



VALIDATION REPORT

Inner Mongolia Mangniuhai II Wind Power Project in China

REPORT No. 2009-1346

REVISION No. 03

DET NORSKE VERITAS



VALIDATION REPORT

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Client: Longyuan (Xing'anmeng) Wind Power Co., Ltd.	Client ref.: Feng Yongli

Project Name: Inner Mongolia Mangniuhai II Wind Power Project

Country: China

Methodology: ACM0002

Version: 10

GHG reducing Measure/Technology: Wind Power

ER estimate: 117 400 tCO₂e/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 Mangniuhai II Wind Power Project in China, as described in the PDD version 4 of 10 September 2010, meets all relevant UNFCCC requirements for the CDM and all relevant host Party criteria and correctly applies the baseline and monitoring methodology ACM0002 version 10. DNV thus requests the registration of the project as a CDM project activity.

Report No.: 2009-1346	Date of this revision: 2010-09-12	Rev. No. 03
Report title: Inner Mongolia Mangniuhai II Wind Power Project in China		
Work carried out by: Zhang, Xiao Jun Johnsen; Xue, Yan Ju Andi Tang, Zhiang Walter.		
Work verified by: Weidong Yang		

Key words:

Climate Change

Kyoto Protocol

Validation

Clean Development Mechanism

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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
EF	Emission Factor
EIA	Environmental Impact Assessment
EPB	Environmental Protection Bureau
FSR	Feasibility Study Report
GHG	Greenhouse gas(es)
IPCC	Intergovernmental Panel on Climate Change
IRR	Internal Rate of Return
LoA	Letter of Approval
MP	Monitoring Plan
NCV	Net Calorific Value
NDRC	National Development and Reform Commission
NECPG	Northeast China Power Grid
NGO	Non-governmental Organisation
ODA	Official Development Assistance
OM	Operating Margin
PDD	Project Design Document
RMB	Reminbi, Chinese Currency
UNFCCC	United Nations Framework Convention on Climate Change
VAT	Value-added tax



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1 EXECUTIVE SUMMARY – VALIDATION OPINION

Det Norske Veritas Certification AS (DNV) has performed a validation of the “Inner Mongolia Mangniuhai II Wind Power 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 Party is China and the Annex I Party is Switzerland. Both Parties fulfil the participation criteria and have approved the project and authorized the project participants. The DNA from China has also confirmed that the project assists in achieving sustainable development /2/.

The project correctly applies ACM0002 version 10: “Consolidated baseline & monitoring methodology for grid connected electricity generation from renewable sources” /10/.

By generating renewable energy which will displace electricity in NECPG, the project results in reduction of CO₂ emissions that are real, measurable and give long-term benefit 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 117 400 tCO_{2e} per year over the selected 7 year renewable 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.

The monitoring methodology ACM0002 version 10 has been correctly applied and the monitoring plan sufficiently provides for collection of data to determine the project’s emission reductions. Adequate training and monitoring procedures have been implemented /49//57/.

In summary, it is DNV’s opinion that the “Inner Mongolia Mangniuhai II Wind Power Project” in China, as described in the PDD version 4 of 10 September 2010 meets all relevant UNFCCC requirements for the CDM and all relevant host Party criteria and correctly applies the baseline and monitoring methodology ACM0002 version 10 /10/. DNV thus requests the registration of the project as a CDM project activity.



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2 INTRODUCTION

Longyuan (Xing'anmeng) Wind Power Co., Ltd. has commissioned DNV to perform a validation of the project Inner Mongolia Mangniuhai II Wind Power Project in China. 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 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).

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 ACM0002, version 10 /10/. The validation team has, based on the recommendations in the Validation and Verification Manual version 1.1 /9/, conducted the validation.

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.

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 lists the documentation that was reviewed during the validation:



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- /1/ Longyuan (Beijing) Carbon Asset Management Technology Co., Ltd. Project Design Document (PDD) for Inner Mongolia Mangniuhai II Wind Power Project, version 1 of 24 July 2009, version 2 of 21 December 2009, version 3 of 4 February 2010, version 4 of 10 September 2010.
- /2/ Letter of Approval from the DNA of China was issued on 22 September 2009, [2009] No.2381.
- /3/ Letter of Approval from the DNA of Switzerland was issued on 19 February 2010.
- /4/ China Fulin Wind Energy Development Co., Ltd: Feasibility Study Report (FSR) of the project in August 2008. The approval of FSR was issued by Development and Reform Commission of Inner Mongolia Autonomous Region on 14 October 2008, [2008] No.1937
- /5/ Inner Mongolia Academy Institute of Environment Science: The Environmental Impact Assessment (EIA) Report of Inner Mongolia Mangniuhai II Wind Power Project dated 8 December 2008 and the approval letter issued by Inner Mongolia Environmental Protection Bureau dated 27 February 2009, [2009] No. 54
- /6/ Longyuan (Beijing) Carbon Asset Management Technology Co., Ltd.: *Project IRR calculation spreadsheet*, version 2 dated 29 December 2009.
- /7/ Longyuan (Beijing) Carbon Asset Management Technology Co., Ltd.: *Project ER calculation spreadsheet*, version 1 dated 4 August 2009.
- /8/ China National Development and Reform Committee: *Emission factor calculation for each power grid of China*, dated 2 July 2009,
http://qhs.ndrc.gov.cn/qjzjzt20090703_289357.htm
- /9/ CDM Executive Board: *Validation and Verification Manual*, version 1.1.
- /10/ CDM Executive Board: ACM0002 “*Consolidated methodology for grid-connected electricity generation from renewable sources*”, version 10.
- /11/ CDM Executive Board: *Tool for the demonstration and assessment of additionality*, Version 5.2., EB39 Annex 10 dated 10 August 2008.
- /12/ CDM Executive Board: *Tool to calculate the emission factor for an electricity system*, version 2, EB50 Annex 14 dated 16 October 2009.
- /13/ China Electric Power Yearbook 2004-2008.
- /14/ China Energy Statistical Yearbook 2006-2008.
- /15/ CDM Executive Board: Guidance for request for deviation titled “*Application of AM0005 and AMS-I.D in China*” (<http://cdm.unfccc.int/Projects/Deviations>).
- /16/ IPCC: *IPCC 2006 Guidelines for National Greenhouse Gas Inventories*.
- /17/ State Power Corporation of China. *Interim Rules on Economic Assessment of Electrical Engineering Retrofit Projects*. Beijing: China Electric Power Press, 2003.
- /18/ Inner Mongolia Mangniuhai II Wind Power Project, *Minutes of directors’ board meeting for CDM development*, dated 5 February 2009.
- /19/ Longyuan (Xing’anmeng) Wind Power Co., Ltd. & Longyuan (Beijing) Carbon Asset Management Technology Co., Ltd., *CDM Consultation Contract*, dated February 2009.
- /20/ Beijing Hualian Electric Power Engineering Supervision Co., Ltd., *Roads construction permission at the project site*, dated 11 April 2009.
- /21/ Longyuan (Xing’anmeng) Wind Power Co., Ltd. & Shandong Taikai Transformer Co., Ltd., *Main Transformer Purchase Agreement*, dated 21 March 2009.
- /22/ Longyuan (Xing’anmeng) Wind Power Co., Ltd. & Sinovel Wind Co., Ltd., *Turbines*



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Purchase Agreement, dated 23 March 2009.

- /23/ Longyuan (Xing'anmeng) Wind Power Co., Ltd. and Inner Mongolia Xintai Construction and Installation (Group) Co., Ltd., *Roads Construction Contract*, dated 22 March 2009.
- /24/ Inner Mongolia Mangniuhai II Wind Power Project & Inner Mongolia Third Electric Construction Engineering Co., Ltd., *Construction contract of the turbines foundation*, dated 20 April 2009.
- /25/ Beijing Hualian Electric Power Engineering Supervision Co., Ltd., *Construction permission of the project foundation*, dated 3 May 2009.
- /26/ Longyuan (Xing'anmeng) Wind Power Co., Ltd. & Suihua Yuanda Electric Power Construction Co., Ltd., *Agreement of Wind Turbines Installation*, dated 24 March 2009.
- /27/ Longyuan (Xing'anmeng) Wind Power Co., Ltd.: *Notification to China DNA of the project activity commencement date and description of project activity such as project site and technical aspects*, dated 11 April 2009, and it was confirmed by the Chinese DNA on 1 July 2009.
- /28/ Longyuan (Xing'anmeng) Wind Power Co., Ltd., *the Form of Prior CDM Consideration submitted to the EB*, dated 20 July 2009, and it was confirmed by the EB on 23 July 2009.
- /29/ Tuquan County Government, *Land use approval of the project activity*, dated 3 November 2009.
- /30/ Updated Chinese DNA's guidance for the determination of grid boundaries on 2 July 2009.
http://qhs.ndrc.gov.cn/qjzjz/t20090703_289357.htm
- /31/ The document showing no sufficient exploitable hydro resource for building a hydro power plant with the same installed capacity as the project in the region where the proposed project is located.
<http://www.nmxadd.com/newsdisp.asp?id=3610>
 The document showing project activity is located in the interior area where no any tidal resources.
<http://www.china5e.com/show.php?contentid=45147>
 The document showing that the PV solar and geothermal projects have not come into the commercial operation since only a few projects have been developed under the governmental support.
http://www.gxi.gov.cn/bgcy/bgcy_jtny/bgcy_jtny_scfx/200908/t20090803_134201.htm
<http://hi.baidu.com/%BA%CD%C4%D1%C8%CB/blog/item/e3504b82a9c37598f703a677.html>
 The document showing there is no geothermal sources in Tuquan County where the project activity is located in.
http://www.newenergycn.com/drn_news.asp?id=125
 The document showing that biomass projects are still at the beginning stage in China.
http://www.agri.gov.cn/jjps/t20090722_1316360.htm
 The document showing that no sufficient biomass resources in Tuquan County to build up a biomass project with the equivalent installed capacity to the proposed project.



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- <http://www.xam.gov.cn/web/xam/mxtzz/zsxm/998.htm>
- /32/ Notice on strictly forbidding the Installation of Fuel-fired Generators with the capacity of 135 MW or below issued by State Council Office, decree no. 2002-6.
- /33/ Interim Rules on the Installation and Management of Small-scale Fuel-fired Generators (issued in August 1997).
- /34/ China mechanisms website, *the price for the wind turbines increasing due to its booming demand*, dated 16 January 2008,
<http://www.86wind.com/info/detail/4-5335.html>
- /35/ IC37.COM, *prices of the material and salaries of the employees have been gradually increasing in China*, dated 25 January 2008.
http://www.ic37.com/htm_news/2008-1/15834_66520.htm
China Daily, *salaries in China increase the most in past 15 years*, dated 3 September 2007.
http://www.chinadaily.com.cn/hqcj/2007-09/03/content_6075777.htm
- /36/ Longyuan (Xing'anmeng) Wind Power Co., Ltd., *Statistics on tariffs for wind farms in East Inner Mongolia*, 23 December 2009.
- /37/ The regulations for tariff determination in China:
<http://njb.serc.gov.cn/news/2009-2/200921293012.htm>
- /38/ Development Report of New Energy and Renewable Energy of China:
<http://www.newenergy.org.cn/html/00412/20041605.html>
- /39/ China Climate Change Info-net, *Output value of wind power projects in Chifeng city*, dated 25 August 2005.
- /40/ Tariff approval document issued by NDRC on 09 June 2007, document No. Fa Gai Jia Ge[2007]1260
- /41/ Notification of electricity tariff for wind power projects, issued by NDRC, [2006]2908, dated 22 December 2006.
- /42/ Notification of electricity tariff for wind power projects, issued by NDRC, [2007]1260, dated 9 June 2007.
- /43/ Notification of electricity tariff for wind power projects, issued by NDRC, [2007]3303, dated 3 December 2007.
- /44/ Notification of electricity tariff for wind power projects, issued by NDRC, [2008]1876, dated 23 July 2008.
- /45/ Notification of electricity tariff for wind power projects, issued by NDRC, [2009]1906, dated 20 July 2009.
<http://www.china5e.com/newenergy/newenergynews.aspx?newsid=fa6180f2-04bc-4746-9053-4045f9166f2d&classid=%u65b0%u80fd%u6e90>
- /46/ The document showing the Dali Maolin Wind Farm Project is a demonstration project.
<http://www.fsou.net.cn/html/text/lar/169071/16907181.html>
- /47/ China Renewable Energy Institute Association (CREIA) and WWF, *China Wind Power Report 2008*, dated October 2008.
- /48/ Law of the People's Republic of China on Renewable Energies, dated 1 January 2006.
http://www.sepa.gov.cn/law/law/200802/t20080202_117982.htm
- /49/ Longyuan (Xing'anmeng) Wind Power Co., Ltd., *CDM Monitoring Manual of Inner Mongolia Mangniuhai II Wind Power Project*, version 1.0 dated 24 October 2009.
- /50/ Practical annual operational hours of wind farms in China,
<http://www.chinabidding.com/xmzx.jhtml?method=detail&docId=176376775>



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- <http://www.csoet.cn/n16/n1100/n37710/n118649/601293.html>
http://www.chinacbe.com/news/2009/0818/article_2836.html
<http://biz.cn.yahoo.com/09-07-/16/tfib.html>
- /51/ CDM Executive Board, *Consolidated baseline and monitoring methodology for new grid connected fossil fuel fired power plants using a less GHG intensive technology --- ACM0013 Version 2.1.*
 - /52/ China Wind Energy Association: *China Windfarm Capacity Statistic in 2007*, by Shi Pengfei.
 - /53/ The document showing the Promulgation of Electric Power Industry Reform by the State Council in February 2002:
<http://www.grchina.com/gb/greenpower/advice-0-5.htm>
 - /54/ Xinhua Net, *Inner Mongolia Keshiketeng Qi Dali III wind power project was a demonstration project supported by national debt fund and with loan from Denmark government*, dated 18 October 2007.
http://www.gd.xinhuanet.com/newscenter/ztbd/2007-10/18/content_11435955.htm
 - /55/ China NDRC and National Construction Committee, *Economic Evaluation Code and Parameter for Construction Project (version 3), 2006.*
 - /56/ National Energy Bureau of the People's Republic of China, *Methodology of Feasibility Study Report on Wind Farm Project (DLT5067-1996)*, issued on 10 January 1997 and effected on 1 May 1997.
 - /57/ Longyuan Suzhou Bailu Wind Power Technologies Training Center, *Certificates of training about the basic knowledge of wind power*, dated 21 August 2009.
 Sinovel Wind Co., Ltd., *Certificates of training about the SL1500 turbines*, dated 6 November 2009.
 - /58/ Longyuan (Xing'anmeng) Wind Power Co., Ltd., *Minutes of stakeholders consultation meeting*, dated 15 March 2009.
 - /59/ Longyuan (Xing'anmeng) Wind Power Co., Ltd., *45 answered copies of consultation questionnaires for the stakeholder comments*, dated January 2009.
 - /60/ China Fulin Wind Energy Development Co., Ltd, *Explanation on the "other cost per kW" of 50 RMB/kW and "material cost" of 10 RMB/kW assumed in the FSR*, dated 7 December 2009.
 - /61/ Kelipu Wind Power Co., Ltd, *Opinions of Environment Impact Assessment of Inner Mongolia Mangniuhai II Wind Power Project*, dated 27 May 2009.
 - /62/ The Law of the People's Republic of China on Evaluation of Environmental Effects, issued on 28 October 2002 and effected on 1 September 2003.
 - /63/ The law of the People's Republic of China on Enterprise Income Tax, [2007] No.63, implemented on 16 March 2007.
 - /64/ State Administration of Taxation: *Decree No. 70 of Guoshuifa [2003]*, dated 18 June 2003.
 - /65/ Financial Ministry of China: *Tax Preferential Policies in West China Development, Financial Tax*, [2001] No.202, effected on 1 January 2001.
 - /66/ The State Administration of Taxation: *Value Added Tax Preferential Policies for wind power projects*, [2001] No.198 issued on 1 December 2001 and issued on 30 December 2001 and implemented on 1 January 2002.
<http://www.chinatax.gov.cn/n480462/n480513/n480949/n644690/1013032.html>
 - /67/ China State Council: *Interim Provision on Education Tax Law*, dated 1 October 2005.



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- http://www.law-lib.com/law/law_view1.asp?id=99771
- /68/ NDRC: *National City Tax Law*, [1985] 19 dated 1985.
<http://202.108.90.130/chinatax/jibenfa/jibenfa0401.htm>
- /69/ Environmental Protection Law of the People's Republic of China, dated 26 December 1989.
- /70/ Longyuan (Beijing) Carbon Asset Management Technology Co., Ltd., *Table of Contrasted Projects*, dated 29 December 2009.
- /71/ Longyuan (Xing'anmeng) Wind Power Co., Ltd. & Wulanhaote Branch of Industrial and Commercial Bank of China, *Loan Contract of Inner Mongolia Mangniuhai II Wind Power Project*, dated 22 April 2009.
- /72/ China Fulin Wind Energy Development Co., Ltd: *Explanation to the tariff issues of Inner Mongolia Mangniuhai II Wind Power Project*, dated 20 January 2010.
- /73/ NDRC, "Explanation regarding the issue for discount of theoretical annual generation of wind power in China", dated 2 June 2009.
<http://cdm.ccchina.gov.cn/WebSite/CDM/UpFile/File2278.pdf>
- /74/ DNV Certification AS, *Final validation report of Inner Mongolia Dali Phase IV 49.5 MW Wind Power Project (CDM registered project, refer No. 1628)*, dated 18 February 2008.
<http://cdm.unfccc.int/UserManagement/FileStorage/AQRY5XSCCHJ34CFO3GO7C3LQLQI8RS>
- /75/ General Administration of Quality Supervision, Inspection and Quarantine of the People's Republic of China: *Methodology of Wind Energy Resource Assessment for Wind Farm*, issued on 28 April 2002 and effected on 1 October 2002.
- /76/ East Inner Mongolia Power Grid Company: *Clarification on the actual tariffs for the proposed project and the full operation date*, dated 23 August 2010.
- /77/ NDRC: *Specification for Compiling the Feasibility Study Report*, dated May 2005.
- /78/ China Fulin Wind Energy Development Co., Ltd: *Explanation to the wind speed data in the FSR of the proposed project*, dated 29 August 2010.
- /79/ Industrial and Commercial Bank of China: *Commitment of loan for Inner Mongolia Mangniuhai II Wind Power Project*, dated 12 January 2009.
- /80/ National Development and Planning Committee: *Approval for the FSR of Jiangsu Rudong Wind Power Project*, 10 October 2002.
- /81/ China Renewable Energy Institute Association (CREIA) and WWF, *China Wind Power Report 2007*, dated April 2007.
- /82/ National Development and Planning Committee: *Approval for the FSR of Jiangsu Rudong Wind Power Project*, Ji Ji Chu [2002] No.2692, dated 10 December 2002.
- /83/ NDRC: *CDM Management Regulation*, dated 30 June 2004.
<http://www.creia.net/html/200810911241351.html>
- /84/ NDRC: *Interim Measures for Renewable Energy Power Tariff and Cost-sharing*, Fa Gai Jia Ge [2006] No. 7, dated 1 January 2006.
- /85/ NDRC: *Thermal Power Tariff*, [2008] No. 1677, dated 29 June 2008.
- /86/ China National Bureau of Statistics: *Yearly Inflation Rate from 1980 to 2010*, dated 11 September 2010.
- /87/ Beijing Hualian Electricity Management Company: *Settlement Form for Check and Acceptance of the Completed Project*, dated 1 September 2010.

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



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- The project IRR without the CER revenues was changed from 6.24% to 7.28% due to the involvement of interest payable into the calculation of income tax according to the guidance of EB51 Annex 58. Based on the same reason, the project IRR with the CER revenues changed from 8.44% to 9.54%.
- The sensitivity analysis was updated as to assess the variation of main parameters to make the IRR reach benchmark and the possibility of that happening.
- The common practice analysis was updated with more evidence.
- The exclusion of alternative 3 while determining the baseline scenario was further evidenced.
- Starting date of the crediting period for the project activity has been changed from 1 January 2010 to 1 October 2010 with the consideration of feasibility.

After reviewing the PDD, DNV issued this final validation report and opinion.

3.2 Follow-up Interviews with Project Stakeholders

The roads construction contract of the project was signed between Longyuan (Xing'anmeng) Wind Power Co., Ltd. and Inner Mongolia Xintai Construction and Installation (Group) Co., Ltd. on 22 March 2009. The roads construction permission was issued on 11 April 2009 when the project construction has been launched. Until the desk review of the project from 11 August 2009 to 15 September 2009, the project construction was only partly completed (mostly on the turbines foundation and roads). Therefore, DNV considered the on-site visit for the project was not necessary and arranged the follow-up interview in DNV Beijing office.

The follow-up interview was held by CDM validator Zhang Xiao Jun and GHG auditor Xue Yan Ju on 16 September 2009, with the project consultancy, Longyuan (Beijing) Carbon Asset Management Technology Co., Ltd., and the project participant Longyuan (Xing'anmeng) Wind Power Co., Ltd., to resolve the issues identified during the desk review /1/.

During the desk review, the relevant documents, including the PDD /1/, EIA /5/, Approval of EIA /5/, FSR /4/, approval of FSR /4/, IRR calculation spreadsheet /6/, EF calculation spreadsheet /7/, the main transformer purchase agreement /21/, turbines purchase agreement /22/, road construction permission /20/, construction permission of turbines foundation /25/, and stakeholder questionnaires /59/ were provided and reviewed. Based on the documents provided, DNV is able to check the project design, construction, monitoring plan and all baseline scenario information. In addition, through the FSR /4/, EIA /5/ and the interview /89/, it has been confirmed by DNV no immigration was involved in the project activity.



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	Date	Name	Organization	Topic
/88/	16 September 2009	Mr. Ren Lei	Longyuan (Beijing) Carbon Asset Management Technology Co., Ltd.	<ul style="list-style-type: none"> • Baseline determination of the project • Applicability of selected methodology /10/ (Version 10) • Issues related to the additionality • Common practice analysis • Emission reductions calculation • Emission reduction monitoring plan and project management
/89/	16 September 2009	Mr.Feng Yong Li	Longyuan (Xing'anmeng) Wind Power Co., Ltd.	<ul style="list-style-type: none"> • Information of project construction • The development of wind-power project in Inner Mongolia Autonomous Region • The approval status (incl. EIA approval, the feasibility study report approval, CDM project approval) • Project management • Emission reduction monitoring plan • Consulting process for stakeholder's comments and rationality of questionnaires. • Investment risks and barriers

3.3 Resolution of Outstanding Issues

The objective of this phase of the validation was to resolve any outstanding issues which needed be clarified prior to DNV's positive conclusion on the project design. In order to ensure transparency a validation protocol was customised for the project. The protocol shows in a transparent manner the 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 Mangniuhai II Wind Power Project is enclosed in Appendix A to this report.



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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:

- 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.



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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

3.4 Internal Quality Control

The validation report underwent a technical review before requesting registration of the project activity. The technical review was performed by Yang Weidong, the technical



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reviewer qualified in accordance with DNV's qualification scheme for CDM validation and verification.

3.5 Validation Team

Type of involvement

<i>Role/Qualification</i>	<i>Last Name</i>	<i>First Name</i>	<i>Country</i>	<i>Desk review</i>	<i>Site visit / Interviews</i>	<i>Reporting</i>	<i>Supervision of work</i>	<i>Technical review</i>	<i>Expert input</i>
CDM validator / technical team leader/project manager	Zhang	Xiaojun Johnsen	China	√	√	√	√		
CDM validator with sector experience	Tang	Zhiang Walter	China	√			√		√
GHG auditor	Xue	Yanju Andi	China	√	√	√			
Technical reviewer	Yang	Weidong	USA					√	

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

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.

4.1 Participation Requirements

The project participants include Longyuan (Xing'anmeng) Wind Power Co., Ltd. of China and Essent Trading International S.A. of Switzerland.

The host Party China and Annex I Party Switzerland meet the requirements to participate in the CDM. Both have ratified the Kyoto Protocol and have established their own DNA as per the participating requirements for CDM under the Kyoto Protocol.

China has ratified the Kyoto Protocol on 30 August 2002 and its DNA is National Reform and Development Committee. Switzerland has ratified the Kyoto Protocol on 09 July 2003 and its DNA is Federal Office for the Environment FOEN.



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The Letter of Approval (LoA) /2/ from the DNA of China has been issued on 22 September 2009 /2/, authorizing Longyuan (Xing'anmeng) Wind Power Co., Ltd. as project participant and confirming that the project assists Chinese sustainable development /2/.

The LoA /3/ from the DNA of Switzerland has been issued on 19 February 2010, authoring Essent Trading International S.A. as project participant /3/.

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

4.2 Project Design

The project is located in Xiliu Town, Tuquan County, Xing'an League, Inner Mongolia Autonomous Region, China. The geographical coordinates of this project are East longitude 121°41'09" and North latitude 45°15'20" and the altitude is 240-267.3 m /4/.

The project involves installation and operation of 33 wind turbines (Model Type: SL1500/82) each with rated capacity of 1.5 MW, manufactured by Sinovel Wind Co., Ltd. with a total capacity of 49.5 MW. DNV checked all the parameters of the turbines from the PDD /1/ against the FSR /4/ to be able to confirm the consistency. It is expected that the project will supply appropriately 114 200 MWh net electricity per year to Northeast China Power Grid (NECPG) when it is in full operation /4/. The plant load factor for the project activity is 26.3% according to the FSR /4/. The electricity generated by the project will be transmitted to cubicle switchboard in the booster stations, and then will be delivered to the Tuquan 220 kV substation, which is part of NECPG /4/.

The starting date of the project is defined as 21 March 2009 when the main transformer purchase agreement was signed /21/, which is the earliest financial commitment for the project activity.

The expected operational lifetime of the project activity is 20 years /4/. A renewable crediting period of 7 years has been chosen for the project, starting on 1 October 2010 or the date of registration, whichever is later. The emission reductions are estimated to be on average 117 400 tCO₂e per year and 821 800 tCO₂e over the renewable seven-year crediting period.

It is of the opinion of DNV that the project design has been described in an accurate and adequate manner.

4.3 Baseline Determination

4.3.1 Applicability

The project correctly applies the approved baseline methodology ACM0002 (version 10) /10/, 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, which has been verified through the project FSR /4/.



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- It does not involve switching from fossil fuel to renewable energy at the project site as verified through the follow-up interview /89/ and the FSR review /4/.
- The project is connected to NECPG of which the geographical and system boundaries are clearly identified and information on the characteristics of this grid is available /30/.

4.3.2 Project boundary

The spatial extent of the project boundary is clearly defined as the site of project activity and all power plants connected physically to NECPG including Liaoning, Jilin, Heilongjiang grids, to which the project is connected. This is in line with the delineation of grid boundaries as provided by the DNA of China /30/. The defined project boundary is in line with ACM0002 (version 10) /10/.

The selected sources and gases are justified for the project activity. Emission sources and gases included in the project boundary are:

	GHGs involved	Description
Baseline emissions	CO ₂	Generation of the similar amount of electricity in the NECPG.
Project emissions	N/A	Project emission is regarded as zero as the project is a renewable energy (wind source) project and no backup power existed at the project site /1//4/. Therefore no project emission sources of more than 1% of the emission reductions were identified.
Leakage	N/A	There are no leakages that need to be considered in applying this methodology.

4.3.3 Baseline determination

Since the project activity is additional, cf. Section 4.4, the baseline scenario is, as per ACM0002 version 10 /10/ defined to be that the electricity delivered to the NECPG by the project activity would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources, as reflected in the combined margin (CM) calculated described in the “Tool to calculate the emission factor for an electricity system” version 2 /12/. A combined margin (CM), consisting of the combination of operating margin (OM) emission factor and the build margin (BM) emission factor was calculated. The *ex-ante* method was selected on OM and BM calculation based on the most recent information available at the time of submission of the PDD for validation.

The NECPG 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.



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The baseline determination is transparent and reasonable.

4.4 Additionality

The additionality of the project has been demonstrated by applying the “*Tool for the demonstration and assessment of additionality*” version 5.2 /11/ approved by the CDM-EB.

4.4.1 CDM consideration and continued action to secure CDM status

Starting date of the project activity

As for the project, main transformer purchase agreement was signed between Longyuan (Xing’anmeng) Wind Power Co., Ltd. and Shandong Taikai Transformer Co., Ltd. on 21 March 2009 /21/; contract of roads construction was signed between Longyuan (Xing’anmeng) Wind Power Co., Ltd. and Inner Mongolia Xintai Construction and Installation (Group) Co., Ltd. on 22 March 2009 /23/; roads construction permission was issued by Beijing Hualian Electric Power Engineering Supervision Co., Ltd. on 11 April 2009 /20/. Therefore, the earliest commitment to financial expenditure is 21 March 2009, which is considered as the starting date.

According to the guidance of EB48 Annex 61, for the projects with the starting date on and after 2 August 2008, the project participant should inform the host country DNA and the UNFCCC secretariat of the commencement date of the project activity and their intention to seek CDM status. The notification to the Chinese DNA of the commencement date of the project activity and their intention to seek CDM support was released by the project owner on 11 April 2009 and confirmed by Chinese DNA on 1 July 2009 /27/. The Prior CDM Consideration Form was sent to the EB on 20 July 2009, and confirmed by the EB on 23 July 2009 /28/.

It was demonstrated in the following two aspects that CDM was seriously considered in the decision to implement the project activity.

1) Awareness of the CDM prior to project’s start date and the key role of CDM benefits in the investment decision was evidenced through the following chronological events:

No.	date	Events
1	August 2008	The FSR was completed. It showed the project was financially unfeasible with the IRR of 6.24% /4/, which is lower than the benchmark of 8%. Given the financial unfeasibility, the CDM development for the project became very crucial.
2	14 October 2008	The FSR was approved by Development and Reform Commission of Inner Mongolia Autonomous Region /4/.
3	5 February 2009	The directors’ meeting was held by the Longyuan (Xing’anmeng) Wind Power Co., Ltd. when CDM was considered to address the financial unfeasibility and the decision was made to implement investment on the project /18/.
4	February 2009	The CDM consultation contract was signed between Longyuan (Xing’anmeng) Wind Power Co., Ltd. and Longyuan (Beijing) Carbon Asset Management Technology Co., Ltd. /19/.



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5	15 March 2009	Meeting for collecting the local stakeholders' comments on the project activity was held by Longyuan (Xing'anmeng) Wind Power Co., Ltd. /58/.
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It is DNV's opinion that these events described above demonstrate that project developer was aware of CDM prior to project's commencement date and CDM benefit was a decisive factor in the decision to proceed with the investment.

2) Continuing and real actions to secure CDM status in parallel with project's implementation was evidenced through the following chronological events:

No.	date	Events
1	21 March 2009	Main transformer purchase agreement was signed between Longyuan (Xing'anmeng) Wind Power Co., Ltd. and Shandong Taikai Transformer Co., Ltd. /21/.
2	22 March 2009	Roads construction contract was signed between Longyuan (Xing'anmeng) Wind Power Co., Ltd. and Inner Mongolia Xintai Construction and Installation (Group) Co., Ltd. /23/
3	24 March 2009	Agreement of wind turbines installation was signed between Longyuan (Xing'anmeng) Wind Power Co., Ltd. and Suihua Yuanda Electric Power Construction Co., Ltd. /26/.
4	11 April 2009	Permission of roads construction was issued by Beijing Hualian Electric Power Engineering Supervision Co., Ltd. /20/. And the project construction was launched on the same day.
5	11 April 2009	The Form of Prior CDM Consideration was submitted by Longyuan (Xing'anmeng) Wind Power Co., Ltd. to the Chinese DNA on 11 April 2009; and it was confirmed by the Chinese DNA on 1 July 2009 /27/.
6	20 April 2009	Construction Contract of the turbines foundation was signed between Inner Mongolia Mangniuhai II Wind Power Project and Inner Mongolia Third Electric Construction Engineering Co., Ltd. /24/.
7	22 April 2009	Loan contract of Inner Mongolia Mangniuhai II Wind Power Project was signed between Longyuan (Xing'anmeng) Wind Power Co., Ltd. and Wulanhate Branch of Industrial and Commercial Bank of China /71/.
8	3 May 2009	Construction permission of turbines foundation was issued by Beijing Hualian Electric Power Engineering Supervision Co., Ltd. /25/. And the construction period of the wind plant was launched on the same day.
9	20 July 2009	The Form of Prior CDM Consideration was submitted to the EB on 20 July 2009, and confirmed by EB on 23 July 2009 /28/.



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10	11 August 2009	The validation started with global stakeholder consultation.
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It is DNV's opinion that these events described above demonstrate that continuing and real actions to secure CDM status after project's start date were taken by project developer.

4.4.2 Identification of alternatives to the project activity consistent with current laws and regulations

Four alternatives to the projects have been identified and discussed:

- The project activity undertaken without being registered as a CDM project activity.
- Construction of a fossil fuel-fired project with equivalent installed capacity or annual electricity generation.
- Construction of a power plant using other sources of renewable energy with equivalent installed capacity or annual electricity generation.
- Continuation of the current situation, i.e. provision of equivalent amount of annual power output by the NECPG.

Alternative b): this alternative is not consistent with current law because Chinese power regulation /32/ strictly prohibits the installation of thermal power plants with a capacity below 135 MW in areas covered by the large grids such as provincial grids /32/. Therefore, the alternative b) has been excluded from further discussion.

Alternative c): DNV was able to confirm that the proposed project was located in the region which has no other exploitable sources of renewable energy such as hydro power and tidal resources /31/. In China, for the biomass, solar PV and geothermal, the limited technology and high cost made the development become difficult without the policies and government support /31/. Therefore, the alternative c) is not a credible one and eliminated from further discussion.

Hence, alternative (a) and (d) are the plausible alternative scenarios which are consistent with the current laws and regulations and thus will be discussed at the next steps.

4.4.3 Investment analysis: Choice of approach

As the proposed project generates financial and economic benefits other than CDM related income through the sales of electricity and the alternative for the baseline scenario of the proposed project is not a similar investment project, a benchmark analysis is justified for conducting the investment analysis.

4.4.4 Investment analysis: Benchmark selection

According to the *Interim Rules on Economic Assessment of Electrical Engineering Retrofit Projects* /17/, in China a project-IRR of 8% (post-tax) for the total investment of a project is regarded as benchmark for investing on large scale hydropower plants, fossil fuel fired plants as well as wind farm projects. The benchmark of 8% (post-tax) is therefore appropriate for this project. DNV was able to confirm this is suitable and reasonable as below:

- The benchmark was determined by the national administration of this industry in China;
- The benchmark is for project and post-tax and the investment analysis for this project will be for project and post-tax;



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3. The *Interim Rules on Economic Assessment of Electrical Engineering Retrofit Projects* /17/ is referred to the risk premiums of large scale wind power projects and the project is also the large wind project.

4.4.5 Investment analysis: Input parameters

The input parameters used in the financial analysis of this project are taken from the feasibility study report (FSR) developed by China Fulin Wind Energy Development Co., Ltd in August 2008 and approved by Development and Reform Commission of Inner Mongolia Autonomous Region on 14 October 2008 /4/.

A FSR in China is required to be developed by a third party accredited for this task directly by the government. An approval letter of the FSR is issued by the government only after it passes the public assessment of the sector experts designated by the government. It is in DNV's opinion that FSR can be regarded as an accurate and trustworthy source of information coming from a recognized entity once it has the approval letter from the government.

DNV compared the input parameters for the financial analysis included in the PDD version 4 of 10 September 2010 /1/ with the parameters stated in the FSR /4/ and was able to confirm that the values applied are consistent with the values stated in the FSR /4/.

The FSR was approved on 14 October 2008 /4/ and thus only 5 month prior to the decision to proceed with the project activity (i.e. the starting date of the project) which was on 21 March 2009 /21/. Given this relatively short period of time between the approval of FSR 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 /4/ was the basis of the decision to proceed with the investment in the project.

The input parameters used in the financial analysis were compared with the data from other wind power registered CDM projects in the East Inner Mongolia, as shown in the table 1. By comparing the investment costs per kW, rate of the annual O&M cost to the total static investment, plant load factor, the other cost per kW and material cost per kW etc between the project and the registered CDM projects in the same region Eastern Inner Mongolia, DNV is of the opinion that all compared parameters of the project are within reasonable ranges. In addition, by applying our sectoral competence, DNV was able to confirm that the input parameters used in the financial analysis of the project are reasonable and adequately represent the economic situation of the project.

Table 1: Comparison of investment cost per kW, rate of the annual O&M cost to the total static investment, plant load factor, other cost per kW and material cost per kW between wind power projects in East Inner Mongolia

No.	Project name	Installed capacity (MW)	Investment cost per kW (RMB)	O&M /I (%)	Plant Load factor (%)	Other Cost per kW (RMB)	Material Cost per kW (RMB)	CDM Registration Ref. No
1	Saihanba East 45.05 MW Windfarm project	45.05	11 909	N/A	28	N/A	N/A	0561
2	Saihanba North 45.05 MW Windfarm project	45.05	10 150	N/A	28	N/A	N/A	0576
3	Inner Mongolia Chifeng	49.30	10 445	1.7	28	N/A	N/A	0689



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	Dongshan 49.3MW Wind Power Project							
4	Guohua Hulunbeier Xinbaerhu Youqi wind farm project	49.5	9 869	1.2	27	N/A	N/A	0981
5	Inner Mongolia Chifeng Saihanba West 30.6 MW Windfarm Project	30.60	9 491	2.3	28	19	N/A	0994
6	Inner Mongolia Dali Phase IV 49.5MW Wind Power Project	49.50	11 049	3.8	28	9	9	1628
7	Inner Mongolia Dali Phase V 49.5MW Wind Power Project	49.50	11 719	2.3	25	9	10	1629
8	Inner Mongolia Wudaogou 50.25MW Wind Power Project	50.25	9 406	2.4	28	40	0	1487
9	Inner Mongolia Sunjiaying 50.25MW Wind Power Project	50.25	10 073	2.4	27	40	5	1488
10	Inner Mongolia Chifeng Bolike 50MW Wind Power Project	50.00	10 372	1.7	28	11	10	1830
11	Inner Mongolia Chifeng Dongshan Phase II 50MW Wind Power Project	50.00	10 180	1.6	28	7	10	1869
12	Huaneng Tongliao Baolongshan Phase II Wind Farm Project	49.5	10 800	1.8	28	14	0	2599
13	Inner Mongolia Tongliao Huolinhe Wind Power Project	50.00	9 188	2.2	27	30	15	2886
14	Huaneng Inner Mongolia Keyouzhongqi Gaoliban Wind Farm Project	49.5	11 106	1.5	26	10	N/A	3080
15	Guohua Tongliao kezuo zhongqi Phase II 49.5MW wind farm project	49.5	9 885	1.8	24	5.0	5	1825
16	Guohua Chenbaerhu Qi Phase I 49.5MW Wind Farm Project	49.5	9 759	1.43	24	10	5	2472
17	Inner Mongolia Meiyaoshan wind farm`	49.92	9 240	2.52	25	25	20	2381



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18	Huaneng Tongliao Baolongshan phase III 49.5MW Wind power project	49.5	10 736	1.9	28	14	N/A	3084
19	Inner Mongolia Chifeng Yihegong Windfarm Project	49.5	9 762	2.1	26	34	5	2811
20	Huaneng Tongliao Zhurihe Phase I Wind Farm Project	49.5	10 657	2.0	26	5	10	3124
21	Tongliao Kezuo Zhong Banner Dailiji Aorimu Wind Power Project	49.5	9 799	2.5	25	25	10	3258
22	Inner Mongolia Tongliao Wind Farm Project Phase III	49.5	10 159	1.9	26	10	8	3264
23	Inner Mongolia Tongliao Wind Farm Project Phase IV	49.5	9 707	2.0	25	9	8	3287
24	Tongliao Naiman Banner Baxiantong Haritang Wind Power Project	49.5	10 138	2.5	25	25	10	3153
25	The proposed project	49.50	8 369	2.9	26	50	10	3465

1) Total static investment

It can be seen from the table 1 above that the investment cost per kW of the project is 8 369 RMB /4/, which is close to the range from 9 469 RMB/kW to 11 719 RMB/kW shown in the table 1.

The actual cost of wind turbines as per the wind turbines purchase agreement /22/ is 12.7% higher than the assumed cost of wind turbines in the FSR /4/; considering the assumed cost of wind turbines is equivalent to 63.4% of the total static investment /4/, it can be confirmed that the investment analysis in the FSR /4/ is conservative. Therefore, the total static investment of the project is deemed by DNV to be reasonable and appropriate in East Inner Mongolia.

2) Tariff

Due to wind projects in Inner Mongolia being connected to two different power grids, Inner Mongolia is divided into two parts in terms of the determination of the tariff. One part is Eastern Inner Mongolia, where the proposed project is located.

(1) The tariff used in the PDD is sourced from the FSR /4/ and applicable at the time of investment decision.

Background

✚ The higher tariff is applied by a project for the first 30 000 operation hours, and the lower tariff of local grid is used after the 30 000 operation hours. In these cases, the tariff



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implementation pattern using two phase different tariffs is called “Two-phase tariff”.

- ✦ The determination of first 30 000 hours as the threshold for the relatively higher tariff, is made with the intension to relieve the corporations from the loan pressure.

Due to larger investment cost and operation cost for the wind power projects, normally, a wind power plant has to pay back the loan in 10 – 15 years. During this period, the wind power plants need the higher tariff to get through the threat from huge loan. After the 30 000 hours, the loan is basically taken off and the wind power plants are supposed to be able to run with the implementation of the average wind power tariff. The explanation given above is derived from the China Wind Power Report in 2007 /81/.

Analysis

The project is located in Xingan League, East Inner Mongolia and supplies the electricity to NECPG /4/. The tariffs of the proposed project are sourced from the FSR which has been completed by the qualified third party in August 2008 /4/. Before the finalization of the FSR, the most recent tariff notification (Fa Gai Jia Ge [2008] No. 1876) /44/ for the wind power projects located in the same region as the proposed project has been issued by NDRC on 23 July 2008. In this notification, it clearly states that the first phase tariff (within the 30 000 operation hours) is 0.54 RMB/kWh (Incl.VAT) and the second phase tariff will be the same as the average tariff of local power grid. Therefore, the FSR designer adopted the 0.54 RMB/kWh (Incl.VAT) for the first 30 000 hours in the FSR and 0.4000 RMB/kWh (Incl.VAT) after the 30 000 hours into the investment analysis of the proposed project. And the FSR has been officially approved by the NDRC in October 2008, which is before the project owner made the decision to seek the CDM support dated 21 March 2009 /21/.

There was no tendering process in the tariff determination for the proposed project. Furthermore, DNV has checked all the tendering notifications, and confirm that the tariff adopted in the PDD of the project was not determined via a tendering process /47/.

To confirm the suitability of the tariff applied in the project, DNV studied all wind power projects in East Inner Mongolia covered by NECPG. Their tariffs are listed in the Table 2.

Table 2 Project information of the wind power projects exporting electricity to NECPG in East Inner Mongolia

Project Name	Tariff (Incl. VAT, RMB/kWh)	Tariff Source
Dali Phase III Wind Power Project (demonstration project)	0.79	/39//54/
Inner Mongolia Chifeng Saihanba West 30.6 MW Windfarm Project	0.54	Fa Gai Jia Ge[2007]1260 /40/
Inner Mongolia Sunjiaying 50.25MW Wind Power Project	0.54	Fa Gai Jia Ge[2007]1260 /40/
Inner Mongolia Wudaogou 50.25MW Wind Power Project	0.54	Fa Gai Jia Ge[2007]1260 /40/
Guohua Hulunbeier Xinbaerhu Youqi Wind Farm Project	0.54	Fa Gai Jia Ge[2007]1260 /40/
Inner Mongolia Chifeng Dongshan 49.3 MW Wind Power project	0.54	Fa Gai Jia Ge[2007]1260 /40/



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Saihanba North 45.05 MW Windfarm Project	0.54	Fa Gai Jia Ge[2007]1260 /40/
Saihanba East 45.05 MW Windfarm Project	0.54	Fa Gai Jia Ge[2007]1260 /40/
Inner Mongolia Chifeng Dongshan Phase II 50MW Wind power project	0.54	Fa Gai Jia Ge[2007]3303 /43/
Chifeng Sunjiaying Wind Power Project	0.54	Fa Gai Jia Ge[2007]3303 /43/
Inner Mongolia Chifeng Bolike 50MW Wind Power Project	0.54	Fa Gai Jia Ge[2007]3303 /43/
Inner Mongolia Keyouqianqi Wind Project	0.5325	Fa Gai Jia Ge[2007]3303 /43/
Inner Mongolia Keshiketeng County Wutaohai South Wind Farm 49.5 MW Project	0.54	Fa Gai Jia Ge[2007]3303 /43/
Inner Mongolia Mangniuhai Wind Project	0.54	Fa Gai Jia Ge[2007]3303 /43/
Guohua Tongliao Kezuo Zhongqi Phase I 49.5 MW Wind Farm Project	0.54	Fa Gai Jia Ge[2007]3303 /43/
Inner Mongolia Wengniute Banner Wudaogou Wind Power Project (II)	0.54	Fa Gai Jia Ge[2007]3303 /43/
Inner Mongolia Meiyaoshan Wind Project	0.54	Fa Gai Jia Ge[2007]3303 /43/
Inner Mongolia Chifeng Gaofeng Wind Project	0.54	Fa Gai Jia Ge[2007]3303 /43/
Inner Mongolia Tongliao Baolongshan 49.5MW Wind Power Project	0.54	Fa Gai Jia Ge[2007]3303 /43/
Inner Mongolia Dali Phase IV 49.5MW Wind Power Project	0.54	Fa Gai Jia Ge[2008]1876 /44/
Inner Mongolia Chifeng Daguangdingzishan Wind Power project	0.54	Fa Gai Jia Ge[2008]1876 /44/
Inner Mongolia Chifeng Daheishan Wind Power Project	0.54	Fa Gai Jia Ge[2008]1876 /44/
Inner Mongolia Dali Phase V 49.5MW Wind Power Project	0.54	Fa Gai Jia Ge[2008]1876 /44/
Huadian Tongliao Beiqinghe 300 MW Wind Farm Project	0.5216	China Wind Power Report 2008 /47/

By checking “Development Report of New Energy and Renewable Energy of China” /38/ and “China Electric Power Yearbook 2006” /13/, DNV can confirm that the “Dali Phase III Wind Power Project” (as shown in the table 2) is a demonstration project which was put into operation with the financial aid from the national debt fund /39//54/ and consequently with a high tariff of 0.79 RMB/kWh (Incl. VAT) /74/. However, with the maturity of wind power market, the financial aid and high tariff are impossible to obtain for the current wind power projects in the region.

From 2006 to now, there were totally 24 wind power farms in East Inner Mongolia. Except for two projects obtaining slightly lower tariffs of 0.5216 RMB/kWh and 0.5325 RMB/kWh (Incl. VAT) respectively approved by NDRC /43//47/, the tariffs of all the rest 22 projects have been fixed 0.54 RMB/kWh (Incl. VAT) respectively approved by NDRC.

Therefore, DNV can confirm that the first phase tariff of 0.54 (Incl. VAT) in the FSR sourced from the tariff notification from the grid company /44/ is reasonable and appropriate.

For the second phase tariff of 0.4000 RMB/kWh (Incl. VAT), it is conservatively estimated by the FSR design institute and verified to be higher than the average tariff of local grid. According to the tariff notification approved by the NDRC /41/ - /44/, the first phase tariff is 0.54 RMB/kWh (Incl. VAT) and the second phase tariff is 0.2599 RMB/kWh (Incl. VAT) /85/. The second phase tariff of 0.4000 RMB/kWh (Incl. VAT) applied by the project activity is



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higher than the average tariff of local grid in 2007 (0.2599 RMB/kWh) /85/, which is considered to be conservative.

To sum up, DNV can confirm that the applied tariff sourced from the FSR, i.e. 0.54 RMB/kWh (Incl. VAT) for the first 30 000 operation hours and 0.4000 RMB/kWh (Incl. VAT) after the 30 000 operation hours, is appropriate and conservative. With the application of 0.54 RMB/kWh (Incl. VAT) for the first 30 000 hours and 0.40 RMB/kWh (Incl. VAT) for the rest time of operation period, the project IRR will be 7.28%, which is lower than the benchmark. Therefore, it is able to demonstrate that the project is additional.

Furthermore, PP has respectively introduced the actual loan rate and investment into its IRR calculation. By doing so, the project IRR will be lower than the benchmark of 8% with the application of 0.54 RMB/kWh (Incl. VAT) for the whole period. The analysis has been shown below,

- ✦ According to the LoI of long-term loan from the bank /71/, the actual loan rate for project activity is 5.346%, which is lower than the defined value in the FSR. When the actual loan rate was taken into the IRR calculation, along with the 0.54 RMB/kWh (Incl. VAT) for the whole period, the project IRR will be up 7.90%.
- ✦ As clarified by the Beijing Hualian Electricity Management Company (one third party), the actual investment of project activity is 429.989 Million RMB /87/. When the actual investment is taken into IRR calculation, along with the 0.54 RMB/kWh (Incl. VAT) for the whole period, the project IRR will be up to 7.49%.

After cross-checking whether the IRR will cross the benchmark with the application of actual investment and loan rate, the project IRR is still lower than the benchmark of 8%. In conclusion, with the application of highest tariff for the first 30 000 hours (0.54 RMB/kWh, Incl. VAT) and the tariff of 0.4000 RMB/kWh (Incl. VAT) after 30 000 hours, the project IRR is 7.28%, still lower than the benchmark of 8%.

(2) In accordance with the Annex 32 EB 53, Clarifications on the Implementation of E+/E- Clarifications in the Context of Cases on the Agenda of EB53, the analysis is as follow:

The policies after 11 November 2001 did not impact the tariff applicable to the project.

In 2002, *Plan for Electricity Power Reform* was issued by State Council of China, on 10 February 2010 and came into effect on 10 February 2010 /53/. In brief, the reform makes the grids be operated under the commercial environment instead of being state-owned.

Projects starting before the reform have significant different commercial circumstances than the projects operated after the reform. Hence they can not be compared with the proposed project considering the difference period and different tariff determination mechanism. Therefore, the projects starting before the reform are excluded from the comparison from the proposed project.

On 10 December 2002, China National Development and Planning Committee (previous body of NDRC) issued the FSR approval for *Jiangsu Qidong Wind Power Project* (Ji Ji Chu [2002] No. 2692 /82/) where the two phase tariffs have been clearly stated. It is considered to be the first tariff notification indicating the two phase tariffs. After the issuance of FSR approval /82/, the two phase tariff has been applied by the project *Jiangsu Rudong Wind Power Project* (UNFCCC Ref. 0491). Therefore, the Policy decision to apply a higher tariff for the first 30 000 hours has been implemented since 2002.



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On 30 June 2004, the *CDM Management Regulation* with regard to the application for CDM, was issued by NDRC /83/. This document was issued after the first two phase tariff notification (Ji Ji Chu [2002] No.2692 /82/). Hence, it can be confirmed that the issuance and implementation of the two-phase tariff notification effected on 10 December 2002 has been verified to be without CDM consideration.

In 2006, China has issued *The Renewable Energy Law of the People's Republic of China* /48/ and *Interim Measures for Renewable Energy Power Tariff and Cost-sharing* /84/ and some other policies to increase the share of domestic wind power equipments in wind power industry, and reduce the wind power generation cost and increase the investment incentives. From now on, the wind power projects grew rapidly in China. The above mentioned policies are listed below:

- ✦ The *Renewable Energy Law of the People's Republic of China*, effected since 1 January 2006 /48/. Where, the information of two phase tariff has been included.
- ✦ *Interim Measures for Renewable Energy Power Tariff and Cost-sharing* was issues by the Chinese NDRC in January 2006 /84/ with the target to stimulate the development of renewable power projects including the wind power project. As stated in this document /84/, the tariff of wind power projects should be guided by the government.

Based on the *Interim Measures for Renewable Energy Power Tariff and Cost-sharing* /84/, NDRC has issued the tariff notifications for wind projects in China to perform as guidance for tariff determination, as shown below,

- ✦ Tariff approvals ([2006] No.2908), issued by NDRC on 22 December 2006 /41/.
- ✦ Tariff approvals ([2007] No.1260), issued by NDRC on 9 June 2007 /42/.
- ✦ Tariff approvals ([2007] No.3303), issued by NDRC on 3 December 2007 /43/.
- ✦ Tariff approvals ([2008] No.1876), issued by NDRC on 23 July 2008 /44/.

DNV's validation team has reviewed each tariff approval given above. It is clearly identified on each tariff approval that the approved tariff are only for the first 30 000 hours, and the average tariff of local grid should be executed after the first 30 000 hours.

In order to further substantiate the implementation of policy with regards to two phase tariff, the DNV validation team has reviewed all registered wind power projects in China and found 36 ones in China using the two-phase tariff (refer to the table 3 below). The review was able to confirm that the two phase tariffs have been implemented in China since 2002 and has never stopped.

Table 3 Registered Projects using the two phase tariffs in China

No	Referen ce No.	Project Name	Registration Date	Source link
1	3153	Tongliao Naiman Banner Baxiantong Haritang Wind Power Project	27 Jun 10	http://cdm.unfccc.int/Projects/DB/DNV-CUK1258970138.88/view
2	2598	Huaneng Jilin Tongyu Phase II Wind Farm Project	21 Jun 10	http://cdm.unfccc.int/Projects/DB/BVQI1242974589.56/view
3	3258	Tongliao Kezuozhong Banner Dailiji Aorimu Wind Power Project	14 Jun 10	http://cdm.unfccc.int/Projects/DB/DNV-CUK1262929581.35/view



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4	3241	Huadian Gansu Guazhou Ganhekou No. 7 Wind Farm Project	24 May 10	http://cdm.unfccc.int/Projects/DB/DNV-CUK1261995235.23/view
5	2615	Inner Mongolia Chifeng Saihanba Tashanzi Wind Power Project	3 May 10	http://cdm.unfccc.int/Projects/DB/DNV-CUK1243934217.91/view
6	3105	Datang Chifeng Bolike II Wind Power Project	02 Apr 10	http://cdm.unfccc.int/Projects/DB/DNV-CUK1256589807.79/view
7	2593	Inner Mongolia Keyouqianqi Wind Farm Project	15 Mar 10	http://cdm.unfccc.int/Projects/DB/DNV-CUK1242803353.52/view
8	2617	Inner Mongolia Chifeng Saihanba Qingmachang Wind Power Project	04 Mar 10	http://cdm.unfccc.int/Projects/DB/DNV-CUK1243935386.29/view
9	2766	Gansu Jingtai 45MW Wind Power Project	03 Mar 10	http://cdm.unfccc.int/Projects/DB/TUEV-RHEIN1247703700.0/view
10	1924	Liaoning Faku Heping Wind Power Project	01 Mar 10	http://cdm.unfccc.int/Projects/DB/DNV-CUK1214931141.79/view
11	2864	Liaoning Kangping Furaoshan Wind Power Project	24 Feb 10	http://cdm.unfccc.int/Projects/DB/TUEV-SUED1249387437.04/view
12	2951	Inner Mongolia Bayannaoer Chuanjingsumu (IV) Wind Power Project	12 Feb 10	http://cdm.unfccc.int/Projects/DB/SGS-UKL1251976657.48/view
13	2777	Heilongjiang Shaobaishan Wind Power Project	28 Dec 09	http://cdm.unfccc.int/Projects/DB/BVQII248251636.98/view
14	1577	CGN Inner Mongolia Zhurihe Phase I Wind Farm Project	23 Dec 09	http://cdm.unfccc.int/Projects/DB/DNV-CUK1200642678.34/view
15	2886	Inner Mongolia Tongliao Huolinhe Wind Power Project	18 Dec 09	http://cdm.unfccc.int/Projects/DB/DNV-CUK1249456347.48/view
16	2883	Gansu Baiyin Pingchuan Jiancaitang 45MW Wind Farm Concession Project	14 Dec 09	http://cdm.unfccc.int/Projects/DB/TUEV-SUED1249417862.09/view
17	1815	Inner Mongolia Huitengliang Phase II Wind Power Project	27 Oct 09	http://cdm.unfccc.int/Projects/DB/BVQII207768950.28/view
18	2153	Inner Mongolia Baotou Bayin Wind Power Project	12 May 09	http://cdm.unfccc.int/Projects/DB/DNV-CUK1218624488.68/view
19	2109	CGN Gansu Anxi Daliang 49.5MW Wind Power Project	29 Apr 09	http://cdm.unfccc.int/Projects/DB/DNV-CUK1218548297.8/view
20	2007	Hebei Haixing 49.5MW Wind Farm Project	06 Mar 09	http://cdm.unfccc.int/Projects/DB/TUEV-SUED1218101320.07/view
21	2140	Hebei Chongli Qingsanying 49.3MW Wind Farm Project	23 Feb 09	http://cdm.unfccc.int/Projects/DB/TUEV-SUED1218616949.73/view
22	2088	Hebei Yuxian Kongzhongcaoyuan 49.5MW Wind Farm Project	23 Feb 09	http://cdm.unfccc.int/Projects/DB/TUEV-SUED1218534453.07/view
23	2021	Shandong Haiyang Qiwershan Wind Power Project	08 Feb 09	http://cdm.unfccc.int/Projects/DB/DNV-CUK1218168872.11/view
24	2113	CGN Inner Mongolia Huitengliang 300MW Wind Power Project	28 Jan 09	http://cdm.unfccc.int/Projects/DB/DNV-CUK1218552183.25/view
25	2068	Jilin Tongyu Tongfa Wind Power Project	26 Jan 09	http://cdm.unfccc.int/Projects/DB/DNV-CUK1218468288.41/view
26	2169	Jiangsu Rudong Lingyang Wind Power Project	12 Jan 09	http://cdm.unfccc.int/Projects/DB/TUEV-SUED1218638332.96/view



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27	2193	Gansu Yumen Sanshiliqingzi Wind Power Project	08 Jan 09	http://cdm.unfccc.int/Projects/DB/TUEV-SUED1218655051.51/view
28	2135	Inner-Mongolia Ximeng Abag 49.5MW Wind Power Project	16 Apr. 09	http://cdm.unfccc.int/Projects/DB/RWTU V1218614638.67/view
29	1992	Expansion Project of Huadian Inner Mongolia Huitengxile Wind Farm	26 Jan 09	http://cdm.unfccc.int/Projects/DB/TUEV-SUED1217944278.42/view
30	2170	CECIC HKC Danjinghe Wind Farm Project	29 Dec 08	http://cdm.unfccc.int/Projects/DB/DNV-CUK1218638823.56/view
31	1837	Zhejiang Cixi Wind Farm Project	09 Dec 08	http://cdm.unfccc.int/Projects/DB/TUEV-SUED1210258122.12/view
32	1789	Shandong Tuoji Island Windfarm Project	20 Nov 08	http://cdm.unfccc.int/Projects/DB/DNV-CUK1207658366.01/view
33	1627	Shibeishan Wind Power Generation Project in Huilai County, Guangdong Province	17 Sep 08	http://cdm.unfccc.int/Projects/DB/DNV-CUK1203852135.01/view
34	0897	Jilin Tongyu Tuanjie wind project, 100.3 MW	07 Apr 07	http://cdm.unfccc.int/Projects/DB/DNV-CUK1169716720.28/view
35	0823	Huadian Inner Mongolia Huitengxile 100.25MW Wind Farm Project	29 Mar 07	http://cdm.unfccc.int/Projects/DB/TUEV-SUED1166704457.57/view
36	0256	Jilin Tongyu Huaneng 100.05MW Wind Power Project	12 Aug 06	http://cdm.unfccc.int/Projects/DB/TUEV-RHEIN1149172847.67/view

In July 2009, the *Notice of improving tariff regulation for wind power projects* was issued by NDRC /45/. To be significantly noted in this document, the four wind power resource areas are defined based on the wind resources, construction conditions, and the previously guiding tariff. The four regions are defined as the following,

Wind Resource Region I: Inner Mongolia Autonomous Region (excluding Chifeng city, Tongliao city, Xingan league and Hulunbeier city); Wulumuqi city, Kazakhstan minority autonomous prefecture in Yili city, Muslim minority autonomous prefecture in Chuangji city, Karamay city, Shihezi city, Xinjiang Uygur Autonomous Region. The on-grid tariff for wind resource region I is stipulated to be 0.51 RMB/kWh (Incl.VAT) (effected since 1 August 2009).

Wind Resource Region II: Zhangjiakou city and Chengde city in Hebei province; Chifeng city, Tongliao city, Xingan league and Hulunbeier city in Inner Mongolia Autonomous Region; Zhangye city, Jiayuguan city, Jiuquan city in Gansu province. The on-grid tariff for wind resource region II is stipulated to be 0.54 RMB/kWh (Incl.VAT) (effected since 1 August 2009).

Wind Resource Region III: Baicheng city and Songyuan city in Jilin province; Jixi city, Shuangyashan city, Qitaihe city, Suihua city, Yichun city and Greater Khingan Mountains in Heilongjiang province; Gansu province (excluding Zhangye city, Jiayuguan city, Jiuquan city); Xinjiang Uygur Autonomous Region (excluding Wulumuqi city, Kazakhstan minority autonomous prefecture in Yili city, Muslim minority autonomous prefecture in Chuangji city, Karamay city, Shihezi city); Ningxia Muslim Autonomous Region. The on-grid tariff for wind resource region I is stipulated to be 0.58 RMB/kWh (Incl.VAT) (effected since 1 August 2009).

Wind Resource Region IV: The other places that are not covered by regions I, II, III. The on-grid tariff for these region is 0.61 RMB/kWh (Incl.VAT) (effected since 1 August 2009).



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As per the definition of four wind resource regions, the proposed project is located in Xiliu Town, Tuquan County, Xing'an League, which corresponds to region II. The stipulated tariff for this region is 0.54 RMB/kWh (Incl.VAT).

To be particularly noted in this policy, the previously issued tariff notifications from NDRC are still valid. It has entered into power on 1 August 2009. The starting date of the proposed project is on 21 March 2009, prior to the issuance of the policy, and thus the project can not be affected by this policy.

(b) As the policies after 11 November 2001 did not impact the tariff applicable to the proposed project, the step (b) of Annex 32 of EB 53 is not applicable.

(c) Explanation of differences of tariffs in the quantitative manner.

From the table above, DNV is able to conclude that the tariff for wind power projects located in East Inner Mongolia has been fixed at 0.54 RMB/kWh (Incl. VAT) for the first 30 000 hours since 2007. Therefore the historical highest tariff in East Inner Mongolia is 0.54 RMB/kWh (Incl. VAT) for the first 30 000 hours. The proposed project has applied the tariff of 0.54 RMB/kWh (Incl. VAT) for the first 30 000 hours. There is no difference in the proposed tariff from the historical highest tariff. So the explanation of differences of tariffs is not applicable for the proposed project.

Conclusion

The proposed tariff of 0.54 RMB/kWh (Incl. VAT) for the first 30 000 hours applied by the project activity has been the historical highest tariff. The conservatively estimated tariff after the first 30 000 hours is higher than the average tariff of local grid. With the application of these two tariffs, the project IRR is 7.28%, which is still lower than the benchmark. So the project is still additional.

In conclusion, DNV can confirm that the higher tariff for the first 30 000 hours and a conservatively estimated tariff (higher than the average tariff) for after 30 000 hours used in the IRR estimation are valid and the project activity has been considered suitable as the application of the highest tariff issued for similar wind power projects in East Inner Mongolia.

3) Percentage of O&M costs

The O&M costs for wind power projects may vary by site location, conditions for transportation, applied technology, number of turbines and regional inflation. The annual O&M costs mainly consist of maintenance costs, salary and welfare, material cost and other expenses. As shown in the table 1, the ratio of the annual O&M cost to the total static investment for the proposed project is 2.9%, which is within the range of the value from 1.2% to 3.8% of the compared projects. Therefore, it is deemed by DNV the annual O & M costs of the project are conservative and appropriate.

4) Annual Power Generation

The annual power generation is equal to the installed capacity times the annual plant load factor (PLF). When the installed capacity of a project is fixed, the annual power generation will be proportional to the PLF; the higher annual PLF, the more annual power generation.



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Therefore, the PLF is a significant indicator in the process of analysizing the annual power generation.

The PLF of the proposed project (26%) is sourced from the FSR /4/ which is completed by the qualified third party China Fulin Wind Power Development Corporation. The FSR of proposed project has been approved by the Inner Mongolia Development and Reform Committee on 14 October 2008 /4/. Therefore, the PLF defined in the PDD is in accordance with the option (b) of EB 48 Annex 11, i.e. “The plant load factor determined by a third party contracted by the project participants (e.g. an engineering company)”.

In accordance with the “Specification for Compiling Feasibility Study Report of Wind Power Projects” /77/, there are two requirements to be followed for the FSR designer, as shown below,

- ✚ The data of average monthly and average yearly wind speeds should be taken from the local weather station for the most recent 30 years.
- ✚ The data of monthly wind speeds for at least one year measured by the anemometer tower installed at the project plant.

1) The data of average wind speeds has been taken from the 35-year data collected at local Weather Station

The 35-year wind speed data from 1972 to 2007 taken from the Tuquan Weather Station, the nearest station to the project site, has been taken into the estimation of operation hours for proposed project, then computing the PLF /4/. The data is recorded on a monthly basis. As per the FSR /4/, the interval from August of the first year to July of the second year is called one year. Before the finalization of FSR in August 2008, the most recently 30-year data is the data from 1977 to 2007. For the sake of conservativeness, the FSR designer has used the 35-year data from 1972 to 2007 to do the calculation.

The annual wind speeds for the period August 2006 to July 2007 were recorded by the anemometer tower and compared with corresponding data for the past 30 years wind record at the local weather station as described in the FSR. The conservative assumptions, like the largest wind speed in the past 35 years, the turbulence of wind, wind density distribution etc., have been considered in the process /4/. By utilizing the software WASP, the average wind speed and wind density at different hights have been calculated and concluded /4/. Then it is concluded that the wind resource in the project area is good and has the development potential /4/. China Fulin Windpower Engineering Co., Ltd recommended that the site has the potential to develop wind projects based on the whole wind resource analysis /4/.

2) The one-year local wind speed data from August 2006 to July 2007 has been measured and collected by the anemometer tower installed at the project plant.

As per the FSR /4/, the wind speed from August 2006 to July 2007 has been recorded on an hourly basis. As per the FSR /4/ and *Specification for Compiling Feasibility Study Report of Wind Power Projects* /77/, the PLF has been estimated on the basis of the one-year measured data collected at the anemometer tower and the corresponding average wind speed over 35 years by using the professional software WASP, which is a prevailing practice in global wind industry. Therefore, it can be considered by DNV validation team that the one-year measured data at the project site is weighting as significant as the 35-year data.

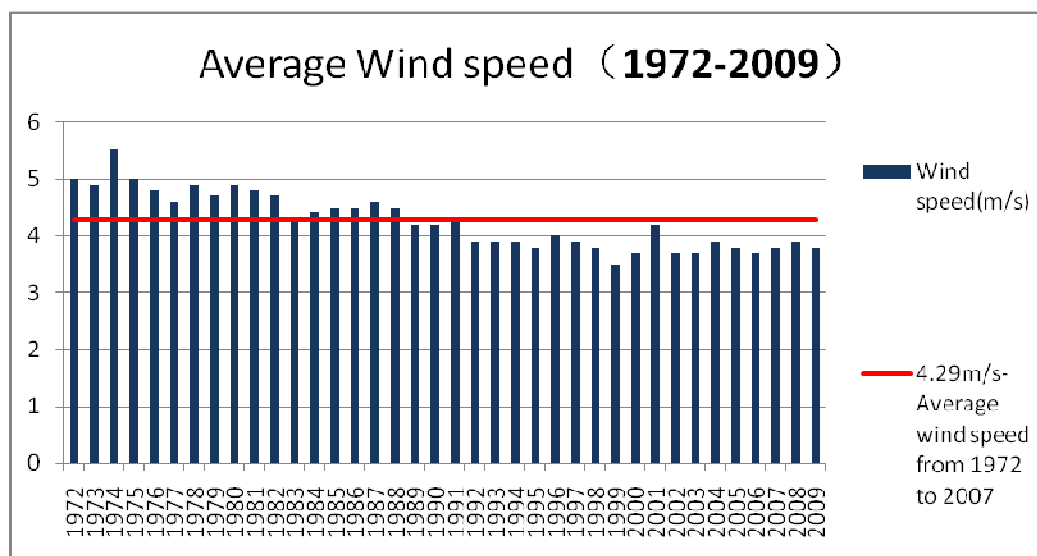
Based on the analysis above, it is able to conclude that the estimation of PLF for the project activity is accurate and in accordance with current sectoral specification.



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According to the guidance of VVM version 1.1 paragraphs 109 and 110 /9/, the suitability of estimated PLF for the proposed project has been further substantiated below, According to the FSR /4/, the average wind speed over 35 years is calculated to be 4.29 m/s. The wind speed after 1990 is almost lower than the average wind speed. In order to validate the suitability of PLF, the data in 2008 and 2009 /78/ has been requested to be provided so as to demonstrate whether the actual wind speed is in line with the trend. As shown in the table 4, the actual average yearly wind speed is slightly lower than the average wind speed.

Table 4 Yearly Average Wind Speed from Tuquan Station from 1972 to 2009



From the table above, it can be found that the yearly average wind speeds in 2008 and 2009 are lower than the average wind speed of 4.29 m/s. Therefore, it is able to conclude that the PLF described in the FSR /4/ based on the data during 1972 and 2007 is conservative and reasonable.

3) Comparing the PLF of proposed project with the registered projects has been conducted within East Inner Mongolia

Under the guidance the VVM version 1.1 paragraphs 109 and 110 /9/, the analysis about the PLF of project activity has been conducted in East Inner Mongolia due to the similarity of regulatory framework, investment climate, access to technology and access to technology in the same region.

The PLF of proposed project activity has been compared with the value of registered projects in East Mongolia. As shown in the table 1 above, the PLF of the proposed project (26%) is verified to be within the range of similar registered project from 24% to 28%. Based the comparison above, the PLF of proposed project is verified to be reasonable.

Furthermore, the estimated PLF of the proposed project has also been cross checked with the actual value. The actual gross power generation from 1 January 2010 to 31 July 2010 (212 days) is 47 655.4 MWh /76/. The actual PLF during the period is calculated to be 18.92% (47



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655.4 MWh / $(49.5 \text{ MW} \times 212 \times 24\text{h})$), which is lower than the estimated PLF (26%) in the FSR.

By comparing the PLF of proposed project with the registered wind power projects in East Inner Mongolia, DNV can confirm that the PLF of the proposed project is reasonable and appropriate.

5) Other Cost and Material Cost

As per the explanation to the “other cost” made by the FSR design institute China Fulin Wind Energy Development Co., Ltd /60/, the “other costs per kW” of 50 RMB applied in the project investment analysis includes additional production expenses, administrative expenses and operating expenses. The composition of the “other costs” defined in “Economic Evaluation Method and Parameters for Project Construction” version 3 /55/ is the basis of FSR preparation. As shown in the table 1, the “other costs” of 50 Yuan/kW used in the project financial analysis is beyond the range from 7 to 40 Yuan/kW of the similar projects. However, the “other costs” of the project has been clarified by the FSR institute to be within the range of the empirical values of 40 to 60 RMB/kW /60/. Thus, the “other costs” involved in the project investment analysis is appropriate and reasonable.

The material cost of 10 Yuan/kW is estimated by the FSR design institute with the basis of the installed capacity, through the commonly applied estimation method /60/. As shown in the table 1, the material cost of 10 Yuan/kW is within the range from 0 to 15 Yuan/kW of the similar registered projects. Therefore, it is deemed by DNV that the material cost of the project is reasonable and appropriate.

6) Taxes

The taxes and depreciation rate applied in the project financial assessment

Value added tax	8.5%	Source: FSR /4/
Income tax	25%	
Education tax (of the VAT)	3%	
City building tax (of the VAT)	5%	
Residual Value Rate	5%	
Depreciation Rate	6.33%	

The income tax rate (25%) and depreciation rate (6.33%) is consistent with the law of the People’s Republic of China on Enterprise Income Tax /63/ and the government document of Decree No. 70 of Guoshuifa [2003] issued by the State Administration of Taxation /64/. The Value Added Tax (VAT) of the project is 8.5% based on the fact that it is a wind power project and thus is entitled to enjoy the half tax-free policies /66/. The education tax (of the VAT) of 3% is in line with the Interim Provision on Education Tax Law /67/. The City Building tax (of the VAT) of 5% is in accordance with the National City Tax Law /68/. The residual value rate of 5% is in line with the government document of Decree No. 70 of Guoshuifa [2003] issued by the State Administration of Taxation /64/.

According to the guidance of EB51 Annex 58, the interest payable should be taken into account of the income tax calculation in cases where the benchmark applied in the investment



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analysis is post tax. As for the proposed project, the IRR benchmark of 8% is post tax and the interest payable has been verified to be included in the calculation of the income tax.

In conclusion, the taxes involved in the project IRR calculation are deemed by DNV to be reasonable and appropriate.

By in addition applying our sectoral competence, 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.

4.4.6 Investment analysis: Calculation and conclusion

The project-IRR calculations were provided in a spreadsheet /6/. The calculations were verified and found to be correct by DNV. The assumptions used in the calculations were deemed to be correct by DNV. The project-IRR (post tax) over 20 years without CDM revenues is 7.28%, demonstrating that the project in the absence of CDM benefits and compared to the benchmark is not financially attractive. With CER revenues the project-IRR (after tax) increases to 9.54%, which is above the benchmark of 8%.

4.4.7 Investment analysis: Sensitivity analysis

A sensitivity analysis was carried out for parameters contributing more than 20% to revenues or costs in order to check the robustness of the financial analysis. Reasonable variations of the total investment, annual operational and maintenance costs, annual 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.

DNV was able to verify that the project IRR will reach the benchmark only if the above mentioned parameters change by values as mentioned below:

Total Investment costs	Annual O&M Costs	Annual generation output	Tariff
-4.90%	-21.00%	+4.55%	+4.75%

However, it is unlikely that these situations will happen as demonstrated in the following:

- Total investment costs:** The prices for the wind turbines and accessory equipments were increasing as the turbine demand was booming during the project purchase period /34/. Furthermore, the price for the construction materials, especially steels, was rising up /35/. According to the FSR /4/, the expected total expense of wind turbines is equivalent 63.4% of the total static investment, while the actual expense of wind turbines based on the wind turbines purchase agreement /22/ is 12.7% higher than the assumed expenditure in the FSR /4/. According to the *Settlement Form for Check and Acceptance of the Completed Project*, issued by Beijing Hualian Electricity Management Company /87/, the actual total investment of project activity is 429.989 million RMB. It is higher than the estimated value of 414.29 million RMB in the FSR /4/. Therefore, the total investment assumed in the FSR /4/ is deemed by DNV to be realistic and conservative and is unlikely to decrease by 4.90% to reach the benchmark.



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- **Annual O&M costs:** According to the FSR /4/, the project is located in a site where the altitude is from 240 to 267.3 m and the average temperature is 5.4 °C. The high altitude and cold environment where the project operates /4/, make it unlikely for O&M costs to decrease. Furthermore, the prices for the materials and employee salaries have been increasing in China /35/, which is to result in the increase of the O&M costs. Therefore, the project O&M cost is unreasonable to decrease by 21.00%.
- **Annual Generation Output:** According to the FSR /4/, the annual electricity output is equal to the installed capacity times the annual PLF; when the installed capacity is ensured, the annual generation output will be determined by the PLF. The PLF of the proposed project is estimated on the basis of 35 years (1972 - 2007) statistics of local wind power monitoring data kept by the local meteorological station /4/ and one-year measurement data kept at the anemometer tower at the project site /78/. The PLF has been determined in accordance with the *Specification of Compiling Feasibility Study Report for Wind Power Project* /77/. Even if the most recent wind speed data in 2008 and 2009 was involved in the PLF determination process, the average wind speed was in line with the trend from 1972 to 2007 and lower than the average wind speed. Therefore, the project PLF can not be higher than the current value (26%). Therefore, it is highly unlikely to increase the annual operational hours at the project site to result in a 4.55% increase in electricity generation during the whole crediting period.
- **Electricity Tariff:** Based on the analysis of tariff in the section 4.4.6, the tariff of 0.54 RMB/kWh (Incl. VAT) for the first 30 000 hours assumed in the FSR /4/ is in line with the trend of the tariff in East Inner Mongolia since 2006. Based on the stable tariff trend in East Inner Mongolia, it is unlikely that the tariff for the first 30 000 hours will increase by 4.75% to make the IRR reach the benchmark.

Furthermore, the assumed tariff for the first 30 000 hours can be cross checked to be realistic and conservative with the latest guiding price of 0.54 RMB/kWh (Incl. VAT) issued by NDRC of China for wind power projects in the East Inner Mongolia on 20 July 2009 /45/. Therefore, the tariff of 0.54 RMB/kWh (Incl. VAT) applied to the project activity was guided by the NDRC, was appropriate and conservative.

For the second phase tariff, the conservatively estimated tariff of 0.4000 RMB/kWh (Incl.VAT) has been higher than the average tariff (0.2599 RMB/kWh) at the local area. Since the local grid is dominated by thermal power generation, the average tariff is determined by the thermal power tariff. The thermal power tariff in Inner Mongolia is 0.2599 RMB/kWh (Incl.VAT) in the year 2008. The average inflation rate of project activity is 2.98% from 1995 to 2009 /86/. The thermal power tariff is calculated to be increased to 0.392 RMB/kWh (from the 15th to 21st year). Therefore, it is considered that the tariff after 30 000 operation hours is unlikely to be 4.75% higher than the current value. Based on the analysis above, the tariffs (0.54 RMB/kWh, Incl.VAT for the first 30 000 hours and 0.40 RMB/kWh, Incl.VAT after 30 000 hours) of the proposed project are unlikely to increase by 4.75%.

The sensitivity analysis shows that even if considering the reasonable variations of those critical parameters, without the income from CERs sales, the project activity is unlikely to be financially attractive.



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4.4.8 Common Practice Analysis

In China, the regulatory framework, investment climate, access to technology, and access to finance are similar within a same province. Hence, it is reasonable that Inner Mongolia Autonomous Region is selected for common practice analysis.

According to the ACM0013 (version 2.1) /51/, the similar project scale should be defined as the range from 50% to 150% of the project installed capacity. Therefore, the scale of similar projects is chosen as 25 MW to 75 MW. Since the promulgation of Electric Power Industry Reform by the state council in February 2002, the fundamental change has been brought into the electric power industry /53/. Therefore, the time benchmark of the common practice is defined as 2002.

Referring to *China Wind Farms Capacity Statistic in 2007* /52/, it shows that most of these wind power projects have applied for CDM projects except for one project “Dali phase III wind power project” /54/. However, the project Dali Phase III is a demonstration project supported by national debt fund /54/. Thus, it can be concluded that the project activity is not a common practice.

In conclusion, the assessment of the arguments presented above is deemed to sufficiently demonstrate that the project is not a likely baseline scenario, and that emission reductions resulting from the project are additional.

4.5 Monitoring

The project applies the approved monitoring methodology ACM0002 version 10 “Consolidated monitoring methodology for zero emissions grid-connected electricity generation from renewable sources” /10/. The selected monitoring methodology is applicable for the project activity as it involves grid-connected renewable power generation using wind energy. The monitoring plan is in accordance with the monitoring methodology. The monitoring plan will give opportunity for real measurements of achieved emission reductions.

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.

4.5.1 Parameters determined ex-ante

The combined margin emission factor is determined *ex-ante* based on the most recent information available; the detailed calculations of the combined margin emission factor are described in the following section 4.6. The parameters are listed in below table:

<i>Data and Parameters</i>	<i>Unit</i>	<i>Ex-ante Determined Value</i>
Operating margin of NECPG (OM)	tCO ₂ /MWh	1.1293
Build Margin of NECPG (BM)	tCO ₂ /MWh	0.7241
Emission factor of NECPG (CM)	tCO ₂ /MWh	1.0280

4.5.2 Parameters monitored ex-post

The power exported to and imported from the NECPG will be monitored continually and recorded on a monthly basis by the project owner and the grid company. In addition, the



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electricity sales receipts will be provided for data quality control and cross check. These shall be further verified during verification.

The net electricity generated from the project will be measured through metering equipment at the 220 kV substation. The data will be archived for 2 years following the end of the crediting period by means of electronic and paper backup. Longyuan (Xing'anmeng) Wind Power Co., Ltd. will be responsible for the overall monitoring and reporting and will keep all the data and material.

The metering equipment will be calibrated and checked annually by the qualified third party appointed by the NECPG according to the requirement from *Technical administrative code of electric energy metering (DL/T448-2000) /56/*. The accuracy of the meters will be no less than 0.5s.

4.5.3 Management system and quality assurance

The project's monitoring plan includes:

- Monitoring system, which describes the position where the monitoring meters are located.
- Monitoring structure, which describes the organizational structure of the monitoring team and the responsibility of the staff.
- Quality assurance and quality control, which includes the data quality monitoring, calibration, corrective actions and internal audits.
- Monitoring training.

A CDM Monitoring Team will be established consisting of the project manager, CDM manager, technical staff and statistic staff. The team leader holds the overall responsibilities to the monitoring of the project.

Detailed procedures including description of the responsibility, training, procedure reference, equipment details, calibration and maintenance have been elaborated in the PDD. The CDM monitoring team of Longyuan (Xing'anmeng) Wind Power Co., Ltd. will assign and train the dedicated people carrying out the monitoring work according to the CDM monitoring manual /49/. These will be maintained and implemented to enable subsequent verification of emission reductions.

4.6 Estimate of GHG Emissions

The emission reduction ER_y by the project activity during the crediting period is the difference between baseline emissions (BE_y), project emissions (PE_y) and emissions due to leakage (L_y), as follows:

- 1) Baseline emissions: baseline emissions (BE_y in tCO_2) are the product of the baseline emissions factor (EF_y in tCO_2/MWh) times the electricity supplied by the project activity to the grid (EG_y 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 project activity.

The grid 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) according to "Tool to calculate the emission factor for an electricity system" of version 2 /12/, based on



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the most recent information /8/ available at the time when the PDD was web-hosted on 11 August 2009. The latest data vintage available was derived from China Electric Power Yearbook 2008 /13/ and China Energy Statistical Yearbook 2008 /14/. It has been calculated as the weighted average ($w_{OM} = 0.75$; $w_{BM} = 0.25$) of the operating margin and the build margin.

Country specific data for net calorific value of each type of fossil fuel, country specific data for emission factors for the fuel and the statistic data for fuel consumption /14/, IPCC 2006 default values for the oxidation factor of each type of fossil fuel /15/ and the total electricity delivered to the NECPG /8/ were selected and deemed reasonable.

According to the data from China Electric Power Yearbook 2004-2008 /13/, the low-cost/must-run resources in the 5 most recent years constitute less than 50% of the total grid generation. Therefore, the OM is justified to calculate using the “simple OM” method. Aggregated generation and fuel consumption data are used due to the fact that more specific data for the power plants are not available in the NECPG (option C). The OM was calculated to be 1.1293 tCO₂e/MWh as a generation weighted average for the years 2005, 2006 and 2007 /8/.

Because plant specific fuel consumption and electricity generation data are not publicly available in China, the guidance requested by DNV from the CDM Executive Board for a deviation of the baseline methodology of AM0005 has been applied for calculation of the build margin (BM) emission factor for this project /15/:

- Use of capacity additions from the years 2004 to 2007 is chosen and reaches 21.39% of the 2007 installed capacity /13/;
- Use of weights to estimate the installed capacity in place of annual electricity generation. Thermal power plant accounts for 88.24% of the total installed capacity additions in this period /13/. Since specific data for each technology is not available, the weight of each type of fuel (coal 98.59%, natural gas 1.23% and oil 0.18% /13/) was estimated from the CO₂ intensity for the fuels used in the NECPG;
- Use of the efficiency of electricity transmission 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. The efficiency is 38.10% for coal power plants and 49.99% for oil power plants and 49.99% for gas power plants /14/.

The BM of the NECPG is calculated to be 0.7241 tCO₂e/MWh /8/. The resulting combined margin emission factor is 1.0280 tCO₂e/MWh. The annual electricity delivered to the NECPG is expected to be 114 200 MWh /4/. Therefore, the total emission reduction from the project is estimated to be on average 117 400 tCO₂e per year over the selected 7 year crediting period. The baseline emission estimate can be replicated using the data and parameter values provided in the PDD and supporting files submitted for registration. The data sources mentioned have been verified by DNV.

In summary, the GHG calculations are complete and transparent, and their accuracy has been verified. No other project emission or leakage sources contributing more than 1% and not mentioned by the methodology have been found.



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4.7 Environmental Impacts

An Environmental Impact Assessment (EIA) has been conducted according to Environmental Protection Law of the People's Republic of China /69/.

According to the environment assessment opinions from the ex-owner of the project, Kelipu Wind Power Co., Ltd /61/, the EIA of the project activity has once been approved by the Inner Mongolia Environmental Protection Bureau on 27 September 2005. On 20 July 2008, the right to develop the project was transferred to the current project owner, Longyuan (Xing'anmeng) Wind Power Co., Ltd.. Before receiving the LoA from China DNA on 22 September 2009 /2/, the EIA has been conducted again by Inner Mongolia Academy Institute of Environment Science on 8 December 2008 and approved by Inner Mongolia Environmental Protection Bureau on 27 February 2009 /5/.

The potential environmental impacts on water, solid waste, noise environment, air environment and ecosystem environment have been sufficiently identified. No significant environmental impacts are expected from the project activity. The Inner Mongolia Environmental Protection Bureau approved the project activity on 27 February 2009 /5/.

4.8 Comments by Local Stakeholders

The local stakeholder consultation process has been conducted through a stakeholder meeting /19/ and the stakeholder survey /59/.

On 15 March 2009, the stakeholder meeting was held by Longyuan (Xing'anmeng) Wind Power Co., Ltd. in Tuquan County, Xi'an League on Longyuan (Xing'anmeng) Wind Power Co., Ltd., with the participation of local governmental officials and local village representatives /19/. The local governmental officials were respectively from Tuquan County Government, Shenliu Village Government, Development and Reform Committee of Tuquan County, Finance Bureau of Tuquan County, Tuquan Branch of Industry and Commercial Bank of China, Land and Resources Bureau of Tuquan County /19/. On the meeting, the stakeholders were invited for comments on the project after the introduction to CDM and project construction and operation by the project owner. No negative comments were received during the process. After the meeting, 10 questionnaires were sent to the meeting attendees with all ten of them returned.

Besides the meeting, the project developer has conducted a door to door stakeholder consultation in March 2009. Longyuan (Xing'anmeng) Wind Power Co., Ltd. carried out a survey of the potential stakeholders; among the local villagers 35 copies of one-page questionnaires (return out of 35) were distributed. In the end, a summary of comments and 45 questionnaires (including 10 questionnaires previously distributed in the meeting) in total have been provided by the project owner and verified by DNV /59/.

As clarified by the project participant during the follow-up interview /89/, the project is located on the grass land with a rather low population density. The sampling size of the questionnaires survey has covered the local villagers and governmental officials nearby. Therefore, it is deemed by DNV that the sampling amount of 45 copies of questionnaires is reasonable and representative.



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The survey has taken full account into the public opinions of different ages, genders, and occupations. Of all the respondents, 1) 69% are under the age of 40, 31% are over 41; 2) 92% are male and 8% are female; 3) 58% are with education of college or above, 42% are senior high school or below.

The results of questionnaire statistics are outlined as follows:

100% of investigated stakeholders support the development of the project;

93.3% believe the project will exert the positive impact on their livelihood and 6.7% hold the neutral attitude.

100% of the respondents believe the project will not have impact on the local ecological environment during the operation period.

86.7% of the respondents believe the project will not affect the local ecological environment during the construction period and 13.4% hold the neutral opinions.

95.6% of the respondents believe the project will create more job opportunities and 4.4% hold the neutral opinions.

2.2% of the respondents (1 person) think the project will have negative impact on the grass farms that might be crushed down by the vehicles.

For the negative concern of the respondent, the project owner ensures the vehicles will keep running on the transport routes instead of the grass land. And in order to reduce the construction impact on the local ecological environment, it will be prohibited to drive in grassland by the vehicles. The comments received have been taken into consideration by project owner for construction and operation to achieve environmental benefits, social benefits and economic benefits.

Therefore, DNV considers the local stakeholder consultation to be carried out adequately.

4.9 Comments by Parties, Stakeholders and NGOs

The PDD version 1 of 24 July 2009 was made publicly available on the CDM website¹ and parties, stakeholders and NGOs were through the CDM website invited to provide comments during a 30 days period from 11 August 2009 to 9 September 2009. No comments were received.

¹ <http://cdm.unfccc.int/Projects/Validation/DB/ZT5SHA522C9QF1JBAL0JWK5NANO2WP/view.html>

APPENDIX A

CDM VALIDATION PROTOCOL

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	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	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	CAR-1
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

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

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

Table 2 Requirements Checklist

CHECKLIST QUESTION	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	The proposed project is located in Xiliu Town, Tuquan County, Xing'an League, Inner Mongolia Autonomous Region, P.R.China. The geographical coordinates of the proposed project are North latitude 45°15'20' and East longitude 112°41'09", and altitude 240m-267.3m.		OK
A.1.2. Are the project's system boundaries (components and facilities used to mitigate GHGs) clearly defined?	/1/ /4/	DR	The project's system boundary is clearly defined as the Northeast China Power Grid that the project is connected to. The NECPG comprises the grids of Jilin, Heilongjiang and Liaoning.		OK
A.2. Participation Requirements					

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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
<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 participating in the project?	/1/ /2/ /3/	DR	<p>Since the LoA from the DNA of China has not been obtained.</p> <p>The LoA from the DNA of Switzerland has not been obtained.</p> <p>The project participants can not be confirmed without the presence of the LoAs from the involved parties.</p>	CAR-I	OK
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/ /2/ /3/	DR	<p>The LoA from the DNA of China has not been obtained.</p> <p>The LoA from the DNA of Switzerland has not been obtained.</p> <p>The LoAs from the DNA of China and the DNA of Switzerland need to be provided to confirm whether all project participants have been authorized by an involved Party.</p>	CAR-I	OK
A.2.3. Do all participating Parties fulfil the participation requirements as follows:	/1/ /2/	DR	China has ratified the Kyoto Protocol on 30 August 2002 and its DNA is National Reform and Development Committee.	CAR-I	OK

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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
<ul style="list-style-type: none"> - Ratification of the Kyoto Protocol - Voluntary participation - Designated a National Authority 	/3/		<p>The voluntary participation needs to be identified as per the LoA from the DNA of China.</p> <p>Switzerland has ratified the Kyoto Protocol on 09 July 2003 and its DNA is Federal Office for the Environment FOEN.</p> <p>The voluntary participation needs to be identified as per the LoA from the DNA of Switzerland.</p>		
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/ /89/	DR I	<p>The LoA from the DNA of China has not been obtained.</p> <p>The LoA from the DNA of Switzerland has not been obtained.</p> <p>Since the LoAs from the involved parties have not been received, it can not be confirmed whether the project can be seen as a diversion of official development assistance (ODA) funding towards China.</p>	CAR-1	OK
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</i>					

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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
<i>technology and know-how is used.</i>					
A.3.1. Does the project design engineering reflect current good practices?	/4/ /89/	DR I	Yes, the project design engineering reflects current good practices.		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/ /4/ /89/	DR I	The proposed project applies 33 sets of turbines (model SL1500/82) manufactured by Sinovel Wind Co., Ltd, each one with the installed capacity of 1500 kW. No technology transfer is involved in the proposed project.		OK
A.3.3. Does the project make provisions for meeting training and maintenance needs?	/1/	DR	The training procedures are not identified in the PDD version 4 of 10 September 2010 shall be provided.	CL-1	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/ /2/	DR	The LoA from the DNA of China is needed to confirm whether the sustainable development of the project has been confirmed by the host country China.	CAR-1	OK

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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
A.4.2. Will the project create other environmental or social benefits than GHG emission reductions?	/1/ /4/ /5/	DR	Except for GHG emission reductions, the project will create employment opportunities, diversify the energy mix of NECPG, promote the local economical development and reduce the emissions of other pollutants caused from the coal-fired power plants.		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 the approved methodology ACM0002 version 10: "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/ /4/ /10/	DR I	Yes, the applicability criteria in the baseline methodology ACM0002 version 10 have all been met because:		OK

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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
	/89/		<ul style="list-style-type: none"> - The project generates electricity from wind sources. - The project is a new power plant and does not involve switching from fossil fuels to renewable energy which is confirmed through the follow-up interview /89/ and the FSR /4/. - The geographic and system boundary of the project have been clearly defined. 		
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/ /10/	DR	The baseline scenario is provision of the equivalent annual electricity generated by the NECPG where the project is connected to.		OK
B.2.2. What other alternative scenarios have been considered and why is the selected scenario the most likely one?	/1/ /10/	DR	Four alternatives to the projects have been identified and discussed: a) The project activity undertaken without being registered as a CDM project activity. b) Construction of a fossil fuel-fired project with equivalent installed capacity or		OK

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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			<p>annual electricity generation.</p> <p>c) Construction of a power plant using other sources of renewable energy with equivalent installed capacity or annual electricity generation.</p> <p>d) Continuation of the current situation, i.e. provision of equivalent annual power output by the NECPG.</p> <p>Alternative b): As required by the “Tool for the determination and assessment of additionality” version 5.2 /11/, DNV was able to verify that fossil fuel-fired power plant scenario i.e. alternative b), with the installed capacity of less than 49.5 MW, does not comply with the Chinese power regulation /32/. This power regulation strictly prohibits the installation of thermal power plants with a capacity below 135 MW in areas covered by the large grids such as provincial grids /32/. Hence, the alternative b) has been excluded from the further discussion.</p> <p>Alternative c): As shown in the section B.5 of PDD, due to the technology limitation and high cost, the other renewable sources, such as biomass, solar PV and geothermal are difficult to develop without the government or policies support. However, the evidence</p>	CL2	

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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			for supporting the statement is not identified in the PDD. The relevant evidence needs to be provided. Alternatives a) and d) are the potential alternative scenarios and will be discussed in the Additionality.		
B.2.3. Has the baseline scenario been determined according to the methodology?	/1/ /10/	DR	Yes, the baseline scenario of the project has been determined according to the baseline scenario described in the approved methodology ACM0002.		OK
B.2.4. Has the baseline scenario been determined using conservative assumptions where possible?	/1/ /10/	DR	Yes, the baseline scenario of the project has been determined in a conservative manner.		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/ /4/ /32/	DR	Yes, China power regulations /32/ and other laws and preferential policies to promote wind power development have been considered to determine the baseline scenario of the proposed project.		OK
B.2.6. Is the baseline scenario determination compatible with the available data and are all literature and sources clearly referenced?	/1/	DR	As shown in the section B.5 of PDD, due to the technology limitation and high cost, the other renewable sources, such as biomass, solar PV and geothermal are difficult to develop without the government or policies support. However, the evidence for	CL2	OK

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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			supporting the statement is not identified in the PDD. The relevant evidence needs to be provided.		
B.2.7. Have the major risks to the baseline been identified?	/1/	DR	As shown in the section B.5 of PDD, due to the technology limitation and high cost, the other renewable sources, such as biomass, solar PV and geothermal are difficult to develop without the government or policies support. However, the evidence for supporting the statement is not identified in the PDD. The relevant evidence needs to be provided.	CL-2	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 scenario.</i>					
B.3.1. Is the project additionality assessed according to the methodology?	/1/ /4/ /6/ /11/ /17/ /31/	DR I	The additionality of the project is demonstrated by applying the “Tool for the demonstration and assessment of additionality” (Version 5.2) /11/. Step1. Identification of alternatives to the project activity consistent with current laws and regulations <i>Sub-step1a. Define alternatives to the project</i>	CL-2 CL-3 CL-9 CL-4 CL-5 CL-6	OK

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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
	/32/ /34/ /35/ /88/ /89/		<p><i>activity:</i></p> <ul style="list-style-type: none"> a) The project activity undertaken without being registered as a CDM project activity. b) Construction of a fossil fuel-fired project with equivalent installed capacity or annual electricity generation. c) Construction of a power plant using other sources of renewable energy with equivalent installed capacity or annual electricity generation. d) Continuation of the current situation, i.e. provision of equivalent annual power output by the NECPG. <p>Alternative c): It is confirmed as per the referenced literatures indicated in the PDD version 4 of 10 September 2010 that the project is located in the region which has no sufficient exploitable sources of renewable energy such as hydropower /31/.</p> <p>As shown in the section B.5 of PDD, due to the technology limitation and high cost, the other renewable sources, such as biomass, solar PV and geothermal are difficult to develop without the government or policies support. However, the evidence for supporting the statement is not identified in</p>		

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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			<p>the PDD. The relevant evidence needs to be provided.</p> <p><i>Sub-step 1b. Consistency with mandatory laws and regulations:</i></p> <p>Alternative b): The fossil fuel-fired power plant with installed capacity of less than 100MW /33/, does not comply with the Chinese power regulations /32/. As regulated, the thermal power plants with a capacity below 135 MW are prohibited to be built in areas covered by large grids.</p> <p>Base on the outcome of step 1a and step 1b, the alternative a) and d) are the alternative scenarios and will be further discussed below.</p> <p><i>Step 2: Investment analysis.</i></p> <p><i>Sub-step 2a. Determine appropriate analysis method</i></p> <p>As per the <i>Tool for the demonstration and assessment of additionality, version 5.2</i> /11/, three analysis methods are recommended, including simple cost analysis, investment comparison analysis and benchmark analysis.</p> <p>Simple cost analysis is not applicable because the project creates revenues from power supply.</p>		

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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			<p>Comparison analysis is not applicable because the baseline scenario is not similar with the project in terms of investment.</p> <p>Base on the analysis above, the benchmark analysis shall be chosen.</p> <p><i>Sub-step 2b. Apply benchmark analysis</i></p> <p>According to the <i>Interim Rules on Economic Assessment of Electrical Engineering Retrofit Projects</i> /17/, in China an IRR of 8% (after tax) for the total investment of a project is regarded as a benchmark for investing in large scale hydropower plants, fossil fuel fired plants as well as wind farm projects. The benchmark of 8% (after tax) is therefore appropriate for this project. DNV was able to confirm this is suitable and reasonable as following:</p> <ol style="list-style-type: none"> 1. The benchmark was determined by the national administration of this industry in China; 2. The benchmark is for project and after tax and the investment analysis for this project will be for project and after tax also; 3. The <i>Interim Rules on Economic Assessment of Electrical Engineering Retrofit</i> 		

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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			<p><i>Projects /17/</i> is referred to the risk premiums of large scale wind farm power projects.</p> <p>The input parameters used in the financial analysis are taken from the feasibility study report (FSR) developed by China Fulin Wind Energy Development Co., Ltd in August 2008 and approved by the Development and Reform Commission of Inner Mongolia Autonomous Region on 14 October 2008 /4/. The input parameters used in the financial analysis can thus be considered information provided by an independent and recognized source.</p> <p>DNV compared the input parameters for the financial analysis included in the PDD with the parameters stated in the FSR and was able to confirm that the values applied are consistent with the value stated in the FSR.</p> <p>The FSR was approved on 14 October 2008 and thus only 5 months prior to the decision to proceed with the project activity (i.e. the start date of the project) which was on 21 March 2009. Given this relative short period of time between approval of the FSR 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</p>		

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			<p>changed and that it is thus reasonable to assume that the FSR has been the basis of the decision to proceed with the investment in the project.</p> <p>The input parameters used in the financial analyses were compared with the data reported for other similar CDM projects in the region, i.e. other wind power projects in the Inner Mongolia Autonomous Region, by comparing investment costs per MW, electricity tariff, percentage of O&M costs relative to total investment costs and plant load factor.</p> <p><i>Sub-step 2c. Calculation and comparison of financial indicators.</i></p> <p>Further clarification is required on the appropriateness of the input values to the investment analysis as per the requirement of EB 38 paragraph 54(c) guidance, in particular:</p> <p>(a) Whether the “other cost” of 50 RMB/kWh and “material cost” of 10 RMB/kWh are in the correct range according to the FSR code /55/;</p> <p>(b) The breakdown of “other cost”;</p> <p>According to the guidance of EB51 Annex 58, the actual interest payable should be</p>		

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			<p>taken into account in the calculation of income tax in cases where a post-tax benchmark is applied in the project financial assessment.</p> <p>As for the proposed project, the IRR of 8% (post-tax) was regarded as the benchmark for the project investment analysis.</p> <p>Due to the impact of loan interest on income tax calculations, it is required to include the actual interest payable into the income tax calculation.</p> <p>Further explanation should be provided regarding:(a) the basis for the assumed tariff in the FSR; (b) whether the assumed tariff is in line with the general trend in the same region for the similar project connected to the NECPG.</p> <p>According to the Annex 11 to EB 48, the plant load factor shall be defined in the PDD as per one of the three following options:</p> <p>(a) the plant factor provided to banks and/or equity financiers while applying the project activity for project financing, or to the government while applying the project</p>		

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			<p>activity for implementation approval;</p> <p>(b) the plant load factor determined by a third party contracted by the project participants (e.g. an engineering company);</p> <p>And the documentation as the basis of the option needs to be provided to check its veracity.</p> <p><i>Sub-step 2d. Sensitivity analysis</i></p> <p>The four parameters are chosen as sensitive factors, including static total investment, annual O&M cost, expected tariff and annual grid-connected output.</p> <p><i>Step 3: Barrier analysis.</i></p> <p>Barrier analysis has not been selected to demonstrate additionality.</p> <p><i>Step 4: Common practice analysis.</i></p> <p>The projects applied in common practice analysis are selected out regarding the commencing date, capacity and location. Since the promulgation of Electric Power Industry Reform by the state council in February 2002 /53/, the fundamental change has been brought into the electric power industry. Therefore, the time benchmark of the common practice is defined as 2002.</p> <p>As for the common analysis identified in the</p>		

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			PDD version 1 of 24 July 2009, capacity scale of similar projects was defined as the range from 25MW to 75MW and the region of similar projects was chosen as Inner Mongolia Autonomous Region. No evidence was found in the PDD to justify the determination of the capacity scale and the region for the similar projects. Therefore, the relevant evidence needs to be provided to substantiate the selection.		
B.3.2. Are all assumptions stated in a transparent and conservative manner?	/1/ /6/ /11/	DR	Refer to B.3.1.	CL-3 CL-9 CL-4 CL-5	OK
B.3.3. Is sufficient evidence provided to support the relevance of the arguments made?	/1/	DR	Refer to B.3.1.	CL-3 CL-9 CL-9 CL-4	OK

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				CL 5	
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/ /4/ /9/ /18/ /19/ /20/ /26/	DR I	<p>The starting date of the project was on 21 March 2009 when the transformer purchase agreement was signed /21/. The road construction permission was issued by Beijing Hualian Electric Power Engineering Supervision Co., Ltd. on 11 April 2009 /20/. The agreement of turbine foundation construction was issued between Longyuan (Xing'anmeng) Wind Power Co., Ltd. and Suihua Yuanda Electric Power Construction Co., Ltd. in 24 March 2009 /26/. Therefore, the date of 21 March 2009 for signing the transformer purchase agreement is considered as the starting date of the project, prior to the PDD publication on 11 August 2009. On the basis of the EB33 guidance, it is DNV's opinion that the date correctly represents the earliest date of the implementation, construction or real action begins.</p> <p>It was demonstrated in the following two aspects that CDM was seriously considered in the decision to implement the project activity.</p> <p>1) Awareness of the CDM and the effect of</p>		OK

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			<p>CDM benefits prior to the start date of project was evidenced through the following sequence of actions:</p> <p>(a) On August 2008, the FSR was completed. It showed the project without the CER revenues was financially unfeasible with the IRR of 6.23% /4/. Given the financial unfeasibility and barriers to the project construction, the CDM development was introduced.</p> <p>(b) On 14 October 2008, the FSR was approved by Development and Reform Commission of Inner Mongolia Autonomous Region /4/.</p> <p>(c) On 08 December 2008, the EIA of the project was completed by Inner Mongolia Academy Institute of Environment Science /5/.</p> <p>(d) On 05 February 2009, the directors' meeting was held by the project owner when CDM was considered to be solver to the financial unfeasibility and the determination was made to invest the project construction /18/.</p> <p>(e) In February 2009, the consultation contract was signed between Longyuan (Xing'anmeng) Wind Power Co., Ltd. and</p>		

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			<p>Longyuan (Beijing) Carbon Asset Management Technology Co., Ltd. /19/.</p> <p>(f) On 27 February 2009, The EIA was approved by Inner Mongolia Environmental Protection Bureau /5/.</p> <p>(g) On 15 March 2009, Meeting for collecting the stakeholder comments on the project activity was held by Longyuan (Xing'anmeng) Wind Power Co., Ltd. /58/.</p> <p>2) Continuing and real actions to secure CDM status in parallel with project's implementation was evidenced through the following sequence of actions:</p> <p>(a) On 21 March 2009, The transformer purchase agreement was signed between Longyuan (Xing'anmeng) Wind Power Co., Ltd. and Shandong Taikai Transformer Co., Ltd. /21/.</p> <p>(b) On 24 March 2009, Agreement of wind turbines installation was signed between Longyuan (Xing'anmeng) Wind Power Co., Ltd. and Shandong Taikai Transformer Co., Ltd./26/.</p> <p>(c) On 11 April 2009, The road construction permission was issued by Beijing Hualian Electric Power Engineering Supervision Co., Ltd /20/. And the project construction was</p>		

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			<p>launched on the same day.</p> <p>(d) On 11 April 2009, The Form of Prior Consideration of the CDM was submitted to the Chinese DNA, and was confirmed by the Chinese DNA on 01 July 2009 /27/.</p> <p>(e) On 03 May 2009, The construction permission of turbines foundation was issued by Beijing Hualian Electric Power Engineering Supervision Co., Ltd /25/. And the project wind plant was launched on the same day.</p> <p>(f) On 20 July 2009, the Form of Prior Consideration of the CDM was submitted to the EB, and confirmed by EB on 23 July 2009 /28/.</p>		
B.4. Calculation of GHG Emission Reductions – Project 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	The project emission of the project is zero since the project is a new grid-connected wind power plant.		OK
B.4.2. Have conservative assumptions been used when	/1/	DR	Not applicable		OK

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calculating the project emissions?					
B.4.3. Are uncertainties in the project emission estimates properly addressed?	/1/	DR	Not applicable		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/ /13/ /14/ /15/ /16/	DR	<p>Baseline emissions of the project have been calculated through the multiplication between the net electricity supplied to the NECPG and the combined emission factor of the NECPG.</p> <p>The combined emission factor of the NECPG has been calculated as the weighted average of operating margin (OM) and build margin (BM). The weighting of OM is 0.75 and the weighting of BM is 0.25.</p> <p>The above calculations are in line with the “tool to calculate the emission factor for an electricity system” (Version 1.1) /12/.</p>		OK

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B.5.2. Have conservative assumptions been used when calculating the baseline emissions?	/1/ /10/	DR	The baseline emissions have been calculated on the basis of conservative assumptions.		OK
B.5.3. Are uncertainties in the baseline emission estimates properly addressed?	/1/	DR	There are no significant uncertainties in the baseline emission estimates.		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	According to the approved methodology ACM0002 (Version 10) /10/, the leakage of the project can be neglected.		OK
B.6.2. Have conservative assumptions been used when calculating the leakage emissions?	/1/	DR	Not applicable		OK
B.6.3. Are uncertainties in the leakage emission estimates properly addressed?	/1/	DR	Not applicable		OK

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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/ /10/	DR	Yes, it is reasonable to expect that the emission reductions will result in the real, measurable and long-term benefits.		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 transparent manner?	/1/ /10/	DR	The monitoring plan described in the PDD version 1 of 24 July 2009 is in line with the approved method ACM0002 (Version 10) /10/ "Consolidated baseline methodology for grid-connected electricity generation from renewable sources". And it is in a complete and transparent manner.		OK
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/ /10/	DR	Yes.		OK

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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	The project activity generates electricity from wind sources. Thus no project emissions are expected to result from the project activity.		OK
B.9.2. Are the choices of project GHG indicators reasonable and conservative?	/1/ /10/	DR	Not applicable		OK
B.9.3. Is the measurement method clearly stated for each GHG value to be monitored and deemed appropriate?	/1/ /10/	DR	Not applicable		OK
B.9.4. Is the measurement equipment described and deemed appropriate?	/1/ /10/	DR	Not applicable		OK
B.9.5. Is the measurement accuracy addressed and deemed appropriate? Are procedures in place on how to deal with erroneous measurements?	/1/ /10/	DR	Not applicable		OK

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B.9.6. Is the measurement <i>interval</i> identified and deemed appropriate?	/1/	DR	Not applicable		OK
B.9.7. Is the <i>registration, monitoring, measurement</i> and <i>reporting</i> procedure defined?	/1/	DR	Not applicable		OK
B.9.8. Are procedures identified for <i>maintenance</i> of monitoring equipment and installations? Are the calibration intervals being observed?	/1/	DR	Not applicable		OK
B.9.9. 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/	DR	Not applicable		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>					
B.10.1. Does the monitoring plan provide for the collection and archiving of all relevant data necessary for determining baseline emissions	/1/	DR	The electricity supplied by the project activity to the NECPG and the electricity supplied by the NECPG to the project		OK

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during the crediting period?			activity will be monitored and double checked with the invoice of electricity sales. All data will be archived in paper/electricity at least for two years after the end of the last crediting period. The archived materials consist of the original recorded data, daily and monthly report, and invoice of electricity etc.		
B.10.2. Are the choices of baseline GHG indicators reasonable and conservative?	/1/ /10/	DR	The choices of baseline GHG indicators are in line with the approved methodology ACM0002 (Version 10) /10/.		OK
B.10.3. Is the measurement method clearly stated for each baseline indicator to be monitored and also deemed appropriate?	/1/ /10/	DR	Yes, the net electricity generation supplied by the project to the grid in year will be monitored by the bidirectional monitoring meter.		OK
B.10.4. Is the measurement <i>equipment</i> described and deemed appropriate?	/1/ /10/	DR	The accuracy of the measurement equipment is no less than 0.5s according to the relevant national standards, which is deemed by DNV to be appropriate.		OK
B.10.5. Is the measurement <i>accuracy</i> addressed and deemed appropriate? Are procedures in place on	/1/	DR	The measurement accuracy is no less than 0.5s. The procedures for dealing with the erroneous measurements can be identified in		OK

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how to deal with erroneous measurements?			the PDD.		
B.10.6. Is the measurement <i>interval</i> for baseline data identified and deemed appropriate?	/1/	DR	The electricity supplied to the NECPG will be measured continually and recorded monthly.		OK
B.10.7. Is the registration, <i>monitoring</i> , <i>measurement</i> and <i>reporting</i> procedure defined?	/1/	DR	Yes, the registration, monitoring, measurement and reporting procedure has been defined in the PDD version 1 of 24 July 2009.		OK
B.10.8. Are procedures identified for <i>maintenance</i> of monitoring equipment and installations? Are the calibration intervals being observed?	/1/ /56/	DR	The procedures for installations and maintenance of the monitoring meters are identified in the PDD version 1 of 24 July 2009. The meters will be calibrated annually according to the <i>DL/T448-2000 Technical Management Rules for Electric Power Measuring Installations</i> /56/.		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/	DR	The daily data reports and monthly data reports will be archived. All the relevant data reports will be kept by the project owner during the crediting period and two years after the verifications.		OK
B.11. Monitoring of Leakage <i>It is assessed whether the monitoring plan provides for</i>					

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<i>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/ /10/	DR	The leakage within the project boundary can be neglected according to the approved methodology ACM0002.		OK
B.11.2. Are the choices of project leakage indicators reasonable and conservative?	/1/	DR	Not applicable		OK
B.11.3. Is the measurement method clearly stated for each leakage value to be monitored and deemed appropriate?	/1/	DR	Not applicable		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	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.		OK

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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 collection and archiving of data relevant to environment impacts is not required by the DNA of China.		OK
B.12.3. Are the sustainable development indicators in line with stated national priorities in the Host Country?	/1/	DR	It will be on the local authority decision.		OK
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 I	The project management and operation are briefly outlined in the PDD version 1 of 24 July 2009. For the purpose of further confirmation, it is required to provide the project management and operational manual.	CL7	OK
B.13.2. Are procedures identified for training of monitoring personnel?	/1/	DR	Details of training procedures are not identified in the PDD version 1 of 24 July 2009 shall be provided.	CL4	OK

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B.13.3. Are procedures identified for emergency preparedness for cases where emergencies can cause unintended emissions?	/1/ /4/ /89/	DR I	There are no such procedures for emergency preparedness for emergency cases, which has been verified through the FSR /4/ and the follow-up interview /89/.		OK
B.13.4. Are procedures identified for review of reported results/data?	/1/	DR	Yes, daily data reports and monthly data reports will be kept by the project owner. And the data reports will be double checked with the sales receipts.		OK
B.13.5. Are procedures identified for corrective actions in order to provide for more accurate future monitoring and reporting?	/1/	DR	Yes, the procedures for corrective actions to provide for more accurate future monitoring and reporting are identified in the PDD version 1 of 24 July 2009.		OK
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/ /9/ /20/	DR I	The starting date of the project was on 21 March 2009 when the transformer purchase agreement was signed /21/. The road construction permission was issued by Beijing Hualian Electric Power Engineering Supervision Co., Ltd. on 11 April 2009 /20/. The agreement of turbine foundation		OK

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			<p>construction was issued between Longyuan (Xing'anmeng) Wind Power Co., Ltd. and Suihua Yuanda Electric Power Construction Co., Ltd. in 24 March 2009 /26/. Therefore, the date of 21 March 2009 for signing the transformer purchase agreement is considered as the starting date of the project, prior to the PDD publication on 11 August 2009.</p> <p>On the basis of the EB33 guidance, it is DNV's opinion that the date correctly represents the earliest date of the implementation, construction or real action begins.</p>		
C.1.2. Is the start of the crediting period clearly defined and reasonable?	/1/	DR	Yes, it is defined as 1 October 2010 or the date of registration whichever is late.		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	As required by China Environment Protection Law /69/, the EIA must be finished prior to the development and		OK

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	/69/		<p>construction of a project. The EIA report of the project is completed by a third party and approved by Inner Mongolia Environmental Protection Bureau on 27 February 2009.</p> <p>The environment impacts during the construction and operation of the project have been described in the PDD version 1 of 24 July 2009 as follows:</p> <p>Water</p> <p>The household wastewater caused by the project will be well treated and then disinfected to discharge, which is through the automated monitoring and control system.</p> <p>Solid waste</p> <p>The solid waste will be collected and moved to the nearest landfill site and the waste earth will be firstly refilled. The impact of the solid waste and waste earth on the local environment is little.</p> <p>Noise</p> <p>Noise during the operating period has no impact on the nearby residents since the closest residential area is over 1km away.</p> <p>Air</p> <p>The project is a wind power plant and thus</p>		

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			<p>has no impact on the air during the operation period. The impacts on the air during the construction period will be reduced through several measures and will be not significant.</p> <p>Ecosystem Environment</p> <p>The vegetation will not be significantly affected by the project due to the minor solid/liquid discharge. Besides, there is no migratory birds/endangered species in the region of project activity.</p> <p>In conclusion, the impacts of the project on the local environment are considered to be insignificant.</p>		
D.1.2. Are there any Host Party requirements for an Environmental Impact Assessment (EIA), and if yes, is an EIA approved?	/1/ /5/ /69/	DR	<p>The project FSR was approved by Development and Reform Commission of Inner Mongolia Autonomous Region on 14 October 2008 /4/. And the project EIA was completed by Inner Mongolia Academy Institute of Environment Science on 8 December 2008 and approved by Inner Mongolia Environmental Protection Bureau on 27 February 2009 /5/. According to China Environment Impact Assessment Law issued on 1 September 2003 /62/, the EIA should be prepared and approved before the approval of the project FSR. Therefore, the clarification on why the project EIA was prepared after</p>	CL-8	OK

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			the FSR approval is required.		
D.1.3. Will the project create any adverse environmental effects?	/1/ /5/	DR	The adverse environmental effects created by the project are not significant.		OK
D.1.4. Are transboundary environmental impacts considered in the analysis?	/1/ /5/	DR	There are no transboundary environmental impacts foreseen for the proposed project.		OK
D.1.5. Have identified environmental impacts been addressed in the project design?	/1/ /5/	DR	Yes, the environmental impacts have been identified in the PDD version 4 of 10 September 2010.		OK
D.1.6. Does the project comply with environmental legislation in the host country?	/1/ /5/	DR	The project FSR was approved by Development and Reform Commission of Inner Mongolia Autonomous Region on 14 October 2008 /4/. And the project EIA was completed by Inner Mongolia Academy Institute of Environment Science on 8 December 2008 and approved by Inner Mongolia Environmental Protection Bureau on 27 February 2009 /5/. According to China Environment Impact Assessment Law issued on 1 September 2003 /62/, the EIA should be prepared and approved before the approval of the project FSR. Therefore, the clarification	CL-8	OK

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			on why the project EIA was prepared after the FSR approval is required.		
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/	DR	Yes, the potential stakeholders, including local residents and local governments, have been consulted.		OK
E.1.2. Have appropriate media been used to invite comments by local stakeholders?	/1/ /59/	DR	<p>Yes, a survey arranged by a one-page questionnaire was applied to invite comments from the stakeholders. A summary of comments and 45 answered questionnaires have been provided and verified by DNV /59/.</p> <p>The project is located on the grass land with a rather low population density. The sampling size of the questionnaires survey has covered the local residents. Therefore, it is deemed by DNV that the sampling amount of 45 copies of questionnaires is reasonable and comprehensive.</p>		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	/1/ /5/	DR	The local stakeholder consultation process has been conducted through a stakeholder		OK

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in accordance with such regulations/laws?			<p>meeting and the stakeholder survey.</p> <p>The stakeholder meeting was held by Longyuan (Xing'anmeng) Wind Power Co., Ltd. in Tuquan County, Xi'an League on 05 March 2009.</p> <p>After the meeting, 10 questionnaires were sent to the meeting attendees and all ten of them returned.</p> <p>Before the meeting, the project developer has conducted a door to door stakeholder consultation in January 2009.</p> <p>The whole stakeholder consultation process has been complied with the relevant regulations/laws.</p>		
E.1.4. Is a summary of the stakeholder comments received provided?	/1/ /59/	DR	Yes, a summary of the stakeholder comments received is provided in the PDD version 1 of 24 July 2009.		OK
E.1.5. Has due account been taken of any stakeholder comments received?	/1/	DR	<p>Yes, the comments received show that the 100% of the local government and residents strongly support the project.</p> <p>2.2% of the respondents (1 person) think the project will have negative impact on the grass</p>		OK

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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			farms that might be crushed down by the vehicles. For his concern, the project owner ensures the vehicles will keep running on the transport routes instead of the grass land. And in order to reduce the construction impact on the local ecological environment, it will be prohibited to roll grassland by the vehicles. The comments received have been taken into consideration by project owner during construction and operation to achieve environmental benefits, social benefits and economic benefits.		

* MoV = Means of Verification, DR= Document Review, I= Interview
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Table 2b: Additional requirements checklist for VVM version 1 (EB 44)

Checklist question	Ref	MoV	Comments	Draft Concl.	Final Concl.
A. Letter of approval	§49				
A.1. Is the LoA received directly from the DNA or through the project participant.	/2/ /3/	DR	<p>The letter of approval from the DNA of China has not been obtained.</p> <p>The letter of approval from the DNA of Switzerland has not been obtained.</p> <p>The LoA from the DNA of China and the DNA of Switzerland need to be provided to confirm whether all project participants have been authorized by an involved Party.</p>	CAR-1	OK
B. Project design	§64				
B.1. Does the PDD describe the CDM project activity with all relevant elements in a transparent and accurate way?	/1/ /4/	DR	It is in a transparent and accurate way to describe the project activity such as project site, the capacity, the turbines and parameters and those are consistent with related information reflected in FSR /4/.		OK
B.2. Has the CDM project activity at the start of the validation been constructed or does the CDM project activity use existing facilities or equipment?	/1/ /4/ /20/ /89/	DR I	Yes, the project construction has been started in 11 April 2009 /20/, prior to the start of the validation on 11 August 2009. The project does not use the existing facilities or equipments, which has been verified through the FSR /4/ and the follow-up interview /89/.		OK
B.3. Is the project a large scale project, a small scale project with average annual emission reductions	/1/	DR	The project is a large scale project and the on-site visit has not been implemented.		OK

* MoV = Means of Verification, DR= Document Review, I= Interview
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above 15 000 tonnes or a bundled small scale project? Has on-site visit been carried out?	/4/ /88/		The project construction has been started from 11 April 2009 when the road construction permission was issued /20/, prior to the follow-up interview on 16 September 2009; the project was only partly completed (mainly foundation for the turbines). The project is expected to be operating in December 2009. Therefore, DNV is able to justify that on-site visit was not necessary for the project during the validation. The follow-up interview has been carried out on 16 September 2009.		
B.4. Does the project activity involved alteration of existing installations? If so, have the differences between pre-project and post-project activity been clearly described in the PDD?	/1/ /4/	DR	No, the project is a new power plant and does not involve any alteration of existing installations.		OK
C. Project emissions not addressed by the methodology	§76				
C.1. Does the methodology describe all project emission source for the project activity that contributes all 1% of the emission reductions? Sources that the methodology considers not to take into account are not relevant (e.g. cement and iron consumption for building hydropower plants).	/1/ /10/	DR	Project emission for the project is regarded as zero as the project is a renewable energy (wind source) project and there is no leakage that does not need to be considered while applying the methodology ACM0002.		OK
D. Documentation of baseline emissions	§86				
D.1. Documentation of the baseline determination: <ul style="list-style-type: none"> All assumptions and data used by the project participants are listed in the PDD and related document to be submitted for registration. The data are properly referenced. All documentation is relevant as well as correctly quoted and interpreted. 	/1/ /4/ /10/ /89/	DR I	<ul style="list-style-type: none"> All assumptions and data used in the baseline determination are described in the PDD version 1 of 24 July 2009. Yes, all documentation is relevant as well as correctly quoted and interpreted. Assumptions and data can be deemed 		OK

<ul style="list-style-type: none"> Assumptions and data can be deemed reasonable Relevant national and/or sectoral policies and circumstances are considered and listed in the PDD. The methodology has been correctly applied to identify what would occurred in the absence of the proposed CDM project activity 			<p>reasonable.</p> <ul style="list-style-type: none"> Relevant national and/or sectoral policies and circumstances are considered and listed in the PDD version 4 of 10 September 2010. <p>The methodology ACM0002 version 10 /10/ has been correctly applied to identify what would occur in the absence of the proposed project.</p> <p>The applicability of the methodology ACM0002 version 10 /10/ is justified due to the following facts:</p> <ul style="list-style-type: none"> It is a grid connected zero emission renewable electricity capacity additions from wind energy. It does not involve switching from fossil fuel to renewable energy at the project site through the follow-up interview /89/ and the FSR /4/. The project is connected to NECPG which geographical and system boundaries are clearly identified and information on the characteristics of this grid is available. 		
E. Documentation of the calculations	§91				
<p>E.1. Algorithms and/or formulae used to determine emission reductions</p> <p>E.2. All assumptions and data used by the project participants are listed in the PDD and related document submitted for registration. The data are properly referenced</p>	<p>/1/</p> <p>/10/</p> <p>/12/</p>	DR	<p>It has been verified by DNV the algorithms and formulae shown in the EF calculation spreadsheet and the following points have been confirmed by DNV:</p> <ul style="list-style-type: none"> All assumptions and data are listed in the PDD. The data are properly 		OK

<p>E.3. All documentation is correctly quoted and interpreted.</p> <p>E.4. All values used can be deemed reasonable in the context of the project activity</p> <p>E.5. The methodology has been correctly applied to calculate the emission reductions and this can be replicated by the data provided in the PDD and supporting files to be submitted for registration.</p>			<p>referenced</p> <ul style="list-style-type: none"> • All documentation is correctly referenced and interpreted. • All values used can be deemed reasonable. • The methodology has been correctly applied and this can be replicated by the data provided in the PDD and supporting files to be submitted for registration. 		
F. Implementation of the monitoring plan	§122c				
<p>F.1. How were the plans for implementation of the monitoring plan, data management, QA/QC procedures assessed? To what extent can the emission reductions achieved by the project be monitored ex-post and verified later by a DOE?</p>	<p>/1/ /88/ /89/</p>	<p>DR I</p>	<p>The monitoring plan in the PDD version 4 of 10 September 2010 can provide guideline for the emission reductions achieved by the project and verified later by a DOE.</p>		OK
G. CDM consideration prior to starting date					
<p>G.1. The prior consideration of CDM for the project activity complies with EB41 annex 46</p>	<p>/1/ /27/ /28/</p>	<p>DR</p>	<p>According to the guidance of annex 61, EB48, the project participant must inform the host party DNA and the UNFCCC secretariat in writing of the commencement of the project activity and of their intention to seek CDM status within the 6 months after the project starting date.</p> <p>The form of Prior Consideration of the CDM was submitted to the Chinese DNA by the Longyuan (Xing'anmeng) Wind Power Co., Ltd. on 11 April 2009, and confirmed by the Chinese DNA on 1 July 2009.</p>		OK

			<p>The form of Prior Consideration of the CDM submitted to the EB by the Longyuan (Xing'anmeng) Wind Power Co., Ltd. on 20 July 2009, and confirmed by the EB on 23 July 2009.</p>		
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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 The Letter of Approval (LoA) from the DNA of China has not been received. The LoA from Switzerland has not been received yet.</p>	<p>A.2.2 A.2.3 A.4.1</p>	<p>The Letters of Approval (LoA) from DNA of China have been submitted to DOE. The Letters of Approval (LoA) from DNA of Switzerland will be submitted to DOE soon.</p>	<p>The LoA from the Chinese DNA has been received and verified. The LoA from the DNA of Switzerland has been received and verified. The CAR 1 is closed.</p>
<p>CL 1 The training procedures are not identified in the PDD.</p>	<p>A.3.3 B.13.2</p>	<p>The training records and training certificates have been submitted to DOE. The training procedures are included in the updated PDD.</p>	<p>The training plan and training certificates for the dedicated staff /57/ have been provided by the project participant and verified by DNV. And the PDD /1/ has been accordingly updated to version 4 of 10 September 2010. The CL 1 is closed.</p>

<p>CL 2</p> <p>As shown in the PDD version 01 of 24 July 2009, due to the technology limitation and high cost, the other renewable sources, such as biomass, solar PV and geothermal are difficult to develop without the government or policies support. However, the evidence for supporting the statement is not identified in the PDD version 01 of 24 July 2009. The relevant evidence needs to be provided.</p>	<p>B.2.2</p> <p>B.2.6</p> <p>B.2.7</p>	<p>First, Tuquan County of Xing'an League, where the Project is located, lacks of feasible water resources for constructing a hydropower plant.</p> <p>Second, the county located in the interior area which no any wave and tidal sources;</p> <p>Third, the PV solar power and geothermal power is in its beginning stage which has very little projects in China and most of the projects are demonstration projects which have not put into commercial operation. Meanwhile, there is no geothermal source in the Tuquan County and the evidence of the distribution of geothermal source has been submitted to DOE;</p> <p>Fourth, the biomass power is also in its beginning stage in China. There is a biomass residue power plant which has been under constructing in Tuquan county. There is no adequate biomass source to construct a power plant using biomass resources with the same electricity output as the Project. Meanwhile, according to relevant regulation in China, it is forbidden to build a redundant biomass project in the same region.</p> <p>Otherwise the proposed project owner is only dedicated to wind power development in Inner Mongolia, and has no experience and ability to develop other renewable energy power plants.</p> <p>The relevant evidences have been submitted to DOE, and the PDD has been updated.</p>	<p>OK. For the alternative 3 in the baseline scenario analysis, further references have been provided on the unfeasibility of solar, geothermal, biomass and tidal sources to generate the same amount of electricity /31/.</p> <p>The CL 2 is closed.</p>
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<p>CL 3</p> <p>Further clarification is required on the appropriateness of the input values to the investment analysis as per the requirement of EB 38 paragraph 54(c) guidance, in particular:</p> <p>(a) Whether the “other cost” of 50 RMB/kWh and “material cost” of 10 RMB/kWh are in the correct range according to the FSR code;</p> <p>(b) The breakdown of “other cost”;</p>	<p>B.3.1</p> <p>B.3.2</p> <p>B.3.3</p>	<p>All of the input values used in the PDD come from FSR which is issued by the third party and has been approved by the local government.</p> <p>According to the Clarification from institute, the other cost and material cost are in the correct range. Meanwhile, according to the “table of contrast projects” which has been submitted to DOE, the input values to the investment analysis, including the other cost and material cost, are in the correct range contrasted with the registered projects in Inner Mongolia.</p> <p>According to the economic evaluation code (Economical Assessment Method and Parameters for Construction Project), and the Clarification from institute, "other costs" includes other management expenses, other manufacturing expenses and other operating expenses. It means the rest part of the management expenses, manufacturing expenses and operating expenses which excludes Wages, welfare, Depreciation, Amortization charge and Maintain charge.</p>	<p>OK. As verified the explanation on the “other costs” and “material cost” made by the FSR institute /60/, the “other costs” in the investment analysis contain the other management expenses, other manufacturing expenses and other operating expenses that are not included in operation cost in FSR /4/. According to the “table of contrast projects” /70/, the “other cost per kW” (50 Yuan/kW) of the project is close to the range of the same value of the registered projects from 7 to 40 Yuan/kW; the “material costs per kW” (10 Yuan/kW) of the project is within the range of the same value of registered projects from 0 to 15 Yuan/kW. Therefore, the “other costs” and the “material cost” of the project have been verified to be within the appropriate range. Thus, DNV could confirm it reasonable and conservative.</p> <p>The CL 3 is closed.</p>
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<p>CL 4</p> <p>Further explanation should be provided regarding:(a) the basis for the assumed tariff in the FSR; (b) whether the assumed tariff is in line with the general trend in the same region for the similar project connected to the NECPG.</p>	<p>B.3.1</p> <p>B.3.2</p> <p>B.3.3</p>	<p>The FSR was finalized in August. 2008, the electricity tariff assumed in the FSR is 0.54Yuan/kWh (incl. VAT) within 30000 hrs operation and 0.4 Yuan/kWh (incl. VAT) after 30000hrs.</p> <p>It is could be confirmed that there were three demonstration projects from 1999 to 2004², and then, there are no publicly available tariff notifications issued by government for wind farm projects in eastern Inner Mongolia (IM) before 2006. Since June 2007, NDRC began to unify the tariffs for the conventional (non bidding) wind farms in eastern IM. The tariff in eastern IM has been maintained at the level of 0.54 Yuan/kWh (incl. VAT) within 30000hrs operation and average tariff in local region after 30000hrs in all tariff notifications issued by NDRC to other projects (Fa Gai Jia Ge [2007]1260 dated 9/06/2007, Fa Gai Jia Ge [2007]3303 dated 03/12/2007 and Fa Gai Jia Ge [2008]1876 dated 23/07/2008)³. Hence, PP was able to confirm that the tariff trend in east Inner Mongolia is deemed to be stable since 2002 and the the tariff of 0.54 Yuan/kWh (incl. VAT) within 30000 hrs operation and average tariff in local region after 30000hrs which used in the FSR is the highest tariff in this region and therefore appropriate to use in an investment decision.</p> <p>According to the Clarification from institute, the average tariff of thermal power project is 0.26Yuan/kWh (incl. VAT) in Inner Mongilar, so the average tariff of loacl region.0.4Yuan/kWh (incl. VAT) which used in the FSR is estimated based on the average of 0.26Yuan/kWh (incl. VAT) and 0.54Yuan/kWh (incl. VAT).The evidences have been submitted to DOE.</p>	<p>OK. DNV has verified publicly available information about wind power tariffs in East Inner Mongolia and could confirm that there were no existing commercial wind farms in East Inner Mongolia before 2006, and since June 2007 till now the tariff trend in East Inner Mongolia is deemed to be stable /40/ /43//44/.</p> <p>DNV could confirm that for the proposed project, the assumed tariff of 0.54 RMB/kWh Incl.VAT applied in the PDD version 4 of 10 September 2010 was conservative.</p> <p>According to the clarification from the FSR design institute, the tariff of 0.4 Yuan/kWh (Incl.VAT) after the first 30 000 operational hours is the average value of the local average thermal tariff (0.26Yuan/kWh, Incl. VAT) and wind power tariff (0.54 Yuan/kWh, Incl. VAT). It is considered to be reasonable and conservative.</p> <p>The CL 4 is closed.</p>
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² Dali phase I/II/III project: was a demonstration project that occurred during the very early stages of wind power development in China, operated in a different economic environment, and, received government aid as a demonstration project:
Source: Registered PDD-Project 1628-Inner Mongolia Dali Phase IV 49.5MW Wind Power Project;
<http://www.chifeng.gov.cn/html/2008-11/3130.shtml> ;
<http://www.ccchina.gov.cn/cn/NewsInfo.asp?NewsId=578>;

<p>CL 5</p> <p>According to the Annex 11 to EB 48, the plant load factor shall be defined in the PDD as per one of the three following options:</p> <p>(a) the plant factor provided to banks and/or equity financiers while applying the project activity for project financing, or to the government while applying the project activity for implementation approval;</p> <p>(b) the plant load factor determined by a third party contracted by the project participants (e.g. an engineering company);</p> <p>And the documentation as the basis of the option needs to be provided to check its veracity.</p>	<p>B.3.1</p> <p>B.3.2</p> <p>B.3.3</p>	<p>The operation hours are 2307h and the load factor is 0.263 for the proposed project, which are determined in FSR which made by China Fulin Wind Power Engineering Co., Ltd. as an independent third party contracted by the project participant and had been provided to Local government while applying the project activity for implementation approval. The documentation of PLF is FSR and has been submitted to DOE. The PLF has been defined in the PDD.</p>	<p>OK. The project plant load factor of 25% has been identified in the section A.4.3 of PDD version 4 of 10 September 2010 /1/. It is derived from the FSR /4/ which has been approved by China Fulin Wind Energy Development Co., Ltd in 14 October 2008 /4/. Therefore, DNV can confirm that the PDD has been in accordance with the EB 48 Annex 11.</p> <p>The CL 5 is closed.</p>
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<p>CL 6</p> <p>As for the common analysis identified in the PDD version 01 of 24 July 2009, capacity scale of similar projects was defined as the range from 25MW to 75MW and the region of similar projects was chosen as Inner Mongolia Autonomous Region. No evidence was found in the PDD to justify the determination of the capacity scale and the region for the similar projects. Therefore, the relevant evidence needs to be provided to substantiate the selection.</p>	<p>B.3.1 B.3.2 B.3.3</p>	<p>According to the ACM0013 (Version 02.1) Page 7, the similar projects should be defined as the range from 50% to 150% of the rated capacity of the project plant. So, the project chose the range from 25MW to 75MW as the similar projects of the project.</p> <p>In China, the general environment of projects of this type of wind farm such as the wind resources⁴, on grid tariff⁵, investment climate⁶ are only similar and comparable in the same province (Autonomous Region). On this basis, the common practice region and comparable framework is provincial and the project is compared to other projects in the Inner Mongolia Autonomous Region.</p> <p>The relevant evidence has been submitted to DOE.</p>	<p>Ok. In the PDD version 4 of 10 September 2010, the region for the similar projects and the scale of similar projects are respectively defined as Inner Mongolia and 50% to 150% of the project installed capacity, which is verified by DNV.</p> <p>After verifying the provided document, it is demonstrated that all the projects meeting the requirements have been included in the common practice analysis.</p> <p>The CL 6 is closed.</p>
<p>CL 7</p> <p>The project management and operation are briefly outlined in the PDD version 01 of 24 July 2009. For the purpose of further confirmation, it is required to provide the project management and operational manual.</p>	<p>B.13.1</p>	<p>The project management and operational manual has been submitted to DOE.</p>	<p>OK. The CDM monitoring manual /49/ including the explicit monitoring management and procedures has been supplied by the project participant.</p> <p>The CL 7 is closed.</p>

⁴ http://cwera.cma.gov.cn/upload/b_2_left_02.jpg: Cumulative wind installation in China till 2006.

⁵ The tariff issued by the NDRC is based on the same province, such as (Fa Gai Jia Ge [2007]1260 dated 9/06/2007, Fa Gai Jia Ge [2007]3303 dated 03/12/2007 and Fa Gai Jia Ge [2008]1876 dated 23/07/2008).

⁶ http://www.sdpc.gov.cn/nyjt/nyzywx/t20050810_41378.htm

<p>CL 8</p> <p>The project FSR was approved by Development and Reform Commission of Inner Mongolia Autonomous Region on 14 October 2008. And the project EIA was completed by Inner Mongolia Academy Institute of Environment Science on 08 December 2008 and approved by Inner Mongolia Environmental Protection Bureau on 27 February 2009. According to China Environment Impact Assessment Law issued on 1 September 2003, the EIA should be prepared and approved before the approval of the project FSR. Therefore, the clarification on why the project EIA was prepared after the FSR approval is required.</p>	<p>D.1.2</p> <p>D.1.6</p>	<p>The EIA of the project had been approval by Inner Mongolia Environmental Protection Bureau on 27 September 2005 which issued to the other company. On Jun, 20th 2008, the project owner took over the development right from the other company which had been approved by the Development and Reform Commission of Inner Mongolia Autonomous Region. And the FSR was approved on 14 October 2008. That is, the EIA had been prepared and approved before the approval of the project FSR. But, in order to develop the project as a CDM project and got the LOA from China DNA, the project owner got a new approval from Inner Mongolia Environmental Protection Bureau which issued to the project owner. The evidences have been submitted to DOE.</p>	<p>After verifying the environment assessment opinions given by the project ex-owner, Kelipu Wind Power Co., Ltd. /61/, the EIA of the project was once approved by Inner Mongolia Environmental Protection Bureau on 27 September 2005.</p> <p>Then the FSR was approved by the Development and Reform Commission of Inner Mongolia Autonomous Region on 14 October 2008 /4/.</p> <p>Before receiving the LoA from the DNA of China /2/, the EIA of the proposed project was implemented again by Inner Mongolia Academy Institute of Environment Science on 8 December 2008 and approved by Inner Mongolia Academy Institute of Environment Science on 27 February 2009 /5/.</p> <p>Therefore, the CL 8 is closed.</p>
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<p>CL 9</p> <p>According to the guidance of EB51 Annex 58, the actual interest payable should be taken into account in the calculation of income tax in cases where a post-tax benchmark is applied in the project financial assessment.</p> <p>As for the proposed project, the IRR of 8% (post-tax) was regarded as the benchmark for the project investment analysis.</p> <p>Due to the impact of loan interest on income tax calculations, it is required to include the actual interest payable into the income tax calculation.</p>	<p>B.3.1</p> <p>B.3.2</p> <p>B.3.3</p>	<p>The actual interest payable has been taken into account in the calculation of income tax in cases where a post-tax benchmark is applied in the project financial assessment.</p> <p>A new spreadsheet of IRR has been submitted to DOE.</p>	<p>After verifying the updated IRR spreadsheet /6/, it is found that the interest payable has been included in the calculation of income tax. Therefore, DNV ensures that the project IRR calculation is conducted in accordance with the guidance of EB51 Annex58.</p> <p>The CL 9 is closed.</p>
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APPENDIX B

CERTIFICATES OF COMPETENCE

CERTIFICATE OF COMPETENCE

Xiaojun Johnsen Zhang

Qualification in accordance with DNV's Qualification Scheme CDM/JI (ICP-8-1-CDMJi-i1)

<i>GHG Auditor:</i>	Yes				
<i>Technical Area</i>	<i>CDM Validator</i>	<i>CDM Verifier</i>	<i>Sector Expert</i>	<i>Methodology Expert</i>	<i>Technical Reviewer</i>
<i>Landfill gas</i>					
<i>Hydro power</i>	Jan 2009				
<i>Renewables</i>	Jan 2009				
<i>Wind power</i>					
<i>Other renewable</i>					
<i>Biomass</i>					
<i>Grid connection of isolated system</i>					
<i>Cement</i>	Jan 2009				
<i>Waste-heat / waste-gas recovery</i>					
<i>Efficiency of thermal power plants</i>					
<i>Coal mine methane</i>	Aug 2009	Aug 2009			
<i>Fuel switch</i>					
<i>Manure management</i>					
<i>Waste / wastewater treatment</i>					
<i>Energy efficiency</i>					
<i>N₂O</i>					
<i>HFCs</i>					
<i>Flare reduction</i>					
<i>PFCs</i>					
<i>Charcoal</i>					
<i>CO₂ recovery</i>					
<i>Transport</i>					
<i>Non-renewable biomass</i>					
<i>Biofuel</i>					
<i>Pipeline leakage reduction</i>					
<i>SF₆</i>					

Høvik, 28 August 2009

Michael Lehmann

Michael Lehmann

Technical Director, Climate Change Services

CERTIFICATE OF COMPETENCE

zhi Ang (Walter) Tang

Qualification in accordance with DNV's Qualification Scheme CDM/JI (ICP-8-1-CDMJi-i1)

<i>GHG Auditor:</i>	Yes				
<i>Technical Area</i>	<i>CDM Validator</i>	<i>CDM Verifier</i>	<i>Sector Expert</i>	<i>Methodology Expert</i>	<i>Technical Reviewer</i>
<i>Landfill gas</i>					
<i>Renewables</i>	<i>Hydro power</i>	Jan 2009			
	<i>Wind power</i>	Jan 2009		Apr 2009	Apr 2009
	<i>Other renewable</i>				
<i>Biomass</i>					
<i>Grid connection of isolated system</i>					
<i>Cement</i>					
<i>Waste-heat / waste-gas recovery</i>		Sept 2009			
<i>Efficiency of thermal power plants</i>	July 2009	July 2009			
<i>Coal mine methane</i>					
<i>Fuel switch</i>		Sept 2009			
<i>Manure management</i>					
<i>Waste / wastewater treatment</i>					
<i>Energy efficiency</i>		Sept 2009			
<i>N₂O</i>					
<i>HFCs</i>					
<i>Flare reduction</i>					
<i>PFCs</i>					
<i>Charcoal</i>					
<i>CO₂ recovery</i>		Sept 2009			
<i>Transport</i>					
<i>Non-renewable biomass</i>					
<i>Biofuel</i>					
<i>Pipeline leakage reduction</i>					
<i>SF₆</i>					

Høvik, 1 September 2009

Michael Lehmann

Michael Lehmann

Technical Director, Climate Change Services

CERTIFICATE OF COMPETENCE

Weidong Yang

Qualification in accordance with DNV's Qualification Scheme CDM/JI (ICP-8-1-CDMJi-i1)

GHG Auditor:	Yes				
Technical Area	CDM Validator	CDM Verifier	Sector Expert	Methodology Expert	Technical Reviewer
Landfill gas					
Renewables				Jan 2009	Jan 2009
Hydro power					
Wind power					
Other renewable					
Biomass					
Grid connection of isolated system					
Cement					
Waste-heat / waste-gas recovery					
Efficiency of thermal power plants					
Coal mine methane					
Fuel switch					
Manure management					
Waste / wastewater treatment					
Energy efficiency					
N ₂ O					
HFCs					
Flare reduction					
PFCs					
Charcoal					
CO ₂ recovery					
Transport					
Non-renewable biomass					
Biofuel					
Pipeline leakage reduction					
SF ₆					

Høvik, 9 January 2009

Michael Lehmann

Michael Lehmann

Technical Director, Climate Change Services

CERTIFICATE OF COMPETENCE

Xue, Yan Ju (Andi)

Qualification in accordance with DNV's Qualification Scheme CDM/JI (ICP-8-1-CDMJ1-i1)

GHG Auditor:	Yes				
Technical Area	CDM Validator	CDM Verifier	Sector Expert	Methodology Expert	Technical Reviewer
Landfill gas					
Hydro power					
Renewables Wind power					
Other renewable					
Biomass					
Grid connection of isolated system					
Cement					
Waste-heat / waste-gas recovery					
Efficiency of thermal power plants					
Coal mine methane					
Fuel switch					
Manure management					
Waste / wastewater treatment					
Energy efficiency					
N ₂ O					
HFCs					
Flare reduction					
PFCs					
Charcoal					
CO ₂ recovery					
Transport					
Non-renewable biomass					
Biofuel					
Pipeline leakage reduction					
SF ₆					

Høvik, 29 August 2009

Michael Lehmann

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