VALIDATION REPORT

ENERGY SYSTEMS INTERNATIONAL B.V.

VALIDATION OF THE

LIAONING JULONGHU WIND FARM PROJECT

REPORT NO. CHINA-VAL/6027/2010

REVISION NO. 01

BUREAU VERITAS CERTIFICATION

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VALIDATION REPORT

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24/11/2010	Bureau Veritas Certification Holding SAS
Client:	**Client ref.:**
Energy Systems International B.V.	Mr. Francois Joubert

Summary:

Bureau Veritas Certification has made the validation of the Liaoning Julonghu Wind Farm Project owned by Fuxin Julonghu Wind Power Co., Ltd. located in Houxinqiu Town, Zhangwu County, Fuxin City, Liaoning 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 11 and meets the relevant UNFCCC requirements for the CDM and the relevant host country criteria.

Report No.:	Subject Group:
BVC/CHINA-Val/6027/2010	CDM

Project title:

Liaoning Julonghu Wind Farm Project

Work carried out by:

Tim Wang Wei -Team Leader

Lucas Dou Yonghua -Team Member

Work verified by:

Li Yiting – Internal Technical Reviewer

Work approved by:

Flavio Gomes

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Indexing terms

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Abbreviations

BVC	Bureau Veritas Certification
BM	Build Margin
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CER	Certified Emission Reductions
CL	Clarification Request
CM	Combined Margin
CO_2	Carbon Dioxide
CWEA	Chinese Wind Energy Association
DNA	Designated National Authority
DOE	Designated Operational Entity
DRC	Development & Reform Commission
EIA	Environmental Impact Assessment
EPA	Environmental Protection Agency
ERPA	Emission Reduction Purchase Agreement
ESI	Energy Systems International B.V.
FSR	Feasibility Study Report
GHG	Green House Gas(es)
GSP	Global Stakeholders Process
IPCC	Intergovernmental Panel on Climate Change
IRR	Internal Rate of Return
ISO	International Organization for Standardization
LoA	Letter of Approval
MP	Monitoring Plan
NDRC	National Development and Reform Commission
NGO	Non Government Organization
ODA	Official Development Assistance
OM	Operation Margin
PDD	Project Design Document
PLF	Plant Load Factor
PP	Project Participant
PPA	Power Purchase Agreement
PRC	Peoples' Republic of China
UNFCCC	United Nations Framework Convention on Climate Change
VROM	The Ministry of Housing, Spatial Planning and the Environment
VVM	Validation & Verification Manual
WTG	Wind Power Generator

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1 INTRODUCTION

Energy Systems International B.V. (hereinafter called "**ESI**") has commissioned Bureau Veritas Certification (hereinafter called "**BVC**") to validate its CDM project Liaoning Julonghu Wind Farm Project (hereinafter called "**the Project**"), owned by Fuxin Julonghu Wind Power Co., Ltd. (hereinafter referred to as "**the PP**") in Houxinqiu Town, Zhangwu County, Fuxin City, Liaoning 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, as well as the host country criteria.

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:

Mr. Tim Wang Wei Team Leader,

Bureau Veritas Certification, Climate Change Lead Verifier

Mr. Lucas Dou Yonghua Team Member,

Bureau Veritas Certification, Climate Change Lead 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 01.2 of the Clean Development Mechanism Validation and Verification Manual /Ref-1/, issued by the Executive Board at its 55th meeting on 30/07/2010. The protocol shows, in a transparent manner, criteria (requirements), means of validation 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 completed validation protocol is enclosed in Appendix A to this report.

2.1 Review of Documents

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

To address Bureau Veritas Certification corrective action and clarification requests, the consultant revised the PDD and resubmitted it on 15/09/2010 and the validation conclusion presented in this report relate to the project as described in the PDD version 02 /2/.

2.2 Follow-up Interviews

On 10/08/2010, Mr. Lucas Dou Yonghua, Climate Change Lead Verifier of BVC performed interviews with project stakeholders to confirm selected information and to resolve issues identified in the document review. Representatives of both parties and local stakeholders were interviewed (see Section **6-Reference**) /59/. The main topics of the interviews are summarized in Table 1.

Table 1 Interview topics

Interviewed organization	Interview topics
Fuxin Julonghu Wind Power Co., Ltd. (The PP)	↳ 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, Letter of Approvals status) ↳ Wind power development in the area ↳ Government policies related to wind power projects
Local Stakeholder	↳ Project background in details ↳ Stakeholder comments ↳ Social and environmental impact of the project
Energy Systems International B.V. (CERs buyer)	↳ 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.

BVC 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 Appendix **A**.

2.4 Internal Quality Control

The validation report underwent a technical review before requesting registration of the project activity. The technical review was performed by a qualified technical reviewer.

3 VALIDATION CONCLUSIONS

In the following sections, the conclusions 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 in 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 **1** Corrective Action Request and **12** Clarification Requests.

The CAR and CLs were closed based on adequate responses from the Project Participant(s) which meet the applicable requirements. They have been reassessed before their formal acceptance and closure.

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

3.1 Approval (49-50)

The letters of approval (LoA) have been received and the following support documentations have been verified by BVC:

- The LoA issued by China's DNA /3/, National Development and Reform Commission (NDRC) of the People's Republic of China in Apr. 2010, authorizing Fuxin Julonghu Wind Power Co., Ltd. as the Project Participant for the Project.
- The LoA issued by Netherlands DNA /4/, the Ministry of Housing, Spatial Planning and the Environment (VROM) of Netherlands in Nov. 2010, authorizing Energy Systems International B.V. as the Project Participant for the Project.

BVC received these letters from the project participants and does not doubt their authenticity.

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

The title and contents of the letters of approval refer to the precise proposed CDM project activity title in the PDD being submitted for registration.

✌ Bureau Veritas Certification considers the letters of approval are in accordance with **para. 45 - 48 /VVM.**

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

✍ Feasibility Study Report (FSR) approval issued by Development and Reform Commission of Liaoning Province on 13/04/2009 (Code: LFGNY [2009] No.297) /8/.

✍ Environment Impact Assessment (EIA) approval issued by Environmental Protection Bureau of Liaoning Province on 05/02/2009 (Code: LHSB [2009] No.2) /9/.

✍ The Project is a grid connected wind power and the development of such grid connected wind power is listed in the Renewable Energy Law /10/.

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**, BVC hereby confirms that by checking relevant LoAs and 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=NL

3.3 Project design document (57)

BVC 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 Changes in the Project Activity

During the site visit, no physical change was observed in project design as compared to details mentioned in the web hosted PDD.

The changes and major differences between the PDD version 02 and webhosted PDD are listed below.

Items	PDD version 01 (webhosted)	PDD version 02	Validation opinion
Geographical coordinates	east longitude of 122°41'15''-122°46'08'' and north latitude of 42°31′30″~42°33′40″	east longitude of 122°41'14''- 122°46'07'' and north latitude of 42°31′30″~42°33′40″	There is a typo on the geographical coordinates in the PDD version 01. And the correct one was specified in the PDD version 02 which is same with the approved FSR and the Notifications to EB and China DNA.
Baseline alternatives	✓ The continuation of the current situation (electricity generation by grid-connected power plants); ✓ The Project undertaken without being registered as a CDM project activity;	✓Construction of a thermal power plant with an equivalent amount of annual electricity generation; ✓ The Project undertaken without being registered as a CDM project activity; ✓ Construction of a power plant using other sources of renewable energy with equivalent amount of annual electricity generation; ✓Provision of an	All realistic and credible alternative scenarios were analyzed in PDD version 02 as per the Tool for the demonstration and assessment of additionality (ver 05.2).

		equivalent amount of annual power output by Northeast China Grid which the Project is connected to.	

3.5 Project description (64)

The Project is sited in Houxinqiu Town, Zhangwu County, Fuxin City, Liaoning Province, P. R. China, which has geographical coordinates at north latitude 42°31′30″-42°33′40″ (i.e. 42.5250°-42.5611°) and east longitude 122°41’14’’-122°46’07’’ (i.e. 122.6872°-122.7686°).

The total installed capacity of the Project is 49.5MW, consisting of 33 wind turbines, each with the unit capacity of 1500kW. The net electricity generated by the Project is 104,115MWh with a plant load factor (PLF) of 24% based on the information of the approved FSR, which was conducted by a third party and approved by local DRC. Therefore, BVC confirms that the PLF defined in the approved FSR complies with the requirement of “Guidelines for the Reporting and Validation of Plant Load Factors ver.1” (EB48, annex 11) /Ref-9/. The Project will result in annual emission reductions of 107,033tCO_2e during the first crediting period.

In the absence of the Project, equivalent amount of annual power output of the Project will be generated and supplied by Northeast China Grid, which is dominated by the fossil fuel-fired power plants; this is the 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 the analysis presented in the PDD version 02.

The overall layout of the Project is sound, and the geographical (Houxinqiu Town, Zhangwu County, Fuxin City, Liaoning Province, P. R. China) and temporal (7 years) boundary of the Project is 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.

The processes undertaken by BVC to validate the accuracy and completeness of the Project description include the document review and crosscheck with the approved FSR and relevant approvals issued by local governments.

✌ Complying with para.**64/VVM**, BVC hereby confirms that the project description in PDD is accurate and complete in all respects.

3.6 Baseline and monitoring methodology

3.6.1 General requirement (76-77)

The Project uses the approved consolidated baseline and monitoring methodology ACM0002 version 11– *“Consolidated baseline methodology for grid-connected electricity generation from renewable sources”* dated 12/02/2010 /Ref-2/.

By on-site visiting and interviewing with the PP, BVC confirms that the Project complies with the applicability conditions of methodology ACM0002 version 11:

- The Project is a grid-connected renewable wind power project that installs a new power plant at a site where no renewable power plant was operated prior to the implementation of the Project (green-field project);

- The Project does not involve switching from fossil fuels to renewable energy at the site of the Project.

BVC hereby confirms that the selected baseline and monitoring methodology, tool and other methodology component are previously approved by the CDM Executive Board, and are applicable to the Project, which complies with all the applicability conditions therein.

Based on the on-site assessment, BVC hereby confirms that, as a result of the implementation of the Project, there are no greenhouse gas emissions occurring within the 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.

3.6.2 Project boundary (80)

BVC validated the project boundary by:

(a) Assessing the relevant documents including FSR and Grid Connection Agreement /43/.

(b) Observing the physical site and equipments used in the process.

The spatial extent of the project boundary is clearly defined in line with ACM0002 version 11 as the physical, geographical site of Project and all other power plants connected physically to the Northeast China Grid that the Project is connected to. The greenhouse gases and emission sources included in the project boundary are CO_2 emissions from the electricity generation in fossil fuel fired power plants that are displaced due to the project activity.

✌ Complying with para.**80/VVM**, BVC 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 NDRC (China's DNA) on 02/07/2009 (hereafter called "*Notification of China-Grid EF*") /11/ and the Grid Connection Agreement. During on-site visit, via observations of the physical site, BVC hereby confirms that the identified boundary and the selected sources and gases are justified for the Project.

3.6.3 Baseline identification (87-88)

The Project is the installation of a newly built and grid-connected renewable power plant that delivers the generated electricity to the Northeast China Grid, hence, according to methodology ACM0002 version 11, the baseline scenario is determined properly as:

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 02 (hereinafter called "*Tool-Grid EF*") /Ref-3/.

According to the "*Notification of China-Grid EF*", the delineation of grid boundary of the Project is the Northeast China Grid. Furthermore, the baseline of the Project determined in the PDD i.e. "the provision of an equivalent amount of annual power output by Northeast China Grid which the Project is connect to" is transparent and deemed to be reasonable.

✌ Complying with para. **87 and 88/VVM**, BVC 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 sector 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.

3.6.4 Algorithms and/or formulae used to determine emission reductions (92-93)

The steps taken to assess the requirement outlined in paragraph 89 the VVM /Ref-1/ are described below:

According to the baseline methodology ACM0002 version 11 and "*Tool-Grid EF*" version 02, the baseline emission factor was calculated as following seven steps. In addition, the calculation in the PDD refers to the latest "*Notification of China-Grid EF*" published by China's DNA on 02/07/2009 which is most recent information available at the time of CDM-PDD submission to BVC for validation.

As per "*Tool-Grid EF*" version 02, seven steps therein are applied to calculate the emission factor:

Step 1.-Identify the relevant electricity systems.

Northeast China Grid is selected as the connected electric power system of the Project as per "*Notification of China-Grid EF*" issued by China's DNA at the time of commencing this validation. And there was no net electricity import from other regional power grid during 2005 to 2007 /11/.

✌ BVC was able to confirm that the identified electric power system of the Project is consistent with "*Notification of China-Grid EF*". The geographical extent of the project activity system has been documented transparently and all grid power plants connected to the system have been identified.

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

Option I (only grid power plants are included in the calculation) provided in "*Tool-Grid EF*" version 02 is chosen to calculate the operating margin and build margin emission factor.

Step 3.-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 (2003 to 2007).

✌ Only grid power plants are included in the calculation. BVC 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. A 3-year generation-weighted average from 2005 to 2007, based on the most recent data from *China Electric Power Yearbook* from 2006 to 2008 (published annually) and *China Energy Statistical Yearbook* from 2006 to 2008 (published annually)/12//13/, which are the data available at the time of submission of the CDM-PDD to the BVC for validation, has been applied and calculated correctly.

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

Option B, Based on data on the total net electricity generation of all power plants serving the system and the fuel types and total fuel consumption of the project electricity system, is used to calculate simple OM emission factor. The data from 2005 to 2007 on electricity generation and auxiliary electricity consumption are obtained from *China Electric Power Yearbook* from 2006 to 2008 (published annually). The data from 2005 to 2007 on different fuel consumptions for power generation and the net caloric values of the fuels are obtained from the *China Energy Statistical Yearbook* from 2006 to 2008 (published annually) /13/. The emission factors of the fuels adopted are obtained from Table 1-3 and Table 1-4 of the" *2006 IPCC Guidelines for National Greenhouse Gas Inventories" Volume 2*.

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 BVC confirms that the calculation can be replicated using the data and parameter provided in the PDD.

Step 5.-Identify the group 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-connected electricity.

2) Use of weights estimated using installed capacity in place of annual electricity generation.

✌ BVC hereby confirms that the data source and approaches taken are deemed reliable.

Step 6.-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 recent capacity addition which exceeds 20% of the 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.

✌ BVC hereby confirms that the data sources are deemed reliable and calculation is appropriate.

Step 7.-Calculate the combined margin (CM) emissions factor.

According to the "*Tool-Grid EF*", the default weights ω_{OM} = 0.75 for Operating Margin and ω_{BM} = 0.25 for Build Margin in the first crediting period of wind power projects are adopted.

As per baseline methodology ACM0002 version 11 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 (tCO_2) are equal to baseline emission factor $EF_{grid,CM,y}$ (tCO_2/MWh) times the net electricity supplied to the grid $EG_{PJ,y}$ (MWh). For Greenfield project, $EG_{PJ,y}= EG_{facility,y}$

2) Project Emissions: the project emissions for wind projects are regarded as zero as per methodology ACM002 version 11.

3) Leakage: no leakage has to be considered as per methodology ACM002 version 11.

4) Emission reductions:

$$ER_y= BE_y- PE_y= BE_y= EF_{grid,\ CM,\ y} \times EG_{facility,y}$$

With reference to the "Tool-Grid EF", the OM emission factor ($EF_{grid,OM,y}$) of Northeast China Grid is calculated as 1.1293tCO_2e/MWh. The BM emission factor ($EF_{grid,BM,y}$) of the Northeast China Grid is calculated as 0.7242tCO_2e/MWh.

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

$$EF_{grid,CM,y} = 1.1293 \times 0.75 + 0.7242 \times 0.25 = 1.028025 tCO_2e/MWh$$

According to the estimated annual electricity delivered to the grid i.e. 104,115MWh, the estimated annual emission reductions of the Project is 107,033tCO_2e during the first crediting period which represents a reasonable estimation using the assumptions given by the Project.

✌ Complying with <u>para.**92 and 93/VVM**</u>, BVC 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;

(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, leakage and emission reductions;

(e) All estimates of the baseline emissions can be replicated using the data and parameter values provided in the PDD.

3.7 Additionality of a project activity (97)

The steps taken and sources of information used, to cross-check the information contained in the PDD on this matter are described below:

"*Tool for Demonstration and Assessment of Additionality" version 5.2* /<u>Ref-4/</u> has been employed for demonstrating and assessing the additionality of the Project. The

additionality of the Project has been carefully checked, in doing so BVC has put the main focus on the following issues:

3.7.1 Prior consideration of the clean development mechanism (104)

3.7.1.1 Historical information on project timeline

It has been demonstrated by the timeline of events of the Project that the CDM revenues were seriously considered in the decision to proceed with the Project 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	Events	Evidence verified
Feb. 2009	FSR finalized, in which the Project IRR (post tax) calculated without CER revenues is lower than the benchmark of 8%, thus the Project is financial unattractive.	/7/
11/05/2009	The Project Owner decided to go through the CDM process for the Project.	/14/
20/06/2009	Civil Engineering Contract was signed (*Start date of the Project*).	/15/
26/06/2009	Construction of the Project was started.	/16/
29/06/2009	Equipment Purchase Agreement was signed.	/17/
29/09/2009	Emission Reduction Purchase Agreement was signed.	/18/
16/12/2009	Submitted the notification of the commencement of the project activity and the intention to seek CDM status to NDRC.	/5/
17/12/2009	Submitted the notification of the commencement of the project activity and the intention to seek CDM status to EB.	/6/
17/12/2009	Notification was accepted by EB.	/6/
18/12/2009	Notification was approved by NDRC.	/5/
13/04/2010	Obtained the LoA of China DNA.	/3/
13/06/2010	PDD was published for global stakeholder consultation.	/19/

3.7.1.2 Prior consideration of CDM

From above table, BVC was able to verify that the start date of the Project determined as 20/06/2009 is appropriate (the signing date of Civil Engineering Contract), which is the earliest of the dates at which the implementation or construction or real action of the Project began. This is in accordance with the latest CDM glossary /Ref-5/.

The Project is a new project according to the definition in the "*Guidelines on the demonstration and assessment of prior consideration of the CDM*" version 03 (Annex 22, EB 49, 11/09/2009) (hereinafter called "*Guidelines-Prior Consideration*") /Ref-6/, since the start date of the Project is after 02/08/2008. And the starting date of the Project is prior to

the date of the PDD version 01 was published for global stakeholder consultation (GSP) on 13/06/2010 /19/.

BVC has assessed the PP's prior consideration of CDM through review of the notifications to China's DNA and UNFCCC secretariat to inform the commencement of the Project and the intention to seek CDM status, and confirmed that the notifications were sent to and accepted by China's DNA and UNFCCC within six months of the start date of the Project which is in line with the "*Guidelines-Prior Consideration*".

BVC has also checked all reliable evidence from the PP, include Board Decision, ERPA and LoAs, and was able to verify that all documents are substantial and authentic at that situation in the host country.

According to the latest *Glossary of CDM Terms* Version 05 and "*Guidelines-Prior Consideration*", BVC confirms that the start date of the Project in the PDD is appropriate and reasonable at that situation.

✌ Complying with para.**99-102/VVM**, BVC has verified this issue, which could significantly influence the additionality of the Project, and confirms 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 are the objective foundation on which BVC developed its validation opinions.

3.7.2 Identification of alternatives (107)

The plausible and credible alternatives to the Project were identified as per the "*Tool-Additionality*" Version 05.2:

Alternative I	Construction of a thermal power plant with an equivalent amount of annual electricity generation;
Alternative II	The Project undertaken without being registered as a CDM project activity;
Alternative III	Construction of a power plant using other sources of renewable energy with equivalent amount of annual electricity generation;
Alternative IV	Provision of an equivalent amount of annual power output by Northeast China Grid which the Project is connected to.

Alternative (I) was correctly eliminated through examination of the laws or regulations in China. 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 /20/, 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 (III) was eliminated by analyzing the feasibility of development of local renewable energy resources including solar PV, biomass and hydropower. Realizing the technology development status, power generation from solar PV and biomass is not feasible without the support from the national policies /21//23/. Furthermore, due to lack of resources of hydropower in project area, electricity generation from hydropower is unfeasible /22/.

✌ Complying with para.**107/VVM**, BVC was able to verify that the alternatives identified to the Project are credible and complete, and found satisfactory to exclude alternatives (I) and (III). Hence **Step 1** of "*Tool-Additionality*" was applied appropriately.

3.7.3 Investment analysis (114)

Considering the baseline scenario identified above, the option III, the Benchmark Analysis, is applied in the investment analysis as per the *Sub-step 2b* of **Step 2** of "*Tool-Additionality*", which is in accordance with "*Guidelines on the Assessment of Investment Analysis*" (Ver. 3.1) /Ref-7/.

Project IRR of 8% (after-tax) was employed by the Project as benchmark, which is sourced from the "*Interim Rules on Economic Assessment of Electric Power Engineering Retrofit Projects*" /24/ issued by State Power Corporation of China in 2002. BVC has verified this benchmark and confirms that it is widely applied in Chinese power generation industries; therefore, BVC confirms that the benchmark is suitable for the Project.

Before reviewing the IRR calculation, BVC has validated the basic parameters listed in the PDD in accordance with the guidance of **Para. 113/VVM**.

BVC has verified the IRR calculation /25/ and found that the input values are fully taken from the approved FSR which was carried out by an authorized third party viz. Shanxi Electric Power Exploration & Design Institute granted as a top class design institute in the power industry by the government of China.

According to the relevant evidence provided, BVC confirms that the PP's final decision to proceed with the investment in the Project has been made based on the approved FSR, which was finalized in **Feb. 2009**. Only three months later, based on the conclusion in the FSR, PP decided to invest the Project on **11/05/2009** /14/ with consideration of CDM revenues. Given this relative short period of time between FSR and the decision to proceed with the Project, BVC was therefore confident that it is unlikely in the context of the underlying Project that the input values would have materially changed, which is in line with the **Para. 113 (a)/VVM.**

As mentioned above, all input parameters used in the financial analysis are taken from the approved FSR. BVC was therefore of the opinion that the investment analysis is in accordance with **Para 113(b) /VVM**.

Furthermore, BVC has reviewed the IRR calculation sheet /25/ and crosschecked the input values with relevant regulations/laws/evidences and confirms that:

- The **operation period** of 20 years were based on the lifetime of the main equipments according to the Equipment Purchase Agreement /17/ and selected reasonably following the requirements of Para.3 of "*Guidelines on the Assessment of Investment Analysis*" ver. 03.1.
- The **residual value rate** of 5% was selected reasonably following relevant regulation in China, i.e. *Implementation Regulations of the Enterprise Income Tax Law of the People's Republic of China* (Decree No. 512 of the State Council) issued on 06/12/2007 and effective from 01/01/2008 /50/. BVC has also checked the FSR and confirmed that the depreciation period of 15 years and depreciation rate 6.33% were correctly chosen in accordance with *Implementing Regulations for the Enterprise Income Tax Law of P.R. China* /50/.
- The **total static investment** in the approved FSR is 506.73 millions RMB and the unit cost of the Project is 10,237RMB/kW (about 1,023 €/kW).
  - According to *China Wind Power Report 2008* /27/ published by China Environmental Science Press in Oct. 2008, the unit cost of wind power projects varies from 800€/kW to 1150€/kW, and the investment of the Project falls in this range and was verified appropriate.

- BVC has checked the total static investment with the already signed contracts of key equipments and engineering /15//17//28//29//30//31//32//33/, and found that the total price indicated in the signed contracts is 461.46167 millions RMB, which is 1.32% higher than the same parts in the approved FSR and accounts 91.1% of the total statistic investment in the approved FSR.
- Furthermore, BVC compared the unit total static investment with registered CDM wind power projects in Liaoning Province and found that the unit cost of the Project (10,237RMB/kW) is within the reasonable range from 8,306RMB/kW (UNFCCC Ref. 2817) to 10,485 RMB/kW (UNFCCC Ref. 3112).

Therefore, BVC can confirm that the assumption for the total static investment is appropriate.

Table 3 Statistics of the registered CDM wind projects in Liaoning Province

Reg. No.	Project Title	Capacity (MW)	Total static investment (10^4RMB)	Unit total static investment (RMB/kW)	PLF	Average annual O&M expenses (10^4RMB)	Annual output (MWh)	Unit annual O&M expenses (RMB/kWh)
0537	Liaoning Kangping 24.65MW Wind Farm Project	24.65	22,843	9,267	25.11%	-	-	-
0539	Liaoning Zhangwu 24.65MW Wind Farm Project	24.65	22,729	9,221	25.06%	-	-	-
0883	Liaoning Changtu Wind Farm Project	49.5	41,864	8,457	20.96%	1000.00	90,886	0.1100
1446	Liaoning Xingcheng Haibin Wind Farm Project	49.5	44,113	8,912	25.62%	994.85	111,077	0.0896
1501	Liaoning Huanren Niumaodashan Wind Power Project	24.65	22,546	9,146	24.98%	898.35	53,930	0.1666
1924	Liaoning Faku Heping Wind Power Project	49.3	43,052	8,733	24.60%	1,069.00	106,230	0.1006
1965	Liaoning Faku Wanghaisi East Wind Power Project	22.1	19,475	8,812	24.66%	865.57	47,743	0.1813
2123	Liaoning Faku Baijiagou Wind Power Project	49.5	41,169	8,317	25.02%	1,044.72	108,520	0.0963
2149	Diaobingshan New-built 49.5MW Wind Power Station Project	49.5	42,817	8,650	21.58%	1,253.00	93,555	0.1339
2223	Liaoning Faku 1st phase Wind Power Project	49.5	47,468	9,589	23.36%	998.93	101,292	0.0986
2817	Liaoning Changtu Shihu Wind Power Project	49.3	40,950	8,306	23.48%	1,292.93	101,420	0.1275
2827	Dalian Tuoshan Wafangdian Wind Farm Project	49.5	51,606	10,425	26.24%	1,597.00	113,800	0.1403
2854	Shenyang Faku Wanghaisi Wind	20.4	17,097	8,381	23.88%	421.00	42,670	0.0987

	Power Project							
2864	Liaoning Kangping Furaoshan Wind Power Project	49.5	41,457	8,375	22.48%	1,180.00	97,486	0.1210
2918	Huaneng Liaoning Fuxin Phase II Wind Farm Project	300	288,280	9,609	24.34%	6,608.00	639,490	0.1033
3031	Liaoning Changtu Taiyangshan Phase One 49.5MW Wind Farm Project	49.5	47,404	9,577	22.13%	972.00	96,000	0.1013
3112	Liaoning Province Zhangwu Mazongshan Wind Farm Project	49.5	51,903	10,485	26.06%	1,413.87	113,032	0.1251
3344	Liaoning Fuxin Gaoshanzi 100.5MW Wind Power Project	100.5	103,122	10,261	22.39%	2,210.00	197,080	0.1121
3470	Liaoning Faku Ciensi Wind Farm Project	49.3	46,851	9,503	25.5%	1,329.00	110,080	0.1207
3806	Liaoning Changtu Quantou Wind Farm Project	49.3	41,654	8,449	23.3%	1,328.05	100,751	0.1318
3862	Liaoning Qujiagou Wind Farm Project	49.5	46,250	9,343	23.8%	1,388.33	103,346	0.1343
3867	Huaneng Fuxin Phase III Wind Farm Project	100.5	102,297	10,179	24.24%	2,311.00	213,416	0.1083

Data source: http://cdm.unfccc.int/Projects/projsearch.html

- The **tariff** of 0.61RMB/kWh (incl. VAT) of the Project used in the PDD is taken from the approved FSR which was completed by a qualified 3rd party in February 2009. BVC has reviewed the relevant policies and tariff approvals of wind projects in Liaoning Province since 11/11/2001 and summarized as follows:
  - On 28/05/2003, China National Development and Reform Committee (NDRC) issued the document Fa Gai Jia Ge [2003] No.424 /34/, and the tariff of wind power projects located in Liaoning Province was approved to be 0.55 RMB/kWh (incl. VAT) in the document.
  - On 03/12/2007, NDRC issued the document Fa Gai Jia Ge [2007] No.3303 /35/, and the tariff of wind power projects located in Liaoning Province was approved as 0.61RMB/kWh (incl. VAT) in the document.
  - On 23/07/2008, NDRC issued the document Fa Gai Jia Ge [2008] No.1876 /36/, and the tariff of wind power projects located in Liaoning Province was approved as 0.61RMB/kWh (incl. VAT) in the document.
  - According to the latest tariff notification (Fa Gai Jia Ge [2009] No.1906) /37/ issued by NDRC in Jul. 2009, China wind power projects are classified to 4 categories (I, II, III and IV) according to their regional wind resource and construction status. Liaoning Province, where the Project is located, belongs to category IV, thus the tariff of wind power projects in Liaoning Province is 0.61RMB/kWh (incl. VAT).
  - Furthermore, the tariff of the Project was approved to be 0.61RMB/kWh (incl. VAT) according to the tariff approval (Code: Liao Jia Han [2010] No.154)/38/ issued by the Price Bureau of Liaoning Province on 09/12/2010.

  In summary, at the time of FSR finalization in Feb. 2009 and investment decision of the Project made on 11/05/2009, the tariff of 0.61 RMB/kWh (incl. VAT) for wind power projects in Liaoning Province was available (document [2008] No.1876 was issued on 23/07/2008) /7//14//36/. The tariff of wind power projects in Liaoning Province is stable at 0.61 RMB/kWh (incl. VAT) since 2007. And the tariff of the Project has also been approved as 0.61 RMB/kWh (incl. VAT).

  Furthermore, according to Information note on the highest tariffs applied by the executive board in its decisions on registration of projects in the People's Republic of China version 01 /Ref-8/, the highest applicable wind tariff in Liaoning Province applied by the Executive Board is 0.61 RMB/kWh (incl. VAT) too.

  Therefore, BVC can confirm that the tariff of 0.61RMB/kWh (incl. VAT) assumed in PDD is valid and applicable to the Project at the time of the investment decision and appropriate.

- The **supplied electricity** of the Project was crosschecked with the parameters of wind turbine designed by Shanxi Electric Power Exploration & Design Institute and it was based on the wind resource history data of the past 30 years (1977 to 2006) of the local area and the on-site measurement of wind resource from 01/10/2005 to 30/09/2006 as stated in approved FSR. Comparison has been made on various options including wind turbine arrangement, wind turbine model, installation height to optimize the design in the FSR. Therefore the supplied electricity is found appropriate.
  - The plant load factor of 24% (annual utilization hours of 2,103h) is based on the information of FSR, which was conducted by a third party, Shanxi

Electric Power Exploration & Design Institute, and has been approved by local DRC. Therefore, BVC confirms that the plant load factor defined in the FSR complies with the requirement of "*Guidelines for the Reporting and Validation of Plant Load Factors*" version 01 (EB48, annex 11) /Ref-9/.

- According to *China Wind Power Report 2008* /27/ published by China Environmental Science Press in Oct. 2008, annual utilization hours of wind power projects varies from 1,325h to 2,401h, and the average annual utilization hours of wind power projects in China is 1,787h. The annual utilization hours of the Project falls in this range and higher than the average value, hence was verified appropriate.
- BVC has also checked registered CDM wind power projects in Liaoning Province to crosscheck the PLF of the Project. Based on the statistics in above Table 3, it was found that the PLF of the Project is within the range of registered CDM wind projects in Liaoning Province, which is from 20.96% (UNFCCC Ref. 883) to 26.24% (UNFCCC Ref. 2827).

- BVC confirms that the **annual O&M expenses** is the sum of salary and welfare of employees, materials fee, maintenance fee, miscellaneous cost and insurance fee, which was studied based on the "*Code on Compiling Feasibility Study Report of Wind Farms*" issued by NDRC /39/ and "*Economic Evaluation Method and Parameters for Project Construction*" (version 3) /40/.
  - According to the "Wind Energy – the Facts" implemented by European Wind Energy Association (EWEA) published in Mar. 2009 /41/, the O&M expenses are generally estimated to be around 1.2 to 1.5 eurocents (c€) per kWh (0.12RMB/kWh to 0.15RMB/kWh) of wind power produced. The O&M expenses of the Project were calculated as 0.1211RMB/kWh, within above range.
  - BVC has also checked the O&M expenses of all registered CDM wind projects in Liaoning Province (above Table 3) and found that the unit annual O&M expenses range from 0.0896 RMB/kWh (UNFCCC Ref. 1446) to 0.1813 RMB/kWh (UNFCCC Ref. 1965). The unit annual O&M expenses of the Project are 0.1211RMB/kWh, within the reasonable range.

Therefore, BVC can confirm that the annual O&M expenses estimated in FSR are appropriate.

- A post-tax benchmark is applied for the investment analysis of the Project. BVC has checked the IRR calculation sheet and confirms that the interest has been taken into account in the calculation of income tax.
- The loan interest rate in the approved FSR, which was finalized by Shanxi Electric Power Exploration & Design Institute in February 2009, was determined according to commercial loans benchmark interest rates which were published on 22/12/2008. BVC has cross-checked the loan interest rate with the historical data of RMB loan interest rates published by People's Bank of China /44/ and found consistent. The equity ratio in the FSR was also approved by local DRC /8/. Therefore, BVC confirms that the debt-equity ratio and loan interest rate in the FSR is reasonable and applicable at the time when the FSR was finalized and thus is adopted in the PDD /2/. BVC has cross-checked the **debt-equity ratio** and **loan interest rate** in the loan agreement of the Project /42/ and found they are not consistent with the FSR. The debt-equity ratio of the Project is changed from 2:1 (in FSR and PDD) to 2.5:1 (in loan agreement) and the loan interest rate is changed from 5.94% (in FSR

and PDD) to 10% less than the benchmark loan interest rate of 5.94% (in loan agreement). However, the debt-equity ratio and the loan interest ratio in the loan agreement are still in line with related regulations of China /45//46/. Furthermore, when applying the debt-equity ratio and loan interest rate in the loan agreement /42//47/, the Project IRR (post tax) is 6.38% /47/ even lower than the one in the PDD 6.40% /2/ and benchmark 8%. Therefore, BVC can conclude that the change of the debt-equity ratio and loan interest rate would not affect the additionality of the Project.

- BVC has checked the IRR calculation sheet and confirm that **depreciation** has been deducted in estimating gross profits on which tax is calculated, and be added back to net profits for the purpose of calculating the financial indicator. BVC confirms that the depreciation calculated complies with "*Economic Evaluation Method and Parameters for Project Construction*" (version 3) /40/.

- BVC has also verified values of various **taxes** through crosschecking with the taxation rules conducted by local government and found to be fully consistent.
  - As for the VAT

    On 09/12/2008, Ministry of Finance and the State Administration of Taxation issued *Notice of Value Added Tax Policy Regarding Products Using Certain Synthesized Resources and Other Products* (Cai Shui [2008] No.156)/49/. And it replaced the *Notice of Value added Tax Policy Regarding Products Using Certain Synthesized Resources and Other Products* (Cai Shui [2001] No.198) /49/. In accordance with Cai Shui [2008] No.156, the VAT of 17%, which is the normal VAT rate in China /48/, is calculated firstly, and 50% of the actual VAT payment for electricity sales will be refunded to the wind power project.

    Ministry of Finance and the State Administration of Taxation issued the *Notice about Implementation of VAT Reform in the Whole Country* (Cai Shui [2008] No.170) on 19/12/2008, was effected on 01/01/2009 /61/. In accordance with Cai Shui [2008] No.170, the VAT of newly purchased equipments from the investment allows to be compensated to the wind projects.

    - For the Project, VAT of 17% is calculated firstly, after compensation of the VAT of newly purchased equipments, 50% of the actual VAT payment is refunded to the Project annually. This calculation complies with Cai Shui [2008]156 and Cai Shui [2008] No.170, which are the latest and valid policies at the time of FSR compiling and the decision to invest in the Project /14/.
  - The income tax of 25% complies with Enterprise Income Tax Law of China /26/ which is effective from 01/01/2008.
  - The urban maintenance and construction tax of 5% complies with the Provisional Regulations of the People's Republic of China on Urban maintenance and Construction Tax /51/ which is effective from 08/02/1985.
  - The surtax for education of 3% complies with the Decision of the State Council on Amending the Interim Provisions on the Collection of Surtax for Education /52/ which is effective from 01/10/2005.

In summary, based on the above reliable data sources, BVC was able to confirm that the input values from the approved FSR are valid and applicable at the time of making the investment decision. Therefore, BVC confirms that the investment analysis is in accordance with **Para. (c) 113/VVM**.

Based on the data from the approved FSR, the project IRR (post tax) of the Project without CDM revenues is 6.40%, much lower than the benchmark 8%, which shows that the Project is not financially attractive compared to the benchmark in the absence of CDM benefits.

BVC has reviewed the IRR calculation and confirms that the IRR processing is consistent with the "*Guidelines on the assessment of investment analysis*" version 3.1 and the data sources as well as the analysis approach are reliable and based on the approved FSR linking directly to the actual situation of the host country.

Four financial parameters were taken as uncertain factors for sensitive analysis of financial attractiveness:

- Total static investment
- O&M expenses
- Supplied electricity
- Tariff

According to "Code on compiling feasibility study report of wind power projects" published by NDRC, total static investment, supplied electricity and tariff should be taken as uncertain factors to do sensitivity analysis, and ±10% variation of above factors shall be considered in the sensitivity analysis. Therefore, BVC confirms that the variables and variations ±10% performed for sensitivity analysis is deemed to be appropriate for the Project.

Furthermore, a critical assessment was presented in the PDD to show to what extent the IRR of the project could reach the benchmark.

- With a decrease in **total static investment** by 11.65%, the Project IRR would reach 8%. However, it has been verified that the total value of signed contracts of main equipments and engineering /15//17//28//29//30//31//32//33/, accounts 91.1% of total static investment estimated in approved FSR while the Project was still under construction, BVC is therefore confident that the total static investment won't decrease by 11.65%.

- With a decrease in O&M expenses by 56.68%, the Project IRR would reach 8%. However, it is evidently impossible as the cost of materials and labors keeps increasing in recent years /53/.

- With an increase by 12.14% of **supplied electricity**, the Project IRR would reach the benchmark. However, it is not likely that the supplied electricity will increase by 12.14% as the annual supplied electricity of the Project was determined by a qualified third party using software calculation based on the wind resource data of the past 30 years (1977 to 2006) in the region and the onsite measured wind data from 01/10/2005 to 30/09/2006 /7/. According to the approved FSR, the selected wind turbine by the Project is the one with the highest operation hours and highest power generation among the alternative turbines which fit the local wind resource the best. Therefore, BVC confirms that it is unlikely that the supplied electricity could increase by 12.14% during the whole life of the Project.

- With an increase of **tariff** by 12.14%, the Project IRR would reach 8%. The tariff of the project was approved to be 0.61 RMB/kWh (incl. VAT) /38/, which is consistent with the value estimated in the FSR and the value in the EB's highest tariff

policy /Ref-8/. Therefore, BVC confirms that the tariff is unlikely to increase by 12.14%.

Considering of the CERs sales revenues (calculated with 10.5EUR/tCO_2e), the project IRR of the Project can cross the benchmark at 8.84%.

BVC can 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.

✌ Complying with para.**114/VVM**, BVC hereby confirms that the underlying assumptions are appropriate and the financial calculations are correct.

3.7.4 Barrier analysis (118)

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

3.7.5 Common practice analysis (121)

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

The wind power projects were implemented under the administration of provincial level government. The activities in the same province have the similar wind resource, grid structure, geological and transportation conditions, economic developing status, hence BVC considered that delineating Liaoning Province as the border is reasonable.

The Project is a wind farm with installed capacity of 49.5MW, and wind power projects larger than 15MW are considered as large scale project. Therefore, BVC can confirm that wind farm projects with installed capacity larger than 15MW considered as similar activities to the Project is reasonable.

Since 2002, the reform has been implemented in China's electric power sector to separate the grid and the power plant from the state power company /54/, therefore BVC can confirm that the wind power projects constructed after 01/01/2002 and operated later than 01/01/2003 will face to comparable regulatory framework and reasonable for the common practice analysis.

Subsequently, BVC identified the similar projects in terms of:

a) Non-CDM wind power projects in Liaoning Province, and

b) Wind power projects with capacity larger than 15MW

c) Construction after 01/01/2002 and operated later than 01/01/2003.

Following these criteria, BVC 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* 2007-2009 (published annually) /55/ conducted by Chinese Wind Energy Association (CWEA).

As the public information presents, no project is identified as similar projects with the above criteria. Therefore, BVC can conclude that the Project is not common practice in the region.

✌ Complying with para.**121/VVM**, Based on above demonstration that in accordance with "*Tool-Additionality*" and supported by reliable data sources, it is the opinion of BVC that the Project is not common practice.

✌ Based on the above demonstration that in accordance with "Tool-Additionality" and supported by reliable data source, it is the opinion of BVC that the Project is thus additional.

3.8 Monitoring plan (124)

BVC hereby confirms that the monitoring plan complies with the requirement of the methodology.

The steps taken to assess whether the monitoring arrangements described in the monitoring plan are feasible within the project design are described below.

The Project uses the approved consolidated monitoring methodology ACM0002 version 11 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 3.6.1 above. BVC hereby confirms that the monitoring plan complies with the requirements of the methodology.

The ex-ante combined margin emission factor is determined based on the most recent information available. According to the monitoring plan, the net electricity supplied to the grid is the difference of electricity delivered to the grid and imported from the grid. The electricity delivered to the grid and imported from the grid can be monitored by two bidirectional meters with the accuracy level will be at least 0.5s). One of them is the main meter and the other one is the backup meter. Both meters will be installed at the low voltage side of the main transformer which is located at the project site. The electricity will be continuously measured and recorded monthly. Data will be verified against the receipts of sales. The meters are expected to be calibrated once a year. BVC is of the opinion that the monitoring plan complies with the requirements of the methodology.

Operational management for the Project is comprehensively detailed in PDD and this includes description of the responsibility, procedure reference, calibration frequency and maintenance needs.

By reviewing the provided training records /56/ and on-site interview with the PP, BVC considers 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 Project can be reported ex post and verified.

✌ Complying with para.**124/VVM**, BVC hereby confirms that the monitoring arrangements described in the monitoring plan are feasible within the project design and the project participants are able to implement the monitoring plan.

3.9 Sustainable development (127)

The host Party's DNA confirmed the contribution of the Project to the sustainable development of the host Party.

✌ Complying with para.**127/VVM**, BVC recognized that the Project is helpful to fulfil the host country's goals of promoting sustainable development. The Project is expected to be in line with host-country specific CDM requirements because of:

- Reducing greenhouse gas emissions compared to a business-as-usual scenario;
- diversifying power sources and mitigating the demand and supply contradiction;

- Helping to stimulate the growth of the wind power industry and encourage and promote the technology progress and commercial popularization of grid-connected renewable power generation projects in China;
- Reducing the emission of other pollutants resulting from the power generation industry in China, compared to a business-as-usual scenario;
- Creating 20 employment opportunities for local community during the operation period of the Project and creating several employment opportunities for local community during the construction period of the Project.

3.10 Local stakeholder consultation (130)

Prior to the publication of the PDD on the UNFCCC website, viz, in May 2009, the PP conducted surveys to stakeholders by distributing 30 copies of questionnaires and collecting responses from all interviewees from local residents around the project site, and all 30 questionnaires were returned with 100% return rate.

According to the 30 filled questionnaires, the outcome of this survey show that the interested stakeholder have a very good understanding of the Project, and they agreed that the Project can increase the employment opportunities , improve living standards and increase income. 100% of the local stakeholders supported the construction of the Project.

The returned questionnaires with answers from interested stakeholders are maintained by the PP and were presented to BVC for assessment during the site visit of the validation activity /57/.

The stakeholders have recognized the contribution of the Project to local environment and social economy. Their views were endorsed by the local stakeholders interviewed during the site visit of the validation activity.

During the on-site visit, BVC has conducted an interview with local stakeholders and confirms that the stakeholders impacted had been invited in a transparent manner. The interview with stakeholders and review of returned questionnaires shows that the summary of the comments received has been completely provided in the PDD and due account of the comments has been described in the PDD. BVC hereby confirms that the process of local stakeholder consultation is observed to be adequate.

✌ Complying with para.**130VVM**, BVC hereby confirms that the local stakeholder consultation was properly performed and the process of local stakeholder consultation is observed to be adequate. The Project will be beneficial to the local sustainable development without negative affect on the local stakeholders.

3.11 Environmental impacts (133)

The PP have undertaken an analysis of environmental impacts and BVC confirms that the Environmental Impact Assessment was carried out by the qualified entity, Liaoning Academy of Environmental Sciences and approved by Liaoning Environmental Protection Bureau on 05/02/2009 (Code: LHSB [2009] No.2) /9/.

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

✌ Complying with para.**133/VVM**, BVC 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.

4 COMMENTS BY PARTIES, STAKEHOLDERS AND NGOS

✌ Complying with para.**173/VVM**, the PDD using methodology ACM0002 version 11 was webhosted on the UNFCCC for global stakeholders comments as per CDM requirements. The Project was web hosted from 13/06/2010 to 12/07/2010.

No comments were received during this period.

5 VALIDATION OPINION

Bureau Veritas Certification has performed a validation of the Liaoning Julonghu Wind Farm 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 participants used the latest *Tool for demonstration and assessment of additionality* (version 05.2) to demonstrate the additionality of the Project. In line with this tool, the PDD provides analysis of investment barriers to determine that the Project itself is not the baseline scenario. The latest *Tool to calculate the emission factor for an electricity system* (version 02) is also applied to determine the emission factor of Northeast China Grid.

By synthetic description of the Project, the Project is likely to result in reductions of GHG emissions. An analysis of the investment demonstrates that the Project is not a plausible baseline scenario. Emission reductions attributable to the Project are hence additional to any that would occur in the absence of the Project. Given that the Project is implemented and maintained as designed, the Project is expected to achieve the average annual emission reductions of 107,033tCO_2e over the chosen 7-year renewable crediting period.

The review of the project design documentation (version 02) 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. Bureau Veritas Certification thus requests registration of Liaoning Julonghu Wind Farm Project as a CDM project activity.

6 REFERENCES

Category 1 Documents:

Documents provided by Fuxin Julonghu Wind Power Co., Ltd. that relate directly to the GHG components of the Project.

/1/ PDD version 01, dated 10/06/2010

/2/ PDD version 02, dated 15/09/2010

/3/ LoA from DNA of China (Host country) , No.2440, dated in Apr. 2010

/4/ LoA from DNA of Netherlands (Annex I party) , 2010ANL.401, dated 29/11/2010

/5/ Notification of the commencement of the project activity and the intention to seek CDM status to NDRC of China dated 16/12/2009 and approved by NDRC on 18/12/2009

/6/ Notification of the commencement of the project activity and the intention to seek CDM status to EB confirmed by UNFCCC secretary on 17/12/2009

/7/ Feasible Study Report (FSR) completed by Shanxi Electric Power Exploration & Design Institute, in Feb. 2009

/8/ Feasibility Study Report (FSR) approval issued by Development and Reform Commission of Liaoning Province on 13/04/2009 (Code: LFGNY [2009] No. 297)

/9/ EIA report complied by Liaoning Academy of Environmental Sciences and its approval issued by Environmental Protection Bureau of Liaoning Province on 05/02/2009 (Code: LHSB [2009] No.2)

/10/ National Renewable Energy Law issued by NDRC of China effective from 01/01/2006. http://www.chinanews.com/ny/news/2009/12-26/2040229.shtml

/11/ Notification on Determining Baseline Emission Factor of China's Grid dated 02/07/2009. http://cdm.ccchina.gov.cn/WebSite/CDM/UpFile/File2333.pdf

/12/ *China Electricity Power Yearbook* 2004-2008, published annually

/13/ *China Energy Statistical Yearbook* 2006-2008, published annually

/14/ Board meeting minutes of the investment decision made on 11/05/2009

/15/ Civil Engineering Contract signed on 20/06/2009

/16/ Permit to commence dated on 26/06/2009

/17/ Wind Turbine and Subsidiary Equipments Purchase Agreement signed between the PP and manufacturer on 29/06/2009

/18/ Emission Reduction Purchase Agreement signed on 29/09/2009

/19/ PDD webhosted on the UNFCCC for global stakeholders' comments as per CDM requirements

http://cdm.unfccc.int/Projects/Validation/DB/SVZG68O7HUXOX40JC6O0YMWBE965B1/view.html

/20/ 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 [2002] No. 6.

http://www.gov.cn/gongbao/content/2002/content_61480.htm

/21/ The technology development status of power generation from solar PV in China
http://www.tynw.net.cn/News/3/6099.html

/22/ Evidence on lack of hydro source in Fuxin City
Http://www.ln.gov.cn/zfxx/qsgd/fxs/fxs1/200911/t20091102_438509.html

/23/ Generation from biomass needs the support from national policies
Http://jjckb.xinhuanet.com/cjxw/2007-11/27/content_75467.htm,
http://waste.chinaep-tech.com/jieganfadian/23394.htm

/24/ Interim Rules on Economic Assessment of Electrical Engineering Retrofit Projects issued by State Power Corporation of China in 2002, data source of Benchmark

/25/ IRR calculation spreadsheet of the Project

/26/ Enterprise Income Tax Law of China issued on 16/03/2007 and effective from 01/01/2008.
http://www.gov.cn/flfg/2007-03/19/content_554243.htm

/27/ China Wind Power Report 2008 published by China Environmental Science Press in Oct. 2008

/28/ Main Transformer Purchased Agreement signed between the PP and manufacturer in July 2009

/29/ Box Transformer Purchased Agreement signed between the PP and manufacturer on 13/07/2009

/30/ 35kv AC High Voltage Switch Cabinet Purchased Agreement signed between the PP and manufacturer in July 2009

/31/ 35kv SVC Purchased Agreement signed between the PP and manufacturer on 06/07/2009

/32/ Survey & Design Contract signed between the PP and Institute in 2009

/33/ Management Contract signed between the PP and consultant in 2009

/34/ Tariff approval issued by NDRC on 28/05/2003(Code:Fa Gai Jia Ge[2003]No.424)
http://www.fc110.gov.cn/zcfg/dffg/200909/15100.html

/35/ Tariff approval issued by NDRC on 03/12/2007 (Code: Fa Gai Jia Ge [2007] No.3303)
http://www.sdpc.gov.cn/jggl/zcfg/t20080218_193008.htm

/36/ Tariff approval issued by NDRC on 23/07/2008 (Code: Fa Gai Jia Ge [2008] No.1876)
http://www.gov.cn/zwgk/2008-08/14/content_1071728.htm

/37/ Price regulation issued by NDRC on 20/07/2009 (Code: Fa Gai Jia Ge [2009] No.1906)
http://www.sdpc.gov.cn/zcfb/zcfbtz/2009tz/t20090727_292827.htm

/38/ Tariff approval issued by the Price Bureau of Liaoning Province on 09/12/2010 (Code: Liao Jia Han[2010]154)

/39/ The Code on Compiling Feasibility Study Report of Wind Farms issued by National Development Reform Committee (NDRC) on 25/05/2005

/40/ Economic Evaluation Method and Parameters for Project Construction (version 3)

/41/ The Economics of Wind Power, Part III of Wind Energy - The Facts

http://www.wind-energy-the-facts.org/en/home--about-the-project.html

/42/ Loan agreement of the Project

/43/ Grid Connection Agreement signed with local grid company, dated on 04/12/2009

/44/ Historical data of RMB loan interest rate

http://www.pbc.gov.cn/publish/zhengcehuobisi/631/1269/12693/12693_.html

/45/ Regulations on the loan-equity ratio

http://tzs.ndrc.gov.cn/xkxmql/xkxmyj/t20060802_78919.htm

http://www.gov.cn/zwgk/2009-05/27/content_1326017.htm

/46/ Some opinions of the general office of the State Council on Current Financial and Promoting Economic Development

http://www.gov.cn/gongbao/content/2009/content_1196451.htm

/47/ IRR calculation spreadsheet applying the loan amount and interest rate contained in the loan agreement

/48/ Provisional Regulations of the People's Republic of China on Value-Added Tax

http://www.gov.cn/zwgk/2008-11/14/content_1149516.htm

/49/ Notice of Value added Tax Policy Regarding Products Using Certain Synthesized Resources and Other Products issued by the Ministry of Finance and the State Administration of Taxation on 09/12/2008 (Code: Cai Shui [2008] No. 156)

http://www.chinatax.gov.cn/n8136506/n8136593/n8137537/n8138502/8714515.html

Notice of Value added Tax Policy Regarding Products Using Certain Synthesized Resources and Other Products (Cai Shui [2001] No.198) issued by the Ministry of Finance and State Administration of Taxation on 01/12/2001.

http://www.jsgs.gov.cn/Page/StatuteDetail.aspx?StatuteID=4991

/50/ Implementing Regulations for the Enterprise Income Tax Law of P.R. China

http://www.gov.cn/flfg/2007-12/11/content_830723.htm

/51/ Provisional Regulations of the People's Republic of China on City Maintenance and Construction Tax

http://www.gov.cn/banshi/2005-08/19/content_24817.htm

/52/ Decision of the State Council on Amending the Interim Provisions on the Collection of Additional Education Fee

http://www.gov.cn/zwgk/2005-09/27/content_70440.htm

/53/ The evidence on increasing of the cost of materials and labors

http://www.stats.gov.cn/tjsj/ndsj/2009/indexch.htm

/54/ "Notice of National Council Issued about the Power System of Organization Reform Programme" (National issued [2002] No. 5)

/55/ *Statistics of wind power installation capacity in China* 2007-2009, published annually

http://www.cwea.org.cn/download/display_info.asp?id=25

http://www.cwea.org.cn/download/display_info.asp?cid=2&sid=&id=31

http://www.windpower-china.com/node/1446

/56/ Training Records provided by the PP

/57/ Evidence of 30 pieces of stakeholder survey questionnaires

/58/ Statement of Modalities of Communication signed between Fuxin Julonghu Wind Power Co., Ltd. and the buyer

/59/ Attendee list of the site interview

/60/ Information of the approved CDM projects by China DNA http://cdm.ccchina.gov.cn/web/NewsInfo.asp?NewsId=4418

/61/ Cai Shui [2008] No.170 issued by the Ministry of Finance and State Administration of Taxation on 19/12/2008 and effective from 01/01/2009.
http://www.jsgs.gov.cn/Page/StatuteDetail.aspx?StatuteID=8965

/62/ Cai Shui [2008] No. 151 issued by the Ministry of Finance and State Administration of Taxation on 16/12/2008 and effective from 01/01/2008.
http://www.whgs.gov.cn/cms/whgs03/laws/05/030205/2009010502.html

Category 2 Documents:
Background documents related to the design and/or methodologies employed in the design or other reference documents.

/Ref-1/ Validation and Verification Manual Version 01.2 dated 30/07/2010

/Ref-2/ ACM0002 version 11 dated 12/02/2010

/Ref-3/ Tool to calculate the emission factor for an electricity system Version 02 dated 16/10/2009

/Ref-4/ Tool for demonstration and assessment of additionality Version 05.2 dated 26/08/2008

/Ref-5/ Glossary of CDM terms Version 05

/Ref-6/ Guidelines on the demonstration and assessment of prior consideration of the CDM version 03 (Annex 22, EB49)

/Ref-7/ Guidelines on the assessment of investment analysis version 03.1 (EB51 Annex58)

/Ref-8/ Highest Note on the Highest Tariffs Applied by the Executive Board in its Decisions on Registration of Projects in the People's Republic of China (Version 01)

/Ref-9/ Guidelines for the Reporting and Validation of Plant Load Factors version 01 (EB48, Annex11)

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. Zhang Han, BD manager of ESI

2 Ms. Yang Xin, Project Manager of ESI

3 Mr. Liu Sheng, Manager of Engineering Department of Fuxin Julonghu Wind Power Co., Ltd.

4 Ms. Tao Lu, staff of Fuxin Julonghu Wind Power Co., Ltd.

5 Mr. Yang Jun, General Engineer of Fuxin Julonghu Wind Power Co., Ltd.

6 Mr. Du Shuyao, GM assistant of Fuxin Julonghu Wind Power Co., Ltd.

7 Mr. Li Hui, local stakeholder

8 Mr. Yang Tianfu, local stakeholder

7 CURRICULA VITAE OF THE DOE'S VALIDATION TEAM MEMBERS

Mr. Tim Wang Wei	Bureau Veritas Certification, China	Team Leader, Climate Change Lead Verifier He holds a Master Degree in Environmental Science. Before joining BV in Feb.2009, he gained 4 and a half years of working experience in engineering and EIA for manufacturing enterprise in P.R. China. He obtained the certificates of CDM Lead Verifier and ISO14001 Lead Auditor in Bureau Veritas.

Mr. Lucas Dou Yonghua	Bureau Veritas Certification, China	Team Member, Climate Change Lead Verifier. He holds a Master Degree in Materials Science. Before joining BV in 2009, he gained two and a half years CDM technical working experience in P.R. China. He obtained the certificate of CDM Verifier and Lead Auditor for ISO 14001 and has successfully completed the course assessment for ISO 14064:2006.

Ms. Li Yiting	Bureau Veritas Certification, China	Internal Technical Reviewer, Climate Change Lead Verifier. She holds a Master Degree in Environmental Science. Before joining BV in 2009, she gained two and a half years of CDM technical working experience in P.R China. She obtained the certificate of CDM Lead Verifier, Lead Auditor for ISO 14001 and ISO 14064.

APPENDIX A: CDM PROJECT VALIDATION PROTOCOL

Table 1 Validation requirements based on the Validation and Verification Manual V 01.2 (EB55 Annex 01) and methodology ACM0002 version 11 - Consolidated baseline methodology for grid-connected electricity generation from renewable sources"

CHECKLIST QUESTION	Ref.	§	Comments		Draft Concl	Final Concl
1. Approval			COUNTRY A (China)	COUNTRY B (Netherlands)		
1.1. 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? State the country.	VVM	45	Yes. Letter of Approval from DNA of China has been provided.	~~CAR-1~~ No Letter of Approval from DNA of Netherlands has been provided. CAR-1 was closed after the LoA from Netherlands was provided by PP.	~~CAR-1~~	OK
1.2. Does the letter of approval from DNA of each Party confirm that : - The Party is a Party of the Kyoto Protocol - The participation is voluntary - In the case of the host Party, the proposed CDM project activity contributes to the sustainable development of the country - Refers to the precise proposed CDM project activity title in the PDD being submitted for registration	VVM	45	Yes. P. R. China has ratified the Kyoto Protocol on 30/08/2002, refer to http://maindb.unfccc.int/public/country.pl?country=CN According to the LoA from China DNA,	Netherlands has ratified the Kyoto Protocol on 31/05/2002, refer to http://maindb.unfccc.int/public/country.pl?country=NL ~~Pending on close CAR-1.~~	~~Pending~~	OK

CHECKLIST QUESTION	Ref.	§	Comments		Draft Concl	Final Concl
			Fuxin Julonghu Wind Power Co., Ltd. is authorized as China's participant to voluntarily participate in and carry out the Project which will assist China in achieving sustainable development. The title and contents of the LoA refers to the precise proposed CDM project activity title in the PDD being submitted for registration.	Yes, according to the LoA from DNA of Netherlands, Energy Systems International B.V. participates in the Project on a voluntary basis. The title and contents of the letter of approval refers to the precise proposed CDM project activity title in the PDD being submitted for registration.		
1.3. Is(are) the letter(s) of approval unconditional with respect to (1.2) above?	VVM	46	Yes. It is unconditional with respect to (1.2) above according to the LoA from China DNA.	~~Pending on close CAR 1.~~ Yes. It is unconditional with respect to (1.2) above according to the LoA from Netherlands DNA.	~~Pending~~	OK
1.4. Has(ve) the letter(s) of approval been issued by the	VVM	47	Yes.	~~Pending on close~~	~~Pending~~	OK

CHECKLIST QUESTION	Ref.	§	Comments		Draft Concl	Final Concl
respective Party's designated national authority (DNA)? Is the letter of approval is valid for the proposed CDM project activity under validation?			National Development and Reform Commission of People's Republic of China is the DNA of China. And the LoA from China DNA is valid under validation.	~~CAR-1.~~ Yes. The Ministry of Housing, Spatial Planning and the Environment (VROM) is the DNA of Netherlands. And the LoA from Netherlands is valid under validation.		
2. Participation			*(Fuxin Julonghu Wind Power Co., Ltd.*	*Energy Systems International B.V.*		
2.1. Have all project participants been listed in a consistent manner in the project documentation?	VVM	51	Yes.	~~Pending on close CAR 1.~~ Yes.	~~Pending~~	OK
2.2. Does the DOE have a contractual relationship with the project participants?	EB50	Ann 48	No.	Yes. BVC has a contractual relationship with Energy Systems International B.V.	OK	OK
2.3. Is the information in tabular form of section A.3 consistent with the contact details provided in Annex 1 of the PDD?	VVM	52	Yes.	Yes.	OK	OK

CHECKLIST QUESTION	Ref.	§	Comments		Draft Concl	Final Concl
2.4. 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?	VVM	52	Yes.	~~Pending on close CAR-1.~~ Yes.	~~Pending~~	OK
2.5. Are any entities other than those approved as project participants included in these sections of the PDD?	VVM	52	No.		OK	OK
2.6. Has the approval of participation issued from the relevant DNA?	VVM	53	Yes.	~~Pending on close CAR-1.~~ Yes.	~~Pending~~	OK
3. Project design document						
3.1. 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 (hereafter referred as "CDM-PDD Guideline")		OK	OK
3.2. Is the PDD in accordance with the applicable CDM requirements for completing the PDD?	VVM	56	Yes.		OK	OK
3.3. Does the DOE conducted physical site visit to assess the Project? If the DOE does not undertake a physical site inspection, this should be appropriately justified.	VVM	62	Yes. The physical site visit has been conducted on 10/08/2010 by Mr. Lucas Dou Yonghua, Climate Change Lead Verifier of BVC China. The audit purpose and methodology were briefed in the opening meeting participated by the following persons.		OK	OK

CHECKLIST QUESTION	Ref.	§	Comments	Draft Concl	Final Concl
			Mr. Zhang Han, BD Manager of ESI Ms. Yang Xin, Project Manager of ESI Mr. Liu Sheng, Manager of Engineering Department of Fuxin Julonghu Wind Power Co., Ltd. Ms. Tao Lu, staff of Fuxin Julonghu Wind Power Co., Ltd. Mr. Yang Jun, General Engineer of Fuxin Julonghu Wind Power Co., Ltd. Mr. Du Shuyao, General Manager assistant of Fuxin Julonghu Wind Power Co., Ltd. Mr. Li Hui, local stakeholder Mr. Yang Tianfu, local stakeholder		
3.4. In CDM-PDD section A.1 -Title of project -Current version number and date of document	EB 41	Ann 12	Liaoning Julonghu Wind Farm Project GSP Version Number: 01 Date of the document: 10/06/2010 Final Version Number: 02 Date of the document: 15/09/2010	OK	OK
3.5. In CDM-PDD section A.2, are following provided?	EB 41	Ann 12			
3.5.1. A brief description of the project activity covering purpose which includes the scenario existing prior to	EB 41 -	Ann 12	The purpose of the project activity is to utilize wind power with installed capacity of	OK	OK

CHECKLIST QUESTION	Ref.	§	Comments	Draft Concl	Final Concl
the start of project, project scenario and baseline scenario. Are there any changes/notifications compared to the web hosted PDD?	VVM	- 58 59 60	49.5MW wind turbines to generate electricity which will be sold to the Northeast China Grid. The estimated annual net electricity generation supplied to the grid is 104,115MWh with a plant load factor of 0.24. The baseline scenario is same as the scenario prior to the implementation of the Project: equivalent amount of annual power output of the Project will be generated and supplied by the Northeast China Grid which is mainly composed of traditional thermal power plants. During the on-site visit, it was found that there is no change/notification compared to the web hosted PDD.		
3.5.2. 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
3.5.3. Explanation on how the GHG emission reductions effected.	EB 41	Ann 12	The Project will reduce GHG emissions by avoiding CO_2 emissions from the same amount of electricity generation from Northeast China Grid, which is mainly composed of traditional thermal power plants. The operation of the proposed project will lead to emission reductions of CO_2, which is estimated to be approximately 107,033 tCO_2e per year.	OK	OK

CHECKLIST QUESTION	Ref.	§	Comments	Draft Concl	Final Concl
3.5.4. The PP's views on the contribution of project activity to sustainable development	EB 41	Ann 12	The Project makes contribution to the local sustainable development by means of: • Reducing greenhouse gas emissions; • Diversifying power sources and mitigating the demand and supply contradiction; • Helping to stimulate the growth of the wind power industry in China; • Reducing the emission of other pollutants resulting from the power generation industry in China; • Creating employment opportunities Detailed information refers to section A.2 of PDD.	OK	OK
3.6. In CDM-PDD section A.3, are following provided in the tabular format? - List of project participants and parties - Identification of Host Party - Indication whether the Party wishes to be considered as project participant	EB 41 VVM	Ann 12 51,52	Yes. P.R. China (Host Country): Fuxin Julonghu Wind Power Co., Ltd. Netherlands (Annex I Country): Energy Systems International B.V. No Parties wish to be considered as project participants.	OK	OK
3.7. In CDM-PDD section A.4.1, are following provided?	EB 41	Ann 12			

CHECKLIST QUESTION	Ref.	§	Comments	Draft Concl	Final Concl
3.7.1. Physical description, location, host party(ies) and address as required. Are there any changes/notifications compared to the web hosted PDD?	EB 41	Ann 12	The Project is located in Houxinqiu Town, Zhangwu County, Fuxin City, Liaoning Province, P. R. China which is same with the description of the web hosted PDD.	OK	OK
3.7.2. Detailed physical location with unique identification of the project activity (e.g. Longitude/latitude)	EB 41	Ann 12	~~CL-1~~ Clarification is request on the minor difference of the Project longitude between the PDD (E 122°41'15''-122°46'08'') and Notification to EB or DNA of China for prior consideration of CDM (E 122°41'14''-122°46'07''). And the project location should be clearly pointed out in a map with longitude and latitude coordinates. Compared to the web hosted PDD, the geographical coordinates of the Project was changed to east longitude of 122°41'14''- 122°46'07'' and north latitude 42°31′30″~42°33′40″ in PDD version 02 as per the approved FSR. Hence, CL-1 was closed and the project location with the accurate geographical coordinates has been clearly provided in the PDD (ver 02), which is consistent with the FSR, EIA report and Notifications to EB and China DNA. Hence, CL-1 is closed.	~~CL-1~~	OK
3.8. In CDM-PDD section A.4.2, is the list of categories of project activities provided?	EB 41	Ann 12	Yes. Sectoral Scope 1: Energy Industries.	OK	OK

CHECKLIST QUESTION	Ref.	§	Comments	Draft Concl	Final Concl
3.9. In CDM-PDD section A.4.3, are following provided?	EB 41	Ann 12			
3.9.1. A description of how environmentally safe and sound technology, and know-how, is transferred to the Host Party(ies)	EB 41	Ann 12	The Project employs turbines manufactured by Dongfang Turbine Co., Ltd., which involves no technology transfer from abroad.	OK	OK
3.9.2. Further explanation of purpose of project activity with scenario existing prior to the start of project, scope or present activities and the baseline scenario. Are there any changes/notifications compared to the web hosted PDD?	EB 41	Ann 12	The Project is a newly built wind farm with 33 wind turbines installation with the unit capacity of 1.5MW. The annual net electricity delivered to the grid is 104,115MW. The baseline scenario is the same with the scenario existing prior to the implementation of the project activity: equivalent amount of annual power output of the Project will be generated and supplied by the Northeast China Grid which is mainly composed of traditional thermal power plants. There is no change/notification compared to the web hosted PDD.	OK	OK
3.9.3. List and arrangement of the main manufacturing/production technologies, systems and equipments involved. Are there any changes/notifications compared to the web hosted PDD?	EB 41	Ann 12	The Project involves the installation of 33 sets of wind turbines with each unit capacity of 1.5 MW, which amounts to a total installed capacity of 49.5MW. And the type of the turbines is FD82B which are manufactured by Dongfang Turbine Co.,	~~CL 2~~	OK

CHECKLIST QUESTION	Ref.	§	Comments	Draft Concl	Final Concl
			Ltd. The expected effective operating hours are 2,103 per year with a plant load factor of 0.24 and the estimated net annual power supplied to the grid is 104,115MWh. ~~CL-2~~ The lifetime of the turbines should be specified in the PDD with evidence. CL-2 was closed as the lifetime and type of the turbines has been added in the PDD (version 02), which was determined in the Wind Turbine and Subsidiary Equipments Purchase Agreement.		
3.9.4. The emissions sources and GHGs involved. Are there any changes/notifications compared to the web hosted PDD?	EB 41	Ann 12	The Project will avoid CO_2 emissions generated in fossil fuel fired power plants of Northeast China Grid. There is no change/notification compared to the web hosted PDD.	OK	OK
3.10. In CDM-PDD section A.4.4, is the estimation of emission reductions provided as requested in a tabular format?	EB 41	Ann 12	Yes. 7 years×3 renewable crediting period has been chosen. The estimation of emission reductions provided as requested in a tabular format.	OK	OK
3.11. In CDM-PDD section A.4.5, is information regarding public funding provided?	EB 41	Ann 12	Yes. There is no pubic funding from Annex I	OK	OK

CHECKLIST QUESTION	Ref.	§	Comments	Draft Concl	Final Concl
			Parties for the Project.		
3.12. In CDM-PDD section (Baseline identification)	EB 41	Ann 12			
3.12.1. The approved methodology and version number	EB 41 VVM	Ann 12 70	ACM0002 "Consolidated baseline methodology for grid-connected electricity generation from renewable sources" (version 11, EB52). As ACM0002 required, the latest version of "Tool to calculate the emission factor for an electricity system" (version 02) and "Tool for the demonstration and assessment of additionality" (version 5.2) were applied.	OK	OK
3.12.2. Are the following applicability conditions of the methodology ACM0002 met?	VVM	71			
3.12.2.1. This methodology is applicable to grid-connected renewable power generation project activities that (a) install a new power plant at a site where no renewable power plant was operated prior to the implementation of the project activity (greenfield plants); (b) involve a capacity addition; (c) involve a retrofit of (an) existing plant(s); or (d) involve a replacement of (an) existing plant(s).	ACM	0002	The Project is a newly built grid-connected renewable wind power project that installs a new wind power plant at a site where no renewable power plant was operated prior to the implementation of the project activity (greenfield plants)	OK	OK
3.12.2.2. The project activity is the installation, capacity addition, retrofit or replacement of a power plant/unit of one of the following types: hydro power plant/unit (either with a run-of-river reservoir or an accumulation reservoir), wind power plant/unit, geothermal power	ACM	0002	The Project is a newly built grid-connected renewable wind power project.	OK	OK

CHECKLIST QUESTION	Ref.	§	Comments	Draft Concl	Final Concl
plant/unit, solar power plant/unit, wave power plant/unit or tidal power plant/unit					
3.12.2.3. In the case of capacity additions, retrofits or replacements (except for wind, solar, wave or tidal power capacity addition projects which use Option 2: on page 10 to calculate the parameter *EGPJ,y*): the existing plant started commercial operation prior to the start of a minimum historical reference period of five years, used for the calculation of baseline emissions and defined in the baseline emission section, and no capacity expansion or retrofit of the plant has been undertaken between the start of this minimum historical reference period and the implementation of the project activity.	ACM	0002	N.A.	OK	OK
3.12.2.4. In case of hydro power plants, one of the following conditions must apply: - The project activity is implemented in an existing reservoir, with no change in the volume of reservoir; or - The project activity is implemented in an existing reservoir, where the volume of reservoir is increased and the power density of the project activity, as per definitions given in the Project Emissions section, is greater than 4 W/m^2; or - The project activity results in new reservoirs and the power density of the power plant, as per definitions given in the Project Emissions section, is greater than 4 W/m^2.	ACM	0002	N.A.	OK	OK
3.12.2.5. The methodology is not applicable to the following conditions. Please confirm - Project activities that involve switching from fossil fuels to renewable energy sources at the site of the project activity	ACM	0002	The Project is a newly built grid-connected renewable wind power project which does not involve switching from fossil fuels to renewable energy at the site.	OK	OK

CHECKLIST QUESTION	Ref.	§	Comments	Draft Concl	Final Concl
- Biomass fired power plants; - Hydro power plants that result in new reservoirs or in the increase in existing reservoirs where the power density of the power plant is less than 4 W/m2.					
3.13. 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? Does the delineation of the project boundary include identification of all locations, processes and equipment including secondary equipment and associated processes such as logistics etc. Have changes been made to the project boundary in comparison to the web hosted PDD? If yes, please comment on the reason for the changes.	VVM	78 79	In the PDD B.3, the Project boundary is clearly identified that includes the physical, geographical site of the Project and all power plants connected physically to the Northeast China Grid that the Project is connected to. This is in line with the delineation of grid boundaries as provided by the DNA of China. The defined project boundary is in line with ACM0002 ver 11. And all emission sources and GHGs have been included in the project boundary. There is no change/notification compared to the web hosted PDD.	OK	OK
3.14. In CDM-PDD section B.3, are following provided? (a) Description of all sources and gases included in the project boundary in the table (b) A flow diagram of the project boundary physically delineating the project activity with all equipments, systems and flows of mass and energy etc	VVM EB 41	80 Ann 12	Yes. Only CO_2 emission is considered in the baseline emission. A flow diagram of the Project is provided in the PDD.	OK	OK
3.15. Is an explanation how the most plausible baseline scenario is identified in accordance with the selected baseline methodology is provided in CDM-PDD section B.4?	EB 41	Ann 12			

CHECKLIST QUESTION	Ref.	§	Comments	Draft Concl	Final Concl
3.15.1. If the project activity is the install a new grid-connected renewable power plant/unit (greenfield plant), is the baseline scenario identified appropriately in accordance with the ACM0002 Ver.11?	ACM	0002	Yes. "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", has been identified directly in ACM0002 (version 11). For the Project, the baseline scenario is "the provision of an equivalent amount of annual power output by Northeast China Grid which the Project is connected to".	OK	OK
3.15.2. If the project activity is a capacity addition to existing grid-connected renewable power plant/unit, is the baseline scenario identified appropriately in accordance with the ACM0002 Ver.11 and the point of time at which the generation facility would likely be replaced or retrofitted (DATE Baseline Retrofit) defined reasonably?	ACM	0002	N.A.	OK	OK
3.15.3. If the project activity is the retrofit or replacement of existing grid-connected renewable power plant/unit, is the baseline scenario identified following step-wise procedure in accordance with the ACM0002 Ver.11?	ACM	0002	N.A.	OK	OK
3.15.3.1. Are the realistic and credible alternative baseline scenarios for power generation appropriately	ACM	0002	N.A.	OK	OK

CHECKLIST QUESTION	Ref.	§	Comments	Draft Concl	Final Concl
identified following the Step 1 of the "Combined tool to identify the baseline scenario and demonstrate additionality"? (Step 1)					
3.15.3.2. Are the realistic and credible alternative baseline scenarios i.e. P1, P2 and P3 appropriately applied Barrier analysis following the Step 2 of the "Combined tool to identify the baseline scenario and demonstrate additionality"? (Step 2)	ACM	0002	N.A.	OK	OK
3.15.3.3. If more than one alternative is remaining after Step 2, is Investment analysis appropriately applied (apply an Investment Comparison as per step 3 of the "Combined tool to identify the baseline scenario and demonstrate additionality" or a Benchmark Analysis as per step 2b of the "Tool for the demonstration and assessment of additionality")? (Step 3)	ACM	0002	N.A.	OK	OK
3.16. 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	81	Yes. The baseline scenario is clearly identified in section B.4 in accordance with ACM0002 (version 11).	OK	OK
3.17. Has any procedure contained in the methodology to identify the most reasonable baseline scenario, been correctly applied?	VVM	82	N.A. As methodology ACM0002 prescribes the baseline scenario and no further analysis required, therefore, there is no need to take steps to identify the baseline scenarios.	OK	OK
3.18. Does the selected methodology require use of tools (such as the "Tool for the demonstration and	VVM	82	N.A.	OK	OK

CHECKLIST QUESTION	Ref.	§	Comments	Draft Concl	Final Concl
assessment of additionality" and the "Combined tool to identify the baseline scenario and demonstrate additionality") to establish the baseline scenario?					
3.19. Does the methodology require several alternative scenarios to be considered in the identification of the most reasonable baseline scenario?	VVM	83	No.	OK	OK
3.20. Are the documents and sources referred to in the PDD correctly quoted and interpreted And are they cross checked with other verifiable and credible sources, such as local expert opinion, if available?	VVM	84	N.A.	OK	OK
3.21. Have all applicable CDM requirements been taken into account in the identification of the baseline scenario for the proposed CDM project activity?	VVM	85	N.A.	OK	OK
3.22. Have all relevant policies and circumstances been identified and correctly considered in the PDD, in accordance with the guidance by the CDM Executive Board?	VVM	85	N.A.	OK	OK
3.23. 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	86	It is identified in section B.4 of the PDD that the provision of an equivalent amount power output by Northeast China Power Grid which the Project is connected is the baseline scenario for the proposed project activity.	OK	OK
3.24. In CDM-PDD section B.5, are following provided?	EB 41	Ann 12			
3.24.1. Explanation and Justification of how and why this project activity is additional and therefore not the	EB 41	Ann 12	Yes.	OK	OK

CHECKLIST QUESTION	Ref.	§	Comments	Draft Concl	Final Concl
baseline scenario in accordance with the selected baseline methodology			The benchmark analysis (Option III) is chosen for the investment analysis. Project IRR of the Project is lower than the benchmark 8% without CERs revenue.		
3.24.2. Has the latest version of the "Tool for the demonstration and assessment of additionality" been used?	ACM	0002	Yes.	OK	OK
3.24.3. Evidence that the incentive from the CDM was seriously considered in the decision to proceed with the project activity, if the starting date of the project activity is before the date of validation	EB 41	Ann 12	The starting date of the Project is 20/06/2009 which is earlier than the date of validation. The PP submitted the notification of the commencement of the Project and the intention to seek CDM status to DNA of China on 16/12/2009 and to EB on 17/12/2009 which was confirmed by DNA of China and EB on 18/12/2009 and 17/12/2009 respectively, within the six months after the project starting date.	OK	OK
3.25. In CDM-PDD section B.6.1, are following provided? (Algorithms and/or formulae used to determine emission reductions)	EB 41	Ann 12			
3.25.1. Explanation 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	Complying with ACM0002, the "Tool to calculate the emission factor for an electricity system" ver. 02 was applied.	OK	OK
3.25.2. Do the steps taken and equations applied to calculate project emissions, baseline emissions, leakage and emission reductions comply with the requirements of	VVM	88			

CHECKLIST QUESTION	Ref.	§	Comments	Draft Concl	Final Concl
the selected baseline and monitoring methodology?					
3.25.2.1. Are the Project emissions appropriately calculated?	ACM	0002	For the Project, $PE_y = 0$.	OK	OK
3.25.2.2. Are the Baseline emissions appropriately calculated specifically for (a)greenfield plants or (b) retrofit and replacements or (c) capacity additions?	ACM	0002	The Project is a greenfield project, $BE_y=EG_{PJ,y}\times EF_{grid,CM,y}= EG_{facility,y}\times EF_{grid,CM,y} =(EG_{PJtoGrid,Y}-EG_{GRIDtoPJ,Y}) \times EF_{grid,CM,y}$	OK	OK
3.25.2.3. Are the Leakage appropriately calculated?	ACM	0002	As per ACM0002 (version 11), no leakage emissions are considered.	OK	OK
3.25.2.4. Are the Emission reductions appropriately calculated?	ACM	0002	$ER_y=BE_y-PE_y$	OK	OK
3.25.3. Have the equations and parameters in the PDD been correctly applied with respect those in the select approved methodology?	VVM	90	The steps and equations applied are consistent with ACM0002 (version 11).	OK	OK
3.25.4. Does the methodology provide for selection between different options for equations or parameters?	VVM	90	Yes. As per Tool to calculate the emission factor for an electricity system, there are options in determination of OM factor.	OK	OK
3.25.5. If yes, has adequate justification been provided and correct equations and parameters been used in accordance with the methodology selected?	VVM	90	Yes. The correct options were applied in determination of OM factor. And the calculated OM factor is same with the value published by the DNA of China. ~~**CL 3**~~ The description of the parameters to calculate $EF_{grid,OMsimple,y}$ should be revised	~~CL 3~~	OK

CHECKLIST QUESTION	Ref.	§	Comments	Draft Concl	Final Concl
			per the *Tool to calculate the Emission Factor for an Electricity System.* CL-3 was closed after the revision of description of the parameters to calculate $EF_{grid,OMsimple,y}$ per the *Tool to calculate the Emission Factor for an Electricity System.*		
3.25.6. If data and parameters will not be monitored throughout the crediting period of the proposed CDM project activity but have already been determined and will remain fixed throughout the crediting period, - All data sources and assumptions are appropriate - Calculations are correct - Be applicable to the proposed CDM project activity - Will result in a conservative estimate of the emission reductions.	VVM	90	Yes. The emission factor is determined ex ante for the Project. The equations and parameters are consistent with the official calculation of baseline emission factor issued on 02/07/2009 by China's DNA. They are in accordance with the methodology selected.	OK	OK
3.25.7. If data and parameters will be monitored on implementation and hence become available only after validation of the project activity, are the estimates provided in the PDD for these data and parameters are reasonable?	VVM	91	Yes.	OK	OK
3.25.8. 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 to calculate the emission factor for an electricity system", the necessary official data of power gird make publicly by NDRC are available.	OK	OK
3.25.9. Explanation and justification for the choice of the source of data	EB 41	Ann 12	The official data of Chinese power grid issued by NDRC annually based on *China*	OK	OK

CHECKLIST QUESTION	Ref.	§	Comments	Draft Concl	Final Concl
			Energy Statistical Yearbook, *China Electric Power Yearbook* and authorities' expertise is used.		
3.25.10. Clear and transparent references or additional documentation in Annex 3	EB 41	Ann 12	Yes.	OK	OK
3.25.11. 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	N.A.	OK	OK
3.26. In CDM-PDD section B.6.3, are following provided?	EB 41	Ann 12			
3.26.1. A transparent ex ante 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 to calculate the emission factor for an electricity system" and addressed in PDD B.6.3 and Annex 3.	OK	OK
3.26.2. Documentation how each equation is applied, in a manner that enables the reader to reproduce the calculation	EB 41	Ann 12	Yes. The emission reduction calculation spreadsheet has been provided and checked.	OK	OK
3.26.3. Additional background information and or data in Annex 3, including relevant electronic files (i.e. spreadsheets)	EB 41	Ann 12	Yes The calculation process of Emission Factor of Northeast China Grid has been	OK	OK

CHECKLIST QUESTION	Ref.	§	Comments	Draft Concl	Final Concl
			provided in Annex 3 of PDD. And the emission reduction calculation spreadsheet has also been provided.		
3.27. In CDM-PDD section B.6.4 are, the results of the ex ante estimation of emission reductions for all years of the crediting period, provided in a tabular format?	EB 41	Ann 12	Yes.	OK	OK
3.28. In CDM-PDD section B.7.1, are following provided?	EB 41	Ann 12			
3.28.1. 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	The electricity delivered by the Project to the grid in year y $EG_{PJtoGRID,y}$ and electricity imported by the Project from the gird in year y $EG_{GRIDtoPJ,y}$ will be monitored. ~~**CL-4**~~ The monitoring information of the Quantity of net electricity generation supplied by the project plant/unit to the grid in year y $EG_{facility,y}$ is missing as per ACM0002. CL-4 was closed as the monitoring information of parameter $EG_{facility,y}$ has been added in section B.7 of the PDD (version 02) as per ACM0002 version 11.	~~CL-4~~	OK
3.28.2. For each parameter the following below information, using the table provided:	EB 41	Ann 12			
3.28.2.1. 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	EB 41	Ann 12	The parameters $EG_{PJtoGRID,y}$ and $EG_{GRIDtoPJ,y}$ will be continuously monitored and monthly recorded. ~~The monitoring of $EG_{facility,y}$ is pending on close CL-4.~~	~~Pending~~	OK

CHECKLIST QUESTION	Ref.	§	Comments	Draft Concl	Final Concl
be preferred.			The parameter $EG_{facility,y}$ will be calculated by using the electricity supplied to the grid by the Project ($EG_{PJtoGRID,y}$) minus the electricity supplied to the Project by the grid ($EG_{GRIDtoPJ,y}$).		
3.28.2.2. Where data or parameters are supposed to be measured, specify the measurement methods and procedures, how the measurement is undertaken: (i) A description of the QA/QC procedures (if any) that should be applied; (ii) Where relevant: any further comment.	EB 41	Ann 12	Two bidirectional electricity meters will measure $EG_{PJtoGRID,y}$ and $EG_{GRIDtoPJ,y}$ continuously and accumulatively. The data is recorded monthly. The receipts will be used for the crosscheck of the measured value of $EG_{PJtoGRID,y}$ and $EG_{GRIDtoPJ,y}$. ~~The monitoring of $EG_{facility,y}$ is pending on close CL-4.~~ The parameter $EG_{facility,y}$ will be calculated by using the electricity supplied to the grid by the Project ($EG_{PJtoGRID,y}$) minus the electricity supplied to the Project by the grid ($EG_{GRIDtoPJ,y}$). The receipts will be used for crosscheck.	~~Pending~~	OK
3.29. In CDM-PDD section B.7.2, are following provided?	EB 41	Ann 12	Yes. Overall responsibility for monitoring and carrying out the monitoring following this monitoring plan lies with Fuxin Julonghu Wind Power Co., Ltd. The operating and management structure	OK	OK

CHECKLIST QUESTION	Ref.	§	Comments	Draft Concl	Final Concl
			is provided in B.7.2 in PDD.		
3.29.1. A detailed description of the monitoring plan	EB 41	Ann 12	Yes.	OK	OK
3.29.2. 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 operating and management structure is provided in B.7.2 in PDD.	OK	OK
3.29.3. The responsibilities for and institutional arrangements for data collection and archiving	EB 41	Ann 12	Yes.	OK	OK
3.29.4. Indication that the monitoring plan reflect good monitoring practice appropriate to the type of project activity	EB 41	Ann 12	Yes.	OK	OK
3.29.5. Relevant further background information in Annex 4	EB 41	Ann 12	No further information in Annex 4.	OK	OK
3.30. Are all data monitored as per monitoring methodology?	ACM	0002	~~Pending on close CL-4.~~ Yes. All parameters will be monitored as per methodology ACM0002 (version 11).	~~Pending~~	OK
3.31. Are all data collected as part of monitoring archived electronically and kept at least for 2 years after the end of the last crediting period?	ACM	0002	~~Pending on close CL-4.~~ Yes. All data collected as part of monitoring archived electronically and kept at least for 2 years after the end of the last crediting period.	~~Pending~~	OK
3.32. In CDM-PDD section B.8, are following provided?	EB 41	Ann 12			
3.32.1. Date of completion of the application of the methodology to the project activity study in DD/MM/YYYY	EB 41	Ann 12	Date of completion of the methodology to the project activity study is 10/06/2010 in PDD version 01 and 15/09/2010 in PDD	OK	OK

CHECKLIST QUESTION	Ref.	§	Comments	Draft Concl	Final Concl
			version 02.		
3.32.2. 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. The relevant contact information is provided.	OK	OK
3.32.3. Indication if the person/entity is also a project participant listed in Annex 1	EB 41	Ann 12	The persons/entities are not project participants.	OK	OK
3.33. In CDM-PDD section C.1.1, are following provided?	EB 41	Ann 12			
3.33.1. Is the project's starting date clearly defined and evidenced?	EB 41	Ann 12	Yes. The signing date of Civil Engineering Contract of the Project, 20/06/2009 is defined as the starting date of the Project. It is the earliest date among the date signed the Civil Engineering Contract, the construction started date and the date signed the Equipment Purchase Agreement. All the contracts and related evidence document have been provided to BVC during site visit.	OK	OK
3.34. In CDM-PDD section D., are the conclusions and all references to support documentation of an environmental impact assessment undertaken in accordance with the procedures as required by the Host Party, if environmental impacts are considered significant by the project participants or the Host, provided?	EB 41	Ann 12	Yes. Environmental impacts are not considered significant by the project participants, as described in section D.1 of the PDD.	OK	OK

CHECKLIST QUESTION	Ref.	§	Comments	Draft Concl	Final Concl
3.35. In CDM-PDD section E.1, are the following provided?	EB 41	Ann 12			
3.35.1. 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 facilities comments to be received from local stakeholders and allows for a reasonable time for comments to be submitted.	EB 41	Ann 12	Yes. As PDD described, the survey was carried out by distributing questionnaires to 30 households of local area in May 2009. The questionnaires have been provided and verified during the on-site visit.	OK	OK
3.35.2. 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 distributing and collecting questionnaires.	OK	OK
3.35.3. The local stakeholder process has been, completed before submitting the proposed project activity to the DOE for validation.	EB 41	Ann 12	Yes. The process was conducted in May 2009 before uploading the PDD for GSP.	OK	OK
3.36. In CDM-PDD section E.2, are following provided?	EB 41	Ann 12			
3.36.1. Identification of local stakeholders that have made comments	EB 41	Ann 12	The PP specified the gender, education level and age component of the interviewed local stakeholders.	OK	OK
3.36.2. A summary of these comments.	EB 41	Ann 12	The interviewees considered that income, employment opportunities and living standard would be increased. The response was overall supportive to the project implementation. However, some of them of concerned on the discharge of	OK	OK

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			waste water and the noises at the Project site.		
3.37. 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	The above issues were well illuminated and specific instructions were given to mitigate the potential impacts of these issues as discussed in the EIA report. And the environmental impacts can be avoided, controlled or mitigated via thorough implementation of the mitigation measures. Therefore, the proposed project can be carried out as planned.	OK	OK
3.38. In CDM-PDD Annex 1, are the following provided?	EB 41	Ann 12			
3.38.1. Contact information of project participants	EB 41	Ann 12	Yes.	OK	OK
3.38.2. For each organization 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
3.39. 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	Yes. No public funding is provided for the project activity.	OK	OK
3.40. In CDM-PDD Annex 3, is the background information used in the application of the baseline methodology provided?	EB 41	Ann 12	~~CL 5~~ Please specify the calculation process of	~~CL 5~~	OK

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			$EF_{Coal,\ Adv}$, $EF_{Oil,\ Adv}$ and $EF_{Gas,\ Adv}$ for calculation of EF_{BM}. CL-5 was closed as the detailed calculation process of $EF_{Coal,\ Adv}$, $EF_{Oil,\ Adv}$ and $EF_{Gas,\ Adv}$ has been specified in the PDD (version 02). BVC has verified the calculation process and can confirm the validity.		
3.41. In CDM-PDD Annex 4, is the background information used in the application of the monitoring methodology provided?	EB 41	Ann 12	No.	OK	OK
4. Additionality of a project activity					
4.1. General checklist for additionality					
4.1.1. Does the CDM-PDD state the latest version of the additionality tool being used?	VVM	95	Yes. The approved "Tool for the Demonstration and Assessment of Additionality" version 05.2 is used.	OK	OK
4.1.2. 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 (not used) Step 4-common practice analysis	OK	OK

CHECKLIST QUESTION	Ref.	§	Comments	Draft Concl	Final Concl
4.1.3. Have the following alternatives been included while defining alternatives as per sub-step 1a?	EB 39	Ann 10			
4.1.3.1. The proposed project activity undertaken without being registered as a CDM project activity;	EB 39	Ann 10	Yes.	OK	OK
4.1.3.2. 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	~~CL-6~~ Please clarify why other realistic and credible alternative scenarios were not considered which are included in the methodology ACM0002 version 11. CL-6 was closed because the other realistic and credible alternative scenarios e.g. baseline scenario I "Construction of a thermal power plant with an equivalent amount of annual electricity generation" and baseline scenario III "Construction of a power plant using other sources of renewable energy with equivalent amount of annual electricity generation" have been specified in Section B.5 of PDD (ver 02) per the Tool for the demonstration and assessment of additionality (ver 05.2).	~~CL-6~~	OK
4.1.3.3. If applicable, continuation of the current situation (no project activity or other alternatives undertaken).	EB 39	Ann 10	Yes.	OK	

CHECKLIST QUESTION	Ref.	§	Comments	Draft Concl	Final Concl
4.1.4. Has the outcome of Step 1a: Identified realistic and credible alternative scenario(s) to the project activity done correctly?	EB 39	Ann 10	~~Pending on close CL-6.~~ Yes. Baseline scenario III has been excluded as there is no economically exploitable water resource around the project site and biomass power generation and solar PV technology is dramatically financial unattractive.	~~Pending~~	OK
4.1.5. 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, and outcome of Step 1.b is thus concluded?	EB 39	Ann 10	~~Pending on close CL-6.~~ Yes. Baseline scenario I has been excluded because construction of thermal power plants with the installed unit capacity of 135 MW or below is prohibited in areas where can be covered by large grids such as provincial grids per Chinese regulations.	~~Pending~~	OK
4.1.6. 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	~~Pending on close CL-6.~~ N.A.	~~Pending~~	OK
4.1.7. Has PP selected Step 2 (Investment analysis) or Step 3 (Barrier analysis) or both Steps 2 and 3?	EB 39	Ann 10	Step 2 (Investment Analysis) has been applied.	OK	OK
4.1.8. In step 2, have all the sub-steps as below been followed?	EB 39	Ann 10	Yes.	OK	OK

CHECKLIST QUESTION	Ref.	§	Comments	Draft Concl	Final Concl
4.1.9. In sub-step 2a has the determination of appropriate method of analysis done as per the guidance as below?	EB 39	Ann 10			
4.1.9.1. 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	It is considered not applicable to the Project since the Project generates financial and economic benefits through the sales of electricity other than CDM related income.	OK	OK
4.1.9.2. Otherwise, use the investment comparison analysis (Option II) or the benchmark analysis (Option III). Specify option used with justification.	EB 39	Ann 10	Yes. The proposed project will use benchmark analysis method (option III) as the baseline scenario is the continuing power supply from grid-connected plants and does not involve the new investment.	OK	OK
4.1.10. 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	N.A.	OK	OK
4.1.11. 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	N.A.	OK	OK

CHECKLIST QUESTION	Ref.	§	Comments	Draft Concl	Final Concl
4.1.12. Has the most suitable benchmark for the project been determined in Sub-step 2b? Which source shall the discount rates and benchmarks derived from? Please specify benchmark and justify.	EB 39	Ann 10	Yes. With reference to "Interim Rules on Economic Assessment of Electrical Engineering Retrofit Projects", the post tax benchmark IRR of Chinese electric power industry is 8% on project, which has been widely used in feasibility study of new power plants, including wind power projects in China. ~~**CL-7**~~ Please specify the benchmark applied in the PDD is the Project IRR (post tax) or Equity IRR. CL-7 was closed as the benchmark applied in the PDD has been specified as the Project IRR (post tax).	~~CL-7~~	OK
4.1.13. 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			

CHECKLIST QUESTION	Ref.	§	Comments	Draft Concl	Final Concl
4.1.13.1. 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	N.A.	OK	OK
4.1.13.2. 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. The IRR calculation spreadsheet has been provided for audit. ~~**CL-8**~~ According to the approved FSR, the total project cost is 518.20 millions RMB and the total static investment is RMB 506.73 mill Yuan which is different with the related description in the web hosted PDD, the total project cost is 506.73 RMB millions. Clarification is request on this inconsistency. CL-8 was closed as the appropriate parameter with correct value, the total static investment 506.73 millions RMB, was applied in the investment analysis in	~~CL-8~~	OK

CHECKLIST QUESTION	Ref.	§	Comments	Draft Concl	Final Concl
			accordance with the approved FSR. BVC has verified the FSR approved by local DRC and found that the total project cost is 518.20 millions RMB, the total statistic investment is 506.73 millions RMB and the total statistic investment is applied in the IRR calculation. BVC also verified the two versions IRR calculation spreadsheet provided by the PP and found that all values and calculation formulae are same except the description of the value 506.73 millions RMB which was changed from "total project cost" to "total static investment" in accordance with the approved FSR. Therefore, BVC confirmed that the revised IRR calculation reflect the reality of the IRR calculation and in consistent with the approved FSR.		
4.1.13.3. Justify and/or cite assumptions.	EB 39	Ann 10	~~Pending on closed of CL-8.~~ All indicators are sourced from the approved FSR or the relevant rules/policies.	~~Pending~~	OK
4.1.13.4. 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. The relevant costs are concluded.	OK	OK

CHECKLIST QUESTION	Ref.	§	Comments	Draft Concl	Final Concl
4.1.13.5. Assumptions and input data for the investment analysis shall not differ across the project activity and its alternatives, unless differences can be well substantiated.	EB 39	Ann 10	Not applicable as Option III is used.	OK	OK
4.1.13.6. 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	Not applicable as Option III is used.	OK	OK
4.1.13.7. Is the period of assessment limited to the proposed crediting period of the CDM project activity?	EB 51	Ann 58	No. The period of assessment was 21 years (including one construction year), and was not limited to the proposed crediting period.	OK	OK
4.1.13.8. 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 51	Ann 58	Yes. 20 years for operation period per the approved FSR. The operation period 20 years is widely applied in power plant sector.	OK	OK
4.1.13.9. 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 51	Ann 58	Yes.	OK	OK
4.1.13.10. 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 51	Ann 58	The assessment period is 21 years including 1 year construction period and 20 years operation period.	OK	OK

CHECKLIST QUESTION	Ref.	§	Comments	Draft Concl	Final Concl
4.1.13.11. 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 51	Ann 58	Yes. Residual value rate, 5% was used in the IRR calculation spreadsheet same as in the approved FSR.	OK	OK
4.1.13.12. Does the depreciation, and other non-cash items related to the project activity, which have been deducted in estimating gross profits on which tax is calculated, be added back to net profits for the purpose of calculating the financial indicator?	EB 51	Ann 58	Yes. The depreciation, which has been deducted in estimating gross profits on which tax is calculated, is added back to net profits for the purpose of calculating the IRR.	OK	OK
4.1.13.13. If the project activity was ceased after the commencement and where implementation is recommenced due to consideration of the CDM, can the investment analysis reflect the economic decision making context at point of the decision to recommence the project?	EB 51	Ann 58	N.A.	OK	OK
4.1.13.14. Is pre-tax benchmark or post tax benchmark applied in the investment analysis? If a post tax benchmark is applied, is the actual interest payable taken into account in the calculation of income tax? If yes, is the interest calculated according to the prevailing commercial interest rate in the region, preferably by assessing the cost of other debt recently acquired by the project developer and by applying a debt-equity ratio used by the project developer for investments taken in the previous three	EB 51	Ann 58	The post tax benchmark 8% is applied in the investment. The actual interest payable has been taken into account in the calculation of income tax. And the interest has been calculated according to the prevailing commercial interest rates in China. ~~CL 9~~ As specified in the loan agreement of the Project, loan amount and loan interest rate	~~CL 9~~	OK

CHECKLIST QUESTION	Ref.	§	Comments	Draft Concl	Final Concl
years.			are different with the PDD and FSR. Clarification is request whether the different loan amount and loan interest rate would affect the result of the investment analysis. And the debt-equity ratio should also be specified in the PDD. CL-9 was closed as the Project IRR (post tax) is 6.38% which is even lower than the value contained in the web hosted PDD when applying the loan interest rate and debt-equity ratio specified in the loan agreement. And the debt-equity ratio quoted from the FSR has been added in the PDD (version 02).		
4.1.14. 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 key indicators are identified for sensitivity analysis of the project, including Total static investment, O&M expenses, Supplied electricity and Tariff with a variation range from -10% ~ +10%. Furthermore, the PP also applied the critical point analysis on these four parameters. ~~**CL-10**~~ Further clarification is required on the O&M expenses. And the latest available evidence documents should be used to support the related analysis.	CL-10	OK

CHECKLIST QUESTION	Ref.	§	Comments	Draft Concl	Final Concl
			CL-10 was closed as the revision has been made in Section B.5 of the PDD to specify the impact of the O&M expenses on Project IRR (post tax). And the latest available evidences to support the analysis have been provided to and verified by BVC.		
4.1.15. Has the outcome of Step 2 clearly mentioned with justification?	EB 39	Ann 10	Yes. The Project is not financially feasible without the revenue of CERs.	OK	OK
4.1.16. Have the barrier analysis been conducted?	EB 39	Ann 10	No.	OK	OK
4.1.17. In step 4: Common practice analysis has all the sub-steps as below followed?	EB 39	Ann 10			
4.1.17.1. 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 criteria are: - Projects that constructed after 01/01/2002 and operated later than 01/01/2003; - All wind power projects with capacity no less than 15MW; - Project in Liaoning Province; ~~**CL-11**~~ The data source for the common practice analysis should be specified.	~~CL-11~~	OK

CHECKLIST QUESTION	Ref.	§	Comments	Draft Concl	Final Concl
			CL-11 was closed as the data source for the common practice analysis was specified in the PDD (version 02).		
4.1.17.2. Has the below guideline followed for Sub-step 4b: Discuss any similar Options that are occurring?	EB 39	Ann 10	~~Pending on close CL-11.~~ No similar and operational projects other than CDM project activities occurred.	~~Pending~~	OK
4.1.18. Has the outcome from Step 4 clearly mentioned in PDD?	EB 39	Ann 10	~~Pending on close CL-11.~~ Yes.	~~Pending~~	OK
4.2. Prior consideration of the clean development mechanism					
4.2.1. Is the project activity start date prior to the date of publication of the PDD for stakeholder comments?	VVM	98	Yes. The start date defined as 20/06/2009 before 13/06/2010 the date of publication of the PDD for stakeholder comments.	OK	OK
4.2.2. If yes, were the CDM benefits considered necessary in the decision to undertake the project as a proposed CDM project activity?	VVM	98	Yes. PP has conducted the board decision on the project investment on 11/05/2009. And PP also informed the China DNA and the UNFCCC secretariat in writing of the commencement of the Project and of its intention to seek CDM status on 16/12/2009 and 17/12/2009 respectively within 6 months of the project start date. ~~CL-12~~ To provide the clear consideration of the	~~CL-12~~	OK

CHECKLIST QUESTION	Ref.	§	Comments	Draft Concl	Final Concl
			CDM benefits, more detailed timeline should be specified in the PDD which should include the date when the FSR was finished and the investment decision was made. CL-12 was closed as the related key dates have been added in the PDD (version 02) and the related evidence documents have been provided to and verified by BVC.		
4.2.3. 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	99	Yes. 20/06/2009, the signed date of civil engineering contract, was identified as the start date of the Project, which is the earliest date at which either the implementation or construction or real action of a project activity begins, hence it is in accordance with the latest CDM glossary. The relevant evidences have been provided and verified during the site visit.	OK	OK
4.2.4. Does the project activity require construction, retrofit or other modifications?	VVM	99	The project activity requires construction.	OK	OK
4.2.5. Is it ensured that the date of commissioning cannot be considered as the project activity start date?	VVM	99	Yes. The start date of the Project is the signed civil construction contract which is not the date of commissioning.	OK	OK

CHECKLIST QUESTION	Ref.	§	Comments	Draft Concl	Final Concl
4.2.6. Is it a new project activity (project activities with staring date on or after 02 August 2008) or an existing project activity (project activities with a start date before 02 August 2008)?	VVM	100	It is a new project activity with a start date of 20/06/2009 after 02/08/2008.	OK	OK
4.2.7. 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/or the UNFCCC secretariat in writing of the commencement of the project activity and of their intention to seek CDM status?	VVM	101	Yes. The PP submitted the notification of the commencement of the Project and the intention to seek CDM status to DNA of China on 16/12/2009 and to EB on 17/12/2009 which were confirmed by DNA of China and EB on 18/12/2009 and 17/12/2009 respectively.	OK	OK
4.2.8. 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	102	N.A.	OK	OK
4.2.8.1. 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,	VVM	102	N.A.	OK	OK
4.2.8.2. 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. Has the chronology of events including timelines been appropriately captured and explained/detailed in the PDD?	VVM	102	N.A.	OK	OK
4.3. Identification of alternatives					

CHECKLIST QUESTION	Ref.	§	Comments	Draft Concl	Final Concl
4.3.1. 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	105	Yes The methodology ACM0002 (version 11) applied by the Project prescribes the baseline scenario and no further analysis is required. However, the PDD analyzed several baseline alternatives per Tool for the demonstration of the additionality (version 05.2) and ~~the completeness of the analysis is pending on close CL-6.~~ All baseline scenario alternatives have been analyzed as per Tool for the demonstration of the additionality (version 05.2)	~~Pending~~	OK
4.3.2. If no, does the PDD identify credible alternatives to the project activity in order to determine the most realistic baseline scenario?	VVM	105	N.A.	OK	OK
4.3.3. Does the list of alternatives given in the PDD ensure that: - One of the options that the project activity is undertaken without being registered as a proposed CDM project activity - The list contains all plausible alternatives - The alternatives comply with all applicable and enforced legislation	VVM	106	~~Pending on close CL-6.~~ Yes.	~~Pending~~	OK
4.4. Investment analysis					
4.4.1. If investment analysis has been used to demonstrate the additionality of the proposed CDM project activity ,	VVM	108			

CHECKLIST QUESTION	Ref.	§	Comments	Draft Concl	Final Concl
does the PDD provide evidence that the proposed CDM project activity would not be:					
4.4.1.1. The most economically or financially attractive alternative?	VVM	108	N.A.	OK	OK
4.4.1.2. Economically or financially feasible, without the revenue from the sale of certified emission reductions (CERs)?	VVM	108	Yes. Project IRR (post tax) 6.40% (without CDM revenues) vs benchmark 8%.	OK	OK
4.4.2. Was this shown by one of the following approaches?	VVM	109			
4.4.2.1. Demonstrate that the proposed CDM project activity would produce no financial or economic benefits other than CDM-related income.	VVM	109	N.A.	OK	OK
4.4.2.2. The proposed CDM project activity is less economically or financially attractive than at least one other credible and realistic alternative.	VVM	109	N.A.	OK	OK
4.4.2.3. The financial returns of the proposed CDM project activity would be insufficient to justify the required investment.	VVM	109	Yes. Project IRR (post tax) 6.40% (without CDM revenues) vs benchmark 8%.	OK	OK
4.4.3. 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	111	All parameters are quoted from FSR except the value of the total project cost which ~~is pending on close CL 8.~~ The total static investment instead of the total project cost 506.73 millions RMB was applied in the investment analysis is consistent with the approved FSR.	~~Pending~~	OK
4.4.4. Was the sensitivity analysis by the project participants to determine under what conditions variations in the	VVM	111	Yes.	OK	OK

CHECKLIST QUESTION	Ref.	§	Comments	Draft Concl	Final Concl
result would occur and the likelihood of these conditions assessed?					
4.4.5. 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: a. Assessing previous investment decisions by the project participants involved, and b. Determining whether the same benchmark has been applied, or c. Determining if there are verifiable circumstances that have led to a change in the benchmark	VVM	112	Yes. The post-tax project IRR benchmark of 8% is widely used for power projects in China and consistent with the FSR.	OK	OK
4.4.6. Did the project participants rely on values from Feasibility Study Reports (FSR) that are approved by national authorities for proposed project activities?	VVM	113	~~Pending on close CL-8 and CL-9.~~ Yes. The input values applied in the investment analysis are sourced from the FSR which was approved by local DRC on 13/04/2009.	~~Pending~~	OK
4.4.7. If yes: **(EB38 para.54)**	VVM	113			
4.4.7.1. 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	113	~~Pending on close CL-8 and CL-9.~~ The FSR was available in February 2009, and the project owner made the decision to seek CERs revenue on 11/05/2009, based on the approved FSR. Therefore, BVC confirmed that it was unlikely in the context of the underlying project activity that the input values would have materially	~~Pending~~	OK

CHECKLIST QUESTION	Ref.	§	Comments	Draft Concl	Final Concl
			changed due to the short period.		
4.4.7.2. 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	113	All parameters used in the PDD are fully consistent with the approved FSR except the value of the total project cost ~~which is pending on close CL 8.~~ Yes. All parameters used in the PDD are fully consistent with the approved FSR.	~~Pending~~	OK
4.4.7.3. 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	113	Yes. The PLF was crosschecked with the approved FSR, the China Wind Power Report 2008 and the registered CDM wind projects in Liaoning Province. It was found that the PLF of the Project (24%) is higher than the average PLF of wind projects in China (20.4%) and within the range of registered CDM wind projects in Liaoning Province, which is from 20.96% (UNFCCC Ref. 883) to 26.24% (UNFCCC Ref. 2887). Therefore, the PLF of the Project is reasonable. The tariff was crosschecked with relevant tariff notifications issued by China NDRC, which were specified in the PDD, and found that the tariff 0.61 Yuan/kWh has been continuously carried for the wind projects in Liaoning Province since 03/12/2007. And it also	~~Pending~~	OK

CHECKLIST QUESTION	Ref.	§	Comments	Draft Concl	Final Concl
			noticed that the tariff 0.61 Yuan/kWh is higher than the tariff 0.55 Yuan/kWh which was approved by China NDRC for wind projects in Liaoning Province on 28/05/2003. Therefore, the tariff of the Project is reasonable. Furthermore, ~~the validity of the total project cost and the annual O&M expenses is pending on close CL-8 and CL-10.~~ The total static investment instead of total project cost was applied in the investment analysis which is consistent with the approved FSR. And based on the contracts proved by the PP, the total price indicated in the signed contracts is 461.46167 millions RMB, which is 1.32% higher than the same parts in the approved FSR and accounts 91.1% of the total statistic investment. Furthermore, the unit cost of the Project is also within the reasonable range comparing with the registered CDM wind projects in Liaoning Province. Therefore, the total static investment of the Project is reasonable. The O&M of the Project is within the reasonable range comparing with the		

CHECKLIST QUESTION	Ref.	§	Comments	Draft Concl	Final Concl
			registered CDM wind projects in Liaoning Province. Therefore, the O&M of the Project is reasonable.		
4.5. Barrier analysis					
4.5.1. Has barrier analysis been used to demonstrate the additionality of the proposed CDM project activity?	VVM	115	No.	OK	OK
4.5.2. If yes, does the PDD demonstrate that the proposed CDM project activity faces barriers that: a. Prevent the implementation of this type of proposed CDM project activity? b. Do not prevent the implementation of at least one of the alternatives?	VVM	115	N.A.	OK	OK
4.6. Common practice analysis					
4.6.1. Is this a large-scale or first-of-its kind small-scale project activity?	VVM	119	It is a large-scale project activity.	OK	OK
4.6.2. Was common practice analysis carried out as a credibility check of the other available evidence used by the project participants to demonstrate additionality?	VVM	119	Yes.	OK	OK
4.6.3. 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 trans-national /global.)	VVM	120	Yes. Liaoning Province was defined as geographical scope of common practice.	OK	OK
4.6.4. Was a region other than the entire host country chosen?	VVM	120	Yes.	OK	OK

CHECKLIST QUESTION	Ref.	§	Comments	Draft Concl	Final Concl
4.6.5. If yes, was the explanation why this region is more appropriate assessed?	VVM	120	Yes. Liaoning Province was chosen because the Project was approved by the provincial government and the price regulation, investment policy etc. vary in different provinces of China.	OK	OK
4.6.6. 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, and have been undertaken in the defined region?	VVM	120	~~Pending on close CL-11.~~ The data source was provided by the PP and verified by BVC.	~~Pending~~	OK
4.6.7. Are similar and operational projects, other than CDM project activities, already "widely observed and commonly carried out" in the defined region?	VVM	120	~~Pending on close CL-11.~~ No similar and operational projects other than CDM project activities occurred.	~~Pending~~	OK
4.6.8. If yes, was it assessed whether there are essential distinctions between the proposed CDM project activity and the other similar activities?	VVM	120	~~Pending on close CL-11.~~ No similar and operational projects other than CDM project activities occurred.	~~Pending~~	OK
5. Monitoring plan					
5.1. Is this monitoring plan based on the approved monitoring methodology applied to the proposed CDM project activity?	VVM	122	Yes. The monitoring plan based on the approved baseline and monitoring methodology ACM0002 (version 11).	OK	OK
5.2. Does the monitoring plan contain all necessary parameters?	VVM	123	Yes.	OK	OK

CHECKLIST QUESTION	Ref.	§	Comments	Draft Concl	Final Concl
5.3. Are the monitoring arrangements described in the monitoring plan feasible within the project design?	VVM	123	Yes.	OK	OK
5.4. Are the 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	123	Yes.	OK	OK
6. Sustainable development					
6.1. Does the CDM project activity assists Parties not included in Annex I to the Convention in achieving sustainable development?	VVM	125	Yes.	OK	OK
6.2. 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	126	Yes.	OK	OK
7. Local stakeholder consultation					
7.1. 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	128	Yes. It was conducted by distributing and collecting questionnaires to 30 local stakeholders in May 2009.	OK	OK
7.2. Have comments by local stakeholders that can reasonably be considered relevant for the proposed CDM project activity been invited?	VVM	129	Yes.	OK	OK
7.3. Is the summary of the comments received as provided in the PDD complete?	VVM	129	Yes.	OK	OK

CHECKLIST QUESTION	Ref.	§	Comments	Draft Concl	Final Concl
7.4. Have the project participants taken due account of any comments received and described this process in the PDD?	VVM	129	Yes. The Project Owner will take environmental protection measures to ensure that there would be no waste water and noises pollution to the local environment.	OK	OK
8. Environmental impacts					
8.1. Have the project participants submitted documentation on the analysis of the environmental impacts of the project activity?	VVM	131	Yes.	OK	OK
8.2. Have the project participants undertaken an analysis of environmental impacts?	VVM	132	Yes. The environmental impact assessment for the Project was carried out by Liaoning Academy of Environmental Sciences in January of 2009.	OK	OK
8.3. Does the host Party require an environmental impact assessment?	VVM	132	Yes.	OK	OK
8.4. If yes, have the environmental impact assessment approved by local government?	VVM	132	Yes. The EIA report was approved by Liaoning Environmental Protection Bureau on 05/02/2009 (Document Code LHSB [2009] No.2).	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 the Letter of Approval from DNA of Netherlands.	1.1	The LoA of the Project issued by the Netherlands DNA has been provided to BVC from the PP.	BVC has received and verified the LoA of the Project issued by the Netherlands DNA. CAR-1 is closed.
CL-1: Clarification is request on the minor difference of the Project longitude between the PDD (E 122°41'15''-122°46'08'') and Notification to EB or DNA of China for prior consideration of CDM (E 122°41'14''- 122°46'07''). And the project location should be clearly pointed out in a map with longitude and latitude coordinates.	3.7.2	There exists a typing mistake of geographical coordinates in the GSP-PDD. Revision is made in Section A.4.1.4 of the PDD according to the approved FSR of the Project. And the project location is clearly pointed out in a map with longitude and latitude coordinates.	BVC has verified the approved FSR of the Project and found that the geographical coordinates contained in the approved FSR are same with the Notifications. And the project location with the accurate geographical coordinates has been clearly provided in the PDD (ver 02). Hence, CL-1 is closed.
CL-2: Please specify the lifetime of the main equipments in the PDD with evidence.	3.9.3	Revision is made in Table 1 of the PDD to specify the lifetime and type of the turbines. The lifetime of the turbines of 20 years is obtained from *Turbine Purchase Agreement*.	BVC has verified the *Turbine Purchase Agreement* and found the lifetime and the type of the turbines added in the Table 1 of the PDD (ver 02) was same with *Turbine Purchase Agreement.* CL-2 is closed.
CL-3: Please revise the description of the parameters to calculate $EF_{grid,OMsimple,y}$ per	3.25.5	Revision is made in Section B.6.1 to describe the parameters to calculate $EF_{grid,OMsimple,y}$ as per *Tool to calculate the Emission Factor for*	The description of the parameters to calculate $EF_{grid,OMsimple,y}$ has been revised in PDD (ver 02) as per *Tool to calculate the*

the *Tool to calculate the Emission Factor for an Electricity System.*		*an Electricity System*.	*Emission Factor for an Electricity System*. CL-3 is closed.
CL-4: Please specify the monitoring information of the Quantity of net electricity generation supplied by the project plant/unit to the grid in year y $EG_{facility,y}$ as per ACM0002.	3.28.1	Revision is made in Section B.7.1 to add the parameter $EG_{facility,y}$ (i.e. the quantity of net electricity generation supplied by the project plant/unit to the grid in year y) as per the methodology ACM0002.	The monitoring information of parameter $EG_{facility,y}$ has been added in section B.7.1 of the PDD (ver 02) as per the methodology ACM0002 (ver 11). CL-4 is closed.
CL-5: Please specify the calculation process of $EF_{Coal, Adv}$, $EF_{Oil, Adv}$ and $EF_{Gas, Adv}$ for calculation of EF_{BM} in Annex 3 of the PDD.	3.40	Revision is made in Annex 3 of the PDD to add a table to specify the calculation process of $EF_{Coal, Adv}$, $EF_{Oil, Adv}$ and $EF_{Gas, Adv}$ for calculation of EF_{BM}.	BVC verified the calculation process of $EF_{Coal, Adv}$, $EF_{Oil, Adv}$ and $EF_{Gas, Adv}$ which has been added in Annex 3 of PDD (ver 02) and found it is correct. CL-5 is closed.
CL-6: Please clarify why other realistic and credible alternative scenarios were not considered which are included in Tool for the demonstration and assessment of additionality (ver 05.2).	4.1.3.2	The other realistic and credible alternative scenarios e.g. "Construction of a thermal power plant with an equivalent amount of annual electricity generation" and "Construction of a power plant using other sources of renewable energy with equivalent amount of annual electricity generation" have been specified in Section B.5 of PDD (ver 02) per the Tool for the demonstration and assessment of additionality (ver 05.2). And alternative scenario "Construction of a thermal power plant with an equivalent amount of annual electricity generation" has been excluded because construction of thermal power plants with the installed unit capacity of 135 MW or below is prohibited in areas where	Revision is made in Section B.5. All realistic and credible alternative scenarios were considered and analyzed as per the Tool for the demonstration and assessment of additionality (ver 05.2). Hence CL-6 is closed.

		can be covered by large grids such as provincial grids per Chinese regulations. Alternative scenario "Construction of a power plant using other sources of renewable energy with equivalent amount of annual electricity generation" has been excluded as there is no economically exploitable water resource around the project site and biomass power generation and solar PV technology is dramatically financial unattractive.	
CL-7: Please specify the benchmark applied in the PDD is the Project IRR (post tax) or Equity IRR.	4.1.12	Revision is made in Section B.5 to specify that the benchmark applied in the PDD is the Project IRR (post tax).	The benchmark applied in the PDD is the Project IRR (post tax) which has been specified in section B.5 of PDD (ver 02). BVC has verified *Interim Rules on Economic Assessment of Electric Power Engineering Retrofit Projects,* data source of the benchmark, and found the correct benchmark was applied in the PDD (ver 02). CL-7 is closed.
CL-8: Clarification is request on the different value of the total project cost between the PDD (506.73 million) and the FSR (518.20 million).	4.1.13.2	As a matter of fact, there exists a misunderstanding of the total project cost in the GSP-PDD. 506.73 millions RMB, which is regarded as "total project cost" in the GSP-PDD, is the total static investment of the Project according to the approved FSR. The value of 518.20 millions RMB in the approved FSR is the total project cost which comprises total static investment (506.73 millions RMB), interest during construction period (9.9856 millions RMB) and working capital (1.485	BVC has verified the approved FSR by local DRC and found that the total project cost is 518.20 millions RMB, the total statistic investment is 506.73 millions RMB and the total statistic investment is applied in the IRR calculation. BVC also verified the two versions IRR calculation spreadsheet provided by the PP and found that all values and calculation formulae are same except the description of the value 506.73 millions RMB which was changed from

		millions RMB). Furthermore, the total static investment instead of total project cost is adopted in the IRR calculation according to the approved FSR. Therefore, revision is made in Section B.5 to specify that the value of static investment is 506.73 millions RMB and the value of interest during construction period is 9.9856 millions RMB.	"total project cost" to "total static investment" in accordance with the approved FSR. Therefore, BVC confirmed that the revised IRR calculation reflect the reality of the IRR calculation and in consistent with the approved FSR. Hence CL-8 is considered to be closed.
CL-9: As specified in the loan agreement of the Project, loan amount and loan interest rate are different with the PDD and FSR. Clarification is request whether the different loan amount and loan interest rate would affect the result of the investment analysis.	4.1.13.14	The loan amount and the loan interest rate specified in the PDD were quoted from the approved FSR, which was finalized by Shanxi Electric Power Exploration & Design Institute in February 2009, was determined according to commercial loans benchmark interest rates which were published on 22 December, 2008. The investment decision of the Project was made on 11/05/2009 based on the approved FSR. And the Loan agreement of the Project was signed on 16/09/2009 which is after the start date of the Project. Therefore, the loan interest rate and the debt-equity ratio in the approved FSR were reasonable and applicable at the time when the approved FSR was finalized and thus were adopted in the PDD. According to the loan agreement, debt-equity ratio of the Project is 2.5:1 and the loan interest ratio is 10% less than the benchmark lending rate 5.94%. However, the IRR of the Project (post tax) is 6.38%, which is even lower than the IRR contained in the PDD 6.40%	BVC has cross-checked the loan interest rate contained in the PDD and the approved FSR with the historical data of RMB loan interest rates published by People's Bank of China on 22/12/2008 and found consistent. BVC has also verified the FSR, FSR approval, Board Decision and the Loan agreement and recognized that investment decision of the Project was made based on the approved FSR and four months before the sign of the Loan agreement. Therefore, the loan interest rate in the FSR and the debt-equity ratio in the FSR were reasonable and applicable at the time when the approved FSR was finalized and thus were adopted in the PDD. BVC has verified the IRR calculation spreadsheet which applying the values of long-term loan and loan interest rate contained in the loan agreement and found the Project IRR (post tax) is 6.38% lower

		when applying the values in the loan agreement. Therefore, the outcome of investment analysis of the Project would not be affected with change of the debt-equity ratio and loan interest rate.	than the value in PDD. Therefore, BVC confirms that the debt-equity ratio and loan interest rate in the approved FSR is reasonable and applicable at the time when the approved FSR was finalized and thus is adopted in the PDD. BVC also can conclude that the change of the debt-equity ratio and loan interest rate would not affect the additionality of the Project. Hence CL-9 is closed.
CL-10: Further clarification is required on the O&M expenses. And the latest available evidence documents should be used to support the related analysis.	4.1.14	The O&M expenses of the Project comprise maintenance fee, salary and welfare of employees, material and miscellaneous fee, and insurance fee. As for these four components, the amount of maintenance fee is the largest, accounting for 54.8% the O&M expenses. And the maintenance fee will not decrease since the year-on-year increase of the index of producer price of industrial products in Liaoning Province during 2003~2008 is 3.6%* at least. Therefore, it is impossible to decrease the O&M cost by 56.68%. The related documents have been provided to BVC.	BVC has verified the revised PDD and found the clear analysis on the O&M has been updated. Furthermore, the updated evidence documents also have been provided. CL-10 is closed.
CL-11: Please specify the data source for the common practice analysis.	4.1.17.1	The data source for common practice analysis, Installed Capacity of Wind Farms in China in 2007/2008/2009 has been specified in the	BVC has verified the data source provided by the PP and confirmed that the common practice analysis specified in the PDD is

* *China Statistical Yearbook 2009* (http://www.stats.gov.cn/tjsj/ndsj/2009/indexch.htm).

		PDD.	correct. CL-11 is closed.
CL-12: Please specify more detailed timeline in the PDD which should include the date when the FSR was finished and the investment decision was made.	4.2.2	The detailed timeline including the approved FSR completed date, investment decision date, and the PDD GSP date have been specified in the revised PDD. The related evidence documents have been provided to BVC.	BVC has verified the revised PDD and the related documents and confirmed that the correct and detailed timeline has been specified in the PDD version 02. CL-12 is closed.