VALIDATION REPORT

LIAONING KANGPING 24.65MW WIND FARM PROJECT IN CHINA

REPORT NO. 2006-1174

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DET NORSKE VERITAS

VALIDATION REPORT

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Approved by: Einar Telnes Director	Organisational unit: DNV Certification, International Climate Change Services
Client: Beijing Keji Consulting Ltd.	Client ref.: Zhang Jisheng

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Summary:
Det Norske Veritas Certification Ltd (DNV) has performed a validation of the "Liaoning Kangping 24.65MW Wind Farm Project" (hereafter called "the project") in 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 modalities and procedures and the subsequent decisions by the CDM Executive Board. This validation report summarizes the findings of the validation.
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 and iii) the resolution of outstanding issues and the issuance of the final validation report and opinion.
In summary, it is DNV's opinion that the "Liaoning Kangping 24.65MW Wind Farm Project", as described in the project design document version 03 dated 25 May 2006, meets all relevant UNFCCC requirements for the CDM and correctly applies the approved baseline and monitoring methodology ACM0002 version 06. Hence, DNV requests the registration of the Liaoning Kangping 24.65MW Wind Farm Project as a CDM project activity

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Work carried out by: Ming Yue Haoxiang Jiang		
Work verified by: Einar Telnes		
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Abbreviations

BM	Build Margin.
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CEF	Carbon Emission Factor
CER	Certified Emission Reduction
CL	Clarification Request
CO_2	Carbon Dioxide
CO_2e	Carbon Dioxide Equivalent
DNV	Det Norske Veritas
DNA	Designated National Authority
EPB	Environment Protection Bureau
GCCI	Global Climate Change Institute.
GHG	Greenhouse Gas(es)
GWP	Global Warming Potential
IPCC	Intergovernmental Panel on Climate Change
LoA	Letter of Approval.
MP	Monitoring Plan
MVP	Monitoring and Verification Plan
NCV	Net Calorific Value
NDRC	National Development and Reform Commission
NEPG	Northeast Power Grid
NGO	Non-governmental Organisation
ODA	Official Development Assistance
OM	Operating Margin
PDD	Project Design Document
PPA	Power Purchase Agreement
UNFCCC	United Nations Framework Convention on Climate Change
SCE	Standard Coal Equivalent

1 INTRODUCTION

Beijing Keji Consulting Ltd. has commissioned Det Norske Veritas Certification Ltd. (DNV) to validate the Liaoning Kangping 24.65MW Wind Farm Project (hereafter called "the project") in China. This report summarises the findings of the validation of the project, performed on the basis of UNFCCC criteria for CDM projects, as well as criteria given to provide for consistent project operations, monitoring and reporting.

The validation team consists of the following personnel:

Mr. Haoxiang Jiang	DNV Certification China	Team Leader, GHG auditor
Ms. Ming Yue	DNV Certification China	GHG Trainee auditor
Mr. Wilson Tang	DNV Certification China	Technical reviewer
Mr. Einar Telnes	DNV certification Norway	QA/QC, sector expert

1.1 Validation Objective

The purpose of a validation is to have an independent third party assess the project design. In particular, the project's baseline, monitoring plan, and the project's compliance with relevant UNFCCC and host Party criteria are validated in order to confirm that the project design, as documented, is sound and reasonable and meets the 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).

1.2 Scope

The validation scope is defined as an independent and objective review of the project design document (PDD). The PDD is reviewed against the criteria stated in Article 12 of the Kyoto Protocol, the CDM modalities and procedures as agreed in the Marrakech Accords and the relevant decisions by the CDM Executive Board, including the approved baseline and monitoring methodology ACM0002. The validation team has, based on the recommendations in the Validation and Verification Manual employed a risk-based approach, focusing on the identification of significant risks for project implementation and the generation of CERs.

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

1.3 Description of Liaoning Kangping 24.65MW Wind Farm Project

The project consists of the construction and operation of a wind park located in Shajin village, Kangping County, Shenyang City, Liaoning Province, China. The project will consist of 29 wind turbines with a nominal capacity of 850 KW, providing a total capacity of 24.65MW. The estimated average annual generation is around 57.08 GWh.

The power generated using wind power resources will be sold to the Liaoning power grid which is part of the China Northeast (Regional) Power Grid (NEPG). The project will thereby displace equivalent amount of electricity generated by the current energy mix in NEPG.

The annual average emission reduction due to the project activity is estimated to be around 42 328 tCO_2e during the first crediting period.

2 METHODOLOGY

The validation consisted of the following three phases:

I a desk review of the project design, 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.

In order to ensure transparency, a validation protocol was customised for the project, according to the Validation and Verification Manual /6/. The protocol shows, in a transparent manner, criteria (requirements), means of verification and the results from validating the identified criteria. The validation protocol serves the following purposes:

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

The validation protocol consists of three tables. The different columns in these tables are described in Figure 1.
The completed validation protocol for the "Liaoning Kangping 24.65MW Wind Farm project" is enclosed in Appendix A to this report.

Findings established during the validation can either be seen as a non-fulfillment of validation protocol criteria or where a risk to the fulfillment of project objectives is identified. Corrective action requests (CAR) are issued, where:

i) mistakes have been made with a direct influence on project results;

ii) validation protocol requirements have not been met; or

iii) there is a risk that the project would not be accepted as a CDM project or that emission reductions will not be certified.

The term "Clarification" may be used where additional information is needed to fully clarify an issue.

Validation Protocol Table 1: Mandatory Requirements for CDM Project Activities			
Requirement	***Reference***	***Conclusion***	***Cross reference***
The requirements the project must meet.	*Gives reference to the legislation or agreement where the requirement is found.*	*This is either acceptable based on evidence provided (**OK**), a **Corrective Action Request (CAR)** of risk or non-compliance with stated requirements or a request for **Clarification (CL)** where further clarifications are needed.*	*Used to refer to the relevant checklist questions in Table 2 to show how the specific requirement is validated. This is to ensure a transparent Validation process.*

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

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

Figure 1 Validation protocol tables

2.1 Review of Documents

The Project Design Document (PDD) version 02 dated 10 December 2005 and version 03 date 25 May 2006 /1/ have been assessed as part of the validation. Also the project feasibility study reports containing the investment analysis and the project's EIA reports /4/-/5/ have been reviewed as a part of the valdiation.

2.2 Follow-up Interviews

DNV performed interviews with project stakeholders on 24-25 January 2006 to confirm selected information and to resolve issues identified in the document review. Representatives of Beijing Keji Consulting Ltd., Kangping Jinshan Wind Power Co., Ltd. (KJWP), were interviewed.
The main topics of the interviews are summarised in table below:

Table 1 Interview topics

Interviewed organisation	Interview topics
Kangping Jinshan Wind Power Co., Ltd.– project owner Mr. Tao Fuchang Mr. Feng Wei Mr. Lu Tian Mr. Hou Degang Mr. Liu Weixian	- Project background information. - Project technology, operation, maintenance and monitoring capability. - Project additionality. - Project monitoring and management plan. - Project approval status (incl. EIA approval, CDM project approval status) - Stakeholder consultation process.
Beijing Keji Consulting Ltd. – project consultant Mrs. Zhao Ying Mr. Shi Chongqi	- 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 was to resolve any outstanding issues which needed to be clarified for DNV's positive conclusion on the project design. The corrective action requests and requests for clarification raised by DNV, presented to the project participant in DNV's draft validation report of 23 April 2006 (rev-01) were resolved during communications between Kangping Jinshan Wind Power Co., Ltd., Beijing Keji Consulting Ltd. and DNV. To guarantee the transparency of the validation process, the concerns raised and responses given are documented in the validation protocol in Appendix A.

Since modifications to the project design were necessary to resolve DNV's concerns, the Beijing Keji Consulting Ltd. decided to revise the PDD and resubmitted the PDD as version-03 on 25 May 2006. After reviewing and assessing the revised PDD, DNV issued this final validation report and opinion.

3 VALIDATION FINDINGS

The findings of the validation are stated in the following sections. The validation criteria (requirements), the means of verification, and the results from validating the identified criteria are documented in more detail in the validation protocol in Appendix A.

The final validation findings relate to the project design as documented and described in the revised and resubmitted project design document version 03 dated 25 May 2006.

3.1 Participation Requirements

The project participants are Kangping Jinshan Wind Power Co., Ltd., China and Carbon Asset Management Sweden AB, Sweden.

The host Party i.e. China, and Annex I Party i.e. Sweden, meet all relevant participation requirements.

The Chinese DNA has issued the Letter of Approval authorizing Kangping Jinshan Wind Power Co., Ltd.as project participant and confirmed that the project contributes to China's sustainable development.

The DNA of Sweden has issued a Letter of Approval, authorizing Carbon Asset Management Sweden AB as project participant.

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 China.

3.2 Project Design

The project objective is to generate renewable electricity using wind power resources and to sell the generated output to the Liaoning Power Grid on the basis of a power purchase agreement (PPA). The proposed project will have a total installed capacity of 24.65MW. A total of 29 wind turbines will be installed each with a unit capacity of 850kW. The proposed project is expected to generate 57.08GWh electricity annually and to sell 54.23GWh power to the grid.

DNV has verified the project has been started 1 September 2002 falling between 1 January 2000 and 18 November 2004. The renewable crediting period (7 years) has been selected and staring on 1 July 2003 which starts prior to the date of project registration. The expected operational lifetime of the project is at least 21 years.

3.3 Project Baseline

The project applies the approved baseline methodology ACM0002 version 06, titled "Consolidated methodology for grid-connected electricity generation from renewable sources"

The applied baseline methodology is justified as it has been demonstrated that the project activity ensures that

- It is a grid connected zero emission renewable power generation activity from wind energy.
- The project does not involve switching from fossil fuel to renewable energy at the project site.

The project boundary is clearly defined as the site of project activity and the China Northeast Power Grid (NEPG) including the Jilin, Heilongjiang and Liaoning Provincial grids and East Inner Mongolia grid (Humeng, Tongliao and Chifeng district grid) to which the project is physically connected.

The alternate baseline scenarios for the project activity have been suitably identified as,

Scenario 1: Construction of a fuel-fired power plant with equivalent amount of installed capacity or annual electricity output;
Scenario 2: Construction of a commercialised wind power project with equivalent amount of installed capacity, but without CDM project development.
Scenario 3: Provision of equivalent amount of annual power output by the grid where the proposed project is connected.

It has been adequately demonstrated that the only realistic and credible alternative for the baseline scenario is the equivalent capacity or electricity service provided by the China Northeast Power Grid.

It is deemed likely that China will continue with a situation with fossil fuel domination of the power sector due to the local availability of low-cost coal reserves. It is expected that renewable resource additions will have no significant effects on the mix of NEPG during the first crediting period.

The baseline is represented by the kWh produced by the wind park multiplied by an emission coefficient (in kg CO_2equ/kWh), calculated based on the weighted average emissions of the current NEPG generation mix. This is reflected in the combined margin (CM) - the weighted average of the operating margin (OM) emission factor and the build margin (BM) emission factor. The weights for OM and BM are set respectively as 75% and 25%, the default value stipulated by ACM0002 version 06 for wind farm projects.

The baseline determination is transparent and reasonable.

3.4 Additionality

The additionality of the project has been established using the “Tool for the demonstration and assessment of additionality” approved by the CDM-EB.

Step 0:

DNV has verified the wind turbines purchase agreement, and invoices for construction subcontractors during the onsite visit. The evidences show that the project started on 1 September 2002, which falls between 1 January 2000 and the date of the registration of the first CDM project activity (18 November 2004).

During the onsite interview , DNV verified meeting minutes of the board of Kangping Jinshan Wind Power Co., Ltd., a confirmation letter from China Construction Bank, Shenyang Nanhu Science & Technology Development Zone Branch and an endorsement letter of CDM project activity of project from Kangping County Development Planning Bureau , which all demonstrate that the incentive from the CDM was seriously considered in the decision to proceed with the project activity.

Given above thereof the project is eligible to have the crediting period starting prior to the registration of their project activity,

Step 1:

The alternate scenarios' identified for the project activity are:

Scenario 1: Construction of a fuel-fired power plant with equivalent amount of installed capacity or annual electricity output;

Scenario 2: Construction of a commercialised wind power project with equivalent amount of installed capacity, but without CDM project development.

Scenario 3: Provision of equivalent amount of annual power output by the grid where the proposed project is connected.

It has been adequately demonstrated that the only realistic and credible alternative for the baseline scenario is the equivalent capacity or electricity service provided by the China NEPG.

Step 2: Investment analysis:

Benchmark analysis (Option III of Step 2 of tool for the demonstration and assessment of additionality) is selected for conducting the investment analysis.

In China, the IRR of 8 % for total investment of project is regarded as a benchmark for investing in hydropower plants, fossil fuel fired plants as well as windfarm projects. The project selects 10% as the benchmark rate in the investment analysis. Considering the facts that (1) it was the first time the project developer entering into the wind power sector; (2) it was the first time the imported 850kW wind turbines are used in the province, the selection of the benchmark is deemed reasonable. By calculating the project IRR, this gives an IRR of 7.72% which shows that the project is less financially attractive than a baseline project.

Three factors are considered in the sensitivity analysis: total investment, operation and maintenance cost and annual electricity output.

- The expected tariff shall be the most sensitive factor. When the price of electricity delivered to the grid increases by 4.6%, the IRR of total investment is equal to the benchmark. However, the expected tariff is not likely to reach such a level because the tariff of electricity in NEPG is strictly regulated.
- When total investment decreases by 12.5%, the IRR of total investment is equal to the benchmark. However, it is unlikely to decline by 12.5% considering the fact that almost all the wind turbine manufacturers have increased their offered prices significantly since 2002.
- The annual operations and maintenance (O&M) costs have relatively little impact on the proposed project IRR, and it shall be regarded as the most insensitive factor. When the annual O&M cost decreases by 20.5%, the IRR for the total investment exceeds the benchmark. Since such a reduction of O&M costs is unlikely for the proposed project, the proposed project is not deemed financially attractive within the reasonable range of O&M costs.

The investment analysis and sensitivity assessment have thus shown that the project activity is unlikely to be the most financially attractive option.

Step 3: Barrier analysis:

A barrier analysis has been conducted as a supplement to the investment analysis. The main barriers to the project activity include:

- Investment barriers: DNV was able to verify that the investment cost per kW of this project (9267RMB/kW) is much higher than that of coal fired units (typically around 5000RMB/kW). The high initial investment cost leads to higher investment risk and more difficulty on project financing.
- The technology barrier: The proposed project introduces technology and equipment from Annex I country, i.e. Denmark and Spain. DNV was able to verify that it was the first time imported 850kw wind turbines are used commercially in the Liaoning province. The uncertainty of such equipment and lack of experience could represent a significant risk on project operation and maintenance during the project implementation in the future.
- However the barriers mentioned above would not prevent the baseline scenario - that equivalent capacity or electricity service provided by the China NEPG from implementation.

Step 4:

Common practice analysis:

The common practice analysis shows that most of existing wind farm projects are demonstration projects funded by low-interest international loans or national soft loans, which also have received very favorable electricity tariffs. The source of supporting documents to this claim has been verified*.

Step 5:

Impact of CDM registration:

The investment analysis shows the potential benefit of CDM income (the IRR increases from 7.72 % to 11.87%) will increase investment return and reduce investment risk directly.

It is in DNV's opinion sufficiently demonstrated that the project is not a likely baseline scenario and emission reductions are therefore additional.

3.5 Monitoring Plan

The project applies the approved monitoring methodology, ACM0002 "Consolidated monitoring methodology for zero emissions grid-connected electricity generation from renewable sources". The selected monitoring methodology is deeemed applicable for the project activity as it involves power generation using wind energy for the NEPG.

Due to the selection of option 1, "calculation of the combined margin ex-ante based on the most recent information available" only electricity generated and sold to the grid will be monitored.

The net electricity generated from the project will be measured on an hourly basis and recorded on a monthly basis. This data will be cross verified against the sales receipt from the grid to which the project is exporting power.

* http://www.cwea.org.cn/upload/200612391640820.doc

* http://www.newenergy.org.cn/energydata/2004-12/20041397.html

Leakage accounting is not required under ACM0002 and thus has not been considered for the project.

Monitoring of sustainable development indicators is not required by the Chinese DNA. The environmental impacts are considered minor and will be monitored by the local environmental authority during the project lifetime.

Training of the current workforce has been provided by the technology provider. The management manual including responsibilities and authorities for project management, procedures for monitoring and reporting, QA/QC procedures, procedures for calibration of metering equipment and procedures for training and maintenance has been elaborated in the PDD and is in place. Detailed procedures have to be implemented during the crediting period to enable subsequent verification of emission reductions.

3.6 Calculation of GHG Emissions

Being a renewable energy (wind power) project there are no project emissions. Auxiliary power consumed by the plant operation is accounted for as only the net power generated from the project is used for emission reduction calculations.

The baseline emission factor for the project is determined ***ex-ante*** as a combined margin, consisting of combination of the operating margin (OM) and build margin (BM).

The operating margin (OM) is calculated using the "simple OM" method which is justified because low cost must run projects constitute less than 50% of the total grid generation.

The aggregated generation and fuel consumption data are used due to the more disaggregated data are not available in the NEPG. Country specific data for net calorific values (NCV_i) of each type of fossil fuel, the IPCC's oxidation factor of each type of fossil fuel and the total electricity delivered to the NEPG selected are deemed reasonable. The data of the local emission factors ($EF_{CO_2,i}$) of the coal selected (25.8 Tc/TJ) are reasonable. Vintage data for the years 2001, 2002 and 2003 are used for operating margin calculation. The OM is calculated to be **1.09** tCO_2/MWh.

Because plant specific fuel consumption and electricity generation data is not public available in China, DNV requested guidance from the CDM Executive Board for a deviation of the baseline methodology of AM0005 and received the following answers * which are deemed to be applicable for this project.

- Use of capacity additions for estimating the build margin emission factor for grid electricity.
- Use of weights estimated using installed capacity in place of annual electricity generation.
- Use the efficiency level of the best technology commercially available in the provincial/regional or national grid of China, as a conservative proxy, for each fuel type in estimating the fuel consumption to estimate the build margin (BM).

Following the CDM EB's guidance the build margin is calculated as follows:

- The capacity additions from the years 1997 to 2004 is chosen and reach 23.28% of total installed capacity.

* to be found on http://cdm.unfccc.int/Projects/Deviations. This has subsequently also been applied for ACM 0002.

- The weight of installed capacity additions for thermal power plant is accounted for 89.19% of total installed capacity additions.
- The coal consumption efficiency of 320 g standard coal equivalent (SCE) per kWh is selected as the best technology commercially available in China. It can be acknowledged as the best available data available for estimating the BM in the NEPG*.
- There are no data available of installed capacity additions for oil and gas power in NEPG. However China Energy Statistics Yearbook (data of 2003) shows that the oil and gas used in NEPG are very small, and only for starting up systems of coal fired power plant, accounting **for ca. 0.18%** of the total CO_2 emissions. So the installed capacity addition for oil and gas power plant being regarded as zero is deemed reasonable.
- The local value of 29.27 GJ/t standard coal equivalent, the IPCC default value of 25.8 tC/TJ for carbon content of the coal and carbon oxidisation factor of 98% are used to calculate the BM.
- The BM is calculated as **0.77** tCO_2/MWh.

The weights ω_{OM} and ω_{BM} are selected as 0.75 and 0.25 respectively for the wind project by the default (i.e. ω_{OM} =0.75 and ω_{BM} =0.25) stipulated on the ACM0002 version 06.

The combined margin of 1.01 tCO_2/MWh is fixed ***ex-ante*** for the entire first crediting period.

The lasted data used to calculate OM is derived from China Energy Statistical Yearbooks of the year 2001 to 2003; to calculate the BM is derived from China Power Electric Power Yearbooks of the year 1997 to 2004.

Data related to the East Inner Mongolia grid (Humeng, Tongliao and Chifeng) is not available and has not been accounted for in calculating the OM and BM. The data presented in China Energy Statistical Yearbook and China Electric Power Yearbook is from provinces and not from power grids. However the East Inner Mongolia grid predominantly consists of coal-fired power plants with higher CO_2 emission. By comparing the calculation results of including and excluding data of the whole Inner Mongolia grid, it is deemed conservative to neglect the impact of Inner Mongolia grid on the calculation of the grid emissions factor for the project.

The GHG calculations are complete and transparent, and their accuracy has been verified.

3.7 Environmental Impacts

An environmental impact assessment (EIA) has been conducted according to Chinese laws and regulations. The potential environmental impacts have been sufficiently identified.

No significant environmental impacts are expected from the project activity. The Liaoning Environmental Protection Bureau approved the project activity on 11 November 2004. A copy of all the relevant approvals has been submitted to and verified by DNV.

3.8 Comments by Local Stakeholders

Besides the stakeholder consultation process stipulated in the Chinese EIA regulation, the project developer has conducted an additional stakeholder consultations. Different stakeholders from

* http://www.ccchina.gov.cn/source/ca/ca2004112501.htm

banks, institutes and electricity grid companies were consulted during the stakeholder consultation process and onsite survey was conducted with the local community. There were no adverse comments on the project activity and all comments are supportive of the project. A summary of comments is provided and verified by DNV.

4 COMMENTS BY PARTIES, STAKEHOLDERS AND NGOS

The PDD of 10 December 2005 was made publicly available on DNV's climate change website (www.dnv.com/certification/climatechange) and Parties, stakeholders and NGOs were through the CDM website invited to provide comments during a 30 days period from 28 December 2005 to 26 January 2006.

One comment was received on 18 January 2006. The comment received (in unedited form) is given in the below text box.

Comment by: Yang Qingqing, Green Life Association

Inserted on: 18 January 2006

Subject: step 0

Comment:

Same as Liaoning Zhangwu project ,

proof of OWNER SERIOUSLY considered CDM when making decision of build the project in year 2002? It's quite doubtable that THESE project developers (Zhangwu and Tianjingshenzhou and Jinshan) know and seriously considered CDM in year 2002. Know CDM so early in China, Why do they develop the PDD at the end of 2005? Concrete and transparent and documented proof must support it.

Same as Liaoning Zhangwu,

Stakeholder are all government department?

***How DNV has considered the comment received in its validation**:*

During the onsite visit DNV has verified the wind turbines purchase agreement, which shows the project has been started on 1 September 2002 falling between 1 January 2000 and the date of the registration of a first CDM project activity (18 November 2004).

Board meeting minutes of Kangping Jinshan Wind Power Co., Ltd., a confirmation letter from China Construction Bank, Shenyang Nanhu Science & Technology Development Zone Branch and an endorsement letter from Kangping County Development Planning Bureau (NDRC) have been verified during the onsite interview. These demonstrate that the incentive from the CDM was seriously considered in the decision to proceed with the project activity.

Given above DNV is of the opinion that the incentive from the CDM was seriously considered in the decision to proceed with the project activity and the project is thus deemed eligible to have the crediting period starting prior to the registration of their project activity.

Besides the stakeholder consultation process stipulated in the Chinese EIA regulation, the project developer has conducted the supplementary stakeholder consultations on August 2002. Different stakeholders from Liaoning Environmental Protection Bureau, Liaoning Electric Power Co., Liaoning Price Bureau, financial institutions, and residents were consulted during the stakeholder consultation process. A summary of comments is provided and verified by DNV. It is deemed to be sufficient for the stakeholder consultation process of project activity.

5 VALIDATION OPINION

Det Norske Veritas Certification Ltd. (DNV) has performed a validation of the "Liaoning Kangping 24.65MW Wind Farm Project" in China. The validation was performed on the basis of UNFCCC criteria for the Clean Development Mechanism and host country criteria, as well as criteria given to provide for consistent project operations, monitoring and reporting.

The review of the project design documentation and the subsequent follow-up interviews have provided DNV with sufficient evidence to determine the fulfilment of stated criteria.

The host country is China and the Annex I country is Sweden. Both countries fulfil the participation criteria and have approved the project and authorized the project participants. The DNA of China has confirmed that the project assists in achieving sustainable development.

The validation did not reveal any information that indicates that the project can be seen as a diversion ODA funding towards China.

The project correctly applies ACM0002 version 06: "Consolidated baseline & monitoring methodology for grid-connected electricity generation from renewable sources"

By generating renewable energy which will displace electricity in NEPG, the project results in reductions of CO_2 emissions that are real, measurable and giving long-term benefits to the mitigation of climate change. It is demonstrated that the project is not a likely baseline scenario. Emission reductions attributable to the project are hence additional to any that would occur in the absence of the project activity.

The total emission reductions from the project are estimated to be on the average 42 328 tCO_2e per year over the first 7-year crediting period. The emission reduction forecast has been checked, and it is deemed likely that the stated amount is achieved given that the underlying assumptions do not change.

Adequate training, operating, maintenance and monitoring procedures will be formalised and put in place prior to the start of crediting period.

In summary, it is DNV's opinion that the "Liaoning Kangping 24.65MW Wind Farm Project" in China as described in the PDD version-03 of 25th May 2006 meets all relevant UNFCCC requirements for the CDM and all relevant host country criteria and correctly applies the baseline and monitoring methodology ACM0002 version-06. DNV thus requests the registration of the "Liaoning Kangping 24.65MW Wind Farm Project" as a CDM project activity.

REFERENCES

Documents provided by the project proponent that relate directly to the project:

/1/ CDM PDD of " Liaoning Kangping 24.65MW Wind-farm Project, version 02 dated 10 December 2005 and version 03 dated 25 May 2006

/2/ Feasibility Study report, dated July 2002 and its approval letter dated August 2002

/3/ EIA reports, dated June 2002 and its approval letter dated November 2002

/4/ Letter of Approval from DNA of Sweden, 20 July 2006

/5/ Letter of Approval from DNA of China, 29 June 2006

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

/6/ International Emission Trading Association (IETA) & the World Bank's Prototype Carbon Fund (PCF): *Validation and Verification Manual*. http://www.vvmanual.info

/7/ ACM0002: combined baseline methodology for grid-connected electricity generation from renewable sources. (Version 6)

Persons interviewed during the validation, or persons who contributed with other information that are not included in the documents listed above:

/8/ **Kangping Jinshan Wind Power Co., Ltd.– project owner**
Mr. Tao Fuchang
Mr. Feng Wei
Mr. Lu Tian
Mr. Hou Degang
Mr. Liu Weixian

/9/ **Beijing Keji Consulting Ltd. – project consultant**
Mrs. Zhao Ying
Mr. Shi Chongqi

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APPENDIX A

CDM VALIDATION PROTOCOL

Table 1 Mandatory Requirements for Clean Development Mechanism (CDM) Project Activities

Requirement	Reference	Conclusion	Cross Reference / Comment
1. The project shall assist Parties included in Annex I in achieving compliance with part of their emission reduction commitment under Art. 3	Kyoto Protocol Art.12.2	OK	Table 2, Section E.4.1 No participant from Annex I country has yet been identified.
2. The project shall assist non-Annex I Parties in achieving sustainable development and shall have obtained confirmation by the host country thereof	Kyoto Protocol Art. 12.2, CDM Modalities and Procedures §40a	~~CAR 1~~	Table 2, Section A.3
3. The project shall assist non-Annex I Parties in contributing to the ultimate objective of the UNFCCC	Kyoto Protocol Art.12.2.	~~CAR 1~~	Table 2, Section E.4.1
4. The project shall have the written approval of voluntary participation from the designated national authority of each party involved	Kyoto Protocol Art. 12.5a, CDM Modalities and Procedures §40a	~~CAR 1~~	Table 2, Section A
5. The emission reductions shall be real, measurable and give long-term benefits related to the mitigation of climate change	Kyoto Protocol Art. 12.5b	OK	Table 2, Section E
6. Reduction in GHG emissions shall be additional to any that would occur in absence of the project activity, i.e. a CDM project activity is additional if anthropogenic emissions of greenhouse gases by sources are reduced below those that would have occurred in the absence of the registered CDM project activity	Kyoto Protocol Art. 12.5c, CDM Modalities and Procedures §43	OK	Table 2, Section B.2
7. In case public funding from Parties included in Annex I is used for the project activity, these Parties 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 these Parties.	Decision 17/CP.7, CDM Modalities and Procedures Appendix B, § 2	OK	The validation did not reveal any information that indicates that the project can be seen

Requirement	Reference	Conclusion	Cross Reference / Comment
			as a diversion of official development assistance (ODA) funding towards the China
8. Parties participating in the CDM shall designate a national authority for the CDM	CDM Modalities and Procedures §29	OK	The DNA of China is the National Development and Reform Commission.
9. The host Party and the participating Annex I Party shall be a Party to the Kyoto Protocol	CDM Modalities §30/31a	OK	China ratified the Kyoto Protocol on 30 August, 2002. Sweden ratified the Kyoto Protocol on 31 May 2002
10. The participating Annex I Party's assigned amount shall have been calculated and recorded	CDM Modalities and Procedures §31b	OK	As per annex B of kyoto Protocol, Quantified Emission Limitation or Reduction Commitment (% age of base year) for Sweden it is 92%.
11. The participating Annex I Party shall have in place a national system for estimating GHG emissions and a national registry in accordance with Kyoto Protocol Article 5 and 7	CDM Modalities and Procedures §31b	OK	According to UNFCCC website, Sweden regularly reports its annual GHG emission inventory.

Requirement	Reference	Conclusion	Cross Reference / Comment
12. Comments by local stakeholders shall be invited, a summary of these provided and how due account was taken of any comments received	CDM Modalities and Procedures §37b	OK	Table 2, Section G
13. Documentation on the analysis of the environmental impacts of the project activity, including transboundary impacts, shall be submitted, and, if those impacts are considered significant by the project participants or the Host Party, an environmental impact assessment in accordance with procedures as required by the Host Party shall be carried out.	CDM Modalities and Procedures §37c	OK	Table 2, Section F
14. Baseline and monitoring methodology shall be previously approved by the CDM Executive Board	CDM Modalities and Procedures §37e	OK	Table 2, Section B.1.1 and D.1.1
15. Provisions for monitoring, verification and reporting shall be in accordance with the modalities described in the Marrakech Accords and relevant decisions of the COP/MOP	CDM Modalities and Procedures §37f	OK	Table 2, Section D
16. Parties, stakeholders and UNFCCC accredited NGOs shall have been invited to comment on the validation requirements for minimum 30 days, and the project design document and comments have been made publicly available	CDM Modalities and Procedures §40	OK	The PDD has been published on DNV's climate change website and Parties, stakeholders and NGOs have through the UNFCCC CDM website been invited to provide comments on the validation requirements during a period of 30 days from 28 December 2005 to 26 January 2006. One comment has been received

Requirement	Reference	Conclusion	Cross Reference / Comment
			during the period.
17. A baseline shall be established on a project-specific basis, in a transparent manner and taking into account relevant national and/or sectoral policies and circumstances	CDM Modalities and Procedures §45c,d	OK	Table 2, Section B.2
18. The baseline methodology shall exclude to earn CERs for decreases in activity levels outside the project activity or due to force majeure	CDM Modalities and Procedures §47	OK	Table 2, Section B.2
19. The project design document shall be in conformance with the UNFCCC CDM-PDD format	CDM Modalities and Procedures Appendix B, EB Decision	OK	The PDD is in conformance with the Version 02.

Table 2 Requirements Checklist

Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
A. General Description of Project Activity *The project design is assessed.*					
A.1. Project Boundaries *Project Boundaries are the limits and borders defining the GHG emission reduction project.*					
A.1.1. Are the project's spatial (geographical) boundaries clearly defined?	/1/	DR I	Yes, the project boundaries have been defined and are limited to the wind farm located in Shajin village, Kangping county, Shenyang City, 122°52′ east longitude, 42°41′ north latitude.		OK
A.1.2. Are the project's system (components and facilities used to mitigate GHGs) boundaries clearly defined?	/1/	DR I	Yes. The project's system boundary is restricted to the wind farm – comprising 29 wind turbines of 850kW model. The NEPG is clearly defined as project system boundary.		OK
A.2. Technology to be employed *Validation of project technology focuses on the project engineering, choice of technology and competence/ maintenance needs. The validator should ensure that environmentally safe and sound technology and know-how is used.*					
A.2.1. Does the project design engineering reflect current good practices?	/1/	DR	Yes, The proposed project will use the variable pitch wind turbines (G52-850kW model) manufactured by the Spanish company Gamesa Eolica and the variable pitch wind turbines (V52-850kW model)		OK

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

Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
			manufactured by the Denmark Vestas. The wind turbine is a proven technology, but still more advanced than the current Chinese wind turbine technology available domestically.		
A.2.2. Does the project use state of the art technology or would the technology result in a significantly better performance than any commonly used technologies in the host country?	/1/	DR	Yes, the project proposes use of state of the art technology. The Gamesa and Vestas wind turbines has higher wind utilization efficiency, higher energy conversion efficiency, and a better performance in terms of start-up and shutdown of the wind turbine.		OK
A.2.3. Is the project technology likely to be substituted by other or more efficient technologies within the project period?	/1/	DR	The project is unlikely to be substituted by other more efficient technologies, at least within the crediting period of first 7 years.		OK
A.2.4. Does the project require extensive initial training and maintenance efforts in order to work as presumed during the project period?	/1/	DR I	Yes, the training has been provided by technology supplier.		OK
A.2.5. Does the project make provisions for meeting training and maintenance needs?	/1/	DR I	Yes, during onsite interview DNV has verified that local engineers and technicians have been trained in the implementation of the project. Special attention will be given to the operation and maintenance of pitch-regulated wind turbines as well as the improvement of the technical capacity of monitoring staff.		OK
A.3. Contribution to Sustainable Development *The project's contribution to sustainable development is assessed.*					
A.3.1. Is the project in line with relevant legislation and plans in the host country?	/1/	DR	The project feasibility study reports has been approved by the local government on		OK

Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
			12 August 2002		
A.3.2. Is the project in line with host-country specific CDM requirements?	/1/	DR	Yes. The project meets the specific CDM requirements of China.		OK
A.3.3. Is the project in line with sustainable development policies of the host country?	/1/	DR	The project is line with China's policy on sustainable development. But it is to be formally confirmed by the Chinese DNA.	~~CAR 1~~	OK
A.3.4. Will the project create other environmental or social benefits than GHG emission reductions?	/1/	DR	Yes. The project reduces emissions of GHGs from fossil fuel fired plants as well as provides for additional employment, especially during the construction phase.		OK
B. Project Baseline *The validation of the project baseline establishes whether the selected baseline methodology is appropriate and whether the selected baseline represents a likely baseline scenario.*					
B.1. Baseline Methodology *It is assessed whether the project applies an appropriate baseline methodology.*					
B.1.1. Is the baseline methodology previously approved by the CDM Executive Board?	/1/	DR	Yes. The project applies ACM0002 version 06		OK
B.1.2. Is the baseline methodology the one deemed most applicable for this project and is the appropriateness justified?	/1/	DR	Yes. The project is a capacity addition from a renewable energy source and does not involve on-site fuel switch from fossil fuels to a renewable source. The geographic and system boundaries for the relevant electricity grid (China Northeast Power Grid, NEPG) can be clearly identified.		OK

Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
B.2. Baseline Determination *The choice of baseline will be validated with focus on whether the baseline is a likely scenario, whether the project itself is not a likely baseline scenario, and whether the baseline is complete and transparent.*					
B.2.1. Is the application of the methodology and the discussion and determination of the chosen baseline transparent?	/1/	DR	Yes. The baseline is determined as continued operation of the existing power plants and the addition of new generation sources to meet electricity demand.		
B.2.2. Has the baseline been determined using conservative assumptions where possible?	/1/	DR I	Yes. Tool for the demonstration and assessment of additionality" approved by the CDM-EB has been used to determined the baseline. The alternate scenarios identified for the project activity are, Scenario 1: Construction of a fuel-fired power plant with equivalent amount of installed capacity or annual electricity output; Scenario 2: Construction of a commercialised wind power project with equivalent amount of installed capacity, but without CDM project development. Scenario 3: Provision of equivalent amount of annual power output by the grid where the proposed project is connected. It has been adequately demonstrated that the only realistic and credible alternative for the baseline scenario is the equivalent		OK

Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
			capacity or electricity service provided by the China NEPG.		
B.2.3. Has the baseline been established on a project-specific basis?	/1/	DR	Yes. The project specific situation is taken into account.		OK
B.2.4. Does the baseline scenario sufficiently take into account relevant national and/or sectoral policies, macro-economic trends and political aspirations?	/1/	DR	Yes. The renewable energy law, sectoral policy and development trends in NEPG have been taken into account.		OK
B.2.5. Is the baseline determination compatible with the available data?	/1/	DR	Yes. The latest data available at the time of PDD submission is the year of 2004 derived from China Electricity Power Yearbook and the year of 2003 of China Energy Statistical yearbook.		OK
B.2.6. Does the selected baseline represent the most likely scenario among other possible and/or discussed scenarios?	/1/	DR	Yes. Continued operation of the existing power plants and the addition of new generation sources to meet electricity demand represent the most likely baseline scenario.		OK
B.2.7. Is it demonstrated/justified that the project activity itself is not a likely baseline scenario?	/1/	DR I	Yes. The Tool for the demonstration and assessment of additionality" approved by the CDM-EB has been used to demonstrate the additionality. **Investment analysis:** Benchmark analysis (Option III of Step 2 of tool for the demonstration and assessment of additionality) is selected for conducting the investment analysis. In China, the IRR of 8 % for total investment of project is regarded as benchmark for investing in hydropower plants, fossil fuel fired plants as well as wind farm projects. Considerging the facts that: (1) it was the	~~CL 1~~	OK

Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
			first time that the project developer entering the wind farm sector; (2) it was the first time that imported 850kw wind turbines being used in the province, the selection of 10% as the benchmark rate is deemed reasonable. However, tthe IRR calculated in the feasibility study report is around 12%, which is higher than the benchmark rate. By calculating the project IRR, this gives an IRR of 7.72% which shows that the project is less financially attractive than the baseline project. Three factors are considered in the sensitivity analysis: total investment, operation and maintenance cost and annual electricity output. The expected tariff shall be the most sensitive factor. When the price of electricity delivered to the grid increases by 4.6%, the IRR of total investment is equal to benchmark. But the expected tariff is impossible to be higher than its present level taking into account the average grid-connected tariff. When total investment decreases by 12.5%, the IRR of total investment is equal to benchmark. However, it is unlikely to decline by 12.5% considering the fact that almost all wind turbine manufactures has increased their offers dramatically since 2002.		

Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
			The annual O&M cost has relatively little impact on the proposed project IRR, and it shall be regarded as the most insensitive factor. When annual O&M cost decreases by 20.5%, IRR of total investment exceeds the benchmark. Since such reduction of O&M cost is lack of possibility for the proposed project, therefore, the proposed project is always lack of financial attractiveness within the reasonable range of annual O&M cost. The investment analysis and sensitivity assessment have thus shown that the project activity is unlikely to be the most financially attractive option. **Barrier analysis:** Barrier analysis has been conducted as supplementary to the investment analysis. The main barriers to the project activity include: Investment barriers: in China the investment cost per kW (9267RMB/kW for the proposed project) of wind power unit is much higher than that of coal fired units of business as usual scenario; the high initial investment cost leads to higher investment risk and more difficulty on project financing. The technology barrier: The proposed project introduces technology and equipment from Annex I country, i.e. Denmark and Spain. It is the first time		

Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
			imported 850kw wind turbines being used commercially in Liaoning province. The uncertainty of such equipment and lack of experience can have a significant risk on project operation and maintenance during the project implementation in the future. However the barriers mentioned above would not prevent the baseline scenario- that equivalent capacity or electricity service provided by the China NEPG from implementation. **Common practice analysis:** The common practice analysis shows that the most of existing wind farm projects kinds of demonstration projects funded by international low interest loan or national soft loan, and received a very favourable electricity tariff. The source of such supporting documents has been verified. **Impact of CDM registration:** The investment analysis shows the potential benefit of CDM income (the IRR increases from 7.72 % to 11.87%) will increase investment return and reduce investment risk directly. It is sufficiently demonstrated that the project is not a likely baseline scenario and that emission reductions are hence additional.		
B.2.8. Have the major risks to the baseline been	/1/	DR	No major risks to the baseline are foreseen.		OK

Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
identified?					
B.2.9. Is all literature and sources clearly referenced?	/1/	DR	Yes.		OK
C. Duration of the Project/ Crediting Period *It is assessed whether the temporary boundaries of the project are clearly defined.*					
C.1.1. Are the project's starting date and operational lifetime clearly defined and reasonable?	/1/	DR	Yes. During the onsite visit DNV has verified the wind turbines purchase agreement it shows the project has been started on 1 September 2002 falling between 1 January 2000 and the date of the registration of a first CDM project activity (18 November 2004). The board meeting minutes of Kangping Jinshan Wind Power Co., Ltd., confirmation letter from China Construction Bank, Shenyang Nanhu Science & Technology Development Zone Branch and endorsement letter from Kangping County Development Planning Bureau has been verified during the onsite interview it demonstrated that the incentive from the CDM was seriously considered in the decision to proceed with the project activity. Given above thereof the project is eligible to have the crediting period starting prior to the registration of their project activity.	~~CL 2~~	OK
C.1.2. Is the assumed crediting time clearly defined (renewable crediting period of seven years with two possible renewals or fixed crediting period of 10 years with no renewal)?	/1/	DR	Yes, the renewable crediting period (7 years) has been selected for the project, started in July 2003.		OK

Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
D. Monitoring Plan *The monitoring plan review aims to establish whether all relevant project aspects deemed necessary to monitor and report reliable emission reductions are properly addressed ((Blue text contains requirements to be assessed for optional review of monitoring methodology prior to submission and approval by CDM EB).*					
D.1. Monitoring Methodology *It is assessed whether the project applies an appropriate baseline methodology.*					
D.1.1. Is the monitoring methodology previously approved by the CDM Executive Board?	/1/	DR	The project applies the approved monitoring methodology, ACM0002 Version 06 "Consolidated monitoring methodology for grid-connected electricity generation from renewable sources".		OK
D.1.2. Is the monitoring methodology applicable for this project and is the appropriateness justified?	/1/	DR	Yes. The project is the grid-connected renewable power generation (Wind sources) project activity.		OK
D.1.3. Does the monitoring methodology reflect good monitoring and reporting practices?	/1/	DR	Yes. The electricity generated will be monitored directly. This reflects good practice.		OK
D.1.4. Is the discussion and selection of the monitoring methodology transparent?	/1/	DR	Yes. The electricity generated will be monitored directly.		OK

Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
D.2. Monitoring of Project Emissions *It is established whether the monitoring plan provides for reliable and complete project emission data over time.*					
D.2.1. Does the monitoring plan provide for the collection and archiving of all relevant data necessary for estimation or measuring the greenhouse gas emissions within the project boundary during the crediting period?	/1/	DR	There are no emissions from the project activity.		OK
D.3. Monitoring of Leakage *It is assessed whether the monitoring plan provides for reliable and complete leakage data over time.*					
D.3.1. Does the monitoring plan provide for the collection and archiving of all relevant data necessary for determining leakage?	/1/	DR	Project participants do not need to consider leakage in applying this methodology.		OK
D.4. Monitoring of Baseline Emissions *It is established whether the monitoring plan provides for reliable and complete project emission data over time.*					
D.4.1. Does the monitoring plan provide for the collection and archiving of all relevant data necessary for determining baseline emissions during the crediting period?	/1/	DR I	The project uses the *ex-ante* determination of emission factor for grid electricity. Only electricity generated will be monitored and double checked with the invoice of electricity sold to the grid.		OK
D.4.2. Is the choice of baseline indicators, in particular for baseline emissions, reasonable?	/1/	DR	The choice of baseline indicators is in line with ACM0002.		OK
D.4.3. Will it be possible to monitor / measure the	/1/	DR	The electricity generated will be monitored		OK

Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
specified baseline indicators?		I	directly.		
D.4.4. Will the indicators give opportunity for real measurements of baseline emissions?	/1/	DR I	The baseline emissions will be calculated based on the net electricity sold to the grid and double checked with invoice.		OK
D.5. Monitoring of Sustainable Development Indicators/ Environmental Impacts *It is checked that choices of indicators are reasonable and complete to monitor sustainable performance over time.*					
D.5.1. Does the monitoring plan provide the collection and archiving of relevant data concerning environmental, social and economic impacts?	/1/	DR	Neither ACM0002, nor the NDRC require the monitoring of sustainable development indicators.		OK
D.6. Project Management Planning *It is checked that project implementation is properly prepared for and that critical arrangements are addressed.*					
D.6.1. Is the authority and responsibility of project management clearly described?	/1/	DR I	The responsibility for operation and maintenance of the metering equipments is clearly specified.		OK
D.6.2. Is the authority and responsibility for registration, monitoring, measurement and reporting clearly described?	/1/	DR I	Yes.		OK
D.6.3. Are procedures identified for training of monitoring personnel?	/1/	DR I	Yes. In the project developer's Operation and Maintenance manual, the procedures related to the project implementation, including the training, data handling, emergency, instruments operation and maintenance, data and performance reviewed ,etc, have been addressed in details.		OK

Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
D.6.4. Are procedures identified for emergency preparedness for cases where emergencies can cause unintended emissions?	/1/	DR I	Idem		OK
D.6.5. Are procedures identified for calibration of monitoring equipment?	/1/	DR I	Idem		OK
D.6.6. Are procedures identified for maintenance of monitoring equipment and installations?	/1/	DR I	Idem		OK
D.6.7. Are procedures identified for monitoring, measurements and reporting?	/1/	DR I	Idem		OK
D.6.8. Are procedures identified for day-to-day records handling (including what records to keep, storage area of records and how to process performance documentation)	/1/	DR I	Idem		OK
D.6.9. Are procedures identified for dealing with possible monitoring data adjustments and uncertainties?	/1/	DR I	Idem		OK
D.6.10. Are procedures identified for review of reported results/data?	/1/	DR I	Idem		OK
D.6.11. Are procedures identified for internal audits of GHG project compliance with operational requirements where applicable?	/1/	DR I	Idem		OK
D.6.12. Are procedures identified for project performance reviews before data is submitted for verification, internally or externally?	/1/	DR I	Idem		OK
D.6.13. Are procedures identified for corrective actions in order to provide for more accurate future monitoring and reporting?	/1/	DR I	Idem		OK

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

Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
E. Calculation of GHG Emissions by Source *It is assessed whether all material GHG emission sources are addressed and how sensitivities and data uncertainties have been addressed to arrive at conservative estimates of projected emission reductions.*					
E.1. Project GHG Emissions *The validation of ex-ante estimated project GHG emissions focuses on transparency and completeness of calculations.*					
E.1.1. Are all aspects related to direct and indirect GHG emissions captured in the project design?	/1/	DR	Project emission is regarded as zero as the project is a renewable energy (wind source) project.		OK
E.2. Leakage *It is assessed whether there leakage effects, i.e. change of emissions which occurs outside the project boundary and which are measurable and attributable to the project, have been properly assessed and estimated ex-ante.*					
E.2.1. Are potential leakage effects beyond the chosen project boundaries properly identified?	/1/	DR	There are no leakages that need to be considered in applying this methodology.		OK
E.3. Baseline Emissions *The validation of ex-ante estimated baseline GHG emissions focuses on transparency and completeness of calculations.*					
E.3.1. Have the most relevant and likely operational characteristics and baseline indicators been	/1/	DR	Yes. The baseline emission is calculated in line with the ACM0002. The baseline		OK

Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
chosen as reference for baseline emissions?			emission factor is based on the "combined margin" using the simple OM of ACM0002		
E.3.2. Are the baseline boundaries clearly defined and do they sufficiently cover sources and sinks for baseline emissions?		DR	Yes.	~~CL 3~~	OK
E.3.3. Are the GHG calculations documented in a complete and transparent manner?		DR	More details for the calculation of OM/BM are needed: - NCV (net caloric value) emission factor and oxidation factor for different fuels; - Approach and assumption of BM: plant/average efficiency of coal; how are oil, gas, diesel fired thermal power plants considered?	~~CL 4~~	OK
E.3.4. Have conservative assumptions been used when calculating baseline emissions?		DR	Yes. See. B.2.1.		OK
E.3.5. Are uncertainties in the GHG emission estimates properly addressed in the documentation?		DR	No uncertainties have been identified.		OK
E.3.6. Have the project baseline(s) and the project emissions been determined using the same appropriate methodology and conservative assumptions?		DR	Yes.		OK
E.4. Emission Reductions *Validation of ex-ante estimated emission reductions*.					
E.4.1. Will the project result in fewer GHG emissions than the baseline scenario?	/1/	DR	Yes, the project is expected to generate about 42 328 tCO_2 emission reductions per annum.		OK

Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
F. Environmental Impacts *Documentation on the analysis of the environmental impacts will be assessed, and if deemed significant, an EIA should be provided to the validator.*					
F.1.1. Has an analysis of the environmental impacts of the project activity been sufficiently described?	/1/	DR	Yes. There has been sufficient analysis of the environmental impacts in the PDD.		OK
F.1.2. Are there any Host Party requirements for an Environmental Impact Assessment (EIA), and if yes, is an EIA approved?	/1/	DR	Yes. The project has completed its EIA report for both phase I and phase II and get approved by the Liaoning Provincial EPB respectively on 24 July 2002 and 15 November 2004.		OK
F.1.3. Will the project create any adverse environmental effects?	/1/	DR	No significant adverse environmental effects have been identified according to the EIA reports.		OK
F.1.4. Are transboundary environmental impacts considered in the analysis?	/1/	DR	No trans-boundary environmental impacts are likely to occur.		OK
F.1.5. Have identified environmental impacts been addressed in the project design?	/1/	DR	No significant environmental impacts have been identified.		OK
F.1.6. Does the project comply with environmental legislation in the host country?	/1/	DR	Yes. See F.1.2.		OK
G. Stakeholder Comments *The validator should ensure that a stakeholder comments have been invited and that due account has been taken of any comments received.*					
G.1.1. Have relevant stakeholders been consulted?	/1/	DR I	Yes. Local government agencies, including the provincial EPB, the Electric Power Co., the Price Bureau, etc. have been invited.		OK
G.1.2. Have appropriate media been used to invite	/1/	DR	This is not required by the relevant		OK

Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
comments by local stakeholders?		I	legislation.		
G.1.3. If a stakeholder consultation process is required by regulations/laws in the host country, has the stakeholder consultation process been carried out in accordance with such regulations/laws?	/1/	DR I	According to the Provincial EPB's requirements to the project, the public consultation process performed by project developer is the action beyond legal requirement.		OK
G.1.4. Is a summary of the stakeholder comments received provided?	/1/	DR	Yes. The summary of the stake holder comments have been provided.		OK
G.1.5. Has due account been taken of any stakeholder comments received?	/1/	DR	Yes.		OK

Table 3 Resolution of Corrective Action and Clarification Requests

Draft report corrective action requests and requests for clarifications	Ref. to Table 2	Summary of project participants' response	Final conclusion
CAR 1 The project has not yet obtained the formal Letter of Approval (LoA) from the Chinese DNA, confirming the voluntary participation of the project participant and the sustainable development contribution to the host country.	A.3.3	The DNA of China has issued the Letter of Approval to the project on 29 June 2006.	OK. This CAR is then closed.
~~CL 1~~ The feasibility study report shows that the IRR is around 12% which is higher than the benchmark (10%) of investment in electricity power industrial sector. Please clarify it.	B	The calculation of IRR shows on the project feasibility study report is based on: if project use the 600kW turbine, the IRR will be around 12%. The 850kW turbine has been used for the project activity. Due to increase of the initial investment, the IRR decreased as 7.72%. Please see the spreadsheet of calculation IRR based on actual investment of the project. The proposed project introduces technology and equipment from overseas, and it is the first time for Liaoning.	OK. DNV has verified the spreadsheet of IRR calculation; it is believed that without CDM incentives, the IRR of total investment is lower than the benchmark. Thus, the proposed project is not financially attractive. This CL is then closed.

~~CL 2~~ The evidences that the incentive from the CDM was seriously considered in the decision to proceed with the project activity should be provided.		The evidences submitted include: - Resolution of the Board Passed at the Second Meeting of the First Directorate of Liaoning Kangping Jinshan Wind Power Ltd. - Confirmation Letter for the Additionality on Financing of the Wind Farm Project Developed by Liaoning Kangping Jinshan Wind Power Ltd. - Reply to the Implementation of CDM Project Activities of Liaoning Kangping Jinshan Wind Power Ltd. by Kangping County Development Planning Bureau	OK DNV has verified the documents provided by project developer. It is demonstrated that that the incentive from the CDM was seriously considered in the decision to proceed with the project activity. This CL is then closed.
~~CL 3~~ The data of East Inner Mongolia grid (Humeng, Tongliao and Chifeng) has not been included in the calculating the OM and BM, please justify the conservativeness.	E.3.1	The data presented in China Energy Statistical Yearbook and China Electric Power Yearbook is by provinces instead of by power grids. The generation and capacity data of East Inner Mongolia Power Grid is unable to separate from Inner Mongolia Grid. Considering the data availability and the fact that 99.5% electricity of Inner Mongolia Grid is generated by coal-fired plants and the CO_2 emissions factor is much higher than NEPG, it is conservative to eliminate the East Inner Mongolia Power Grid in the project electricity grid in the calculation of emission factors.	OK By comparing the calculation result of including and excluding data of Mongolia grid, it is conservative to neglect the impact of Inner Mongolia grid on the calculation of the grid emissions factor for the project. This CL is then closed.

~~CL 4~~ Please explain the additions of installed capacity for oil and gas fired power plant in NEPG.	E.3.3	There is no data available of installed capacity additions for oil and gas power in NEPG. However China Energy Statistics Yearbook (data of 2003) shows that the oil and gas used in NEPG are very small, and only for starting up systems of coal fired power plant, accounting for ca. 0.18% of the total CO_2 emissions. So the installed capacity additions for oil and gas power plant being regarded as zero is reasonable.	OK The consumption of oil and gas in the NEPG is insignificant. Hence, it is deemed acceptable to exclude the oil and gas capacity additions in the calculation of the BM.

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