



VALIDATION REPORT

Inner Mongolia Siziwangqi
Bayin'aobao Wind Power Project
in
China

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VALIDATION REPORT

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Client: Longyuan (Siziwang) Wind Power Co., Ltd.	Client ref.: Mr. Han Jinlong

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Project Name: Inner Mongolia Siziwangqi Bayin'aobao Wind Power Project
Country: China
Methodology: ACM0002
Version: version 06
GHG reducing Measure/Technology: Grid-connected electricity generation from renewable sources (wind energy)
ER estimate: 129 134 tCO₂/year
Size
☒ Large Scale
☐ Small Scale
Validation Phases:
☒ Desk Review
☒ Follow up interviews
☒ Resolution of outstanding issues
Validation Status
☐ Corrective Actions Requested
☐ Clarifications Requested
☒ Full Approval and submission for registration
☐ Rejected
 In summary, it is DNV's opinion that the "Inner Mongolia Siziwangqi Bayin'aobao Wind Power Project" in China, as described in the PDD of 07 August 2008, meets all relevant UNFCCC requirements for the CDM and all relevant host Party criteria and correctly applies the baseline and monitoring methodology ACM0002, version 06. DNV thus requests the registration of the project as a CDM project activity.

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Abbreviations

BM	Build Margin
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CER	Certified Emission Reduction
CL	Clarification request
CO ₂	Carbon dioxide
CO ₂ e	Carbon dioxide equivalent
DNV	Det Norske Veritas
DNA	Designated National Authority
DRC	Development and Reform Commission
EF	Emission Factor
EIA	Environmental Impact Assessment
EPB	Environmental Protection Bureau
GHG	Greenhouse gas(es)
IPCC	Intergovernmental Panel on Climate Change
LoA	Letter of Approval
MP	Monitoring Plan
NCV	Net Calorific Value
NDRC	National Development and Reform Commission
NCPG	North China Power Grid
NGO	Non-governmental Organisation
ODA	Official Development Assistance
OM	Operating Margin
PDD	Project Design Document
UNFCCC	United Nations Framework Convention on Climate Change
SCE	Standard coal equivalent



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1 EXECUTIVE SUMMARY – VALIDATION OPINION

Det Norske Veritas Certification AS (DNV) has performed a validation of the “Inner Mongolia Siziwangqi Bayin’aobao Wind Power Project ” in China. The validation was performed on the basis of UNFCCC criteria for the Clean Development Mechanism and host Party 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 Party is China. And the Annex I Party is France. Both Parties fulfil the participation criteria and have approved the project and authorized the project participants. The DNA from China confirmed that the project assists in achieving sustainable development.

The project correctly applies CDM Executive Board: ACM0002”consolidated methodology for grid-connected electricity generation from renewable sources” version 06 of 19 May 2006. By generating electricity from wind sources, the project results in reductions of CO₂ emissions that are real, measurable and give 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 129 134 tCO₂e 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 and monitoring procedures have been implemented.

In summary, it is DNV’s opinion that the “Inner Mongolia Siziwangqi Bayin’aobao Wind Power Project “ in China, as described in the PDD of 07 August 2008, meets all relevant UNFCCC requirement for the CDM and all relevant host Party criteria and correctly applies the baseline and monitoring methodology ACM0002, version 06. DNV thus requests the registration of the project as a CDM project activity.

2 INTRODUCTION

The Longyuan (Siziwang) Wind Power Co., Ltd. has commissioned Det Norske Veritas Certification AS (DNV) to perform a validation of the project “Inner Mongolia Siziwangqi Bayin’aobao Wind Power Project “ in China (hereafter called “the project”). This report summarises the findings of the validation of the project, performed 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.

2.1 Objective

The purpose of a validation is to have an independent third party assessment of 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



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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).

2.2 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. The validation team has, based on the recommendations in the Validation and Verification Manual /9/ 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.



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3 METHODOLOGY

The validation consisted of the following three phases:

- I a desk review of the project design documents
- II follow-up interviews with project stakeholders
- III the resolution of outstanding issues and the issuance of the final validation report and opinion.

The following sections outline each step in more detail.

3.1 Desk Review of the Project Design Documentation

The following table outlines the documentation assessed during the validation:

- /1/ China Fulin Windpower Development Corporation, Project Design Document for the “Inner Mongolia Siziwangqi Bayin’aobao Wind Power Project”, Version 2.0, 6 June 2007 for web hosting and Version 05, 07 August 2008 for registration.
- /2/ Letter of Approval issued by DNA of China in January 2008
- /3/ Letter of Approval issued by DNA of France on 31 March 2008
- /4/ Zhongshui Beifang Reconnaissance, Design and Research Co., Ltd.(certificate NO. 020007-sj), The Feasibility study report of Inner Mongolia Siziwangqi Bayin’aobao Wind Power Project in August 2006 and the approval letter by Development and Reform Commission of Inner Mongolia Autonomous Region on 28 February 2007 (IMDRC Energy [2007] No443)
- /5/ The EIA of Inner Mongolia Siziwangqi Bayin’aobao Wind Power Project on 6 September 2006 by Environment Protection Scientific and Research Institute of Wulanchabu City in Inner Mongolia Autonomous Region and the approval letter by Environmental Protection Bureau of Inner Mongolia Autonomous Region on 7 September 2006 (IMEPB Table [2006] No 69)
- /6/ CDM Project Management and Operation Procedure
- /7/ Stakeholder registration records participating in project stakeholder forum on 22 August 2007 and Summary of stakeholder forum for Inner Mongolia Siziwangqi Bayin’aobao Wind Power Project
- /8/ 30 copies of Questionnaires of stakeholder consultation during May - June 2007.
- /9/ International Emission Trading Association (IETA) & the World Bank’s Prototype Carbon Fund (PCF): *Validation and Verification Manual*.
<http://www.ieta.org/ieta/www/pages/index.php?IdSitePage=200>
- /10/ CDM Executive Board: ACM0002”consolidated methodology for grid-connected electricity generation from renewable sources” version 06 of 19 May 2006
- /11/ CDM Executive Board: Tool for the demonstration and assessment of additionality, version 04, EB 36 meeting.



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- /12/ China Electric Power Yearbooks 2002-2006
- /13/ China Energy statistics Yearbooks 2004-2006
- /14/ CDM Executive Board: Guidance for request for deviation titled “Application of AM0005 and AMS-I.D in China” (<http://cdm.unfccc.int/Projects/Deviations>)
- /15/ Revised 2006 IPCC Guidelines for National Greenhouse Gas Inventories
- /16/ State Power Corporation of China. Interim Rules on Economic Assessment of Electrical Engineering Retrofit Projects. Beijing: China Electric Power Press, 2003
- /17/ Annex 3 to wind power turbine unit equipment purchasing agreement for Inner Mongolia Siziwangqi Bayin’aobao Wind Power Project on 23 July 2007--- technology specification
- /18/ Inner Mongolia Power Group Co., Ltd., Answer relating to Grid Access Application for Inner Mongolia Siziwangqi Bayin’aobao Wind Power Project by China Guodian Longyuan Electric Power Group Co., 10 October 2006
- /19/ Parties to the Kyoto Protocol, <http://maindb.unfccc.int/public/country.pl?group=kyoto>
- /20/ Notice on Strictly Prohibiting the Installation of Fuel-fired Generators with the Capacity of 135MW or below, issued by the General Office of the State Council, decree no. 2002-6
- /21/ BM calculation from China National Development and Reform Commission <http://cdm.ccchina.gov.cn/webSite/CDM/UpFile/File1365.pdf>
- /22/ China regional electricity power grid baseline emission factor in 2007 <http://cdm.ccchina.gov.cn/webSite/CDM/UpFile/File1364.pdf>
- /23/ The permit to start construction of Inner Mongolia Siziwangqi Bayin’aobao Wind Power Project by Anhui Electric Power Engineering Supervising Co., Ltd., 19 July 2007
- /24/ The report “Extreme lack of water resource in Inner Mongolia” issued by Alibaba, 10 January 2005 <http://www.china5e.com/news/water/200501/200501100145.html>
- /25/ Propositional letter regarding the on-grid for Inner Mongolia Siziwangqi Bayin’aobao Wind Power Project issued by Development and Reform Commission of Siziwang County of Wulanchabu City, 20 April 2007
- /26/ Development and Reform Commission of Siziwang county of Wulanchabu city, Propositional letter to invite Longyuan (Siziwang) Wind Power Co., Ltd. to join the National CDM development communion, 20 May 2007
- /27/ The agreement regarding consultation and service for CDM project development signed by the Longyuan (Siziwang) Wind Power Co., Ltd. with China FulinWindpower Development Corporation, 16 July 2007
- /28/ China government policy to encourage the production of the wind turbines, 16 January 2008 <http://www.86wind.com/info/detail/4-5335.html>
- /29/ Tentative management measures for price and sharing of expenses for electricity generation from renewable energy, Document No. NDRC Price [2006]7. 4 January 2006 <http://www.eri.org.cn/manage/upload/uploadimages/eri200672795944.pdf>



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- /30/ The approval letter regarding the on grid tariff of some wind projects in Hebei and Heilongjiang by NDRC of China, 3 December 2007
http://www.ndrc.gov.cn/zcfb/zcfbtz/2007tongzhi/t20080218_193193.htm
- /31/ Report of survey from cooperated team of NDRC, Ministry of Finance and State Electricity Regulatory Commission, reported dated 27 November 2007
http://jjckb.xinhuanet.com/cjxw/2007-11/27/content_75467.htm
- /32/ Report of solar PV high cost for power generation by Li Junfeng from Energy Research Institute of NDRC, people web, 20 September 2007
<http://finance.people.com.cn/GB/1038/59942/59949/6294546.html>
- /33/ Report of Yigang on forum of China international capital 2007, who is assistant general director of Chinese People's Bank
http://www.chinadaily.com.cn/hqcj/2007-09/03/content_6075777.htm
- /34/ News regarding the price of materials dated 3 November 2007
<http://info.bm.hc360.com/2007/12/03102559376.shtml>
- /35/ News regarding the wind power analysis dated 11 May 2007
<http://energy.people.com.cn/GB/5720709.html>
- /36/ Approved consolidated baseline and monitoring methodology ACM0013 version 2
http://cdm.unfccc.int/UserManagement/FileStorage/CDMWF_AM_JD73SPVZEDDN6IY8M6WFC7WIOBMNRN
- /37/ Keshiketeng qi wind power project phase III introduction
http://www.gd.xinhuanet.com/newscenter/ztbd/2007-10/18/content_11435955.htm
- /38/ Longyuan huitengxile wind power project introduction
<http://www.nwtc.cn/Article/ShowArticle.asp?ArticleID=814>

Main changes between the version published for the 30 days stakeholder commenting period and the final version submitted for registration:

- *The sensitivity analysis has been revised to show the changes of four critical parameters (total investment, annual O&M costs, on-grid tariff and PLF) by determining the value at which the IRR will be equal to the benchmark (instead of analyzing $\pm 10\%$ fluctuation of three parameters only).*
- *PDD is revised according to the resolutions of CAR(s) and CL(s) and the latest EB requirements and Guidelines (EB38-EB41)*

3.2 Follow-up Interviews with Project Stakeholders

On 5 November 2007, DNV performed an interview to resolve the issues identified during the desk review of the project design document. The representatives of China Fulin Windpower Development Corporation (consultant) and Longyuan (Siziwang) Wind Power Co., Ltd. were interviewed.



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Table below shows the list of issues discussed during the site visits:

	Date	Name	Organization	Topic
/39/	2007-11-05	Mr.Han Jinlong	Longyuan (Siziwang) Wind Power Co., Ltd	<ul style="list-style-type: none"> - 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.
/40/	2007-11-05	Mr.Li Gang Project manager	China Fulin Windpower Development Corporation (consultant)	<ul style="list-style-type: none"> - Applicability of selected methodology. - Baseline determination. - Emission reductions calculation. - Emission reduction monitoring plan.

3.3 Resolution of Outstanding Issues

The objective of this phase of the validation is to resolve any outstanding issues which need to be clarified prior to DNV's positive conclusion on the project design. In order to ensure transparency a validation protocol is customised for the project. The protocol shows in 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 the figure below. The completed validation protocol for the "Inner Mongolia Siziwangqi Bayin'aobao Wind Power Project" is enclosed in Appendix A to this report.

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

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- i) mistakes have been made with a direct influence on project results;
- ii) CDM and/or methodology specific 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.

A request for clarification (CL) 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
<i>The requirements the project must meet.</i>	<i>Gives reference to the legislation or agreement where the requirement is found.</i>	<i>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.</i>

Validation Protocol Table 2: Requirement checklist				
Checklist Question	Reference	Means of verification (MoV)	Comment	Draft and/or Final Conclusion
<i>The various requirements in Table 2 are linked to checklist questions the project should meet. The checklist is organised in different sections, following the logic of the large-scale PDD template, version 03 - in effect as of: 28 July 2006. Each section is then further sub-divided.</i>	<i>Gives reference to documents where the answer to the checklist question or item is found.</i>	<i>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.</i>	<i>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.</i>	<i>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.</i>

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

Figure 1 Validation protocol tables



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3.4 Internal Quality Control

The draft validation report including the initial validation findings underwent a technical review before being submitted to the project participants. The final validation report underwent another technical review before requesting registration of the project activity. The technical review was performed by technical reviewers qualified in accordance with DNV's qualification scheme for CDM validation and verification.

3.5 Validation Team

Role/Qualification	Last Name	First Name	Country
Team leader/ GHG auditor	Ma	Jiandong	China
CDM validator	Sun	Shuyong	China
Technical reviewer	Ramachandran	Ramesh	India
Technical reviewer applicant	Yang	Weidong	USA
Sector expert	Lehmann	Michael	Norway

The qualification of each individual validation team member is detailed in Appendix B to this report.



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4 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 documentation dated 07 August 2008.

4.1 Participation Requirements

The project participants are Longyuan (Siziwang) Wind Power Co., Ltd., China and EDF Trading Limited, France. The host Party, i.e. China, and Annex I Party i.e. France, meet all relevant participation requirements.

The DNA of China has issued a Letter of Approval /2/ in January 2008, authorizing Longyuan (Siziwang) Wind Power Co., Ltd. as project participant and also confirmed that the project contributes to China's sustainable development.

The DNA of France has issued a Letter of Approval /3/ 31 March 2008, authorizing EDF Trading Limited 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.

4.2 Project Design

The project involves installation and operation of 33 wind turbines in Siziwangqi Town, Wulanchabu City, Inner Mongolia Autonomous Region, China. The physical boundary of the project includes the wind turbines and transmission system along with the North China Power Grid (NCPG) as the electrical grid to which the project is physically connected. The project's spatial boundaries are clearly defined.

Based on the wind resource conditions, SL1500/77 turbines certified by German Lloyd with an installed generation capacity each of 1500 kW /17/ are selected, which constitute a total generation capacity of 49.5 MW. The installation also includes a central control room for control, measurement and surveillance of the wind farm /4//17/. The project applies state of the art technology.

The project activity started on 19 July 2007 /23/; this is the date on which the construction permit was issued. The expected operational lifetime of the project activity is 20 years. /4//17/A renewable crediting period of 7 years has been chosen for the project, starting from 1 January 2009.

The emission reductions are estimated to be 129 134 tCO₂e per year and 903 938 tCO₂e over the first seven-year crediting period.

4.3 Baseline Determination

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:

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- It is a NCPG grid connected zero emission renewable power generation activity from wind energy./18/
- The project does not involve switching from fossil fuel to renewable energy at the project site./4/

The project boundary is clearly defined as the site of the project activity and the NCPG including the Beijing, Tianjin, Hebei, Shanxi, Shandong and Inner Mongolia Autonomous Region grids to which the project is physically connected. This is in line with the delineation of grid boundaries as provided by the DNA of China/22/. There are no significant transmission constraints between the power plants of the NCPG, and there is negligible electricity export or import between the NCPG and other connected grids.

The defined project boundary is in line with ACM0002 (version 06).

Emission sources and gases included in the project boundary are:

	GHGs involved	Description
Baseline emissions	CO ₂	The North China Power Grid
Project emissions	N/A	Project emission is regarded as zero as the project is a renewable energy (wind source) project.
Leakage	N/A	There are no leakages that need to be considered in applying this methodology.

According to the methodology ACM0002 version 06, the baseline scenario has been selected and discussed.

The proposed project is a new grid-connected project. North China Power Grid is considered as the “project electricity system”, therefore, the baseline scenario of the proposed project can be identified as the following:

“Electricity delivered to the grid by the proposed project would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources within the North China Power Grid, as reflected in the combined margin (CM) calculated described below.”

It is deemed appropriate that the baseline is provision of an equivalent amount of annual power output by the North China Grid (NCPG) to which the project is connected. This has been verified by DNV.

In the baseline scenario, the electricity delivered from the project activity to the grid would have been generated by fossil fuels grid-connected power plants and by the addition of new generation sources. 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 weighting is set respectively to 75% and 25%, the default values stipulated by ACM0002 (version 06) for wind power projects.



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The NCPG is dominated by coal-fired power plants. It is deemed likely that coal-fired power plants will continue to dominate the power sector due to the local availability of low-cost coal. It is expected that renewable capacity additions will not have significant effects on the mix of the NCPG during the first crediting period.

The baseline determination is transparent and reasonable as discussed in Section 4.4.

4.4 Additionality

The additionality of the project has been established using the *“Tool for the demonstration and assessment of additionality (version4)”* approved by the CDM-EB/11/.

It has been demonstrated by the chronological events that CDM revenues were considered for the project activity prior to start of construction.

- a) The feasibility study report of the proposed project was approved by Inner Mongolia Autonomous Region Development and Reform Commission (DRC) on 28 February 2007, in which the IRR of the project was 8.33% with the expected tariff of 0.5597 RMB/kWh (Including VAT). Based on the approval and the expected IRR of the proposed project, the project owner started performing the exploration plan after the approval of the project and prepare for the first stage of the construction including the confirmation of construction contract and shop drawing of the proposed project. During this period, the local DRC issued the propositional letter on the expected tariff on 20 April 2007 with the propositional tariff of 0.5100 RMB/kWh (Including VAT) /25/, by which the IRR of the project was only 6.99 % (below the benchmark of 8%) thus the directorate of Longyuan (Siziwang) Wind Power Co.Ltd., decided that the proposed project could not be considered as financially attractive.
- b) Although the proposed project was without financial attraction, the proposed project accorded with the national environmental policy and the preferential scopes of energy development, thus the local NDRC recommended the project owner to consider the CDM support that can help the proposed project to obtain the CDM revenues, and advised the project owner to take part in the Communion on CDM on 20 May 2007/26/. Based on the information by the web, the project owner realized the importance of CDM and knew the procedures of CDM. Subsequently, the project owner invited the CDM consulting company to provide CDM development service for the proposed project/27/.
- c) Since the project would be expected to obtain the supports from CDM revenue and improve the economic feasibility, the project owner decided to proceed with the project activity and received the construction permit on 19th July 2007. This is defined as the starting date of the project.

All the relevant evidences supporting this information have been provided by the project participant and verified by DNV.

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

The alternate scenarios identified for the project activity are,

- a) No project activity undertaken (continuation of current practice- equivalent capacity or



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- electricity service provided by the NCPG);
- b) Construction of a coal fuel power plant of annual output equivalent to the proposed project.
- c) the proposed project itself, but not undertaken as a CDM project activity;
- d) Commercial renewable power plant of equivalent capacity to the proposed project.

The option b) does not comply with the Chinese law because coal-fired power plants with a capacity less than 135 MW are prohibited to be built in areas covered by large grids such as provincial grids/20/. Scenario c) the proposed project itself, if not undertaken as a CDM project activity, is unlikely to be the baseline scenario due to the barriers discussed below. Scenario d) is not realistic, as in Inner Mongolia; there are no usable water resources for the development of hydropower plants with the similar installed capacity as the proposed project /24/. Due to the technology development status and the high cost for power generation, biomass, solar PV and geothermal power generation with the similar installed capacity as the proposed project are little attractive investment in China./31//32/Therefore, the only realistic and credible alternative for the project activity is option a) the equivalent capacity or electricity service provided by the NCPG .

Step 2: Investment analysis.

The project generates revenues other than CDM-related revenues and the alternative does not include an investment. Benchmark analysis was therefore chosen. In China an IRR of 8% for the total investment of a project is regarded as a benchmark for investments in hydropower plants, fossil fuel fired plants and wind farm projects/16/. Based on the data in the feasibility study report (FSR) /4/ and the propositional letter of tariff /25/, the project IRR without CER revenues is 6.99 %, which confirms that the project in the absence of CDM benefits is not financially attractive compared to the benchmark.

DNV was able to confirm the input values used in the investment analysis as following:

- a) The input parameters (except tariff) used in the financial analysis are taken from the Feasibility Study Report (FSR) developed by Zhongshui Beifang Reconnaissance, Design and Research Co., Ltd and approved by Development and Reform Commission of Inner Mongolia Autonomous Region on 28 February 2007/4/ The electricity tariff of 0.51 RMB/kWh (including VAT) has been sourced from the propositional letter of Development and Reform Commission of Siziwang County of Wulanchabu City dated 20 April 2007 /25/.. The input parameters used in the financial analysis can thus be considered information provided by an independent and recognized source.
- b) DNV has compared the input parameters for the financial analysis included in the PDD with the parameters stated in the FSR /4/ and the above mentioned source /25/ and was able to confirm that the values applied are consistent with the value stated in the FSR and above mentioned source /25/. The electricity tariff information (20 April 2007) /25/ was available at the time when decision to proceed with the project was made (19 July 2007) /23/.
- c) The FSR was approved on 28 February 2007/4/ and the propositional letter was dated 20 April 2007 /25/ and thus only 5 and 3 months prior to the decision to proceed with the project activity which was on 19 July 2007/23/ respectively. Given this relative short



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period of time between approval of the FSR and the Provisional letter and the decision to proceed with the project activity it is unlikely in the context of the project that the input values would have materially changed and that it is thus reasonable to assume that the FSR and the Provisional letter have been the basis of the decision to proceed with the investment in the project.

- d) The input parameters used in the financial analyses were compared with the data reported for other similar proposed CDM projects in the Inner Mongolia Autonomous Region, by comparing investment costs per MW, electricity tariff, PLF and percentage of O&M costs relative to total investment costs, etc. DNV was able to confirm that the input parameters used in the financial analysis are reasonable and adequately represent the economic situation of the project.

A sensitivity analysis has been carried out for parameters contributing more than 20% to revenues or costs. Reasonable variations of the total investment, annual operational costs, electricity output and on-grid tariff were checked by calculating the variation necessary to reach the benchmark and then discussing the likelihood for that to happen. None of the parameters in the sensitivity analysis are considered to have any significant positive correlation

It could be seen that if the total investment decreases by 6.80%, the project IRR could exceed the benchmark. However, it is not likely the total investment will decrease by 6.80%, since 89.54% of the total investment of the proposed project is used to purchase and install electric power equipments (wind turbines and transformers)/4/, the evidence/28/ shows that the price for wind turbine equipment, has increased enormously in 2008, it is not likely to that the total investment of the proposed project will decrease during construction period.

The annual O&M cost is insensitivity factor on the project IRR, which will only begin exceed the benchmark if it decreases by 34.3%. According to the Feasibility Study Report of the proposed project, the detailed operation costs included maintenance costs, annual salaries for the employees, insurance premium of fixed assets and other costs. Since in the recent years, the price of material and salaries of the employees and tax rates are gradually increasing in China /33/ /34/ and the maintenance costs for accessorial equipments of wind turbines are also rising due to the wind turbines demand exceeding supply /35/, the annual O&M cost will gradually increase during the operation period for the proposed project. Therefore, it is not likely that the annual O&M cost could decrease 34.3%.

The electricity tariff is a very important factor on project IRR. If it increases by 6.90%, the project IRR will begin to exceed the benchmark. However, it is unlikely for the tariff of the proposed project to have an increase of 6.90%. According to China's Management Rules on Tariff issued by NDRC/29/, the guiding tariff of the un-tendering wind projects should be determined by the government with reference to the tariff of tendering wind projects locally. The tariff of PPA for wind power projects are then determined by the grid company and project owners according to the guiding tariff determined by the government. The tariff for newly built wind power project is generally not allowed to be higher than the tariff provided in the latest guiding tariff. In Inner Mongolia Power grid which is included in the NCPG, the guiding tariff for wind power projects provided by government has been maintained at a level



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of 0.54-0.5325 RMB/kWh (include VAT) from 2000 to 2006. In 2007, a new guiding tariff was released and the tariff for wind power projects is decreased to 0.51 RMB/kWh (include VAT)/30/. The tariffs of newly built wind power projects are provided in the PPA according to the latest guiding price. Since the trend of tariff for wind power projects in the Inner Mongolia Power grid is decreasing, it is not likely to increase the tariff of the project by 6.90%.

The PLF is a key parameter impacting the financing attractiveness of the project since the PLF reflects the annual electricity output. If the PLF (or annual electricity output) increases by 6.90%, the project IRR could also exceed the benchmark. However, the PLF value (or annual electricity output) depends on the wind speed of the project site and the specific wind turbine. As per the feasibility study report, the annual electricity output is estimated based on the 10 years weather statistic data from 1996 to 2005, which was obtained through the professional software WASP to determine the richest wind source area, then using another software WindFarmer to optimize the location of each turbine in order to maximize power generation /4/. The PLF value is positive correlation with the wind speed, and the annual average wind speed of the project site tends to decrease and gradually be stable over the past 30 years from 1976 to 2006 for which data are available recently /4/. Therefore the probability that the PLF (or annual electricity output) is 6.90% higher than the estimated value is deemed unreasonable.

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

Step 4: Common practice analysis:

The Inner Mongolia Autonomous Region was selected as the region to conduct the common practice analysis, as there are similar wind resources and investment environment for wind power projects in this region, meanwhile, the wind resource and investment environment in this region are different from other regions /30/. The installed capacity with a range of 25MW to 75MW was selected as per the requirements in ACM0013 /36/. According to the criteria, only two projects have been identified. One is Keshiketeng Qi Dali wind power project phase III; this project has been supported by the state debt fund /37/. Another one, Longyuan Huitengxile wind power project, has been supported by the foreign loan and fund /38/. But, the proposed project obtained none of these supports. Thus, it can be concluded that the project is not a common practice.

In summary, it is sufficiently demonstrated that the project is not a likely a baseline scenario and that emission reductions are hence additional.

4.5 Monitoring

The monitoring methodology selected complies with requirements of ACM0002, version 6.

4.5.1 Parameters determined ex-ante

The baseline carbon emission factor of the NCPG is determined from the published data of NDRC and is fixed ex-ante. The operating margin (OM) has been calculated from the emission data of 2003, 2004 and 2005. These are the three most recent years for which the



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data is available from NDRC. From these 3 years data, the simple OM for NCPG has been calculated to be 1.1208 tCO₂/MWh. The build margin (BM) has been calculated from the data available from NDRC for the year 2001-2005 to be 0.9397 tCO₂/MWh. As required by ACM0002 for wind energy, weight factors of 75% and 25% have been used for OM and BM respectively for the calculation of combined margin (CM). The combined margin emission factor has been calculated to be 1.0755 tCO₂/MWh and is fixed *ex-ante* for the first crediting period. All the data used in the calculations are publicly available data and the calculations are correct.

4.5.2 Parameters monitored ex-post

The net amount of electricity dispatched by the Inner Mongolia Siziwangqi Bayin'aobao Wind Power Project to the NCPG grid will be monitored continuously. The net electricity exported to the grid will be reported on monthly basis and cross-checked with the invoices. All data will be archived for 2 years after the crediting period or last issuance of CERs. Since the project involves electricity generation from wind sources, no monitoring is required for project emissions or leakages due to the project activity.

4.5.3 Management system and quality assurance

The responsibility of overall project management lies with Longyuan (Siziwang) Wind Power Co., Ltd. The monitoring of the project performance will be carried out by Longyuan (Siziwang) Wind Power Co., Ltd., who will provide for the training of the monitoring personnel. Longyuan (Siziwang) Wind Power Co., Ltd. will also be responsible for the review of reported results. The electricity meters installed under the project activity are approved by the Inner Mongolia Power Group Co., Ltd and deemed appropriate. The meters will be calibrated at a regular frequency. The electricity generation reports on joint meter reading are generated by Longyuan (Siziwang) Wind Power Co., Ltd. on monthly basis. All data and the monthly electricity sales receipts from Inner Mongolia Power Group Co., Ltd. used for facilitating cross-checking will also be archived until 2 years after the end of crediting period or last issuance of CERs.

4.6 Estimate of GHG Emissions

The emission reduction E_{Ry} by the project activity during the crediting period is the difference between baseline emissions (B_{Ey}), project emissions (P_{Ey}) and emissions due to leakage (L_y), as follows:

- 1) Baseline emissions: baseline emissions (B_{Ey} in tCO₂) are the product of the baseline emissions factor (E_{Fy} in tCO₂/MWh) for the North China power grid (NCPG) times the electricity supplied by the project activity to the grid (E_{Gy} in MWh)
- 2) Project emissions: there are no emissions from the project which is a renewable energy project
- 3) Leakage: no leakage has to be considered for the proposed project activity
- 4) Emission reduction: $E_{Ry} = B_{Ey} - P_{Ey} - L_y = B_{Ey}$

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).

For the calculation of OM, the aggregated generation and fuel consumption data are used due to the more disaggregated data are not available in the NCPG. Country specific data for net calorific value (NCV_i) of each type of fossil fuel, the IPCC 2006 default value of oxidation factor and emission factor of each type of fossil fuel and the total electricity delivered to the



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NCPG selected are deemed reasonable. Vintage data for the years 2003, 2004 and 2005 are used for operating margin calculation. The OM is calculated to be 1.1208 tCO₂/MWh as a generation-weighted average for the three years.

For the calculation of BM, because plant specific fuel consumption and electricity generation data is not publicly available in China, the EB guidance on the request for deviation titled “Application of AM0005 and AMS-I.D in China” /12/ has been applied as follows:

- The capacity additions from the years 2003 to 2005 is chosen and reach 23.8% of total installed capacity.
- The weight of installed capacity additions for thermal power plant is accounted for 99.28% of total installed capacity additions.
- The standard coal consumption of 343.33 g SCE/kWh (i.e. an efficiency of 35.82%) for coal-fired power plant and 258 g SCE/kWh (i.e. an efficiency of 47.67%) for oil/gas power plant are used to determine the BM emission factor, which is defined as the best technology commercially available in China by the DNA of China/21/.
- The local net caloric value of fuels from the China Energy Statistical Yearbook from 2004 to 2006, the default value such as the fuel emission factors and the carbon oxidation factor of 100% from the IPCC 2006 are used to calculate the BM.
- The BM is calculated as 0.9397 tCO₂/MWh.

The weights ω_{OM} and ω_{BM} are selected as 0.75 and 0.25, respectively, as stipulated for wind project by ACM0002 (version 06). The combined margin of 1.0755 tCO₂/MWh is fixed *ex-ante* for the entire first crediting period.

The latest data used to calculate OM and BM are derived from China Energy Statistical Yearbooks 2004, 2005, 2006 /13/ and China Power Electric Power Yearbooks 2002 to 2006/12/.

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

The emission reductions from the project are real and measurable. Provided the underlying assumptions do not change, the project is likely to reduce 129 134 t CO₂ e per annum during its first-seven year crediting period.

4.7 Environmental Impacts

An Environmental Impact Assessment (EIA) has been conducted according to Chinese law & regulation. The potential environmental impacts have been sufficiently identified. No significant environmental impacts are expected from the project activity. The Environmental Protection Bureau of Inner Mongolia Autonomous Region has approved the project activity on 7 September 2006 /5/.

4.8 Comments by Local Stakeholders

Project developer has conducted stakeholder consultations. A survey has been carried out on the surrounding villagers and local relevant government departments by questionnaires to invite comments/8/. 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.

Besides the stakeholder consultation process stipulated in the Chinese EIA regulation, the project owner held a stakeholders conference on 22 August 2007/7/. Total 13 stakeholder representatives from the local Development and Reform Bureau, the local Environmental



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Protection Bureau, the local Power Supply Corporation, etc. attended meeting. Also a public survey was conducted on the local residents through distributing and collecting responses to the questionnaires during May – June 2007 (30 questionnaires collected)/8/. There were no adverse comments on the project activity and 100% of the respondents agree with the development of the project. All the questionnaires with comments have been verified by DNV.

4.9 Comments by Parties, Stakeholders and NGOs

The PDD of 6 June 2007 was made publicly available on DNV's climate change website (<http://www.dnv.com/certification/climatechange/Projects/ProjectDetails.asp?ProjectId=1533>) and Parties, stakeholders and NGOs were through the CDM website invited to provide comments during a 30 days period from 31 August 2007 to 29 September 2007.

No comment was received during this period.



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APPENDIX A

CDM VALIDATION PROTOCOL



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

Requirement	Reference	Conclusion
About Parties		
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
2. The project shall assist non-Annex I Parties in contributing to the ultimate objective of the UNFCCC.	Kyoto Protocol Art.12.2.	OK
3. 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	OK CAR-1
4. 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	OK CAR-1
5. 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
6. Parties participating in the CDM shall designate a national authority for the CDM.	CDM Modalities and Procedures §29	OK
7. The host Party and the participating Annex I Party shall be a Party to the Kyoto Protocol.	CDM Modalities §30/31a	OK
8. The participating Annex I Party's assigned amount shall have been calculated and recorded.	CDM Modalities and Procedures §31b	OK



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Requirement	Reference	Conclusion
9. 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
About additionality		
10. Reduction in GHG emissions shall be additional to any that would occur in the 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
About forecast emission reductions and environmental impacts		
11. 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
For large-scale projects only		
12. 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
About stakeholder involvement		
13. 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
14. Parties, stakeholders and UNFCCC accredited NGOs shall have been invited to comment on the validation requirements for minimum 30 days, and the project	CDM Modalities and Procedures §40	OK



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Requirement	Reference	Conclusion
design document and comments have been made publicly available.		
Other		
15. The baseline and monitoring methodology shall be previously approved by the CDM Executive Board.	CDM Modalities and Procedures §37e	OK
16. 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
17. 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
18. The project design document shall be in conformance with the UNFCCC CDM-PDD format.	CDM Modalities and Procedures Appendix B, EB Decision	OK
19. 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



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Table 2 Requirements Checklist

CHECKLIST QUESTION * MoV = Means of Verification, DR= Document Review, I= Interview		Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
A. General Description of Project Activity <i>The project design is assessed.</i>						
A.1. Project Boundaries <i>Project Boundaries are the limits and borders defining the GHG emission reduction project.</i>						
A.1.1. Are the project's spatial boundaries (geographical) clearly defined?		/1/ /4/	DR I	Yes. The project is located in Siziwangqi Town, Wulanchabu City, Inner Mongolia Autonomous Region China. Exact coordinates for its location are given.		OK
A.1.2. Are the project's system boundaries (components and facilities used to mitigate GHGs) clearly defined?		/1/ /4/ /18/ /23/	DR I	The North China (regional) power grid (NCPG) which the proposed project is connected to and the project site are defined as the project system boundary./4//18/, whose delineation is published by the DNA of China /22/.		OK
A.2. Participation Requirements <i>Referring to Part A, Annex 1 and 2 of the PDD as well as the CDM glossary with respect to the terms Party, Letter of Approval, Authorization and Project Participant.</i>						
A.2.1. Which Parties and project participants are		/1/	DR	The project participants are Longyuan		OK

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participating in the project?			(Siziwang) Wind Power Co., Ltd., China and EDF Trading Limited, France.		
A.2.2. Have all involved Parties provided a valid and complete letter of approval and have all private/public project participants been authorized by an involved Party?	/1/	DR I	The letters of approval from the DNA of both China and France have not been obtained.	CAR-1	OK
A.2.3. Do all participating Parties fulfil the participation requirements as follows: - Ratification of the Kyoto Protocol - Voluntary participation - Designated a National Authority	/1/ /19/	DR	China ratified the Kyoto Protocol on 30 August, 2002. France ratified the Kyoto Protocol on 31 May 2002. Both Parties participate in the CDM on a voluntary basis. Both Parties involved have designated national authorities for the CDM. Chinese DNA is the National Development and Reform Commission (NDRC). DNA of France is <u>Mission interministérielle de l'effet de serre (MIES)</u> and <u>Ministère des Affaires étrangères</u> .		OK
A.2.4. Potential public funding for the project from Parties in Annex I shall not be a diversion of official development assistance.	/1/ /4/	DR I	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.		OK

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CHECKLIST QUESTION * MoV = Means of Verification, DR= Document Review, I= Interview	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
A.3. Technology to be employed <i>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.</i>					
A.3.1. Does the project design engineering reflect current good practices?	/1/	DR	Yes. The project design engineering reflects current good practices in China.		OK
A.3.2. 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/ /17/	DR I	The wind turbines applied for the proposed project are SL1500/77 model made by Sinovel Wind Co.,Ltd. as per the technology specification of equipment purchasing agreement/17/.		OK
A.3.3. Does the project make provisions for meeting training and maintenance needs?	/1/	DR I	Provision for meeting training and maintenance needs has not been evidenced	CL1	OK
A.4. Contribution to Sustainable Development <i>The project's contribution to sustainable development is assessed.</i>					
A.4.1. Has the host country confirmed that the project assists it in achieving sustainable development?	/1/	DR	This shall be confirmed once the LoA is received from the host Party.	CAR1	OK

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A.4.2. Will the project create other environmental or social benefits than GHG emission reductions?	/1/ /4/ /5/	DR I	Yes. The project will, among others benefits, mitigate local environmental pollution caused by coal-fired power plants, create local employment opportunity and help promote the development of local tourism industry.		OK
B. Project Baseline <i>The validation of the project baseline establishes whether the selected baseline methodology is appropriate and whether the selected baseline represents a likely baseline scenario.</i>					
B.1. Baseline Methodology <i>It is assessed whether the project applies an appropriate baseline methodology.</i>					
B.1.1. Does the project apply an approved methodology and the correct version thereof?	/1/ /10/	DR	Yes. The project applies ACM0002 (version 06) "Consolidated baseline methodology for grid-connected electricity generation from renewable sources".		OK
B.1.2. Are the applicability criteria in the baseline methodology all fulfilled?	/1/ /10/	DR I	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 project is a new wind power plant which uses renewable energy to generate electricity supplied to NCPG		OK

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			The geographic and system boundaries for the relevant electricity grid can be clearly identified and information on the characteristics of the grid is available.		
B.2. Baseline Scenario Determination <i>The choice of the baseline scenario will be validated with focus on whether the baseline is a likely scenario, and whether the methodology to define the baseline scenario has been followed in a complete and transparent manner.</i>					
B.2.1. What is the baseline scenario?	/1/	DR	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 below.		OK
B.2.2. What other alternative scenarios have been considered and why is the selected scenario the most likely one?	/1/	DR	The alternative baseline scenarios are, a) The proposed project not undertaken as a CDM project activity but as a commercial project; b) A coal fuel plant with the same capacity or the same annual electricity output as the proposed project; c) Another renewable energy power		OK

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			<p>plant with the same capacity or the same annual electricity output as the proposed project;</p> <p>d) The NCPG as the provider for the same capacity and electricity output as the proposed project.</p> <p>The coal fuel-fired power plant scenario does not comply with the Chinese law as thermal power plants with a capacity less than 135 MW are prohibited to be built in areas covered by large grids such as provincial grids.</p> <p>Other renewable resources that can be utilized on site at the project are very limited and are not able to provide a comparable output or the same services as the proposed project, but the evidences or further information on the other renewable resources alternatives is to be elaborated in the PDD.</p> <p>The proposed project activity not undertaken as a CDM project activity is not a realistic and credible alternative, as discussed in the investment analysis below.</p> <p>Thus the baseline scenario is identified as a comparable capacity or electricity generation</p>	CL2	

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			addition provided by NCPG .		
B.2.3. Has the baseline scenario been determined according to the methodology?	/1/	DR	Yes.		OK
B.2.4. Has the baseline scenario been determined using conservative assumptions where possible?	/1/	DR	Yes		OK
B.2.5. Does the baseline scenario sufficiently take into account relevant national and/or sectoral policies, macro-economic trends and political aspirations?	/1/	DR I	Yes. The renewable energy law, sectoral policy and development trends in NCPG have been taken into account.		OK
B.2.6. Is the baseline scenario determination compatible with the available data and are all literature and sources clearly referenced?	/1/	DR	This is to be confirmed after the CL-2 has been clarified	CL-2	OK
B.2.7. Have the major risks to the baseline been identified?	/1/	DR I	There are no significant risks to the baseline except the enforcement of the Chinese renewable law. However, as this law is being implemented only now, i.e. after the entry into force of decision 17.CP 7. It does not need to be taken into account.		OK
B.3. Additionality Determination <i>The assessment of additionality will be validated with focus on whether the project itself is not a likely baseline</i>					

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<i>scenario.</i>					
B.3.1. Is the project additionality assessed according to the methodology?	/1/ /11/ /16/	DR I	<p>The project additionality is demonstrated by applying the “Tool for the demonstration and assessment of additionality” Version 04.</p> <p><i>Step 1: Identification of the alternatives to the project activity consistent with the current laws and regulations.</i></p> <p>The only realistic and credible alternative for the proposed project is the equivalent capacity or electricity service provided by the NCPG according to the above B2.2 discussion.</p> <p><i>Step 2: Investment analysis.</i></p> <p>Benchmark analysis (Option III) is justified to conduct the investment analysis.</p> <ul style="list-style-type: none"> - In China an IRR of 8 % for total investment of a project is regarded as benchmark for investments in hydropower plants, fossil fuel fired plants and wind farm projects/16/. - But the differences between IRR ,Operation and Maintenance Cost 	CL3	OK

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			<p>calculated in the PDD and ones in the FSR is to be explained in a transparent manner. And the electricity tariff evidence is to be provided and difference of tariff between PDD and FSR is to be explained</p> <p>A sensitivity analysis shows that project IRR does not cross the benchmark even after a +/- 10% variation in the total investment, tariff and O&M cost.</p> <p>But the tariff change impossibility is required to deliver further information and electricity generation or operation hours fluctuation is to be analysed. And every parameter may be supposed to be changed to allow IRR to be benchmark, after that the impossibility has to be justified and confirmed.</p> <p><i>Step 3: Barrier analysis.</i> The proposed project does not adopt barrier analysis.</p> <p><i>Step 4: Common practice analysis.</i> The common practice shows that the similar wind farms existing in Inner Mongolia</p>	CL3	

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			Autonomous Region are either demonstration project, enjoying favourable financial policy or have applied for CDM project as facing the same investment barrier and financial unattractiveness as the proposed project. Five have been registered as or applied for CDM projects successfully among them But the sufficiency of the examples similar as the proposed project in Inner Mongolia Autonomous Region is to be evidenced	CL3	
B.3.2. Are all assumptions stated in a transparent and conservative manner?	/1/	DR	Ditto	CL3	OK
B.3.3. Is sufficient evidence provided to support the relevance of the arguments made?	/1/	DR	Ditto	CL3	OK
B.3.4. If the starting date of the project activity is before the date of validation, has sufficient evidence been provided that the incentive from the CDM was seriously considered in the decision to proceed with the project activity?	/1/	DR I	The project construction permission licence is to be provided to DNV	CL4	OK
B.4. Calculation of GHG Emission Reductions – Project					

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emissions <i>It is assessed whether the project emissions are stated according to the methodology and whether the argumentation for the choice of default factors and values – where applicable – is justified.</i>					
B.4.1. Are the calculations documented according to the approved methodology and in a complete and transparent manner?	/1/ /10/	DR	Project emission is regarded as zero as the project is a renewable energy (wind source) project. /10/		OK
B.4.2. Have conservative assumptions been used when calculating the project emissions?	/1/	DR	Ditto		OK
B.4.3. Are uncertainties in the project emission estimates properly addressed?	/1/	DR	Ditto		OK
B.5. Calculation of GHG Emission Reductions – Baseline emissions <i>It is assessed whether the baseline emissions are stated according to the methodology and whether the argumentation for the choice of default factors and values – where applicable – is justified.</i>					
B.5.1. Are the calculations documented according to the approved methodology and in a complete and transparent manner?	/1/ /10/ /12/	DR	Yes. Baseline emissions are calculated as the net electricity generated from the renewable source times the NCPG emission factor. Auxiliary energy used for the operation of the		OK

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	/13/ /14/ /15/		plant is subtracted from the power generation when the net electricity generated from the project is used for the calculations. The grid emission factor is correctly calculated in line with ACM0002 as a combined margin (CM), consisting of the combination of operating margin (OM) and build margin (BM).		
B.5.2. Have conservative assumptions been used when calculating the baseline emissions?	/1/	DR	Ditto		OK
B.5.3. Are uncertainties in the baseline emission estimates properly addressed?	/1/	DR	Ditto		OK
B.6. Calculation of GHG Emission Reductions – Leakage <i>It is assessed whether leakage emissions are stated according to the methodology and whether the argumentation for the choice of default factors and values – where applicable – is justified.</i>					
B.6.1. Are the leakage calculations documented according to the approved methodology and in a complete and transparent manner?	/1/ /10/	DR	There are no leakages that need to be considered in applying this methodology. /10/		OK

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CHECKLIST QUESTION * MoV = Means of Verification, DR= Document Review, I= Interview	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
B.6.2. Have conservative assumptions been used when calculating the leakage emissions?	/1/	DR	Ditto		OK
B.6.3. Are uncertainties in the leakage emission estimates properly addressed?	/1/	DR	Ditto		OK
B.7. Emission Reductions <i>The emission reductions shall be real, measurable and give long-term benefits related to the mitigation of climate change.</i>					
B.7.1. Are the emission reductions real, measurable and give long-term benefits related to the mitigation of climate change.	/1/	DR	Yes. The electricity delivered to the Grid will be monitored during the crediting period through the two gateway metering equipments which will be owned, operated and maintained by the local grid company and the project owner, separately. The cross check with the electricity sales receipts is clearly identified.		OK
B.8. Monitoring Methodology <i>It is assessed whether the project applies an appropriate monitoring methodology.</i>					
B.8.1. Is the monitoring plan documented according to the approved methodology and in a complete and	/1/	DR	The monitoring plan is in accordance with		OK

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VALIDATION REPORT

CHECKLIST QUESTION * MoV = Means of Verification, DR= Document Review, I= Interview	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
transparent manner?	/10/		the approved monitoring methodology ACM0002 (version 06) "Consolidated monitoring methodology for grid-connected electricity generation from renewable sources" and has been applied in a complete and transparent manner.		
B.8.2. Will all monitored data required for verification and issuance be kept for two years after the end of the crediting period or the last issuance of CERs, for this project activity, whichever occurs later?	/1/	DR	Yes		OK
B.9. Monitoring of Project Emissions <i>It is established whether the monitoring plan provides for reliable and complete project emission data over time.</i>					
B.9.1. 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/ /10/	DR	There are no emissions from the project activity.		OK
B.10. Monitoring of Baseline Emissions <i>It is established whether the monitoring plan provides for reliable and complete baseline emission data over time.</i>					

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VALIDATION REPORT

CHECKLIST QUESTION * MoV = Means of Verification, DR= Document Review, I= Interview	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
B.10.1. Does the monitoring plan provide for the collection and archiving of all relevant data necessary for determining baseline emissions during the crediting period?	/1/ /6/	DR I	The project uses the <i>ex-ante</i> determination of emission factor for grid electricity. Only electricity supplied to the grid will be monitored and double checked with the invoice of electricity sold to the grid.		OK
B.10.2. Are the choices of baseline GHG indicators reasonable and conservative?	/1/ /10/	DR	The choice of baseline indicators is in line with ACM0002.		OK
B.10.3. Is the measurement method clearly stated for each baseline indicator to be monitored and also deemed appropriate?	/1/ /6/	DR	Yes. The electricity supplied to the grid will be measured through the electricity meters both in the substation and the Siziwangqi bayin aobao wind farm.		OK
B.10.4. Is the measurement <i>equipment</i> described and deemed appropriate?	/1/ /6/	DR	Yes. Both electricity meters will be calibrated by the grid company. And they are owned, operated and maintained respectively by the grid company and the project owner.		OK
B.10.5. Is the measurement <i>accuracy</i> addressed and deemed appropriate? Are procedures in place on how to deal with erroneous measurements?	/1/ /6/	DR	Yes. The metering equipment are calibrated and checked annually to ensure accuracy (not exceeding +0.2% of full-scale rating). But procedures to deal with erroneous measurements have not been in place.	CL5	OK

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VALIDATION REPORT

CHECKLIST QUESTION * MoV = Means of Verification, DR= Document Review, I= Interview	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
B.10.6. Is the measurement <i>interval</i> for baseline data identified and deemed appropriate?	/1/ /6/	DR	The electricity supplied to the grid will be measured continuously and recorded monthly in conformance with monthly receipts as per ACM0002./10/		OK
B.10.7. Is the registration, <i>monitoring, measurement</i> and <i>reporting</i> procedure defined?	/1/ /6/	DR	Yes.		OK
B.10.8. Are procedures identified for <i>maintenance</i> of monitoring equipment and installations? Are the calibration intervals being observed?	/1/ /6/	DR	Yes.		OK
B.10.9. 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/ /6/	DR	Yes.		OK
B.11. Monitoring of Leakage <i>It is assessed whether the monitoring plan provides for reliable and complete leakage data over time.</i>					
B.11.1. 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

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VALIDATION REPORT

CHECKLIST QUESTION * MoV = Means of Verification, DR= Document Review, I= Interview	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
B.11.2. Are the choices of project leakage indicators reasonable and conservative?	/1/	DR	Ditto		OK
B.11.3. Is the measurement method clearly stated for each leakage value to be monitored and deemed appropriate?	/1/	DR	Ditto		OK
B.12. Monitoring of Sustainable Development Indicators/ Environmental Impacts <i>It is assessed whether choices of indicators are reasonable and complete to monitor sustainable performance over time.</i>					
B.12.1. Is the monitoring of sustainable development indicators/ environmental impacts warranted by legislation in the host country?	/1/	DR	DNA of China does not require collection and archiving of data related to environmental, social and economic impacts. The environmental impacts will be monitored by local environmental authority.		OK
B.12.2. Does the monitoring plan provide for the collection and archiving of relevant data concerning environmental, social and economic impacts?	/1/	DR	The indicators of environmental impacts will be stipulated by local environmental authority.		OK
B.12.3. Are the sustainable development indicators in line with stated national priorities in the Host	/1/	DR	Yes. This will be based on local authority		OK

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VALIDATION REPORT

CHECKLIST QUESTION * MoV = Means of Verification, DR= Document Review, I= Interview	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
Country?			decision.		
B.13. Project Management Planning <i>It is checked that project implementation is properly prepared for and that critical arrangements are addressed.</i>					
B.13.1. Is the authority and responsibility of overall project management clearly described?	/1/	DR	Yes. The authority and responsibility of overall project management is clearly described.		OK
B.13.2. Are procedures identified for training of monitoring personnel?	/1/ /6/	DR	No, procedures for monitoring personnel training have not been identified.	CL 4	OK
B.13.3. Are procedures identified for emergency preparedness for cases where emergencies can cause unintended emissions?	/1/	DR I	No emergency situation which can cause unintended emissions is expected from the project.		OK
B.13.4. Are procedures identified for review of reported results/data?	/1/ /6/	DR	Yes. A procedure for internal audit on reading and reporting has been identified.		OK
B.13.5. Are procedures identified for corrective actions in order to provide for more accurate future monitoring and reporting?	/1/ /6/	DR	Procedures are not identified for corrective actions in order to provide for more accurate future monitoring and reporting	CL 5	OK

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VALIDATION REPORT

CHECKLIST QUESTION * MoV = Means of Verification, DR= Document Review, I= Interview	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
C. Duration of the Project/ Crediting Period <i>It is assessed whether the temporary boundaries of the project are clearly defined.</i>					
C.1.1. Are the project's starting date and operational lifetime clearly defined and evidenced?	/1/	DR I	Yes. The project is to be constructed on 10 June 2007 as per PDD. But the evidence for project starting is to be provided The estimated operational lifetime of the project is 21 years in the PDD, but it is to be substantiated	CL 4 CL 6	OK
C.1.2. Is the start of the crediting period clearly defined and reasonable?	/1/	DR I	The starting date of the crediting period is mentioned as 1 st January 2008, which is unlikely to be the date of likely registration	CL 7	OK
D. Environmental Impacts <i>Documentation on the analysis of the environmental impacts will be assessed, and if deemed significant, an EIA should be provided to the validator.</i>					
D.1.1. Has an analysis of the environmental impacts of the project activity been sufficiently described?	/1/ /5/	DR	Yes. The environmental impacts during construction and operation are elaborated in the PDD and EIA, mainly about impacts of waste water, noise and solid waste on environment./5/		OK

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



VALIDATION REPORT

CHECKLIST QUESTION * MoV = Means of Verification, DR= Document Review, I= Interview	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
D.1.2. Are there any Host Party requirements for an Environmental Impact Assessment (EIA), and if yes, is an EIA approved?	/1/ /5/	DR	Yes. The project has been approved by the Environmental Protection Bureau of Inner Mongolia Autonomous Region.		OK
D.1.3. Will the project create any adverse environmental effects?	/1/ /5/	DR	There are no significant adverse environmental effects for the project according to the EIA./5/		OK
D.1.4. Are transboundary environmental impacts considered in the analysis?	/1/ /5/	DR	There are no transboundary environmental impacts foreseen for the project.		OK
D.1.5. Have identified environmental impacts been addressed in the project design?	/1/	DR	Yes.		OK
D.1.6. Does the project comply with environmental legislation in the host country?	/1/	DR	Yes.		OK
E. Stakeholder Comments <i>The validator should ensure that stakeholder comments have been invited with appropriate media and that due account has been taken of any comments received.</i>					
E.1.1. Have relevant stakeholders been consulted?	/1/ /5/ /7/	DR I	Yes. Besides the stakeholder consultation process required by Chinese EIA regulations, an additional stakeholder consultation process have been performed through		OK

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VALIDATION REPORT

CHECKLIST QUESTION * MoV = Means of Verification, DR= Document Review, I= Interview		Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
		/8/		inviting different stakeholders comment the project activity.		
E.1.2. Have appropriate media been used to invite comments by local stakeholders?		/1/ /7/ /8/	DR I	On 22 August 2007, the staff from Longyuan (Siziwang) Wind Power Co., Ltd. carried out a consultation with the local community and the local government. The staff also carried out a survey on the local villagers and residents in the area.		OK
E.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	Yes. The stakeholder consultation process is in accordance with Chinese EIA regulations.		OK
E.1.4. Is a summary of the stakeholder comments received provided?		/1/	DR I	Yes. A summary of the stakeholder comments received described in the PDD.		OK
E.1.5. Has due account been taken of any stakeholder comments received?		/1/	DR I	100% of the respondents selected agree with the development of the project activity.		OK

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VALIDATION REPORT

Table 3 Resolution of Corrective Action and Clarification Requests

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2	Summary of project owner response	Validation team conclusion
<p>CAR 1</p> <ul style="list-style-type: none"> The letters of approval from the DNA of both China and France have not been obtained. This shall be confirmed once the LoA is received from the Host Party. 	<p>A2.2 A4.1</p>	<p>The letters of approval from the DNA of China and the France had been provided to DNV in May, 2008.</p>	<p>The LoA issued by DNA of China in January 2008 and the LoA issued by DNA of the France on 31 March 2008 have been received and confirmed by DNV./2//3/ This CAR1 is closed</p>
<p>CL 1</p> <ul style="list-style-type: none"> Provision for meeting training and maintenance needs has not been evidenced. procedures for monitoring personnel training have not been identified. 	<p>A3.3 B13.2</p>	<p>The training records of the staffs had provided to identify the monitoring training .</p>	<p>DNV was able to verify that the plan and the registration records are included. This CL is closed</p>
<p>CL 2</p> <p>The evidences or further information on the other renewable resources alternatives is to be elaborated in the PDD.</p>	<p>B2.2 B2.6</p>	<p>The correlative references had noted in the revised PDD and the correlative sections had been elaborated in the PDD. Parts of the evidences had been provide to DNV Evidences sources from: http://jckb.xinhuanet.com/cjxw/2007-11/27/content_75467.htm; http://finance.people.com.cn/GB/1038/5</p>	<p>DNV was able to verify that these are elaborated in the PDD and reasonable. This CL is closed</p>



VALIDATION REPORT

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2	Summary of project owner response	Validation team conclusion
		9942/59949/6294546.html http://www.china5e.com/news/water/200501/200501100145.html http://www.lvyou114.com/Nav/county_intro.asp?CountyID=345	

VALIDATION REPORT

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2	Summary of project owner response	Validation team conclusion
<p>CL 3</p> <ul style="list-style-type: none"> The differences between IRR ,Operation and Maintenance Cost calculated in the PDD and ones in the FSR is to be explained in a transparent manner. And the electricity tariff evidence is to be provided and difference of tariff between PDD and FSR is to be explained For the tariff change impossibility, is required to deliver further information and electricity generation or operation hours fluctuation is to be analysed. And every parameter may be supposed to be changed to allow IRR to reach the benchmark, after that the impossibility has to be justified and confirmed. the sufficiency of the examples similar as the proposed project in Inner Mongolia Autonomous Region is to be evidenced 	<p>B.3.1 B.3.2 B.3.3</p>	<p>a) The IRR resulted from the expected tariff in the FSR; However, the IRR was calculated based on the propositional tariff from the local Development and Reform Commission (DRC) in the PDD. Except the tariff, based on the data of the FSR, the IRR spreadsheet had been provided by a transparent manner in the PDD. IRR spreadsheet and Tariff evidence were provided. The electricity tariff evidence is the propositional letter on the expected tariff proposed by the local DRC.</p> <p>b) The B5 described in details the correlative questions and appended the analysis about the electricity generation in the revised PDD. And the IRR spreadsheet can be used to justify and confirm the impossibility of every parameter in a transparent manner.</p> <p>c) The activities similar to the proposed project activity were reinforced in the</p>	<p>DNV was able to verify that these are revised in the PDD and deemed reasonable.</p> <p>This CL is closed</p>



VALIDATION REPORT

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2	Summary of project owner response	Validation team conclusion
		revised PDD. Data source : http://cdm.ccchina.gov.cn/web/index.asp http://www.86wind.com/info/detail/37-6774.html http://www.sdpc.gov.cn/zfdj/jggg/dian/t20080218_193009.htm http://wais.ee.kuas.edu.tw/energyworld/specialtopics/Wind/ref/ref/%AE%D7%A8%D2%A4%C0%AAR.htm	

VALIDATION REPORT

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2	Summary of project owner response	Validation team conclusion
CL 4 <ul style="list-style-type: none"> The project construction permission licence is to be provided to DNV. The evidence for project starting is to be provided 	B.3.4 C.1.1	<p>The project construction permission licence had been provided to DNV in May 2008.</p> <p>The project construction permission licence had been provided as the evidence for project.</p>	<p>The main equipment purchasing agreement was signed on 23 July 2007 /17/and the permit to start construction was on 19 July 2007 /23/.thus the date of the construction permit is defined as the starting date of the project activity.</p> <p>This CL is closed</p>
CL 5 <ul style="list-style-type: none"> procedures to deal with erroneous measurements have not been in place. procedures are not identified for corrective actions in order to provide for more accurate future monitoring and reporting 	B.10.5 B.13.5	<p>The B7.2 described in details the correlative questions and appended the erroneous measurements in the revised PDD.</p> <p>The B7.2 described in details the correlative questions and appended the accurate future monitoring and reporting in the revised PDD.</p>	<p>DNV was able to verify that these are revised in the PDD and reasonable.</p> <p>This CL is closed</p>
CL 6 The estimated operational lifetime of the project is 21 years in the PDD, but it is to be substantiated	C.1.1	<p>The estimated operational lifetime of the wind turbine is 20 years that is described in the technologic agreement provided in May 2008. so the correlative sections had been revised in the PDD.</p>	<p>DNV was able to verify that this is revised in the PDD and reasonable.</p> <p>This CL is closed</p>



VALIDATION REPORT

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2	Summary of project owner response	Validation team conclusion
CL 7 The starting date of the crediting period is mentioned as 1 st January 2008, which is unlikely to be the date of likely registration	C.1.2	The starting date of the crediting period is revised on 1 st January 2009.	DNV was able to verify that this is revised in the PDD and reasonable. This CL is closed

APPENDIX B

CERTIFICATES OF COMPETENCE



CERTIFICATE OF COMPETENCE

Michael Lehmann

Qualification in accordance with DNV's Qualification scheme for CDM/JI (ICP-9-8-i1-CDMJ1-i1)

GHG Auditor:	Yes		
CDM Validator:	Yes	JI Validator:	--
CDM Verifier:	Yes	JI Verifier:	--
Industry Sector Expert for Sectoral Scope(s):	Sectoral scope 1, 2, 3		
Technical Reviewer for (group of) methodologies:			
ACM0001, AM0002, AM0003, AM0010, AM0011, AM0012, AMS-III.G	Yes	AM0027	Yes
ACM002, AMS-I.A-D, AM0019, AM0026, AM0029, AM0045	Yes	AM0030	Yes
ACM003, ACM0005, AM0033, AM0040	Yes	AM0031	Yes
ACM0004, ACM0012	Yes	AM0032	Yes
ACM0006, AM0007, AM0015, AM0036, AM0042	Yes	AM0035	Yes
ACM0007	Yes	AM0038	Yes
ACM0008	Yes	AM0041	Yes
ACM0009, AM0008, AMS-III.B	Yes	AM0034	Yes
AM0006, AM0016, AMS-III.D, ACM0010	Yes	AM0043	
AM0009, AM0037	Yes	AM0046	
AM0013, AM0022, AM0025, AM0039, AMS- III.H, AMS-III.I	Yes	AM0047	
AM0014	Yes	AMS-II.A-F, AM0044	Yes
AM0017	Yes	AMS-III.A	Yes
AM0018	Yes	AMS-III.E, AMS-III.F	Yes
AM0020	Yes		
AM0021, AM0028, AM0034, AM0051	Yes		
AM0023	Yes		
AM0024	Yes		

Høvik, 5 February 2007

Einar Telnes
Director, International Climate Change Services

Michael Lehmann
Technical Director



CERTIFICATE OF COMPETENCE

Shu Yong Sun

Qualification in accordance with DNV's Qualification scheme for CDM/JI (ICP-9-8-i1-CDMJ1-i1)

GHG Auditor:	Yes		
CDM Validator:	Yes	JI Validator:	--
CDM Verifier:	--	JI Verifier:	--
Industry Sector Expert for Sectoral Scope(s):	--		

Høvik, 12 March 2007

Einar Telnes
Director, International Climate Change Services

Michael Lehmann
Technical Director

Jian Dong Ma

Qualification in accordance with DNV's Qualification scheme for CDM/JI (ICP-9-8-i1-CDMJ1-i1)

GHG Auditor:	Yes		
CDM Validator:	--	JI Validator:	--
CDM Verifier:	--	JI Verifier:	--
Industry Sector Expert for Sectoral Scope(s):	--		

Høvik, 30 October 2007

Michael Lehmann
Technical Director, International Climate Change Service



CERTIFICATE OF COMPETENCE

Weidong Yang

Qualification in accordance with DNV's Qualification scheme for CDM/JI (ICP-9-8-i1-CDMJ1-i1)

GHG Auditor:	Yes		
CDM Validator:	Yes	JI Validator:	--
CDM Verifier:	--	JI Verifier:	--
Industry Sector Expert for Sectoral Scope(s):	--		

Høvik, 4 January 2008

Michael Lehmann

Technical Director, International Climate Change Services

Ramesh Ramachandran

Qualification in accordance with DNV's Qualification scheme for CDM/JI (ICP-9-8-i1-CDMJ1-i1)

GHG Auditor:	Yes		
CDM Validator:	Yes	JI Validator:	--
CDM Verifier:	Yes	JI Verifier:	--
Industry Sector Expert for Sectoral Scope(s):	Sectoral scope 4, 5, 13		

Technical Reviewer for (group of) methodologies:

ACM002, AMS-I.A-D, AM0019, AM0026, AM0029, AM0045	Yes
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Høvik, 22 December 2006

Einar Telnes

Director, International Climate Change Services

Michael Lehmann

Technical Director