demonstration that in accordance with “*Tool-Additionality*” and supported by reliable data sources, it is the opinion of Bureau Veritas Certification that the Project is thus additional.

3.7 Calculation of GHG Emissions

According to the baseline methodology ACM0002 Version 09 and “*Tool-Grid EF*” version 01.1, /3/ the emission reductions from the Project were calculated as following six steps. In addition, the calculation in the PDD refers to the latest “*Notification of China-Grid EF*” published by China’s DNA on 18/07/2008 which is valid at the time of the validation.

As per “*Tool-Grid EF*” version 01.1, six steps therein are applied to calculate the emission factor:

Step 1.-Identify the relevant electric power system.

The Northeast China Power Grid is selected as the electric power system of the Project. The connected electricity system is the North China Power Grid (NCPG). There are no net electricity imports from connected electricity system from 2004 to 2006 as per the latest Notification on Determining Baseline Emission Factor of China’s Grid issued by China’s DNA at the time of commencing this validation.

✌ Bureau Veritas Certification was able to verify the data sources of “*Notification of China-Grid EF*”, and confirmed that the identified electric power system is appropriate.

Step 2.-Select an operating margin (OM) method.



For the calculation of the OM emission factor, the simple OM emission factor calculation method is selected because low cost/ must-run projects constitute less than 50% of the total grid generation during the last 5 years.

✌ Bureau Veritas Certification has checked the calculation for low cost/must-run constitution of the total grid generation and confirmed the calculation is correct. Therefore, simple OM emission factor calculation method is selected reasonable. Data from China Electric Power Yearbook 2003-2007 has been applied correctly.

Step 3.-Calculate the operating margin emission factor according to the selected method.

The data on electricity generation and auxiliary electricity consumption are obtained from the China Electric Power Yearbook from 2005 to 2007 (published annually). The data on different fuel consumptions for power generation and the net caloric values of the fuels are obtained from the China Energy Statistical Yearbook from 2005 to 2007. The emission factors of the fuels adopted are obtained from Table 1-2 and Table 1-4 of the "2006 IPCC Guidelines for National Greenhouse Gas Inventories: Workbook."

The renewable crediting period is adopted for the Project and the OM will be fixed for the first crediting period.

✌ The data source are deemed reasonable and Bureau Veritas Certification confirms that the calculation can be replicated using the data and parameter provided in the PDD.

Step 4.-Identify the cohort of power units to be included in the build margin (BM).

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 (Option b) is adopted properly for the Project.

Considering data availability, deviation accepted by EB was used in the PDD i.e.

- 1) Use of capacity additions during the last 1~3 years for estimating the build margin emission factor for grid electricity.
- 2) Use of weights estimated using installed capacity in place of annual electricity generation.

✌ Bureau Veritas Certification hereby confirms that the data source and approaches taken are deemed reliable.

Step 5.-Calculate the build margin emission factor.

The BM emission factor of the power grid is calculated by multiplying the emission factor of the thermal power with the share of the thermal power in the most recently added approach to 20% of total installed capacity. The emission factor for thermal power is determined based on the most advanced and commercially available technology endorsed by China's DNA.

✌ Bureau Veritas Certification hereby confirms that the data sources are deemed reliable and calculation is appropriate.

Step 6.-Calculate the combined margin (CM) emissions factor.

According to the "Tool-Grid EF" the default weights: $\omega_{OM} = 0.75$ for Operating Margin and $\omega_{BM} = 0.25$ for build Margin in the first crediting period of Wind Power Projects are adopted.



As per baseline methodology ACM0002 and “*Tool-Grid EF*”, the baseline emission sources considered are the emission reduction ER_y during the crediting period is the difference between baseline emissions, project emissions and leakage. These are:

- 1) Baseline emissions: baseline emissions BE_y (tCO₂) are equal to baseline emission factor $EF_{grid,CM,y}$ (tCO₂/MWh) times the net electricity supplied to the grid EG_y (MWh).
- 2) Project Emissions: the project emissions are regarded as zero for wind power projects as per the ACM0002 version 09.
- 3) Leakage: no leakage has to be considered for the proposed project activity since no energy generating equipment is transferred from or to the project site.
- 4) Emission reductions:

$$ER_y = BE_y - PE_y - LE_y = BE_y = EF_{grid,CM,y} \times EG_y$$

With reference to the Tool-Grid EF, the Simple OM emission factor ($EF_{grid,OM,y}$) of NEPG is calculated as 1.256099 tCO₂e/MWh. Similarly, the build margin emission factor ($EF_{grid,BM,y}$) of the NEPG is calculated as 0.7946 tCO₂e/MWh.

Therefore the combined baseline emission factor is determined ex-ante and will remain fixed during the first crediting period, viz.

$$EF_{grid,CM,y} = 1.256099 \times 0.75 + 0.7946 \times 0.25 = 1.1407 \text{ tCO}_2\text{e/MWh}$$

According to the estimated annual electricity delivered to the grid 46,360 MWh, the estimated annual emission reductions of the Project is 52,882 tCO₂e during the first crediting period represents a reasonable estimation using the assumptions given by the Project.



Complying with **para.91 and 92/VVM**, Bureau Veritas Certification hereby confirms 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 and source of data is correctly quoted and interpreted in the PDD (Ref-10)
- (c) All values used in the PDD are considered reasonable in the context of the proposed CDM project activity;
- (d) The baseline methodology ACM0002 and “*Tool-Grid EF*” has been applied correctly to calculate project emissions, baseline emissions, leakages and emission reductions; /2/, /3/
- (e) All estimates of the baseline emissions can be replicated using the data and parameter values provided in the PDD.

3.8 Monitoring Plan

The Project uses the approved consolidated monitoring methodology ACM0002 version 09 for grid connected electricity generation from renewable sources.

Applicability of this methodology is justified in PDD as it involves grid connected renewable power generation using wind energy. Refer discussions on the validity of the methodology at Section 3.5.1 above.

The ex-ante combined margin emission factor is determined based on the most recent information available. Accordingly the data monitored is the quantity of net electricity delivered to the grid by the proposed project measured by the key meter.



According to ACM0002 version 09 no leakage has to be considered for the Project since no energy generating equipment is transferred from or to the site, viz. $LE_y=0$.

Operational management for the project activity is comprehensively detailed in PDD and this includes description of the responsibility, training, procedure reference, equipment details, calibration frequency and maintenance needs are clearly mentioned. Archiving of the records is indicated and DOE is of the opinion that the retrievability of relevant CDM project activity records is pro-actively considered satisfactorily.

The key meter is installed at the entry to Lianhua 110KV switch of the grid and the check meter at the outlet of the main transformer of the project. The meters' accuracy is 0.2S. The meters are all bidirectional (two-way metering), recording both electricity exports to and imports from the grid; net electricity supplied to the grid (EGy) is calculated as exports minus imports.

The data will be continuously measured and recorded on a monthly basis; and double checked by billing receipts issued by the grid company.

Monitoring of sustainable development indicators is not required for such Projects in China in the light of minor environmental impacts.

By reviewing the provided training plan (Ref-29) and on-site interview with the PP, BVC confirms that the monitoring arrangements described in the monitoring plan are feasible within the project design, and the means of implementation of the monitoring plan are sufficient to ensure the emission reductions achieved by the proposed CDM project activity can be reported ex post and verified.

✌ Complying with para.122/VVM, Bureau Veritas Certification hereby confirms that the project participants are able to implement the monitoring plan.

3.9 Environmental Impacts

BVC has ensured that the Environmental Impact Assessment was carried out by the qualified entity 'Heilongjiang Environmental Material Supply Station' in 09/2007, and approved by the Environmental Protection Administration of Heilongjiang Province on 28/12/2007. (Document No. Hei Huan Jian Shen [2007] 202) (Ref-9).

The environmental impact results from the Project have been identified and analyzed in the PDD. By checking the EIA report Bureau Veritas Certification is able to ensure that the environment impacts occurs mainly in the construction period due to waste water, dust and exhaust gas, noise pollution, solid waste, and ecological impact. All above impacts would be within an acceptable limit by carrying out corresponding mitigation measures as per the statement of the EIA.

✌ Complying with para.131/VVM, Bureau Veritas Certification hereby confirms that the Project will not have any significant impacts on the environment by means of measures of pollution avoidance and control as well as ecological recovery.

3.10 Local Stakeholder consultation

In May 2008, the Project owner introduced the Project to local stakeholders and invited comments from the local stakeholders through a stakeholders meeting. And the survey was also conducted through distributing 30 copies of questionnaires and collecting responses from all interviewees from Hailin City and village nearby, and 30 questionnaires were all recovered (Ref-25).



This meeting and survey show that the interviewees well know about the Project and support the construction of the Project. All interviews agree the Project will promote the local economy. The majority believed that the Project will positively affect their lives, has good impact on the environment. No negative comments received. BVC interviewed the local stakeholders during the on-site visit of the validation process and received the consistent responses. Furthermore, BVC also assessed the documented evidences including meeting minutes, attendee list and questionnaires answered by the stakeholders, and found the adequacy of the local stakeholder consultation.

✌ Complying with para.128/VVM, Bureau Veritas Certification hereby confirms that the local stakeholder consultation was performed Project will benefit to the local sustainable development without positively affect to the local stakeholders.

4 COMMENTS BY PARTIES, STAKEHOLDERS AND NGOS

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

✌ Complying with para.166/VVM, Bureau Veritas Certification published the project documents on the UNFCCC CDM website (<http://cdm.unfccc.int>) on 15/10/2008 and invited comments prior to 13/11/2008 by Parties, stakeholders and non-governmental organizations.

No comments were received during this period.

5 VALIDATION OPINION

Bureau Veritas Certification has performed a validation of the Heilongjiang Mudanjiang Xiaoguokui Wind Power Project in P. R. China. The validation was performed on the basis of UNFCCC criteria and host country criteria and also on the criteria given to provide for consistent project operations, monitoring and reporting.

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

Project participant/s used the latest *Tool for demonstration and assessment of additionality* (version 05.2), *Paragraph 54 of EB 38* and the *Guidance-Prior consideration" -Guidance on the demonstration and assessment of prior consideration of the CDM (version 02)* to demonstrate the additionality of the Project. In line with this tool, the PDD provides analysis of investment barriers to determine that the project activity itself is not the baseline scenario. The latest *Tool to calculate the emission factor for an electricity system* (version 01.1) is also applied to determine the emission factor of Northeast China Power Grid.

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

The review of the project design documentation (version 2) and the subsequent follow-up interviews have provided Bureau Veritas Certification with sufficient evidence to determine



the fulfillment of stated criteria. In our opinion, the project correctly applies and meets the relevant UNFCCC requirements for the CDM and the relevant host country criteria.

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

6 REFERENCES

Category 1 Documents:

Documents provided by Type the name of the company that relates directly to the GHG components of the project.

Ref-1.	PDD version 1.0 dated 05/09/2008, available for public comments (GSP) on 15/10/2008 http://cdm.unfccc.int/Projects/Validation/DB/3HHAWOOb3KK9KI6A88VFEEC5GWMC32/view.html
Ref-2.	PDD version 2.0 dated 02/06/2009
Ref-3.	LoA from DNA of China (Host country) in Dec.2008
Ref-4.	LoA from DNA of Switzerland (Annex I party) dated 19/12/2008
Ref-5.	National Renewable Energy Law issued by NDRC of China effective from 01/01/2006. http://www.windpower.org.cn/news/links/fl_2005_0510_02.htm
Ref-6.	Feasible Study Report (FSR) completed in 10/2007
Ref-7.	Feasibility Study Report (FSR) of the Project approved by Development and Reform Commission of Heilongjiang Province approved on 18/12/2007 (Code: Hei Fa Gai Wai Zi [2007] No.1208)
Ref-8.	EIA report worked out by the qualified entity 'Heilongjiang Environmental Material Supply Station' in 09/2007.
Ref-9.	EIA of the proposed project was approved by the Environmental Protection Administration of Heilongjiang Province on 28/12/2007. (Code: Hei Huan Jian Shen [2007] 202)
Ref-10.	Notification on Determining Baseline Emission Factor of China's Grid dated on 18/07/2008. http://cdm.ccchina.gov.cn/WebSite/CDM/UpFile/File1875.pdf
Ref-11.	The construction contract signed with the supplier Heilongjiang Forestry Engineering Co., Ltd. on 24/05/2008.
Ref-12.	Purchase contract of main transformer of the Project
Ref-13.	Tariff notification for wind power projects issued by NDRC on 23/07/2008 (Code: Fa Gai Jia Ge [2008] No.1876) http://jgs.ndrc.gov.cn/zcfg/t20080813_230722.htm
Ref-14.	PP's Shareholders Meeting Minutes on 15/11/2007
Ref-15.	Emission Reduction Purchasing Agreement signed with Essent Trading International S.A. on 17/10/2008
Ref-16.	WTG Purchase contract signed with Vestas Wind Technology (China) Co., Ltd. on 25/12/2007
Ref-17.	Bulletin on 56th Meeting of National CDM Board issued by China's DNA on 13/11/2008 http://cdm.ccchina.gov.cn/WebSite/CDM/UpFile/File2015.pdf



Ref-18.	The Codes on Compiling Feasibility Study Report of Wind Farms issued by National Development Reform Committee (NDRC).
Ref-19.	Data source of Benchmark (Interim Rules on Economic Assessment of Electrical Engineering Retrofit Projects)
Ref-20.	IRR calculation spreadsheet of the Project
Ref-21.	"Statistics of wind power installed capacity in China" Version 2007 dated 28/02/2008: http://www.gsec.gov.cn/ClassNews.asp?newsID=664
Ref-22.	Notice of loan on HuaFu Fujin and HuaFu Mulan Wind power project: http://www.sxcoal.com/news/2008/11/29/227059/Article.html http://www.chinapower.com.cn/newsarticle/1005/new1005504.asp
Ref-23.	China Wind Power Industry Development Report (2006), Shi Peng Fei, China Electric Year Book 2007
Ref-24.	Emission Factor calculation spreadsheet
Ref-25.	Evidence of 30 pieces of stakeholder survey questionnaires
Ref-26.	Public information of Letter of Approval issued by NDRC: http://cdm.ccchina.gov.cn/web/NewsInfo.asp?NewsId=3307
Ref-27.	Notice on Strictly Prohibiting the Installation of Thermal Generators with the Capacity of 135MW or below issued by the General Office of the State Council, Decree No. 2002 6. http://www.gov.cn/gongbao/content/2002/content_61480.htm
Ref-28.	Evidences of high Cost on other renewable resources power: http://www.shcc.gov.cn/xxpt/work/xw1.jsp?id=1654&type=1 http://jjckb.xinhuanet.com/cjxw/2007-11/27/content_75467.htm
Ref-29.	Training plan for plant operation and regular monitoring requirements of the Project
Ref-30.	The price of main construction materials and wages are keeping increasing in China http://www.china.com.cn/chinese/EC-c/1246238.htm
Ref-31.	The price of wind turbine are keeping increasing in China http://www.86wind.com/info/detail/4-5335.html
Ref-32.	Construction Project Starting Application Report
Ref-33.	Tariff Notification for wind power projects issued by NDRC, Code: Fa Gai Jia Ge (2007) No.3303 dated 03/12/2007
Ref-34.	CDM consultant contract signed between the PP and the consultancy company.
Ref-35.	Purchase contract of tower of WTG
Ref-36.	Tentative Management Measures for Price and Sharing of Expenses for Electricity Generation from Renewable Energy (Code: Fa Gai Jia Ge [2006] No.7) dated 04/01/2006
Ref-37.	Notice on the Adjustment of Electricity Price of North China Grid issued by NDRC (Code: Fa Gai Jia Ge [2006] No.1231) dated 28/06/2006
Ref-38.	Document Hei Jia Ge Zi [2007] 194 in Sep. 2007 published by Heilongjiang Provincial pricing administration



Category 2 Documents:

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

- /1/ Validation and Verification Manual Version 01 dated 28/11/2008 EB 44th Annex 3
- /2/ ACM0002 version 09 dated 13/02/2009
- /3/ Tool to calculate the emission factor for an electricity system Version 01.1 dated 29/07/2008
- /4/ Tool for demonstration and assessment of additionality Version 05.2 dated 26/08/2008
- /5/ Guidance on the demonstration and assessment of prior consideration of the CDM Version02 (Annex 61, EB 48)
- /6/ Paragraph 54 of EB 38th dated 14/03/2008.
- /7/ Glossary of CDM terms Version.04.and paragraph.67 of EB 41st

Persons interviewed:

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

- 1 Mr. Chen Qiang, Manager of Planning Dept. Heilongjiang Longyuan Power Co., Ltd.
- 2 Mr. Zhao Pingwei, Plant manager of Hailin Longyuan Wind Power Co., Ltd.
- 3 Mr. Du Tao representative of Hailin Development and Reform Section
- 4 Mr. Pang Fufeng representative of Hailin Environmental Protection Section
- 5 Mr. Shi Jin, Project Manager of consultancy company
- 6 Ms. Feng Tianfeng, Project Manager of consultancy company

7 CURRICULA VITAE OF THE DOE'S VALIDATION TEAM MEMBERS

Mr. (Robin) Wang Jing	Bureau Veritas Certification, China	<p>Technical Reviewer, CDM Lead Verifier.</p> <p>He has total experience of twelve years and has worked in energy sector in oil or gas companies in PR China. He obtained the certificate of CDM Lead Verifier and Lead Auditor for EMS ISO14000. He was involved in approximate 30 CDM projects in PR China.</p>
Ms. (Jasmine) Tang Xuemei	Bureau Veritas Certification, China	<p>Team Leader, CDM Lead Verifier.</p> <p>She holds a Master Degree in Environment Engineering. She has 2 years of CDM consulting experience in energy sector in P.R China and involved in approximate 20 CDM projects in P.R China. She obtained the certificate of CDM Lead Verifier and Lead Auditor for ISO 14001.</p>
Mr. (Tony) Guo Hai	Bureau Veritas Certification, China	<p>Team Member, CDM Verifier.</p> <p>He holds a bachelor degree in Chemical engineering. He has 3 years of environmental engineering and 4 years of environmental management system audit experience. He has received the training and obtained the certificates of CDM lead verifier and ISO14001 lead auditor. And he has been involved in several CDM projects in P. R. China.</p>

APPENDIX A: CDM PROJECT VALIDATION PROTOCOL

VALIDATION PROTOCOL

Table 1 Validation requirements based on the Validation and Verification Manual (EB44 Annex 3)

CHECKLIST QUESTION	Ref.	§	COMMENTS		Draft Concl.	Final Concl.
1. Approval			COUNTRY A (China)	COUNTRY B (Switzerland)		
A. Have all Parties involved approved the project activity?	VVM	44	CAR-1 LoA from DNA of China should be presented.	CAR-2 LoA from Switzerland should be presented.	CAR-1 CAR-2	OK
B. Has the DNA of each Party indicated as being involved in the proposed CDM project activity in section A.3 of the PDD provided a written letter of approval? (If yes, provide the reference of the letter of approval, any supporting documentation, and specify if the letter was received from the project participation or directly from the DNA)	VVM	45	Pending on close CAR-1	Pending on close CAR-2	Pending	OK
C. Does the letter of approval from DNA of each Party involved:	VVM	45				
i. confirm that the Party is a Party of the Kyoto Protocol?	VVM	45.a	Yes. China has ratified the KP on 30 August 2002.	Yes. Switzerland has ratified the KP on 09 July 2003.	OK	OK

CHECKLIST QUESTION	Ref.	§	COMMENTS		Draft Concl.	Final Concl.
ii. confirm that participation is voluntary?	VVM	45.b	Pending on close CAR-1	Pending on close CAR-2	Pending	OK
iii. confirm that, in the case of the host Party, the proposed CDM project activity contributes to the sustainable development of the country?	VVM	45.c	Pending on close CAR-1	N/A	Pending	OK
iv. Refers to the precise proposed CDM project activity title in the PDD being submitted for registration?	VVM	45.d	Pending on close CAR-1	Pending on close CAR-2	Pending	OK
D. Is(are) the letter(s) of approval unconditional with respect to (i) to (iv) above?	VVM	46	No. It is conditional in China.	No. It is conditional in Switzerland?	OK	OK
E. Has(ve) the letter(s) of approval been issued by the respective Party's designated national authority (DNA)?	VVM	47	Pending on close CAR-1	Pending on close CAR-2	Pending	OK
F. If there is doubt with respect to (e) above, was verified with the DNA that the letter of approval is valid for the proposed CDM project activity under validation?	VVM	47	Pending on close CAR-1	Pending on close CAR-2	Pending	OK
2. Participation			<i>PP1 (Hailin Longyuan Wind Power Co., Ltd.)</i>	<i>PP2 (Essent Trading International S.A.)</i>		
A. Have all project participants been listed in a consistent manner in the project documentation?	VVM	51	Yes	Yes	OK	OK
B. Has the participation of the project participants in the project activity been approved by a Party to the Kyoto Protocol?	VVM	51	Yes	Yes	OK	OK
C. Are the project participants listed in tabular form in section A.3 of the PDD?	VVM	52	Yes	Yes	OK	OK

CHECKLIST QUESTION	Ref.	§	COMMENTS		Draft Concl.	Final Concl.
D. Is the information in section A.3 consistent with the contact details provided in Annex 1 of the PDD?	VVM	52	Yes	Yes	OK	OK
E. Has the participation of each of the project participants been approved by at least one Party involved, either in a letter of approval or in a separate letter specifically to approve participation? (Provide reference of the approval document for each of the project participants)	VVM	52	Pending on close CAR-1	Pending on close CAR-2	Pending	OK
F. Are any entities other than those approved as project participants included in these sections of the PDD?	VVM	52	No		OK	OK
G. Has the approval of participation issued from the relevant DNA?	VVM	53	Pending on close CAR-1	Pending on close CAR-2	OK	OK
3. Project desing document						
A. Is the PDD used as a basis for validation prepared in accordance with the latest template and guidance from the CDM Executive Board available on the UNFCCC CDM website?	VVM	55	Yes. Latest Version 03.2. per the GUIDELINES FOR COMPLETING CDM-PDD, CDM-NMB and CDM-NMM – Version 07 – 02/08/2008		OK	OK
B. Is the PDD in accordance with the applicable CDM requirements for completing the PDD?	VVM	56	Yes		OK	OK
C. In CDM-PDD section A.1 are the following provided?	EB 41	Ann 12				
i. Title of project	EB 41	Ann 12	Yes. Heilongjiang Mudanjiang Xiaoguokui Wind Power Project		OK	OK

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl.	Final Concl.
ii. Current version number and date of document	EB 41	Ann 12	Yes. Version number: 1, dated 05/09/2008 Final Version number: 2, dated 02/06/2009	OK	OK
D. In CDM-PDD section A.2 are following provided (max. one page)?	EB 41	Ann 12			
i. A brief description of the project activity covering purpose which includes the scenario existing prior to the start of project, present scenario and baseline scenario	EB 41 - VVM	Ann 12 - 58 59 60	Yes. The proposed project involves the installation of 24 sets of 850kW wind turbines, for a total installed capacity of 20.4MW. It is estimated that the annual generated output will be 46,360MWh. The situation prior to the project is the same as the baseline scenario, which is that the NEPG would provide the same amount of electricity.	OK	OK
ii. Does the proposed CDM project activity involve the alteration of an existing installation or process?	VVM	63	No. It is a newly-built project.	OK	OK
iii. Explanation on how the GHG emission reductions are effected	EB 41	Ann 12	Yes. The purpose of the proposed project is to generate electricity using wind power resources in the project region and to sell into Northeast Power Grid (NEPG). The electricity generated from the project can displace part of the power from the grid, and the expected annual GHG emission reductions are 52,882 tCO ₂ e.	OK	OK

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl.	Final Concl.
iv. The PP's views on the contribution of project activity to sustainable development	EB 41	Ann 12	<p>Yes.</p> <p>◆ Being located in a power grid dominated by fossil fuel fired power plants, development of the proposed project will not only reduce GHG emissions but also mitigate local environmental pollution caused by air emissions from fossil fuel fired power plants;</p> <p>◆ 14 new jobs will be generated;</p> <p>◆ The implementation of the proposed project will be helpful to meet the energy demand, therefore, contribute to local economic development.</p>	OK	OK
E. In CDM-PDD section A.3 are following provided in the tabular format?	EB 41	Ann 12			
i. List of project participants and parties	EB 41	Ann 12	<p>Yes.</p> <p>The private entities involved in the project activity are listed at section A.3 of the PDD.</p> <p>Host Country-China - Hailin Longyuan Wind Power Co., Ltd.</p> <p>Annex I Country- Switzerland - Essent Trading International S.A.</p>	OK	OK
ii. Identification of Host Party			<p>Yes.</p> <p>P.R. China</p>	OK	OK
iii. Indication whethre the Party wishes to be considered as project participant	EB 41	Ann 12	Yes.	OK	OK

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl.	Final Concl.
			No party involved wishes to be considered as PP.		
F. In CDM-PDD section A.4.1 are following provided?	EB 41	Ann 12			
i. Technical description, location, host party(ies) and address as required	EB 41	Ann 12	Yes Host country is P.R. China. The location is in Hailin city Heilongjiang Province.	OK	OK
ii. Detailed physical location with unique identification of the project activity (eg. Longitude/latitude) – not to exceed one page	EB 41	Ann 12	Yes. The geographical coordinates is N 45°16'54" E 129°50'30".	OK	OK
G. In CDM-PDD section A.4.2 is the list of categories of project activities provided?	EB 41	Ann 12	Scope 1: Energy Industries (renewable sources)	OK	OK
H. In CDM-PDD section A.4.3 are following provided?	EB 41	Ann 12			
i. A description of how environmentally safe and sound technology, and know-how, is transferred to the Host Party(ies)	EB 41	Ann 12	Vestas 58-850KW WTG is applied in the proposed project according to PDD. However, this type of WTG is not represented in the reference of www.vestas.com .	GL-4	OK
ii. Explanation of purpose of project activity with scenario existing prior to the start of project, scope or present activities and the baseline scenario	EB 41	Ann 12	The project is a newly built wind farm. The baseline scenario is same as scenario existing prior to the start of the proposed project. The amount of electricity delivered to the grid by the project activity would have otherwise been generated by the operation of these grid-connected	OK	OK

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl.	Final Concl.
			power plants and by the addition of new generation sources.		
iii. List and arrangement of the main manufacturing/production technologies, systems and equipments involved	EB 41	Ann 12	Yes. 24 sets of 850kW wind turbines provided by Vestas will be installed on the site of the proposed project. The load factors and efficiencies need to be delineated in Section A.4.3.	GL-2	OK
iv. The emissions sources and GHGs involved	EB 41	Ann 12	Yes. To reduce greenhouse gas emissions of CO ₂ produced in NEPG.	OK	OK
I. In CDM-PDD section A.4.4 is the estimation of emission reductions provided as requested in a tabular format?	EB 41	Ann 12	7×3 renewable crediting periods chosen; Annual emission reductions of 52,882 tCO ₂ e is estimated for the first crediting period	OK	OK
J. In CDM-PDD section A.4.5 is Information regarding Public funding provided?	EB 41	Ann 12	Yes. No public funding was provided to the project.	OK	OK
K. In CDM-PDD section B.1 are following provided?	EB 41	Ann 12			
i. The approved methodology and version number	EB 41	Ann 12	Yes. ACM0002 ver.07 dated 30/11/2007 "Consolidated methodology for grid-connected electricity generation from renewable sources" in the GSP PDD. ACM0002 ver.09 dated 13/02/2009	OK	OK

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl.	Final Concl.
			<i>"Consolidated methodology for grid-connected electricity generation from renewable sources"</i> in the revised PDD.		
ii. Any methodologies or tools which the above approved methodology draws upon and their version number	EB 41	Ann 12	Yes. <i>"Tool for the Demonstration and Assessment of Additionality ver. 05.2"</i> and The <i>"Tool to calculate the emission factor for an electricity system"</i> latest version 01.1 should be applied in Section B.1 of PDD rather than version 01.	CL-3	OK
L. In CDM-PDD section B.2 is justification of the choice of methodology that the project activity meets each of the applicability conditions provided?	EB 41	Ann 12	Yes. The Project fulfills the criteria of ACM0002 ver.07 and ver.09 - utilization of wind sources; - not involving switching from fossil fuels to renewable energy at project site; - the geographic and system boundaries of NEPG can be clearly identified and the information of this grid is available.	OK	OK
M. In CDM-PDD section B.3 are following provided?	EB 41	Ann 12			
i. Description of all sources and gases included in the project boundary in the table	EB 41	Ann 12	Yes. Only emission of CO ₂ is considered in baseline emission.	OK	OK

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl.	Final Concl.
ii. A flow diagram of the project boundary physically delineating the project activity	EB 41	Ann 12	Yes.	OK	OK
iii. The flow diagram with all equipments, systems and flows of mass and energy etc	EB 41	Ann 12	Yes	OK	OK
N. In CDM-PDD section B.4 are following provided?	EB 41	Ann 12			
i. Explanation how the most plausible baseline scenario is identified in accordance with the selected baseline methodology	EB 41	Ann 12	Refer to (4.D.b) below	OK	OK
ii. Justification of key assumptions and rationales	EB 41	Ann 12	Not applicable.	NA	OK
O. In CDM-PDD section B.5 are following provided?	EB 41	Ann 12			
i. Explanation of how and why this project activity is additional and therefore not the baseline scenario in accordance with the selected baseline methodology	EB 41	Ann 12	Yes. Investment analysis used for demonstration of the additionality.	OK	OK
ii. Justification of key assumptions and rationales	EB 41	Ann 12	Yes.	OK	OK
iii. Transparent illustration of all data used to determine the baseline scenario (variables, parameters, data sources etc)	EB 41	Ann 12	Yes. See PDD B.5, Step 2.	OK	OK
iv. Evidence that the incentive from the CDM was seriously considered in the decision to proceed	EB 41	Ann 12	Pending on (3.W.iii) below	Pending	OK

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl.	Final Concl.
with the project activity, if the starting date of the project activity is before the date of validation					
P. In CDM-PDD section B.6.1 are following provided?	EB 41	Ann 12			
i. Explanation as to how the procedures, in the approved methodology to calculate project emissions, baseline emissions, leakage emissions and emission reductions are applied to the proposed project activity	EB 41	Ann 12	Pending on 3.K.ii above	Pending	OK
ii. Equations used in calculating emission reductions	EB 41	Ann 12	The equations of “Tool-Grid EF” are used.	OK	OK
iii. Explanation and justification for all relevant methodological choices, including different scenarios or cases, options and default values	EB 41	Ann 12	The official data of Chinese power grid issued by NDRC annually are used. (referred to as “ Notification of China Grid EF ” in the report)	OK	OK
Q. In CDM-PDD section B.6.2 are following provided?	EB 41	Ann 12			
i. A compilation of information on the data and parameters that are not monitored throughout the crediting period but that are determined only once and thus remains fixed throughout the crediting period AND that are available when validation is undertaken	EB 41	Ann 12	Yes. Complying with “Tool-Grid EF”, the necessary official data of power grid made publically by NDRC are available and determined during validation.	OK	OK
ii. Explanation and justification for the choice of the source of data	EB 41	Ann 12	The official data i.e. Notification of China Grid EF were based on the data of China Energy Statistical Yearbook and China Power Yearbook, and authorities’ expertise.	OK	OK

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl.	Final Concl.
iii. Clear and transparent references or additional documentation in Annex 3	EB 41	Ann 12	Yes.	OK	OK
iv. Where values have been measured, a description of the measurement methods and procedures (e.g. which standards have been used), indicated the responsible person/entity having undertaken the measurement, the date of measurement(s) and the measurement results	EB 41	Ann 12	It is not applicable in this case as the emission factor is determined ex-ante as per the options in ACM0002.	OK	OK
R. In CDM-PDD section B.6.3 are following provided?	EB 41	Ann 12			
i. A transparent <i>ex ante</i> calculation of project emissions, baseline emissions (or, where applicable, direct calculation of emission reductions) and leakage emissions expected during the crediting period, applying all relevant equations provided in the approved methodology	EB 41	Ann 12	Yes. The calculation process is in line with the steps taken prescribed in "Tool-Grid EF" and addressed in PDD B.6.3 and Annex 3.	OK	OK
ii. Documentation how each equation is applied, in a manner that enables the reader to reproduce the calculation	EB 41	Ann 12	Yes. The EF spreadsheets are used.	OK	OK
iii. Additional background information and or data in Annex 3, including relevant electronic files (i.e. spreadsheets)	EB 41	Ann 12	Yes. The EF spreadsheets are used.	OK	OK
S. In CDM-PDD section B.6.4 are the results of the <i>ex ante</i> estimation of emission reductions for all years of the crediting period, provided in a tabular format?	EB 41	Ann 12	Yes. From 2009 to 2016 with year-wise data of emission reductions.	OK	OK

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl.	Final Concl.
T. In CDM-PDD section B.7.1 are following provided?	EB 41	Ann 12			
i. Specific information on how the data and parameters that need to be monitored would actually be collected during monitoring for the project activity	EB 41	Ann 12	Yes. <i>EG_y</i> –net electricity supplied to NEPG in year y.	OK	OK
ii. For each parameter the following below information, using the table provided:	EB 41	Ann 12			
a. The source(s) of data that will be actually used for the proposed project activity (e.g. which exact national statistics). Where several sources may be used, explain and justify which data sources should be preferred.	EB 41	Ann 12	N/A No other outside source(s) of data should be used.	OK	OK
b. Where data or parameters are supposed to be measured, specify the measurement methods and procedures, including a specification which accepted industry standards or national or international standards will be applied, which measurement equipment is used, how the measurement is undertaken, 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; (i) A description of the QA/QC procedures (if any) that should be	EB 41	Ann 12	Yes. The information is provided using the table as required.	OK	OK

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl.	Final Concl.
applied; (ii) Where relevant: any further comment. Provide any relevant further background documentation in Annex 4.					
U. In CDM-PDD section B.7.2 are following provided?	EB 41	Ann 12			
i. A detailed description of the monitoring plan	EB 41	Ann 12	Yes. The relevant details are addressed.	OK	OK
ii. The operational and management structure that the project operator will implement in order to monitor emission reductions and any leakage effects generated by the project activity	EB 41	Ann 12	Yes. The operational and management structure is provided.	OK	OK
iii. The responsibilities for and institutional arrangements for data collection and archiving	EB 41	Ann 12	Yes. The structure covered from general management to meters recorder.	OK	OK
iv. Indication that the monitoring plan reflect good monitoring practice appropriate to the type of project activity	EB 41	Ann 12	Yes Widely applied in power sector.	OK	OK
v. Relevant further background information in Annex 4	EB 41	Ann 12	Not addressed separately. Same to PDD Section B7.2	OK	OK
V. In CDM-PDD section B.8 are following provided?	EB 41	Ann 12			
i. Date of completion of the application of the methodology to the project activity study in DD/MM/YYYY	EB 41	Ann 12	Yes On 05/09/2008	OK	OK

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl.	Final Concl.
ii. Contact information of the person(s)/entity(ies) responsible for the application of the baseline and monitoring methodology to the project activity	EB 41	Ann 12	Yes.	OK	OK
iii. Indication if the person/entity is also a project participant listed in Annex 1	EB 41	Ann 12	Yes. The person/entity is not the project participant	OK	OK
W. In CDM-PDD section C.1.1 are following provided?	EB 41	Ann 12			
i. The starting date of a CDM project activity, which is the earliest of the date(s) on which the implementation or construction or real action of a project activity begins/has begun (EB33, Para 76/CDM Glossary of terms/EB41, Para 67)	EB 41	Ann 12	25/12/2007 when the equipment purchasing contract was signed.	OK	OK
ii. A description of how this start date has been determined, and a description of the evidence available to support this start date	EB 41	Ann 12	The complete expression of EPA needs to be represented.	GL-4	OK
iii. If this starting date is earlier than the date of publication of the CDM-PDD for global stakeholder consultation by a DOE, description in Section B.5 contain how the benefits of the CDM were seriously considered prior to the starting date (EB41, Para 67).	EB 41	Ann 12	The starting date is earlier than the date of GSP. However, It should be contained in Section B.5 how the benefits of the CDM were seriously considered prior to the starting date and relevant evidence should be provided to BVC.	CAR-3	OK
X. In CDM-PDD section C.1.2 is the expected operational lifetime of the project activity in years and months provided?	EB 41	Ann 12	19 years. The operational lifetime and the first crediting period need to be displayed in year and month.	GL-5	OK
Y. In CDM-PDD section C.2 is it stated whether the	EB	Ann	A renewable crediting period is used.	OK	OK

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl.	Final Concl.
project activity will use a renewable or a fixed crediting period and is C.2.1 or C.2.2 completed accordingly?	41	12			
Z. In CDM-PDD section C.2.1 is it indicated that each crediting period shall be at most 7 years and may be renewed at most two times, provided that, for each renewal, a designated operational entity determines and informs the Executive Board that the original project baseline is still valid or has been updated taking account of new data where applicable?	EB 41	Ann 12	Yes. 3x7 years This baseline determination is for the first 7 years.	OK	OK
AA. In CDM-PDD section C.2.1.1 are dates in the following format: (DD/MM/YYYY) provided?	EB 41	Ann 12	Yes. 01/01/2009 However, A more feasible starting date of the first crediting period needs to be identified.	GL-6	OK
BB. In CDM-PDD section C.2.1.2 is the length of the first crediting period in years and months provided?	EB 41	Ann 12	Pending on 3.X above	Pending	OK
CC. In CDM-PDD section C.2.2 is the fixed crediting period at most ten (10) years provided?	EB 41	Ann 12	N/A.	OK	OK
DD. In CDM-PDD section C.2.2.1 are the dates provided in the following format: (DD/MM/YYYY)?	EB 41	Ann 12	N/A.	OK	OK
EE. In CDM-PDD section C.2.2.2 is the length of the crediting period in years and months Provided?	EB 41	Ann 12	N/A.	OK	OK
FF. In CDM-PDD section D.2 are the conclusions and all references to support documentation of an environmental impact assessment undertaken in accordance with the procedures as required by the	EB 41	Ann 12	The conclusion stated.	OK	OK

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl.	Final Concl.
Host Party, if environmental impacts are considered significant by the project participants or the Host, provided?					
GG. In CDM-PDD section E.1 are the following provided?	EB 41	Ann 12			
i. 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.	EB 41	Ann 12	Yes. Target group-local farmers, workers and government officials were interviewed;	OK	OK
ii. The project activity is described in a manner, which allows the local stakeholders to understand the project activity, taking into account confidentiality provisions of the CDM modalities and procedures.	EB 41	Ann 12	Yes. By a symposium and distributing questionnaires.	OK	OK
iii. The local stakeholder process has been completed before submitting the proposed project activity to the DOE for validation.	EB 41	Ann 12	Yes	OK	OK
HH. In CDM-PDD section E.2 are following provided?	EB 41	Ann 12			
i. Identification of local stakeholders that have made comments	EB 41	Ann 12	Yes. It covers local farmers, workers and government officials were interviewed;	OK	OK
ii. A summary of this comments.	EB	Ann	Yes. See PDD-E.2	OK	OK

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl.	Final Concl.
	41	12			
II. In CDM-PDD section E.3 is the explanation of how due account have been taken of comments received from local stakeholders provided?	EB 41	Ann 12	Yes.	OK	OK
JJ. In CDM-PDD Annex 1 are the following provided?	EB 41	Ann 12			
i. Contact information of project participants	EB 41	Ann 12	Yes.	OK	OK
ii. For each organisation listed in section A.3 the following mandatory fields: Organization, Name of contact person, Street, City, Postfix/ZIP, Country, Telephone and Fax or e-mail	EB 41	Ann 12	Yes.	OK	OK
KK. In CDM-PDD Annex 2 is information from Parties included in Annex I on sources of public funding for the project activity which shall provide an affirmation that such funding does not result in a diversion of official development assistance and is separate from and is not counted towards the financial obligations of those Parties provided?	EB 41	Ann 12	N/A as no public funding from Annex I countries is involved in the proposed project.	OK	OK
LL. In CDM-PDD Annex 3 is the background information used in the application of the baseline methodology provided?	EB 41	Ann 12	Yes.	OK	OK
MM. In CDM-PDD Annex 4 is the background information used in the application of the monitoring methodology provided?	EB 41	Ann 12	No. Refer to PDD-B.7.2.	OK	OK
4. Baseline and monitoring methodology					

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl.	Final Concl.
A. General requirement					
a. Is the baseline and monitoring methodologies selected by the project participants previously approved by the CDM Executive Board?	VVM	65	Refer to (4.B.a) below	OK	OK
b. Is the selected methodology applicable to the project activity?	VVM	66	Refer to (4.B.b) below	OK	OK
c. Had the selected methodology been correctly applied?	VVM	66	Refer to (4.B.c) below	OK	OK
d. Had the selected methodology been correctly applied with respect to project boundary?	VVM	67	Refer to (4.B) below	OK	OK
e. Had the selected methodology been correctly applied with respect to baseline identification?	VVM	67	Refer to (4.D.b) below	OK	OK
f. Had the selected methodology been correctly applied with respect to Algorithms and/or formulae used to determine emission reductions?	VVM	67	Refer to (4.E) below	OK	OK
g. Had the selected methodology been correctly applied with respect to additionality?	VVM	67	Refer to (5) below	OK	OK
B. Applicability of the selected methodology to the project activity					
a. Is the selected baseline and monitoring methodology, previously approved by the CDM Executive Board, applicable to the project activity?	VVM	68	Yes. ACM0002 version 07 dated 30/11/2007 and ACM0002 version 09 dated 13/02/2009.	OK	OK
b. Is the methodology correctly quoted?	VVM	69	Yes. The Project fulfills the criteria of ACM0002 ver.07	OK	OK

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl.	Final Concl.
			and ver.09 - utilization of wind sources; - not involving switching from fossil fuels to renewable energy at project site; - the geographic and system boundaries of NEPG can be clearly identified and the information of this grid is available.		
c. Are the applicability conditions of the methodology met?	VVM	70	Yes.	OK	OK
d. Is the project activity expected to result in emissions other than those allowed by the methodology?	VVM	70	No other emissions other than CO ₂ are identified.	OK	OK
e. Is the DOE, based on local and sectoral knowledge, aware that comparable information is available from sources other than that used in the PDD?	VVM	70	Yes. Public information has been checked and found the consistency. http://www.hailin.gov.cn/shizhengfu/zfjg/fgj/xmk/qjny/ny11.htm	OK	OK
f. If yes, was the PDD cross checked against the other sources to confirm that the project activity meets the applicability conditions of the methodology?	VVM	70	Yes. Reference: http://www.hailin.gov.cn/shizhengfu/zfjg/fgj/xmk/qjny/ny11.htm	OK	OK
g. Can a determination regarding the applicability of the selected methodology to the proposed CDM project activity be made?	VVM	71	Yes.	OK	OK
h. If no, clarification of the methodology was requested, in accordance with the guidance provided by the	VVM	71	N/A	OK	OK

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl.	Final Concl.
CDM Executive Board?					
i. If answer to (4.B.c) above is “no”, revision or deviation from the methodology was requested, in accordance with the guidance provided by the CDM Executive Board?	VVM	72	N/A	OK	OK
C. Project boundary					
a. Does the PDD correctly describe the project boundary, including the physical delineation of the proposed CDM project activity included within the project boundary for the purpose of calculating project and baseline emissions for the proposed CDM project activity?	VVM	77	Yes. The spatial extent of the project boundary includes Project site. The project site includes total 24 sets of turbines with a unit capacity of 850kW, step-up substations and auxiliary facilities that are used to support the turbines operation. The Project is connected to the Northeast China Power Grid (NEPG) and therefore the NEPG that all power plants connected to is selected as the project boundary.	OK	OK
b. Is the delineation in the PDD of the project boundary correct?	VVM	78	Yes, confirmed by cross-checking with official boundary definitions published by the China's DNA.	OK	OK
c. Does the delineation in the PDD of the project boundary meet the requirements of the selected baseline?	VVM	78	Yes. Clearly identified.	OK	OK
d. Have all sources and GHGs required by the methodology been included within the project boundary?	VVM	78	Yes. For wind power projects only CO ₂ emissions from electricity generation in fossil fuel fired power plants that are displaced due to the project activity are	OK	OK

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl.	Final Concl.
			considered as source in baseline scenario.		
e. Does the methodology allow project participant to choose whether a source or gas is to be included within the project boundary?	VVM	78	Not applicable	OK	OK
f. If yes, have the project participants justified that choice?	VVM	78	Not applicable	OK	OK
g. If yes, is the justification provided reasonable? (provide reference to the supporting documented evidence provided by the project participants)	VVM	78	Not applicable	OK	OK
D. Baseline identification					
a. Does the PDD identify the baseline for the proposed CDM project activity, defined as the scenario that reasonably represents the anthropogenic emissions by sources of GHGs that would occur in the absence of the proposed CDM project activity?	VVM	80	Yes. The baseline scenario was clearly identified in PDD B.4. It 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>	OK	OK
b. Has any procedure contained in the methodology to identify the most reasonable baseline scenario, been correctly applied?	VVM	81	Yes	OK	OK
c. Does the selected methodology require use of tools (such as the “Tool for the demonstration and assessment of additionality” and the “Combined tool	VVM	81	No.	OK	OK

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl.	Final Concl.
to identify the baseline scenario and demonstrate additionality”) to establish the baseline scenario?					
d. If yes, was the methodology consulted on the application of these tools? (In such cases, the guidance in the methodology shall supersede the tool.)	VVM	81	N/A	OK	OK
e. Does the methodology require several alternative scenarios to be considered in the identification of the most reasonable baseline scenario?	VVM	82	No. Refer to (4.D.b) above	OK	OK
f. If yes, are all scenarios that are considered by the project participants and are supplementary to those required by the methodology reasonable in the context of the proposed CDM project activity?	VVM	82	N/A.	OK	OK
g. Has any unreasonable alternative scenario been excluded?	VVM	82	N/A .Refer to (4.D.b) above	OK	OK
h. Are the documents and sources referred to in the PDD correctly quoted and interpreted?	VVM	83	Yes	OK	OK
i. Was the information provided in the PDD cross checked with other verifiable and credible sources, such as local expert opinion, if available? (identify the sources)	VVM	83	Refer to (4.D.b) above	OK	OK
j. Have all applicable CDM requirements been taken into account in the identification of the baseline scenario for the proposed CDM project activity?	VVM	84	Refer to (4.D.b) above	OK	OK
k. Have all relevant policies and circumstances been identified and correctly considered in the PDD, in accordance with the guidance by the CDM Executive	VVM	84	Refer to (4.D.b) above	OK	OK

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl.	Final Concl.
Board?					
I. Does the PDD provide a verifiable description of the identified baseline scenario, including 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	85	Yes. It is identified in the PDD B.4 that " <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>	OK	OK
<i>E. Algorithms and/or formulae used to determine emission reductions</i>					
a. Do the steps taken and equations applied to calculate project emissions, baseline emissions, leakage and emission reductions comply with the requirements of the selected baseline and monitoring?	VVM	88	Yes. Tool to calculate the emission factor for an electricity system are required to be used by ACM0002.	OK	OK
b. Have the equations and parameters in the PDD been correctly applied with those in the select approved methodology?	VVM	89	The steps and equations applied are consistent with the Tool to calculate the emission factor for an electricity system and ACM0002.	OK	OK
c. Does the methodology provide for selection between different options for equations or parameters?	VVM	89	Yes. Options in Step 1, 2 and 3. are used for OM factor determination	OK	OK
d. If yes, has adequate justification been provided (based on the choice of the baseline scenario,	VVM	89	Yes. The relevant justifications in Step 1, 2 and 3.	OK	OK

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl.	Final Concl.
context of the proposed CDM project activity and other evidence provided)?					
e. If yes, have correct equations and parameters been used, in accordance with the methodology selected?	VVM	89	Refer to (4.E.b) above	OK	OK
f. Will data and parameters be monitored throughout the crediting period of the proposed CDM project activity?	VVM	90	Not applicable as the emission factor is determined ex ante for the Project.	OK	OK
g. If no, and these data and parameters will remain fixed throughout the crediting period, are all data sources and assumptions:	VVM	90			
i. Appropriate and correct?	VVM	90	Refer to (3. R. iii) above	OK	OK
ii. Applicable to the proposed CDM project activity?	VVM	90	Yes.	OK	OK
iii. Resulting in a conservative estimate of the emission reductions?	VVM	90	Yes.	OK	OK
h. Will data and parameters be monitored on implementation and hence become available only after validation of the project activity?	VVM	90	Not applicable	OK	OK
i. If yes, are the estimates provided in the PDD for these data and parameters reasonable?	VVM	90	Not applicable	OK	OK
5. Additionality of a project activity					
a. Does the PDD describe how a proposed CDM project activity is additional?	VVM	93	Pending close out all Findings in this section.	Pending	OK
b. Does the CDM-PDD state the latest version of the additionality tool being used?	VVM	94	Yes. The approved "Tool for the Demonstration and	OK	OK

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl.	Final Concl.
			Assessment of Additionality” version 05.2 is used.		
c. Were the steps taken of the “Tool for the Demonstration and Assessment of Additionality” to assess additionality used:	EB 39	Ann 10	Yes. Step 1-identification of alternatives of the project activity, Step 2-Investment analysis (Step 3 -Barrier analysis was not used) Step 4-common practice analysis	OK	OK
i. Identification of alternatives to the project activity? (Step 1)	EB 39	Ann 10	Yes, all plausible and credible alternative scenarios have been identified in the PDD, including: Alternative a: The project activity undertaken without being registered as a CDM project activity; Alternative b: Construction of a thermal power plant with the same annual electricity output as the proposed project; Alternative c: Construction of a power plant using other sources of renewable energy with equivalent annual electricity generation; Alternative d: Continuation of the current situation: provide the same electricity output by Northeast Power Grid Alternative c is excluded due to lack of hydro resources on/around project site, and the financial less attractiveness of geothermal, biomass and solar PV power generation technologies.		

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			References need to be represented to demonstrate the exclusion of solar PV, geothermal, biomass and hydropower.	GL-7	OK
ii. Investment analysis to determine that the proposed project activity is either: (1) not the most economically or financially attractive, or (2) not economically or financially feasible? (Step 2)	EB 39	Ann 10	Yes, (2) is used. The appropriate analysis method is clearly discussed and determined in the PDD. Option III (benchmark analysis) is chosen for investment analysis.	OK	OK
iii. Barriers analysis?	EB 39	Ann 10	Not used.	OK	OK
iv. Common practice analysis?	EB 39	Ann 10	Yes. The Project is located in Heilongjiang province. As projects of same type developed within the same region face a similar regulatory framework that makes them comparable. Therefore, activities similar to the Project should be wind farm located in Heilongjiang province.	OK	OK
d. In step 1 (i) have all the sub-steps as below been followed?	EB 39	Ann 10			
i. Sub-step 1a: Define alternatives to the project activity	EB 39	Ann 10	Yes.	OK	OK
ii. Sub-step 1b: Consistency with mandatory laws and regulations	EB 39	Ann	Yes.	OK	OK

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		10			
e. Have the following alternatives been included while defining alternatives as per sub-step 1a?	EB 39	Ann 10	Yes.	OK	OK
i. (a) The proposed project activity undertaken without being registered as a CDM project activity;	EB 39	Ann 10	Yes. Refer to 5.c.i. above.	OK	OK
ii. (b) Other realistic and credible alternative scenario(s) to the proposed CDM project activity scenario that deliver outputs services or services with comparable quality, properties and application areas, taking into account, where relevant, examples of scenarios identified in the underlying methodology;	EB 39	Ann 10	Yes. Refer to 5.c.i. above.	OK	OK
iii. (c) If applicable, continuation of the current situation (no project activity or other alternatives undertaken).	EB 39	Ann 10	Yes. Refer to 5.c.i. above.	OK	OK
f. Has the outcome of Step 1a : Identified realistic and credible alternative scenario(s) to the project activity done correctly? Please briefly mention the outcome.	EB 39	Ann 10	Yes. Alternative c) is not a feasible alternative as per local geographical and /or economical environment.	OK	OK
g. Is the alternative(s) in compliance with all mandatory applicable legal and regulatory requirements, even if these laws and regulations have objectives other than GHG reductions, e.g. to mitigate local air pollution.?	EB 39	Ann 10	Yes. Alternative b) is strictly regulated for installation per the current regulations in China i.e. footer 11 of the PDD: <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 within the</i>	OK	OK

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl.	Final Concl.
			<i>Grid Connected Area, GUOBANFAMINGDIAN (2002) Document No.6</i> Consequently, alternative b) is excluded.		
h. If an alternative does not comply with all mandatory applicable legislation and regulations, has it been shown that, based on an examination of current practice in the country or region in which the law or regulation applies, those applicable legal or regulatory requirements are systematically not enforced and that noncompliance with those requirements is widespread in the country?	EB 39	Ann 10	No. Alternative b) Construction of a fossil fuel power plant with equivalent amount of annual electricity output is enforced and generally that noncompliance with those requirements is not appeared in the country.	OK	OK
i. Has the outcome of Step 1b : Identified realistic and credible alternative scenario(s) to the project activity that are in compliance with mandatory legislation and regulations taking into account the enforcement in the region or country and EB decisions on national and/or sectoral policies and regulations done correctly?	EB 39	Ann 10	Yes. Alternative b) is not consistent with mandatory laws and regulations	OK	OK
j. Has PP selected Step 2 (Investment analysis) or Step 3 (Barrier analysis) or both Steps 2 and 3?	EB 39	Ann 10	Yes. Step 2 is selected.	OK	OK
k. In step 2, have all the sub-steps as below been followed?	EB 39	Ann 10			
i. Sub-step 2a: Determine appropriate analysis method;	EB 39	Ann 10	Yes. The three analysis methods suggested by "Tools for the demonstration and assessment of additionality"	OK	OK

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl.	Final Concl.
			are simple cost analysis (Option I), investment comparison analysis (Option II) and benchmark analysis (Option III)		
ii. Sub-step 2b: Option I. Apply simple cost analysis;	EB 39	Ann 10	It is not applicable to the proposed project.	OK	OK
iii. Sub-step 2b: Option II. Apply investment comparison analysis;	EB 39	Ann 10	It is not applicable to the project.	OK	OK
iv. Sub-step 2b: Option III. Apply benchmark analysis;	EB 39	Ann 10	Yes. The benchmark analysis method based on Project IRR is chosen.	OK	OK
v. Sub-step 2c: Calculation and comparison of financial indicators (only applicable to Options II and III);	EB 39	Ann 10	Not applicable.	OK	OK
vi. Sub-step 2d: Sensitivity analysis (only applicable to Options II and III).	EB 39	Ann 10	Yes.	OK	OK
I. In sub-step 2a has the determination of appropriate method of analysis done as per the guidance as below?	EB 39	Ann 10			
i. Simple cost analysis if the CDM project activity and the alternatives identified in Step 1 generate no financial or economic benefits other than CDM related income (Option I).	EB 39	Ann 10	Yes. Excluded as the proposed project will earn revenues from not only the CDM related income but also the electricity output.	OK	OK
ii. Otherwise, use the investment comparison	EB	Ann	Yes. Option III is applied.	OK	OK

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl.	Final Concl.
analysis (Option II) or the benchmark analysis (Option III). Specify option used with justification.	39	10			
m. Has the below guideline followed for sub-step 2b Option I. Apply simple cost analysis? Document the costs associated with the CDM project activity and the alternatives identified in Step1 and demonstrate that there is at least one alternative which is less costly than the project activity.	EB 39	Ann 10	Not applicable.	OK	OK
n. Has the below guideline followed for sub-step 2b Option II. Apply investment comparison analysis? Identify the financial indicator, such as IRR, NPV, cost benefit ratio, or unit cost of service most suitable for the project type and decision-making context. Please specify	EB 39	Ann 10	Not applicable.	OK	OK
o. Has the below guideline followed for Sub-step 2b: Option III. Apply benchmark analysis?	EB 39	Ann 10			
i. Identify the financial/economic indicator, such as IRR, most suitable for the project type and decision context.	EB 39	Ann 10	Yes. Project IRR was identified.	OK	OK
ii. When applying Option II or Option III, the financial/economic analysis shall be based on parameters that are standard in the market, considering the specific characteristics of the project type, but not linked to the subjective profitability expectation or risk profile of a particular project developer. Only in the particular case where the project activity can be implemented by	EB 39	Ann 10	Yes.	OK	OK

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl.	Final Concl.
the project participant, the specific financial/economic situation of the company undertaking the project activity can be considered.					
iii. Discount rates and benchmarks shall be derived from: (a) Government bond rates, increased by a suitable risk premium to reflect private investment and/or the project type, as substantiated by an independent (financial) expert or documented by official publicly available financial data; (b) Estimates of the cost of financing and required return on capital (e.g. commercial lending rates and guarantees required for the country and the type of project activity concerned), based on bankers views and private equity investors/funds' required return on comparable projects; (c) A company internal benchmark (weighted average capital cost of the company), only in the particular case referred to above in 2. The project developers shall demonstrate that this benchmark has been consistently used in the past, i.e. that project activities under similar conditions developed by the same company used the same benchmark; (d) Government/official approved benchmark where such benchmarks are used for investment decisions; (e) Any other indicators, if the project participants can demonstrate that the above Options are not applicable and their indicator is appropriately justified. Please specify benchmark and justify.	EB 39	Ann 10	Yes. Derived from (d) With reference to <i>Interim Rules on Economic Assessment of Electric Engineering Retrofit Projects</i> , the financial benchmark project IRR of Chinese electricity industry is 8%, which has been used widely in feasibility studies of new power plants, including wind power projects in China.	OK	OK

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl.	Final Concl.
p. Has the below guideline followed for Sub-step 2c: Calculation and comparison of financial indicators (only applicable to Options II and III)?	EB 39	Ann 10			
i. Calculate the suitable financial indicator for the proposed CDM project activity and, in the case of Option II above, for the other alternatives. Include all relevant costs (including, for example, the investment cost, the operations and maintenance costs), and revenues (excluding CER revenues, but possibly including inter alia subsidies/fiscal incentives, ODA, etc, where applicable), and, as appropriate, non-market cost and benefits in the case of public investors if this is standard practice for the selection of public investments in the host country.	EB 39	Ann 10	Yes	OK	OK
ii. Present the investment analysis in a transparent manner and provide all the relevant assumptions, preferably in the CDM-PDD, or in separate annexes to the CDM-PDD.	EB 39	Ann 10	Yes. IRR calculation sheet has been provided and assessed.	OK	OK
iii. Justify and/or cite assumptions.	EB 39	Ann 10	All indicators are from the approved FSR.	OK	OK
iv. In calculating the financial/economic indicator, the project's risks can be included through the cash flow pattern, subject to project-specific expectations and assumptions.	EB 39	Ann 10	Yes. Relevant costs are included.	OK	OK
v. Assumptions and input data for the investment analysis shall not differ across the project activity	EB 39	Ann	Not applicable as Option III is used.	OK	OK

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl.	Final Concl.
and its alternatives, unless differences can be well substantiated.		10			
vi. Present in the CDM-PDD a clear comparison of the financial indicator for the proposed CDM activity. Please specify details for above.	EB 39	Ann 10	Yes. 6.52% VS benchmark of 8%	OK	OK
q. Has the below guideline followed for Sub-step 2d: Sensitivity analysis (only applicable to Options II and III)? Include a sensitivity analysis that shows whether the conclusion regarding the financial/economic attractiveness is robust to reasonable variations in the critical assumptions.	EB 39	Ann 10	Four financial parameters, i.e. Total investment, Annual O&M costs, Tariff excluding VAT and Annual generation output, are chosen for sensitive analysis with variation range of 10%. However, further elaboration in the PDD to show whether the variables will exceed -10% or +10% so as to the IRR of the project could reach the benchmark is required.	CAR-4	OK
r. Has the outcome of Step 2 clearly mentioned with justification?	EB 39	Ann 10	Yes. The Project remains financially unfeasible without CDM support.	OK	OK
s. In step 4: Common practise analysis have all the sub-steps as below followed?	EB 39	Ann 10			
i. Sub-step 4a: Analyze other activities similar to the proposed project activity;	EB 39	Ann 10	Yes. HuaFu Mulan Wind Farm and HuaFu Fujin Wind Farm are identified for analysis.	OK	OK
ii. Sub-step 4b: Discuss any similar Options that are occurring.	EB 39	Ann 10	Yes.	OK	OK

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl.	Final Concl.
t. Has the below guideline followed for Sub-step 4a: Analyze other activities similar to the proposed project activity? Provide an analysis of any other activities that are operational and that are similar to the proposed project activity. Other CDM project activities are not to be included in this analysis. Provide documented evidence and, where relevant, quantitative information. On the basis of that analysis, describe whether and to which extent similar activities have already diffused in the relevant region.	EB 39	Ann 10	The rationale of criteria to choose similar project activities is required to be represented.	CL-5	OK
u. Has the below guideline followed for Sub-step 4b: Discuss any similar Options that are occurring? If similar activities are identified, then it is necessary to demonstrate why the existence of these activities does not contradict the claim that the proposed project activity is financially/economically unattractive or subject to barriers. This can be done by comparing the proposed project activity to the other similar activities, and pointing out and explaining essential distinctions between them that explain why the similar activities enjoyed certain benefits that rendered it financially/economically attractive (e.g., subsidies or other financial flows) and which the proposed project activity cannot use or did not face the barriers to which the proposed project activity is subject. In case similar projects are not accessible, the PDD should include justification about non-	EB 39	Ann 10	<p>Yes.</p> <p>The two wind farms above enjoyed higher tariff than the proposed project. Moreover, the two wind farms are funded by international low interest loan or national soft loan.</p> <p>Supporting data sources are quoted in the PDD with a specific web link.</p> <p>However, the link of footnote (13) www.china5e.com/news/power/200208/200208220027.html is not available.</p>	CL-8	OK

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl.	Final Concl.
accessibility of data/information.					
v. Has the outcome from Step 4 clearly mentioned in PDD?	EB 39	Ann 10	Yes. The Project is not common practice within the region	OK	OK
w. Has it been proved that the project is additional?	EB 39	Ann 10	Yes.	OK	OK
A. Prior consideration of the clean development mechanism					
a. Is the project activity start date prior to the date of publication of the PDD for stakeholder comments?	VVM	96	Yes. The start date defined as 25/12/2007 prior to 15/10/2008 the date of publication of the PDD for stakeholder comments.	OK	OK
b. If yes, were the CDM benefits considered necessary in the decision to undertake the project as a proposed CDM project activity?	VVM	96	Pending on (3.W.iii) above.	Pending	OK
c. Is the start date of the project activity, reported in the PDD, in accordance with the "Glossary of CDM terms", which states that "The starting date of a CDM project activity is the earliest date at which either the implementation or construction or real action of a project activity begins."?	VVM	97	Yes	OK	OK
d. Does the project activity require construction, retrofit or other modifications?	VVM	97	Yes	OK	OK
e. If yes, is it ensured that the date of commissioning cannot be considered as the project activity start	VVM	97	Yes	OK	OK

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl.	Final Concl.
date?					
f. Is it a new project activity (project activities with starting date on or after 02 August 2008) or an existing project activity (project activities with a start date before 02 August 2008)?	VVM	98	It is an existing project activity.	OK	OK
g. For a new project, for which PDD has not been published for global stakeholder consultation or a new methodology proposed to the Executive Board before the project activity start date, had the PP informed the Host Party DNA and the UNFCCC secretariat in writing of the commencement of the project activity and of their intention to seek CDM status?.	VVM	99	Not applicable	OK	OK
h. For an existing project activity, for which the start date is prior to the date of publication of the PDD for global stakeholder consultation, are the following evidences provided:	VVM	100			
i. evidence that must indicate that awareness of the CDM prior to the project activity start date, and that the benefits of the CDM were a decisive factor in the decision to proceed with the project, including, inter alia:	VVM	100	Pending on (3.W.iii) above	Pending	OK
a. minutes and/or notes related to the consideration of the decision by the Board of Directors, or equivalent, of the project participant, to undertake the project as a proposed CDM project activity?			Pending on (3.W.iii) above	Pending	OK

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ii. reliable evidence from project participants that must indicate that continuing and real actions were taken to secure CDM status for the project in parallel with its implementation, including, inter alia:	VVM	100			
a. contract with consultants for CDM/PDD/methodology services?	VVM	100	Consultant contract was signed on 05/03/2008.	OK	OK
b. Emission Reduction Purchase Agreements or other documentation related to the sale of the potential CERs (including correspondence with multilateral financial institutions or carbon funds)?	VVM	100	The ERPA needs to be provided to BVC.	GL-9	OK
c. evidence of agreements or negotiations with a DOE for validation services?	VVM	100	Yes. Kept by BV Certification.	OK	OK
d. submission of a new methodology to the CDM Executive Board?	VVM	100	Not applicable	OK	OK
e. publication in newspaper?	VVM	100	Not applicable	OK	OK
f. interviews with DNA?	VVM	100	Yes. Bulletin on 56th Meeting of National CDM Board issued by China's DNA on 13/11/2008 provided. http://cdm.ccchina.gov.cn/WebSite/CDM/UpFile/File2015.pdf	OK	OK
g. earlier correspondence on the project with the DNA or the UNFCCC secretariat?	VVM	100	Not applicable	OK	OK

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B. Identification of alternatives					
a. Does the approved methodology that is selected by the proposed CDM project activity prescribe the baseline scenario and hence no further analysis is required?	VVM	103	Yes. Refer to 4.D.b and 5.c.i. above.	OK	OK
b. If no, does the PDD identify credible alternatives to the project activity in order to determine the most realistic baseline scenario?	VVM	103	Not applicable	OK	OK
c. Does the list of alternatives given in the PDD ensure that:	VVM	104	Yes.	OK	OK
i. the list of alternatives includes as one of the options that the project activity is undertaken without being registered as a proposed CDM project activity?	VVM	104	Refer to 5.c.i. above	OK	OK
ii. the list contains all plausible alternatives that the DOE, on the basis of its local and sectoral knowledge, considers to be viable means of supplying the outputs or services that are to be supplied by the proposed CDM project activity?	VVM	104	Refer to 5.c.i. above	OK	OK
iii. the alternatives comply with all applicable and enforced legislation?	VVM	104	Refer to 5.c. above	OK	OK
C. Investment analysis					
a. Has investment analysis been used to demonstrate the additionality of the proposed CDM project	VVM	106	Yes.	OK	OK

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activity?					
b. If yes, does the PDD provide evidence that the proposed CDM project activity would not be:	VVM	106			
i. the most economically or financially attractive alternative?	VVM	106	Not applied.	OK	OK
ii. economically or financially feasible, without the revenue from the sale of certified emission reductions (CERs)?	VVM	106	Concluded based on the IRR calculation of 6.52%, which is less than the benchmark of 8%.	OK	OK
c. Was this shown by one of the following approaches?	VVM	107	Yes.	OK	OK
i. Demonstrate that the proposed CDM project activity would produce no financial or economic benefits other than CDM-related income. Document the costs associated with the proposed CDM project activity and the alternatives identified and demonstrate that there is at least one alternative which is less costly than the proposed CDM project activity.	VVM	107	Not applicable.	OK	OK
ii. The proposed CDM project activity is less economically or financially attractive than at least one other credible and realistic alternative.	VVM	107	Not applicable.	OK	OK
iii. The financial returns of the proposed CDM project activity would be insufficient to justify the required investment.	VVM	107	Yes.	OK	OK
d. Is the period of assessment limited to the proposed crediting period of the CDM project activity?	EB 41	Ann 45	Yes. The period of assessment covers the 3x7 crediting period of the Project.	OK	OK

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e. Does the project IRR and equity IRR calculations reflect the period of expected operation of the underlying project activity (technical lifetime), or - if a shorter period is chosen - include the fair value of the project activity assets at the end of the assessment period?	EB 41	Ann 45	Yes. 19 years for operation period as per the approved FSR.	OK	OK
f. Does the IRR calculation include the cost of major maintenance and/or rehabilitation if these are expected to be incurred during the period of assessment?	EB 41	Ann 45	Yes	OK	OK
g. Do the project participants justify the appropriateness of the period of assessment in the context of the underlying project activity, without reference to the proposed CDM crediting period?	EB 41	Ann 45	Yes	OK	OK
h. Does the cash flow in the final year include a fair value of the project activity assets at the end of the assessment period?	EB 41	Ann 45	4% same as that in the approved FSR.	OK	OK
i. Has the fair value been calculated in accordance with local accounting regulations where available, or international best practice?	EB 41	Ann 45	Yes. According to the relevant national tax regulation.	OK	OK
j. Was a thorough assessment of all parameters and assumptions used in calculating the relevant financial indicator, and determine the accuracy and suitability of these parameters using the available evidence and expertise in relevant accounting practices conducted?	VVM	109	Yes. All parameters and assumption used in calculating the relevant financial indicator are accurate and suitable.	OK	OK
k. Were the parameters cross-checked against third-	VVM	109	Yes	OK	OK

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl.	Final Concl.
party or publicly available sources, such as invoices or price indices?					
l. Were feasibility reports, public announcements and annual financial reports related to the proposed CDM project activity and the project participants reviewed?	VVM	109	The approved FSR has been reviewed.	OK	OK
m. Was the correctness of computations carried out and documented by the project participants assessed?	VVM	109	Yes	OK	OK
n. Was the sensitivity analysis by the project participants to determine under what conditions variations in the result would occur, and the likelihood of these conditions assessed?	VVM	109	Pending on (5.q) above	Pending	OK
o. To determine this, was it assessed whether it is reasonable to assume that no investment would be made at a rate of return lower than the benchmark by:	VVM	110			
i. assessing previous investment decisions by the project participants involved?	VVM	110	Pending on (3.W.iii) above	Pending	OK
ii. determining whether the same benchmark has been applied?	VVM	110	The benchmark of 8% is widely used for wind power projects similar to the Project in China.	OK	OK
iii. determining if there are verifiable circumstances that have led to a change in the benchmark?	VVM	110	No other benchmark rate can be applied in China power sector.	OK	OK
p. Did the project participants rely on values from Feasibility Study Reports (FSR) that are approved by national authorities for proposed project activities?	VVM	111	Yes	OK	OK
q. If yes: (EB38 para.54)	VVM	111			

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a. has the FSR 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?	VVM	111	Yes	OK	OK
b. Are the values used in the PDD and associated annexes fully consistent with the FSR? If not, was the appropriateness of the values validated?	VVM	111	Residue value is 4% in PDD; it is the same as the value in FSR. It is in line with relevant regulations in China.	OK	OK
c. On the basis of its specific local and sectoral expertise, is confirmation provided, by cross-checking or other appropriate manner, that the input values from the FSR are valid and applicable at the time of the investment decision?	VVM	111	Yes. The total O&M cost is same as FSR. It is valid and applicable as per the 'Code on compiling feasibility study report of wind power projects' requirements. The signed purchase contracts will be checked. Price regulation issued by NDRC on 23/07/2008 (Code: Fa Gai Jia Ge [2008] No.1876) has been checked and confirmed it is appropriate and conservative. For further crosscheck the total investment, the purchase contracts of key equipment and installation engineering are also required to be provided to BVC.	CL-10	OK
D. Barrier analysis					
a. Has barrier analysis been used to demonstrated the additionality of the proposed CDM project activity?	VVM	113	Not applied in the PDD.	OK	OK

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<i>E. Common practice analysis</i>					
a. Is this a large-scale, or first-of-its kind small-scale project activity?	VVM	117	a large-scale	OK	OK
b. If yes, was common practice analysis carried out as a credibility check of the other available evidence used by the project participants to demonstrate additionality?	VVM	117	Yes.	OK	OK
c. Was it assessed whether the geographical scope (e.g. defined region) of the common practice analysis is appropriate for the assessment of common practice related to the project activity's technology or industry type? (For certain technologies the relevant region for assessment will be local and for others it may be transnational/global).	VVM	118	Pending on (5.t) above	Pending	OK
d. Was a region other than the entire host country chosen?	VVM	118	Yes. Heilongjiang province	OK	OK
e. If yes, was the explanation why this region is more appropriate assessed?	VVM	118	Pending on (5.t) above	Pending	OK
f. Using official sources and local and industry expertise, was it determined to what extent similar and operational projects (e.g., using similar technology or practice), other than CDM project activities, have been undertaken in the defined region?	VVM	118	Only two similar projects as PDD listed can be identified in Heilongjiang province.	OK	OK
g. Are similar and operational projects, other than CDM project activities, already "widely observed and	VVM	118	Not found through this analysis.	OK	OK

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl.	Final Concl.
commonly carried out” in the defined region?					
h. If yes, was it assessed whether there are essential distinctions between the proposed CDM project activity and the other similar activities?	VVM	118	Not applicable.	OK	OK
6. Monitoring plan					
a. Does the PDD include a monitoring plan?	VVM	120	Yes.	OK	OK
b. Is this monitoring plan based on the approved monitoring methodology applied to the proposed CDM project activity?	VVM	120	Yes.	OK	OK
c. Were the list of parameters required by the the selected methodology identified?	VVM	121	Yes	OK	OK
d. Does the monitoring plan contains all necessary parameters?	VVM	121	Yes.	OK	OK
e. Are the parameters clearly described?	VVM	121	Yes	OK	OK
f. Does the means of monitoring described in the plan comply with the requirements of the methodology?	VVM	121	Yes	OK	OK
g. Specific questions per methodology regarding parameters.			Yes	OK	OK
h. Are the monitoring arrangements described in the monitoring plan feasible within the project design?	VVM	121	Yes	OK	OK
i. Are the following means of implementation of the monitoring plan sufficient to ensure that the emission reductions achieved by/resulting from the proposed CDM project activity can be reported ex post and verified:	VVM	121			

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i. data management procedures?	VVM	121	Yes. The procedures are appropriate and practicable.	OK	OK
ii. quality assurance procedures?	VVM	121	Yes. The procedures are appropriate and practicable.	OK	OK
iii. quality control procedures?	VVM	121	Yes. The procedures are appropriate and practicable.	OK	OK
7. Sustainable development					
a. Does the CDM project activity assists Parties not included in Annex I to the Convention in achieving sustainable development?	VVM	123	Pending on LoA from DNA of China	Pending	OK
b. Does the letter of approval by the DNA of the host Party confirm the contribution of the proposed CDM project activity to the sustainable development of the host Party?	VVM	124	Pending on LoA from DNA of China	Pending	OK
8. Local stakeholder consultation					
a. Were local stakeholders (public, including individuals, groups or communities affected, of likely to be affected, by the proposed CDM project activity or actions leading to the implementation of such an activity) invited by the PPs to comment on the proposed CDM project activity prior to the publication of the PDD on the UNFCCC website?	VVM	126	Yes. The local stakeholders including local villagers, officers of Environment Protection, Power Grid, and DRC were invited by the PP. 30 pieces of questionnaires were distributed and 100% were returned. While the PDD is silent about when the survey was implemented.	CL-11	OK

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl.	Final Concl.
b. Have comments by local stakeholders that can reasonably be considered relevant for the proposed CDM project activity been invited?	VVM	127	Yes. The potential impacts including noise, waste water and electromagnetic interference were considered seriously.	OK	OK
c. Is the summary of the comments received as provided in the PDD complete?	VVM	127	Yes. Sampled questionnaires have been cross-checked with the description in the PDD -E.7.2.	OK	OK
d. Have the project participants taken due account of any comments received and described this process in the PDD?	VVM	127	Yes. PDD - E.7.3. There will be no significant negative impacts after specific measures taken as the conclusion of the approved EIA.	OK	OK
9. Environmental impacts					
a. Have the project participants submitted documentation on the analysis of the environmental impacts of the project activity?	VVM	129	Yes. EIA and its approval made by local EPA are presented.	OK	OK
b. Have the project participants undertaken an analysis of environmental impacts?	VVM	130	Yes. EIA work out by qualified Heilongjiang Environmental Materials Supply Statoin in Sep. 2007.	OK	OK
c. Does the host Party require an environmental impact assessment?	VVM	130	Yes.	OK	OK



CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl.	Final Concl.
d. If yes, have the environmental impact assessment approved by local government?	VVM	130	EIA was approved by Heilongjiang Environmental Protection Bureau on 28/12/2007.	OK	OK

Table 2 Resolution of Corrective Action and Clarification Requests

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 1	Summary of project owner response	Validation team conclusion
CAR-1 Please provide LoA from DNA of China	1.A	LoA from DNA of China has been provided.	The LoA is verified substantial. Hence the CAR-1 is closed.
CAR-2 Please provide LoA from DNA of Switzerland.	1.A	LoA from DNA of Switzerland has been provided.	The LoA is verified substantial. Hence the CAR-2 is closed.
CAR-3 Please demonstrate in Section B.5 how the benefits of the CDM were seriously considered prior to the starting date and provide relevant evidence.	3.W.iii	The relevant content has been added into the table and the evidences have been provided.	The prior consideration of CDM and the evidences have been verified to be appropriate. Hence the CAR-3 is closed.
CAR-4 It should be demonstrated in the PDD whether the variables will exceed -10% or +10% so as to the IRR of the project could reach the benchmark.	5.q	It has been demonstrated in the PDD that to which extent the benchmark would be reached and also justified their possibility.	The possibility of the fluctuation of the variables has been demonstrated and verified to be appropriate. Hence CAR-4 is closed.
CAR-5 The rationale of criteria to choose similar project activities is required to be represented.	5.t	The rationale of criteria to choose similar project activities has been represented in PDD.	The rationale of criteria to choose similar project activities has been demonstrated and verified to be appropriate. So CAR-5 is closed.

CL-1 Vestas 58-850KW WTG is applied in the proposed project. However, this type of WTG is not represented in the reference of www.vestas.com.	3. H. i	Vestas 52-850kW WTG is the turbine applied in the project. The performance parameters of Vestas 52-850kW WTG can be found in the www.vestas.com.	The revised PDD has been checked and found satisfactory. Hence CL-1 can be closed.
CL-2 The load factors and efficiencies need to be delineated in Section A.4.3.	3. H. iii	The load factor and efficiency have been delineated.	The revised PDD has been checked and found satisfactory. Hence CL-2 can be closed.
CL-3 The “Tool to calculate the emission factor for an electricity system” latest version 01.1 is required to be applied in Section B.1 of PDD rather than version 01. Please revise it accordingly.	3.K.ii	It has been revised according to the latest version of the “Tool to calculate the emission factor for an electricity system”.	The revision is verified to be appropriate. Hence the CL-3 is closed.
CL-4 The complete expression of the abbreviation ‘EPA’ in the timeline table needs to be represented.	3.W.ii	EPA stands for Equipment Purchasing Agreement. The complete name has been presented in PDD accordingly.	Response to CL-4 is satisfactory and the same is closed.
CL-5 The operational lifetime and the first crediting period need to be displayed in year and month.	3. X	The operational lifetime and the first crediting period have been displayed in year and month.	The revision is verified to be appropriate. Hence the CL-5 is closed.
CL-6 A more feasible starting date of the first crediting period needs to be identified.	3.AA	The starting date of the first crediting period has been modified.	Response to CL-6 is satisfactory and the revision is found satisfactory. Hence CL-6 is closed.
CL-7 References need to be represented to demonstrate the exclusion of solar PV, geothermal, biomass and hydropower.	5.c.1	It has further been demonstrated to the exclusion of solar PV, geothermal, biomass and hydropower.	The demonstration of exclusion of other renewable power has been revised and found appropriate. Hence CL-7 is closed.

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CL-8 The link of footnote (13) www.china5e.com/news/power/200208/200208220027.html is not available.	5.u	The evidence has been changed, so has the footnote been updated.	The revision is verified to be appropriate. Hence the CL-8 is closed.
CL-9 The Emission Reduction Purchase Agreement needs to be provided to BVC.	5.A.h.ii.b	The Emission Reduction Purchase Agreement has been provided.	Response to CL-9 is satisfactory and the same is closed.
CL-10 The purchase contracts of key equipment and installation engineering services are required to be provided to BVC.	5.C.q.c	The contracts have been provided.	The contracts have been verified to be appropriate. The total costs of the contracts are higher than that estimated in FSR. So the value of total investment applied in PDD is reasonable and conservative. Hence CL-10 is closed.
CL-11 Please represent when the local stakeholders survey was implemented in PDD.	8.a	The local stakeholders survey was implemented on May 10th, 2008.	The response to CL-11 is satisfactory and verified appropriate. Hence CL-11 is closed.

VVM-CLEAN DEVELOPMENT MECHANISM VALIDATION AND VERIFICATION MANUAL-Version 01-EB 44, Annex 03- dated 28/11/2008

TOOL FOR THE DEMONSTRATION AND ASSESSMENT OF ADDITIONALITY-Version 5-dated 26/08/2008

EB 41 Annex 45- GUIDANCE ON THE ASSESSMENT OF INVESTMENT ANALYSIS-Version 02-dated 26/08/2008